

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Sushant Babarao WATH et al.

International Application No.:
PCT/IN2014/000329

Filing Date: May 5, 2014

Examiner: Not Yet Assigned

Group Art Unit: Not Yet Assigned

Confirmation No.: Not Yet Assigned

For: **A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS
MECHANISM THEREOF**

PRELIMINARY AMENDMENT

MS PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Prior to examination and the calculation of the filing fee for this national stage application,
please amend this application as follows:

Amendments to the specification begin on page 2.

The listing of claims begins on page 3.

Remarks begin on page 6.

AMENDMENTS

In the Specification:

Page 1, after the Title, before Field of the Invention, insert the following:

REFERENCE TO RELATED APPLICATIONS

This application is a National Stage of International Application No. PCT/IN2014/000329, filed on May 15, 2015, the disclosure of which is incorporated by reference in its entirety.

In the Claims:

This listing of claims replaces all prior versions, and listings of claims in the application:

1. (Currently Amended) A system for facilitating an automatic urinal toilet flushing comprising:

[[•]] a pipe (P) having an intermediate enlarged inner diameter area, said pipe comprising:

[[○]] a first portion P₁ having a first diameter d₁;

[[○]] a second portion P₂ having a second diameter d₂;

[[○]] a third portion P₃ having a third diameter d₃; wherein the first, the second and the third portions are sequential and the diameter d₂ is greater than diameter d₁ and diameter d₃;

[[○]] a tapered fourth portion P₄ connecting the first portion P₁ to the second portion P₂; and

[[○]] a tapered fifth portion P₅ connecting the second portion P₂ to the third portion P₃;

[[•]] a valve mechanism located within the pipe (P), the said valve mechanism comprising an inlet dual valve (1), an outlet dual valve (2) and a connecting rod connecting the inlet dual valve (1) and outlet dual valve (2); and

[[•]] an actuating mechanism that gets automatically actuated and upon actuation, operates the valve mechanism to perform a flushing operation.

2. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the actuating mechanism operates the inlet and outlet dual valves such that when the inlet dual valve is in a closed position, the outlet dual valve is maintained in an open position and vice-versa.

3. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the inlet dual valve comprises a first and a second portion, with the second portion comprising a tapered diameter.

4. (Currently Amended) The system for facilitating automatic urinal toilet flushing as claimed in claim any of claims 2 or 3, wherein in the closed position the first and second portion of the inlet dual valve co-operates with the first and the fourth portions P₁ and P₄ of the pipe, respectively.

5. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the outlet dual valve comprises a first and a second portion, with the second portion comprising a tapered diameter.

6. (Currently Amended) The system for facilitating automatic urinal toilet flushing as claimed in claim any of claims 2 or 5, wherein in the closed position the first and second portion of the outlet dual valve co-operates with the third and the fifth portions P₃ and P₅ of the pipe, respectively.

7. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the actuating mechanism comprises:
a mechanical platform (10) which compresses under the weight of person; and
a connecting cable (8) adapted to connect both the dual-valve with a mechanical platform (10).

8. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 7, wherein mechanical platform is mounted upon a base in a movable manner, and separated from and base by a set of resilient means, such that upon actuation the mechanical platform moves closer to the base.

9. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 8, wherein the base is provided with a set of motion limiting structures so as to maintain a minimum distance between the base and the mechanical platform.

10. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 1, further comprising a resilient means (7) adapted to retain in its normal position the inlet dual-valve in the closed position and the outlet dual-valve in the open position.

11. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the third portion P_3 of the pipe is adopted to hold a predetermined quantity of water therein for flushing purposes.

12. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 3, wherein the inlet dual valve comprises a resilient sealing means disposed between the first and a second portion.

13. (Original) The system for facilitating automatic urinal toilet flushing as claimed in claim 5, wherein the outlet dual valve comprises a resilient sealing means disposed between the first and a second portion.

REMARKS

Applicant has amended the specification and claims in this international application as set forth above to put them into a form more customary for U.S. practice and to eliminate improper multiple dependency. No new matter has been introduced into this application.

Accordingly, early action allowing claims 1-13 in this application is solicited.

In the event that the Patent and Trademark Office determines that an extension and/or other relief (such as payment of a fee under 37 C.F.R. § 1.17 (p)) is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petition and/or other fees due in connection with the filing of this document to **Deposit Account No. 50-2036**, referencing Docket No. 99865.21500.

Dated: November 10, 2015

Respectfully submitted,

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Electronic Patent Application Fee Transmittal

Application Number:				
Filing Date:				
Title of Invention:	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF			
First Named Inventor/Applicant Name:	SUSHANT BABARAO WATH			
Filer:	Tayan Bipinchandra Patel/MeLissa White			
Attorney Docket Number:	99865.21500			
Filed as Large Entity				
Filing Fees for U.S. National Stage under 35 USC 371				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
National Stage Fee	1631	1	280	280
Natl Stage Search Fee - Report provided	1642	1	480	480
National Stage Exam - all other cases	1633	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Oath/Decl > 30 Mos From 371 commencement	1617	1	140	140
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1620

Electronic Acknowledgement Receipt

EFS ID:	24009014
Application Number:	14890273
International Application Number:	PCT/IN2014/000329
Confirmation Number:	5066
Title of Invention:	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF
First Named Inventor/Applicant Name:	SUSHANT BABARAO WATH
Customer Number:	30734
Filer:	Tayan Bipinchandra Patel/MeLissa White
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RAM confirmation Number	1101
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Authorized User	PATEL, TAYAN

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		99865-21500_Specification.PDF	310224 705345b51935d55edcfa73b4846bc722cbf2378b	yes	14

Multipart Description/PDF files in .zip description					
Document Description		Start	End		
Specification		1	11		
Claims		12	13		
Abstract		14	14		

Warnings:

Information:

2	Drawings-only black and white line drawings	99865-21500_Drawings.PDF	101032 b307a2b577bcfbbae38e463fff2f532f0527826e	no	3
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Warnings:

Information:

3	Application Data Sheet	99865-21500_ADS.PDF	1561518 8ccc39ebc53080e4694a8dfec43208d0e9206212	no	7
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Warnings:

Information:

4	Information Disclosure Statement (IDS) Form (SB08)	99865-21500_IDS.PDF	612275 0ad7c65eb68f8eadc4dbe6336ff01f0c7871960c	no	4
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Warnings:

Information:

5	Foreign Reference	CH260514A.PDF	222448 7ba849a7632b7179fb75fd46afb94e80c7cb66a	no	4
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Warnings:

Information:

6	Foreign Reference	DE462417C.PDF	282568 0c9ff4cfd0772ac83ec5fb20eb8e2bafdcf3d69	no	6
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Warnings:					
Information:					
7	Power of Attorney	99865-21500_PoA.PDF	986118 84a4cc8c248c9ce73e2ec474027f33d0eb8d60d5	no	2
Warnings:					
Information:					
8	Preliminary Amendment	99865-21500_Preliminary_Amendment.PDF	117690 c38d869bff2caba7f5eeaa1531c2c1f3f8967623	no	6
Warnings:					
Information:					
9	Fee Worksheet (SB06)	fee-info.pdf	37094 5704dcbf490e0795bc6086c6feb453ce8f4827a7	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			4230967		

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS
MECHANISM THEREOF**

FIELD OF THE INVENTION

The present invention relates to a mechanical automatic urinal-toilet flusher and its mechanism thereof.

Particularly, this invention relates to a mechanical automatic urinal-toilet flusher and its mechanism thereof for enabling a user to automatically flush urinal – toilet regularly and unintentionally with a measured or specified quantity of water to improve reliability and maintainability, and to reduce offensive odours in the urinal-toilets.

More particularly, this invention relates to use of the weight load/pressure of the person using the Urinal-toilet for automatic operating of the flush without having any direct hand contact.

BACKGROUND OF INVENTION AND PRIOR ART DETAILS

A series of urinal-toilets are fitted in offices, malls, multiplexes, institutions, schools, colleges, bus stands, railway stations, air ports, commercial complexes, stadia and other public places for public use. Most of the urinals-toilets have manual flushing systems like push button, trigger, pull chain, etc. Now a day's laser or infrared sensor operated flushes is also used in the places of high commercial value and importance like shopping malls, airports, multiplexes, etc.

In general public places sometimes do stink and un-clean urinals-toilets are the common observations which make the user of these urinals-toilets to avoid its uses, or to use it reluctantly in case of urgency. The reasons of not flushing the urinals-toilets and its limitations may be many, for example:

1. Un-availability of water.
2. Non-operational flush/ system.
3. Manually operated and Tap fitted urinal-toilet may lead to wastage of water, as person using doesn't bother to make extra effort to close the tap/ knob fitted in the wall. Faulty tap may leads to continuous wastage of water.

4. Ignorance and lethargy for flushing urinal-toilets on the user parts, even in case of pushbutton or trigger type flushes.
5. High-tech flushing system using infrared/ laser sensing devices is expensive and require regular maintenance and operational expenses, which cannot be affordable in all cases. And may be stolen or damaged in various cases of public toilets where no supervision is available.
6. It is a known fact that the public urinal-toilets are unhygienic and replete with germs, and so are flush handles, which gets transferred to the person who touches the flush handle. In addition many people who use a public urinals-toilets flush do not wash their hands prior to leaving, which results in spreading the germs to doorknobs and other objects, such as the paper dispensers, soap dispensers, etc. Therefore it is desirable and expected by the user of urinal-toilets to automatic- regular- compulsory and un-intentionally flushing without his/her any direct hand contact.

Public awareness of personal hygiene and water conservation issues over the last several years has caused manufacturers of sanitary facility and hygiene devices to develop automatic actuators for sanitary facilities such as toilets and urinals. One purpose of such devices is to automatically control the amount of flush water used to eliminate waste and in the process eliminate human contact with the surfaces that may contain disease spreading bacteria.

Most of the present day toilets and urinal flush devices for sanitary facilities are operated by a water control valve which includes a manually operable flush handle adapted to be gripped and moved by a user. However, those manually operated valve actuation devices have many problems for e.g. use of such manually operated flush can lead to diseases thus users avoid to touch / use the flush button. Therefore, the sanitary facility may remain un-flushed which increases the unsanitary conditions, and fouling the atmosphere in the facility. Also, a large volume of water is wasted every time a user flushes a standard toilet.

Hence, there is a need for an automatic flushing apparatus which can flush the right amount of water and avoid any need of human contact with the surface of urinal-toilet thus achieving the advantage of conserving water as well as maintaining personal hygiene. At the same time is low cost and affordable to all in terms of its maintenance and operation.

A flush urinal-toilet is a urinal-toilet that disposes of human waste by using water to flush it through a drainpipe to another location.

The bibliographic data of each of the relevant documents has been presented below with appropriate comments indicating the similarity of the cited prior art with the present invention. The closest prior art to the present invention is given below:

Reference may be made to Patent DE462517, 1928 entitled “Abtrittspülvorrichtung with flushing valve and flushing water from flowing through the piston cylinder, through which, under the pressure of the flushing water by means of a knit of the seat is folded up aengeuebertragung” wherein Abtrittspülvorrichtung with purge valve and one of the flushing water flowing through piston cylinder, through which, under the pressure of the rinse water, by means of a linkage of the seat transfer is folded is described. The invention relates to an Abtrittspülvor device with flush valve and one of the flushing water flowing through the piston cylinder, by which under the pressure of rinse water by means of a folded linkage the seat. This patent discloses an automatic flusher with piston-cylinder arrangement connected to the toilet seat via spring. The cylinder has an inlet and drain port, the piston moved down in the cylinder from the top inlet port which opens to below the drain opening port in cylinder for automatic flushing of water in toilet bowl. The patent doesn't disclose the dual-valve pipe mechanism for automatic flushing of water.

Reference may be made to US Patent US4007499A, 1977 wherein a “Commode flushing control apparatus” is described. Control apparatus used in connection with commodes automatically moves a trip lever for flushing the commode and includes a member adapted to be connected to the trip lever for moving between an initial position and a flushing position to cause the trip lever to raise a drain valve to its open position. A spring moves the member to its flushing position, and a person-operated device causes energy to be stored in the spring and releases subsequently the energy from the spring to move the member toward its flushing position. A latching device connected to the member connects releasable the member and the trip member for moving it and the valve against the force of water pressure acting on the valve until the water pressure equals the force applied by the spring after sufficient water discharge. As a result, the spring commences again to move the member after the sufficient water discharge has taken place to release the latching device so that the member becomes free of the trip lever and the flushing mechanism can complete its normal flushing operation. This patent discloses a body weight operated flushing mechanism. In this mechanism, when a person sits on the toilet seat or stands on a platform located near the toilet a rod gets rotated

to move a lever which lifts the floating drain valve to flush water from the water tank. The cited invention does not disclose the dual-valve pipe activation mechanism.

The cited documents (US4007499A and DE462517A) disclose automatic float valve type toilet flusher but none of them reveal the mechanism used for controlling the flow and drainage of water by using dual-valve pipe mechanism as disclosed in present invention. Also, no prior art document has been retrieved which mentioned the use of a device or an attachment which can be connected in line with the pipe through which water flows into the toilet or urinal.

However, there are many automatic flusher in prior art relates to use of the weight load/pressure of the person using the Urinal-toilet for automatic operating of the flush without having any direct hand contact but the present invention discloses an automatic flusher with dual-valve pipe mechanism actuated by a mechanical platform. The pipe consists of bulged portion acting as a temporary water reservoir with the cross section of inlet and outlet of the pipe in conformance with the shape mutually connected inlet and outlet Dual-valves. These Valves move simultaneously to control the flow of water in to or out of the temporary water reservoir in response to the use of platform for automatic flushing of water in urinal.

A novel design and construction is proposed to develop a dual-valve fitted flush system with a mechanical platform, which can be fitted-retrofitted to any water pipe used for flushing the urinal-toilet, by automatically depositing a specified or measured quantity/ volume of water in to the flush system for flushing the urinal-toilets after uses.

OBJECTS OF THE INVENTION

The main object of the present invention is to provide a Mechanical Automatic Urinal-Toilet Flusher with dual- valve pipe and its Mechanism thereof which obviates the draw backs of the hitherto known prior art as detailed above.

Another object of the present invention is to design and develop a spring loaded dual-valve fitted flush system connected with a mechanical platform fitted with compression springs, which can be fitted or retrofitted to pipe use for flushing the urinal.

Yet another object of the present invention is to provide a means for enabling a user to automatically flush urinal – toilet compulsorily, regularly and un-intentionally with a measured or specified quantity of water to improve reliability and maintainability, and to reduce offensive odours in the urinal-toilets.

Still another object of the present invention is to use the weight load/pressure of the person using the Urinal-toilet for automatic operating of the flush without having any direct hand contact.

Yet another object of the present invention is to provide an Automatic Urinal-Toilet flusher which can be readily installed and efficient to use and low cost.

SUMMARY OF THE INVENTION

Accordingly, the present invention provides a system for facilitating an automatic urinal toilet flushing comprising pipe (P) having an intermediate enlarged inner diameter area, said pipe comprising a first portion P_1 having a first diameter d_1 , a second portion P_2 having a second diameter d_2 ; a third portion P_3 having a third diameter d_3 ; wherein the first, the second and the third portions are sequential and the diameter d_2 is greater than diameter d_1 and diameter d_3 , a tapered fourth portion P_4 connecting the first portion P_1 to the second portion P_2 ; and a tapered fifth portion P_5 connecting the second portion P_2 to the third portion P_3 ; a valve mechanism located within the pipe (P), the said valve mechanism comprising an inlet dual valve (1), an outlet dual valve (2) and a connecting rod connecting the inlet dual valve (1) and outlet dual valve (2); and an actuating mechanism that gets automatically actuated and upon actuation, operates the valve mechanism to perform a flushing operation.

In an embodiment of the invention, the actuating mechanism operates the inlet and outlet dual valves such that when the inlet dual valve is in a closed position, the outlet dual valve is maintained in an open position and vice-versa.

Alternatively, a second embodiment of the invention the inlet dual valve comprises a first and a second portion, with the second portion comprising a tapered diameter.

Alternatively, a third embodiment of the invention the closed position the first and second portion of the inlet dual valve co-operates with the first and the fourth portions P_1 and P_4 of the pipe, respectively.

Alternatively, a fourth embodiment of the invention the outlet dual valve comprises a first and a second portion, with the second portion comprising a tapered diameter.

Alternatively, a fifth embodiment of the invention the closed position the first and second portion of the outlet dual valve co-operates with the third and the fifth portions P_3 and P_5 of the pipe, respectively.

Alternatively, a sixth embodiment of the invention, the actuating mechanism comprises a mechanical platform (10) which compresses under the weight of person; and a connecting cable (8) adapted to connect both the dual-valve with a mechanical platform (10).

Alternatively, a seventh embodiment of the invention the mechanical platform is mounted upon a base in a movable manner, and separated from and base by a set of resilient means, such that upon actuation the mechanical platform moves closer to the base.

Alternatively, an eighth embodiment of the invention the base is provided with a set of motion limiting structures so as to maintain a minimum distance between the base and the mechanical platform.

Alternatively, a ninth embodiment of the invention a resilient means (7) adapted to retain in its normal position the inlet dual-valve in the closed position and the outlet dual-valve in the open position.

Alternatively, a tenth embodiment of the invention, the third portion P_3 of the pipe is adopted to hold a predetermined quantity of water therein for flushing purposes.

Alternatively, a eleventh embodiment of the invention, the inlet dual valve comprises a resilient sealing means disposed between the first and a second portion.

Alternatively, a twelfth embodiment of the invention, the outlet dual valve comprises a resilient sealing means disposed between the first and a second portion.

BRIEF DESCRIPTION OF THE DRAWING

Figure 1 shows the sectional view of the Dual-Valve

Figure 2 show the cross sectional view of the Temporary Water Reservoir.

Figure 3 shows the sectional view of the present invention, the Mechanical Automatic Urinal-Toilet Flusher connected to the mechanical platform fitted with compression springs.

DETAILED DESCRIPTION OF THE INVENTION

The core of system comprises of a specially designed dual-valve pipe mechanism actuated by a mechanical platform supported by a platform spring. The pipe comprises of a bulging structure which acts as a temporary water reservoir. The bulge consists of an inlet and an outlet valve. The mechanical platform is connected to the valve assembly via a cable and a tension spring mechanism.

The invention, both as its organization and method of operation, thereof will best be understood by reference to the following detailed description taken in connection with the accompanying sheet of drawings, wherein:

Reference is now made to the **Figure 1**, comprises a specially designed and developed Dual-Valve **1** and **2** made up of varying materials like Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Rubber or any other material, preferably water resistant and durable material of varying sizes and shapes like round, rectangular, square, oval, conical, cylindrical, etc. The Dual-Valve **1** and **2** are connected together with a Connecting Rod **3** made up of varying materials like Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Rubber or any other material, preferably water resistant durable material of varying sizes and shapes like round, rectangular, square, conical, cylindrical, etc. A 'O' ring or 'Gasket' **4** is fitted on the Dual-Valve surface, which will restrict the water leakage in the urinal-toilet.

Reference is now made to the **Figure 2**. It defines a pipe (P) having an intermediate enlarged inner diameter area, pipe comprising a first portion P_1 having a first diameter d_1 , a second portion P_2 having a second diameter d_2 ; a third portion P_3 having a third diameter d_3 ; where the first, the second and the third portions are sequential and the diameter d_2 is greater than diameter d_1 and diameter d_3 , a tapered fourth portion P_4 connecting the first portion P_1 to the second portion P_2 ; and a tapered fifth portion P_5 connecting the second portion P_2 to the third portion P_3 . A Temporary Water Reservoir **5** which is made up of varying materials like Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Ceramic, or any other material, preferably water resistant durable material of varying sizes and shapes such as round, rectangular, square, oval, conical, etc. preferably of cylindrical shape. The Concentric Reducers or tapers **6** are fitted at both ends to the Temporary Water Reservoir **5** which is connected in-line with the water pipe through which water flows into the Urinal-toilet.

Reference is now made to the **Figure 3**, it defines a valve mechanism located within the pipe (P), the said valve mechanism comprising an inlet dual valve (1), an outlet dual valve (2) and a connecting rod connecting the inlet dual valve (1) and outlet dual valve (2); and an actuating mechanism that gets automatically actuated and upon actuation, operates the valve mechanism to perform a flushing operation. It shows the complete assembly of the present invention which comprises of a specially designed and developed Dual-Valve **1** and **2** made up of varying materials like Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Rubber or any other material, preferably water resistant durable material of varying sizes and shapes like round, rectangular, square, oval, conical, cylindrical, etc. The Dual-Valve **1** and **2** are connected together with a Connecting Rod **3** made up of varying materials like Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Rubber or any other material, preferably water resistant durable material of varying sizes and shapes like round, rectangular, square, conical, cylindrical, etc. The 'O' ring or Gasket **4** is fitted at the interface of the Dual-Valves and the Concentric Reducers **6** which will restrict the water leakage between the interface of Dual-Valves **1** and **2** and the Concentric Reducers **6**. The Concentric Reducers **6** are fitted at both ends to the Temporary Water Reservoir **5** which is made up of varying materials like Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Rubber or any other material, preferably water resistant durable material of varying sizes and shapes like round, rectangular, square, oval, conical, etc. preferably cylindrical shape. The Dual-Valve **2** is fitted with the Tension spring/resilient means **7** of varying size depending on the requirements, which enables the

Dual-Valve **1** in normally closed position, while Dual-Valve **2** in normally open position. The Dual-Valve **1** and **2** is connected by Cable **8** to the Platform **10** made up of Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Rubber or any other material, preferably water resistant durable material of varying sizes and shapes like round, rectangular, oval, square, etc., fitted with a Compression Springs **9** of varying sizes depending on the requirement. The Platform **10** is also fitted with a Platform Movement Restrictor **11** made up of varying materials like Aluminium, Wood, Fibre, Polymer, Plastic, Iron, Rubber or any other material, preferably water resistant durable material of varying sizes and shapes like round, rectangular, square, oval, conical, cylindrical, etc. which restricts the compression movement of the platform to the pre-set/ pre-decided value in order to avoid any damage to the Dual-Valve assembly due to extensive compression or movement of the platform and or Dual- Valve.

FUNCTIONING

The present invention describes a device or an attachment which can be fitted to pipe for automatic flushing of the urinal-toilet. According to the disclosure and **figure 1, 2, 3** provided, it can be described as an automatic toilet flushing device with a spring actuated platform by virtue of the weight load/pressure of the user and ensuring a regular, compulsory and un-intentional flushing of the Urinal –Toilet. In the normal condition the inlet Dual-valve **1** is in the closed position and the outlet Dual-Valve **2** is in the open position. The motion of both the valves is in synchronization with each other, i.e. when one valve closes the other opens and vice-versa.

The Mechanical Platform **10** compresses under the weight of a person when a person stands on it. This movement of the platform activates the spring mechanism. The compression spring **9** gets compressed up to the pre-decided/ pre-set movement, as restricted by the Movement Restrictor **11**. The downward motion of the platform **10** pulls the Cable **8** creating a tension in the Tension Spring **7** and thereby displacing the Dual-valves **1** and **2** from their normal positions. The downward motion causes the inlet Dual-Valve **1** to open and outlet Dual-Valve **2** to close simultaneously. When the inlet Dual-valve **1** opens, the water fills in the Temporary Reservoir **5** from the water pipe. After the person leaves the Platform **10**, the Compression Springs **9** decompresses and the platform **10** rises back to its normal state. During the upward rise of the platform **10** the tension in the Tension Spring **7** releases due to

which the inlet Dual-Valve **1** closes and outlet Dual-Valve **2** opens i.e. the valves regain their normal position. This opening of outlet Dual-Valve **2** flushes the water to the urinal-toilet.

The present invention discloses an automatic flusher with dual-valve pipe mechanism actuated by a mechanical platform which utilizes the weight or pressure of the person using the urinal-toilet for automatic flushing the urinal or toilet with the specified or measured quantity of water. The pipe consists of bulged portion acting as a temporary water reservoir with the cross section of inlet and outlet of the pipe in conformance with the shape mutually connected inlet and outlet specially designed float-valve fitted flushers system normally closed for automatically holding and releasing the specific or measured quantity of water in to the urinal after use. These floats move simultaneously to control the flow of water in to or out of the temporary water reservoir in response to the use of spring fitted platform for automatic flushing of water in urinal.

The search and analysis study revealed that both of the closest cited documents (US4007499A and DE462517A) disclose automatic float valve type toilet flusher but none of them reveal the technology used for controlling the flow and drainage of water by using dual-valve pipe mechanism as disclosed in present invention. Also, no prior art document has been retrieved which mentioned the use of a device or an attachment which can be connected in line with the pipe through which water flows into the urinal- toilet.

The flush is operated by the spring fitted mechanical platform without the use of any laser or infrared sensor or any other electrical or electronic device. The construction is simple, low cost and easy.

ADVANTAGES:

The main advantages of the invention are:

- No need for manual knob/trigger pushing or electronic/electrical operation.
- Low cost and cheaper.
- Simple and easy to construct and can also be retrofitted to existing urinals- toilets with some modification.
- Easy and Low Maintenance.
- Maintenance cost is negligible.
- Operation is automatic and without any intention/efforts.

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- No wastage of water.
- Leads to regular and compulsory flushing and cleaning of toilets/urinals.
- Assured regular flushing.

We Claim:

1. A system for facilitating an automatic urinal toilet flushing comprising:
 - a pipe (P) having an intermediate enlarged inner diameter area, said pipe comprising:
 - a first portion P_1 having a first diameter d_1 ;
 - a second portion P_2 having a second diameter d_2 ;
 - a third portion P_3 having a third diameter d_3 ; wherein the first, the second and the third portions are sequential and the diameter d_2 is greater than diameter d_1 and diameter d_3 ;
 - a tapered fourth portion P_4 connecting the first portion P_1 to the second portion P_2 ; and
 - a tapered fifth portion P_5 connecting the second portion P_2 to the third portion P_3 ;
 - a valve mechanism located within the pipe (P), the said valve mechanism comprising an inlet dual valve (1), an outlet dual valve (2) and a connecting rod connecting the inlet dual valve (1) and outlet dual valve (2); and
 - an actuating mechanism that gets automatically actuated and upon actuation, operates the valve mechanism to perform a flushing operation.
2. The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the actuating mechanism operates the inlet and outlet dual valves such that when the inlet dual valve is in a closed position, the outlet dual valve is maintained in an open position and vice-versa.
3. The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the inlet dual valve comprises a first and a second portion, with the second portion comprising a tapered diameter.
4. The system for facilitating automatic urinal toilet flushing as claimed in any of claims 2 or 3, wherein in the closed position the first and second portion of the inlet dual valve co-operates with the first and the fourth portions P_1 and P_4 of the pipe, respectively.
5. The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the outlet dual valve comprises a first and a second portion, with the second portion comprising a tapered diameter.

6. The system for facilitating automatic urinal toilet flushing as claimed in any of claims 2 or 5, wherein in the closed position the first and second portion of the outlet dual valve co-operates with the third and the fifth portions P_3 and P_5 of the pipe, respectively.
7. The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the actuating mechanism comprises:
a mechanical platform (10) which compresses under the weight of person; and
a connecting cable (8) adapted to connect both the dual-valve with a mechanical platform (10).
8. The system for facilitating automatic urinal toilet flushing as claimed in claim 7, wherein mechanical platform is mounted upon a base in a movable manner, and separated from and base by a set of resilient means, such that upon actuation the mechanical platform moves closer to the base.
9. The system for facilitating automatic urinal toilet flushing as claimed in claim 8, wherein the base is provided with a set of motion limiting structures so as to maintain a minimum distance between the base and the mechanical platform.
10. The system for facilitating automatic urinal toilet flushing as claimed in claim 1, further comprising a resilient means (7) adapted to retain in its normal position the inlet dual-valve in the closed position and the outlet dual-valve in the open position.
11. The system for facilitating automatic urinal toilet flushing as claimed in claim 1, wherein the third portion P_3 of the pipe is adopted to hold a predetermined quantity of water therein for flushing purposes.
12. The system for facilitating automatic urinal toilet flushing as claimed in claim 3, wherein the inlet dual valve comprises a resilient sealing means disposed between the first and a second portion.
13. The system for facilitating automatic urinal toilet flushing as claimed in claim 5, wherein the outlet dual valve comprises a resilient sealing means disposed between the first and a second portion.

**A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS
MECHANISM THEREOF**

Abstract of the Invention

This invention relates to a system for facilitating an automatic urinal toilet flushing comprising: a pipe (P) having an intermediate enlarged inner diameter area, said pipe comprising: first portion P_1 having a first diameter d_1 ; second portion P_2 having a second diameter d_2 ; a third portion P_3 having a third diameter d_3 ; wherein the first, the second and the third portions are sequential and the diameter d_2 is greater than diameter d_1 and diameter d_3 ; a tapered fourth portion P_4 connecting the first portion P_1 to the second portion P_2 ; and a tapered fifth portion P_5 connecting the second portion P_2 to the third portion P_3 ; a valve mechanism located within the pipe (P), the said valve mechanism comprising an inlet dual valve (1), an outlet dual valve (2) and a connecting rod connecting the inlet dual valve (1) and outlet dual valve (2); and an actuating mechanism that gets automatically actuated and upon actuation, operates the valve mechanism to perform a flushing operation.

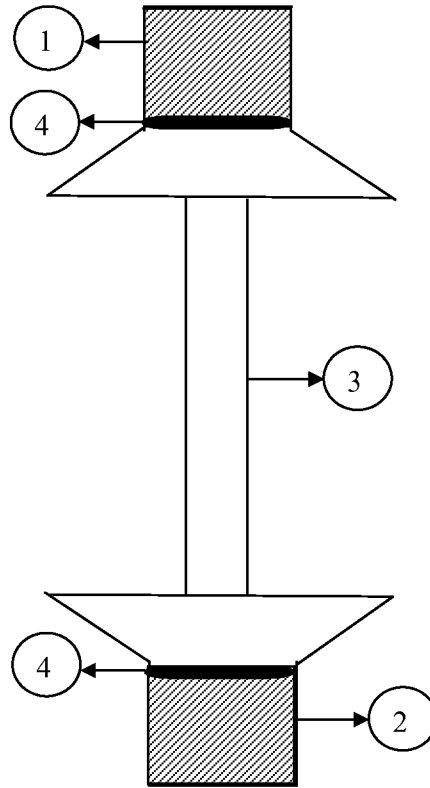


Figure 1

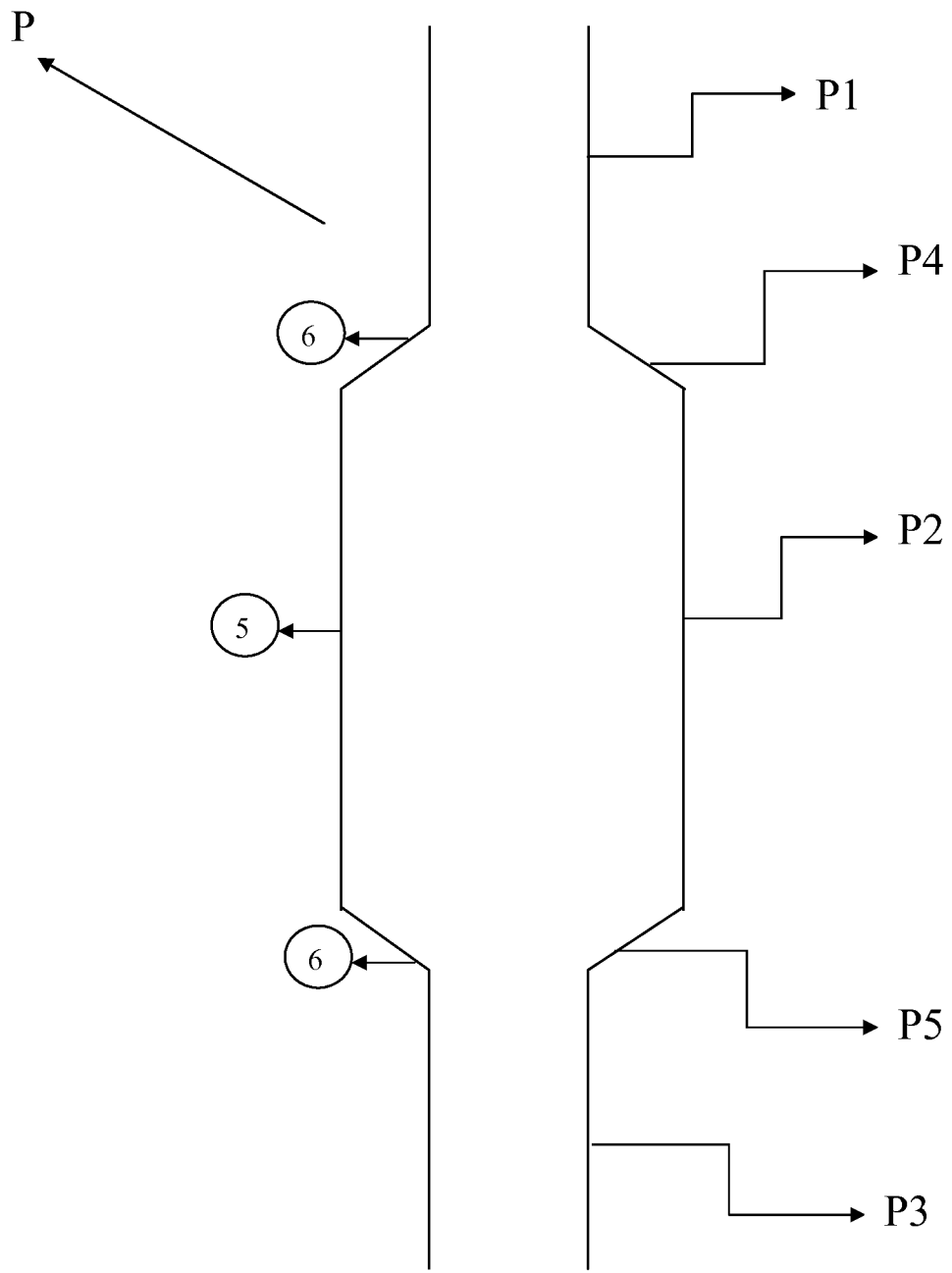


Figure 2

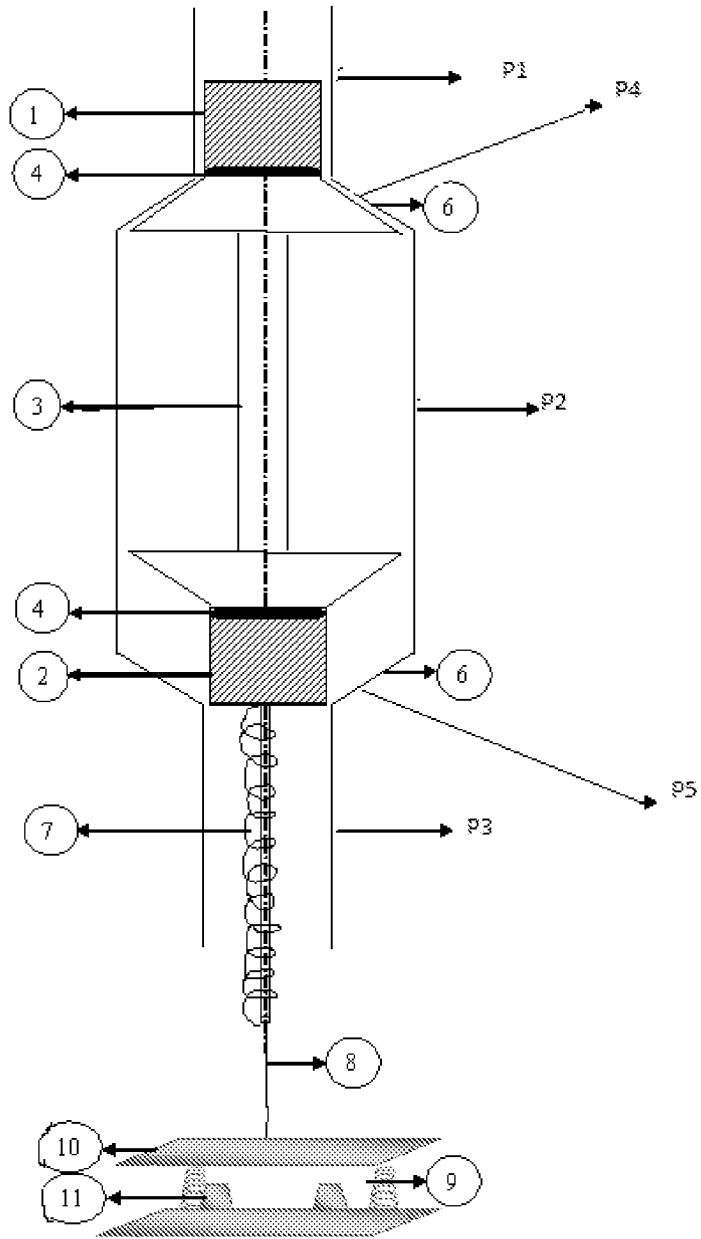


Figure 3

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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	99865.21500
		Application Number	
Title of Invention	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF		
<p>The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.</p>			

Secrecy Order 37 CFR 5.2

<input type="checkbox"/>	Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)
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Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	SUSHANT	BABARAO	WATH		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
City	NAGPUR	Country of Residence i	IN		
Mailing Address of Inventor:					
Address 1	NATL ENVIRONMENTAL ENGINEERING AND RESEARCH INST				
Address 2	NEHRU MARG				
City	NAGPUR	State/Province			
Postal Code		Country i	IN		
Inventor 2					<input type="button" value="Remove"/>
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	PALLAMPATI	SUBRAHMANYA	DUTT		
Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service					
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Application Data Sheet 37 CFR 1.76		Attorney Docket Number	99865.21500
		Application Number	
Title of Invention	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF		

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Residence Information (Select One) <input type="radio"/> US Residency <input checked="" type="radio"/> Non US Residency <input type="radio"/> Active US Military Service				
City	NAGPUR	Country of Residence i	IN	

Mailing Address of Inventor:

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Address 2	NEHRU MARG		
City	NAGPUR	State/Province	
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Title of the Invention	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF		
Attorney Docket Number	99865.21500	Small Entity Status Claimed	<input type="checkbox"/>
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	

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For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country i

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	99865.21500
	Application Number	
Title of Invention	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF	

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<input type="checkbox"/>	Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

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When referring to the current application, please leave the application number blank.

Prior Application Status	Pending	Remove	
Application Number	Continuity Type	Prior Application Number	Filing Date (YYYY-MM-DD)
	a 371 of international	PCT/IN2014/000329	2014-05-15
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Application Data Sheet 37 CFR 1.76	Attorney Docket Number	99865.21500
	Application Number	
Title of Invention	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF	

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Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.

NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Authorization to Permit Access:

Authorization to Permit Access to the Instant Application by the Participating Offices

If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the instant patent application is filed access to the instant patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, WIPO, or other intellectual property office in which a foreign application claiming priority to the instant patent application is filed to have access to the instant patent application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the instant patent application with respect to: 1) the instant patent application-as-filed; 2) any foreign application to which the instant patent application claims priority under 35 U.S.C. 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the instant patent application; and 3) any U.S. application-as-filed from which benefit is sought in the instant patent application.

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Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76	Attorney Docket Number	99865.21500
	Application Number	
Title of Invention	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF	

Applicant 1		<input type="button" value="Remove"/>	
<p>If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.</p>			
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<input type="radio"/> Assignee	<input type="radio"/> Legal Representative under 35 U.S.C. 117	<input type="radio"/> Joint Inventor	
<input checked="" type="radio"/> Person to whom the inventor is obligated to assign.	<input type="radio"/> Person who shows sufficient proprietary interest		
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If the Applicant is an Organization check here. <input checked="" type="checkbox"/>			
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Address 2	RAFI MARG		
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Country ⁱ	IN	Postal Code	110 001
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Signature	/Tayan B. Patel/			Date (YYYY-MM-DD)	2015-11-10
First Name	Tayan B.	Last Name	Patel	Registration Number	58402
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	Filing Date		2015-11-06	
	First Named Inventor	SUSHANT BABARAO WATH		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		99865.21500	

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	Filing Date		2015-11-06	
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	Art Unit			
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	Attorney Docket Number		99865.21500	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number			
	Filing Date		2015-11-06	
	First Named Inventor	SUSHANT BABARAO WATH		
	Art Unit			
	Examiner Name			
	Attorney Docket Number		99865.21500	

CERTIFICATION STATEMENT

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See attached certification statement.

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SIGNATURE

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Signature	/TAYAN B. PATEL/	Date (YYYY-MM-DD)	2015-11-10
Name/Print	TAYAN B. PATEL	Registration Number	58402

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Gesuch eingereicht: 8. Juli 1946, 11 Uhr. — Patent eingetragen: 31. März 1949.

HAUPTPATENT

Jean Hertach, Zürich (Schweiz).

Selbsttätige Spüleinrichtung für Bedürfnisanstalten.

Gegenstand vorliegender Erfindung ist eine selbsttätige Spüleinrichtung für Bedürfnisanstalten jeder Art, privater oder öffentlicher Natur.

Die bis heute gebräuchlichen Spüleinrichtungen für solche Anlagen weisen folgende Nachteile auf:

Spülvorrichtungen mit Handbetätigungen sind unhygienisch, insbesondere an viel benutzten und öffentlichen Bedürfnisanstalten, und werden aus diesem Grunde vielfach nicht betätigt. Spülvorrichtungen mit Fußbetätigung werden erfahrungsgemäß meistens übersehen und auch nicht betätigt. Spülvorrichtungen mit automatisch periodisch einsetzender Spülung haben den Nachteil, daß nur zufälligerweise sofort nach Benützung der Bedürfnisanstalt gespült wird. Außerdem weisen sie einen unnötigen großen Wasserverbrauch auf. Spüleinrichtungen genannter Bauart benötigen zudem in den meisten Fällen ein Wasserreservoir mit Schwimmer.

Vorliegende Erfindung weist alle diese Nachteile nicht auf, indem eine selbsttätige Spülung nach Verlassen der Bedürfnisstelle stattfindet, wobei das Spülwasser direkt der Wasserleitung entnommen wird.

Beiliegende Zeichnung zeigt ein Ausführungsbeispiel des Erfindungsgegenstandes, beispielsweise für ein Pissoir eingebaut.

Es zeigen:

Fig. 1 die Spüleinrichtung in der Lage bei unbenützter Bedürfnisanstalt,

Fig. 2 die Spüleinrichtung in der Lage bei benützter Bedürfnisanstalt,

Fig. 3 einen Vertikalschnitt durch einen Teil der Spüleinrichtung in größerem Maßstab,

Fig. 4 einen Schnitt nach der Linie I—I in Fig. 3 und

Fig. 5 eine Seitenansicht und eine Draufsicht eines Kupplungsorganes der Spüleinrichtung.

In Fig. 1 und 2 ist mit 1 die Pissoirschüssel bezeichnet. Die Leitung 2 führt der Steuereinrichtung, welche im Gehäuse 3 untergebracht ist, das Spülwasser zu, das von dieser Einrichtung aus in die Leitung 4 und von dieser in die Pissoirschüssel 1 gelangt. Die gebogene Stange 7 ist an ihrem einen Ende gelenkig mit dem durch eine Feder 6 hochgehaltenen Fußbrett 5 verbunden. Sie weist an ihrem andern Ende ein zangenförmiges Kupplungsorgan 8 auf. Im Gehäuse 3 der Steuereinrichtung ist an der Spülwasser-Eintrittsöffnung ein Ventil 12 angeordnet, in welchem der Ventilteller 11 sitzt. Der mit dem Ventilteller 11 fest verbundene Ventilschaft 9 ragt nach unten aus dem Gehäuse 3 heraus und wird bei niedergedrücktem Fußbrett außerhalb des Gehäuses an seinem Ende vom zangenartigen Kupplungsorgan 8, das sich hierbei am Konus 10 des Ventilschaftes 9 abstützt, umfaßt (Fig. 4). Das Gehäuse 3 weist außerdem einen Hohlraum 14 auf, der mit einer Flüssigkeit gefüllt ist und vom Ventilschaft 9 durchzogen wird, wobei dessen

Durchtrittsöffnungen gegen außen und gegen die Spülwasser-Austrittsöffnung mittels Packungen 13 abgedichtet sind. Im Bereiche des Hohlraumes 14 weist der Ventilschaft 9 eine zentrale Bohrung 17 auf, welche durch Bohrungen 15 und 16 mit dem Hohlraum 14 in Verbindung steht.

Mittels des Gewindes 18 und der Mutter 19 ist zwischen zwei Scheiben 21 ein Kolben 20 auf dem Ventilschaft 9 gehalten, der unter dem Druck einer Feder 22 steht, welche sich einerseits an einer Scheibe 21 des Kolbens 20 und andererseits am Gehäuse 3 abstützt. Schließlich weist das Gehäuse 3 noch einen konischen Zapfen 23 auf, der in der Lage nach Fig. 1 in das Kupplungsorgan 8 eingreift.

Die Wirkungsweise der Einrichtung ist kurz folgende: Das Fußbrett 5 wird durch die die Bedürfnisanstalt benützende Person, wie in Fig. 2 in Pfeilrichtung gezeigt, niedergedrückt, wobei das zangenartige Kupplungsorgan 8 vom konischen Zapfen 23 zurückgleitet und das zylindrische Ende des Ventilschaftes 9 umschließt. Sobald das Brett 5 in Fig. 2 von der Person verlassen wird, drückt die Feder 6 mittels Übertragungsorgan 7 und dem Kupplungsorgan 8 den Ventilschaft 9 mit dem Ventilteller 11 hoch. Das Ventil wird praktisch unverzögert, also sofort geöffnet, so daß das Wasser von der Leitung 2 unbehindert in die Leitung 4 und in die Pissoirschüssel 1 fließen kann. Während des Hebens des Ventiltellers 11 fließt die in dem Hohlraum 14 eingefüllte Flüssigkeit zum größeren Teil über den Umfang des Kolbens 20 von dem obern Teil des Hohlraumes 14 in dessen untern Teil. Die Druckfeder 22 schließt nun das Ventil wieder. Dies geschieht aber nur sehr langsam, da die sich im untern Teil des Hohlraumes 14 befindende Flüssigkeit durch die Bohrungen 16, 17 und 15 in den obern Teil dieses Hohlraumes fließen muß und damit das Schließen des Ventils verzögert. Diese Verzögerung kann durch eine nicht gezeigte Gewindenadel in der zentralen Bohrung 17 beliebig eingestellt werden.

Zur Einstellung der Spüldauer ist somit eine Gewindenadel (Ventilnadel) vorgesehen.

Die gezeigte einfache Durchbildung der selbsttätigen Spüleinrichtung in wenigen und leicht herzustellenden Einzelteilen gewährleistet eine billige Fabrikation.

Für die Spülungen von Klosetts wird das gleiche Durchlaufventil, jedoch in umgekehrter Lage (Richtung) verwendet. Das Ventilschaftende 9', Konus 10 und Konuszapfen 23 sind nach oben gerichtet bzw. kommen nach oben zu liegen. Der Eintritt von Wasser erfolgt dann von unten. Das Ventil kann in diesem Falle direkt hinter der Schüssel gefällig in einer keramischen Verschalung eingebaut werden. Die Funktion des Fußbrettes wird in diesem Falle vom Sitzbrett, das ähnlich wie jenes mit einer entsprechend ausgebildeten Stange, wie durch 7 und 8 in Fig. 4 gezeigt, verbunden wird, und einer Zugfeder, die das Sitzbrett hebt, übernommen.

PATENTANSPRUCH:

Selbsttätige Spüleinrichtung für Bedürfnisanstalten, dadurch gekennzeichnet, daß beim Verlassen der Bedürfnisstelle das abgefederter Fuß- oder Sitzbrett sich hebt und über ein damit verbundenes Übertragungsorgan ein an der Wasserleitung angeschlossenes Ventil öffnet, dessen Schaft mit einem unter Federdruck stehenden Kolben versehen ist, der, durch ein Fluidum gesteuert, eine verzögerte Schließung des Ventils bewirkt.

UNTERANSPRÜCHE:

1. Selbsttätige Spüleinrichtung für Bedürfnisanstalten nach Patentanspruch, dadurch gekennzeichnet, daß die Spülung sofort nach Verlassen der Bedürfnisstelle stattfindet.
2. Selbsttätige Spüleinrichtung für Bedürfnisanstalten nach Patentanspruch, dadurch gekennzeichnet, daß ein gabelförmig ausgebildetes Kupplungsorgan den Ventilschaft zur Öffnung des Ventils mitnimmt und den selbsttätigen und verzögerten Schließvorgang durch Ausspreizen der Gabel nicht stört.
3. Selbsttätige Spüleinrichtung für Bedürfnisanstalten nach Patentanspruch, bei

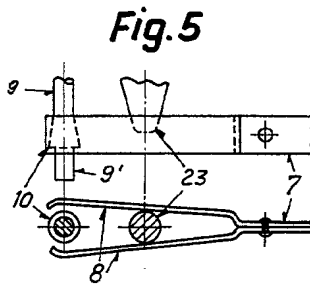
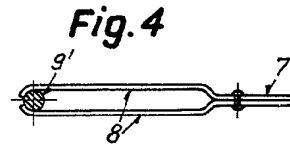
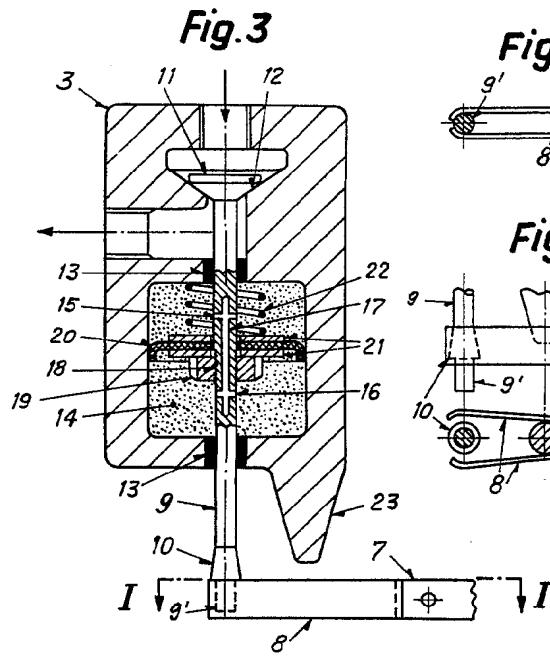
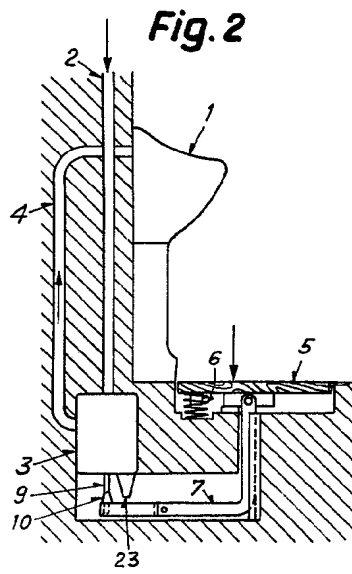
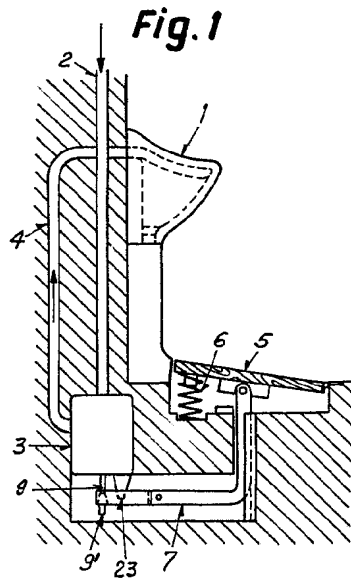
welcher das genannte Fluidum eine Flüssigkeit ist, dadurch gekennzeichnet, daß die Verzögerung der Schließung des Ventils durch Verstellung einer Gewindenadel und dadurch
5 einer Durchflußmenge der Flüssigkeit zur Steuerung des mit dem Ventilschaft fest verbundenen Kolbens eingestellt und damit der Wasserverbrauch bestimmt werden kann.

4. Selbsttätige Spüleinrichtung für Be-
10 dürfnisanstalten nach Patentanspruch, bei welcher das genannte Fluidum eine Flüssigkeit ist, dadurch gekennzeichnet, daß der

Federdruck auf dem zur verzögerten Schließung des Ventils notwendigen Kolben mit einer Mutter auf dem den Kolben tragenden
15 Ventilschaft eingestellt werden kann, um je nach der Viskosität der erwähnten, den Kolben steuernden Flüssigkeit die gewünschte Verzögerungszeit zu erreichen.

5. Selbsttätige Spüleinrichtung für Be-
20 dürfnisanstalten nach Patentanspruch, dadurch gekennzeichnet, daß die Verzögerung zur Schließung des Ventils pneumatisch gesteuert wird.

Jean Hertach.





REICHSPATENTAMT
PATENTSCHRIFT

Nr 462 417

KLASSE 7c GRUPPE 18

H 107145 I/7c

Tag der Bekanntmachung über die Erteilung des Patents: 21. Juni 1928

Josef Hodatsch und Carl Schaller in Wien
Schaltvorrichtung für Metallstreifen bei Stanzen

Patentiert im Deutschen Reiche vom 6. Juli 1926 ab

Die Priorität der Anmeldung in Österreich vom 6. Juli 1925 ist in Anspruch genommen.

Die Erfindung betrifft ein Verfahren mit zugehöriger Vorrichtung zum Ausstanzen von Gegenständen aus Streifen von Metall o. dgl. und besteht darin, daß der Schaltanschlag für den Vorschub des Streifens durch seitliche keilförmige Ausstanzungen zwischen den Schnittstellen desselben gebildet wird, welche mit einer federnden Anschlagklinke zur Vorschubbegrenzung zusammenwirken. Zweckmäßigerweise werden die Streifenränder beiderseitig keilförmig ausgestanzt, wobei die eine dieser Stanzstellen in der Streifenvorschubrichtung vor, die zweite hinter der Hauptschnittstelle liegt.

Bei den bislang bekannten Verfahren zum Ausstanzen von Gegenständen aus Metallstreifen wurde die Vorschubbegrenzung des Streifens dadurch erzielt, daß an der Randleiste des Streifens gleichzeitig mit dem Hauptschnitt rechteckige Stufen ausgestanzt wurden, deren Absätze an einem festen Anschlag der Matrize den Streifenvorschub begrenzten, welcher Anschlag beim nächsten Arbeitsgang durch das Ausstanzen der nächsten Stufe mit dem Hauptschnitt wanderte, so daß nach dem vollständigen Durchgang des Streifens durch das Schnittwerkzeug der Abfallstreifen und die Anschlagtiefschmäler wurden und die einzelnen Absätze als unbrauchbarer Abfall verloren gingen. Es mußte sonach zur

Erzielung eines sicheren Anschlages für den Vorschub der zu bearbeitende Streifen mindestens einen oder mehrere Millimeter breiter sein, als er im Hinblick auf die Breite des auszustanzenden Gegenstandes notwendig wäre, welcher Führungstreifen, wie beschrieben, in einzelne Blättchen zerstanzt wurde und sonach Abfall war. Zur Vermeidung dieses großen Verlustes wurde nach einem anderen gleichfalls bekannten Verfahren der Vorschub des Streifens durch einen in seiner Bahn liegenden Dorn begrenzt, auf welchen der zu diesem Zweck entsprechend vorgebohrte Streifen von Hub zu Hub aufgesteckt und dadurch in seinem Vorschub begrenzt wurde. Dieses Verfahren hat jedoch den Nachteil, daß die Arbeit durch das Aufstecken des Streifens auf den Dorn und die Abnahme desselben von diesem vor und nach jedem Arbeitshub zeitraubend und für die Massenfabrikation hinderlich ist. Nach dem Verfahren der Erfindung wird die Vorschubbegrenzung gleichfalls durch Seitenschneider bewirkt, welche jedoch nicht rechteckige Absätze, sondern nur keilförmige Einkerbungen, mit anderen Worten, nicht durchgehende Streifen absatzweise, sondern nur einzelne Spalte ausstanzen, welche an der Stelle der Materialbrücke zwischen zwei Stanzlöchern angebracht werden, daher einen eigenen Strei-

fen für die Führung nicht benötigen, anderseits aber die Vorteile der Randanschlagbegrenzung für den Vorschub einhalten.

Auf der Zeichnung ist eine beispielsweise Ausführungsform der Vorrichtung für das Verfahren dargestellt, und zwar zeigt Abb. 1 eine Ansicht des Schnittwerkzeuges, Abb. 2 eine Draufsicht auf die untere Matrize und Schnitte durch die Patrize, Abb. 3 einen Schnitt nach der Linie *A-B* der Abb. 2 und Abb. 4 den ausgestanzten Streifen, Abb. 5 einen fertigen Stanzgegenstand.

Im Preßkopf 1 sind die für den dargestellten Gegenstand gemäß Abb. 5 erforderlichen beiden Patrizen 2 befestigt. Außerdem trägt der Preßkopf die beiden Stahlstempel (Seitenschneider I und II) auf verschiedenen Seiten der Patrizen 2 vor und hinter denselben. Jeder dieser Seitenschneider I, II besitzt zwei keilförmige Zacken *a* und *b*. Die Matrize besteht aus der Führungsplatte 4 und der Schnittplatte 5, zwischen welchen der Streifen in einer Führungsrinne 6 geführt wird. In diese Führungsrinne 6 ragt unmittelbar hinter der Ausnehmung für die Seitenschneider I und II eine Anschlagklinke III über die beiden Führungsleisten, somit in die Bahn des Streifens. Die Anschlagklinke III besitzt gleichfalls eine keilförmige Zacke *a*, zweckmäßigerweise von derselben Form und demselben Öffnungswinkel wie jene der Seitenschneider I, II. Eine Feder IV, mit einer Schraube V an der Matrize befestigt, dient dazu, die beiden Anschlagklinken III in der in Abb. 2 gezeichneten Lage zu erhalten. Die Zacke *a* der Klinke III liegt unmittelbar an der Zacke *b* der Öffnung für die Seitenschneider bzw. an der Zacke selbst beim Abwärtsgang des Preßkopfes 1 an.

Die Wirkungsweise der Vorrichtung ist demnach folgende:

Nachdem durch Hochgang der Presse die Seitenschneider I und II und die Patrizen 2 den Raum zwischen Führungsplatte 4 und Schnittplatte 5 verlassen haben, wird der zu stanzende Streifen *s* in die Führungsrinne 6 bis zur vorstehenden Klinke III im Sinne des Pfeiles *P* eingeführt, wobei seine vordere Stirnkante an den keilförmigen Vorsprung *a* anstößt. Durch den nächstfolgenden Arbeitshub des Preßkopfes 1 schneiden die keilförmigen Zacken *a* und *b* des Seitenschneiders das entsprechende Profil *o* (Abb. 4) in den Streifen ein, wobei nach dem Hochgang des Preßkopfes die Kante *o'* des Stanzprofils beim Vorschub des Streifens den Anschlag an der Zacke *a* der Klinke III findet. Durch die keilförmige Ausstanzung *o''* des Profils *o* wird beim Vorschub des Streifens die Klinke III unter Überwindung der Kraft der Feder IV in die Matrize verdrängt, so daß der vorerwähnte

Anschlag nach Vorschub des Streifens ermöglicht wird, vor welchem die Klinke III durch die der Seitenschneiderzacke *a* entsprechende Ausstanzung *o''* wieder in seine Ausgangslage zurückgelangt. Der in der Richtung des Streifenvorschubes hinter den Patrizen liegende Seitenschneider II dient nur dazu, am Ende des Streifens die Vorschubbegrenzung desselben dann zu übernehmen, wenn das Streifenende den Seitenschneider I bereits verlassen hat. Es könnten durch diese Anordnung im Gegensatz zu den bekannten Vorrichtungen die Blechstreifen bis zu ihrem hinteren Ende vollständig ausgestanzt werden, während bei den bislang bekannten Vorrichtungen das Ende des Streifens die einzelnen Arbeitsstufen gemäß Abb. 4 aufwies, ohne bis zum Rand verwertet werden zu können. Auch dieser Materialabfall wird sonach durch die Anordnung eines hinter den Schnittpatrizen liegenden Seitenschneiders vermieden, wobei diese Anordnung nur deshalb möglich wurde, als für den Seitenschneider kein eigener Randstreifen erforderlich ist, sondern die Seitenschneider vielmehr in das ohnehin vorhandene Randmaterial des Abfallstreifens zwischen den Stanzprofilen einschneiden.

Die Vorteile des Verfahrens liegen sonach darin, daß für den Schnitt des Seitenschneiders kein eigener Randstreifen erforderlich ist, da die Keilschnitte in den Arbeitsstreifen verlustlos eingeschnitten werden, hierdurch die Anordnung von Seitenschneidern zu beiden Seiten des Streifens und damit dessen vollständige Auswertung der ganzen Länge nach möglich gemacht wird und überdies durch den Seitenschneider die zeitraubende Vorschubbegrenzung durch Anstoßstifte in der Führungsbahn des Streifens vermieden wird.

PATENTANSPRÜCHE:

1. Schaltvorrichtung für Metallstreifen bei Stanzen o. dgl., gekennzeichnet durch mit keilförmigen Schneidzacken versehene, seitlich der Streifenführung angeordnete Schnittstempel (Seitenschneider), welche im Streifen seitliche keilförmige Ausstanzungen zwischen den Werkzeugschnittstellen desselben herstellen, sowie mit den Schnittstempeln zusammenwirkende federnde Anschlagklinken, durch deren Eintritt in die keilförmigen Ausstanzungen der Vorschub des Streifens begrenzt wird.

2. Schaltvorrichtung nach Anspruch 1, gekennzeichnet durch beiderseits der Streifenführung angeordnete Seitenschneider, wobei der eine dieser in der Streifenvorschubrichtung vor, der zweite hinter der Werkzeugschnittstelle liegt.

3. Schaltvorrichtung nach Anspruch 1, :

dadurch gekennzeichnet, daß der im Preßkopf des Schnittwerkzeuges auf einer Seite der Streifenführung der Matrize angeordnete Seitenschneider zwei voneinander um die Vorschubgröße ent-

fernte, gegeneinander geneigte keilförmige Schneidzacken besitzt und mit einer senkrecht zu ihm federnd beweglichen, mit nur einer Zacke versehenen Anschlagklinke zusammenwirkt.

10

Hierzu 1 Blatt Zeichnungen

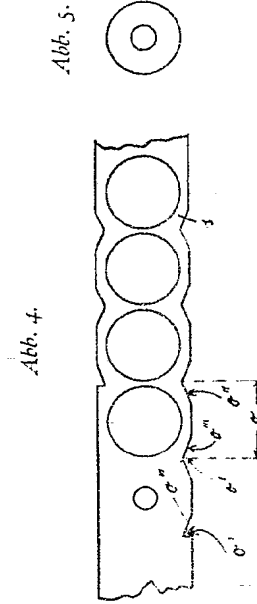
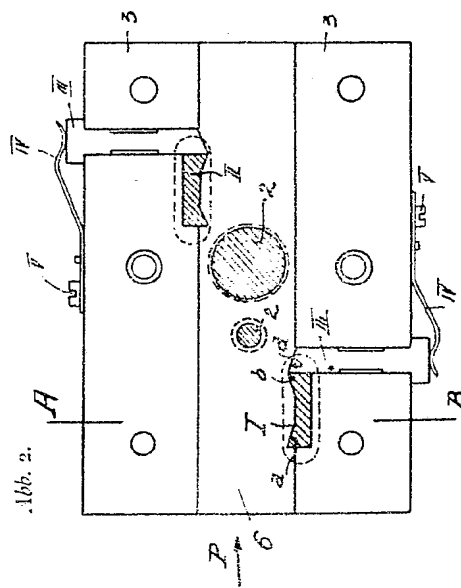
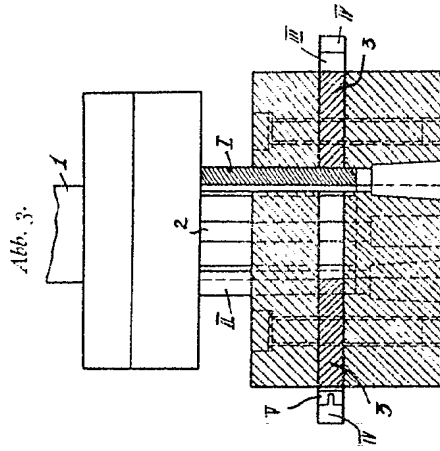
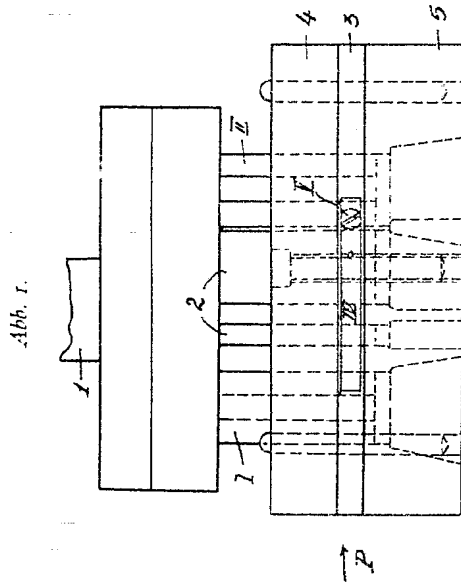


Abb. 1.

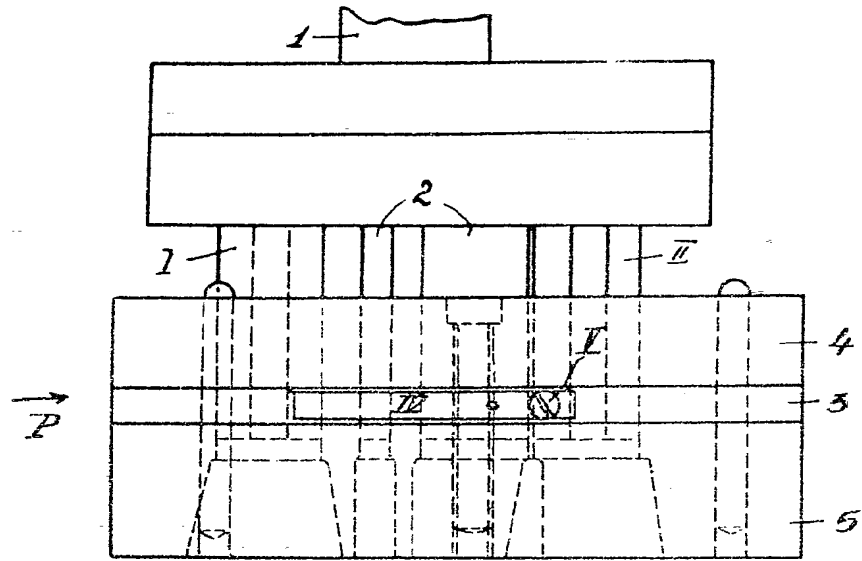


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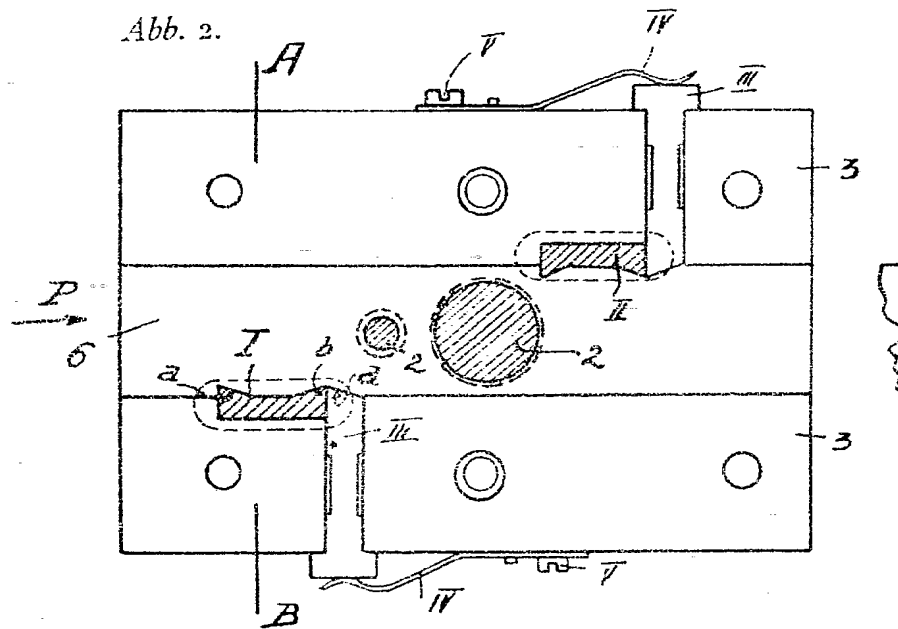


Abb. 3.

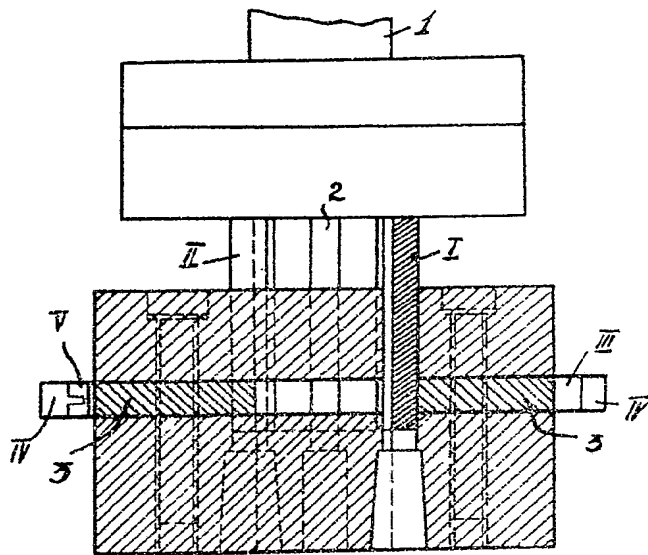


Abb. 4.

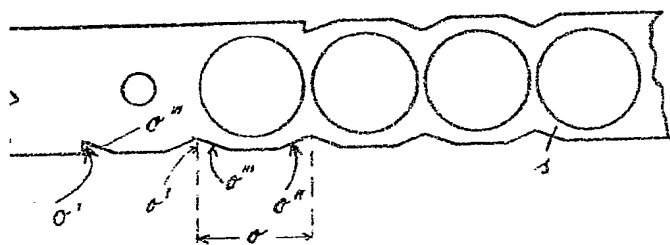


Abb. 5.



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NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	
Filing Date	November 10, 2015
First Named Inventor	Sushant Babarao WATH
Title	A MECHANICAL AUTOMATIC URINAL-TOILET FLUSHER AND ITS MECHANISM THEREOF
Art Unit	Unassigned
Examiner Name	Unassigned
Attorney Docket Number	99865.21500

SIGNATURE of Applicant or Patent Practitioner

Signature	/Tayan B. Patel/	Date (Optional)	November 10, 2015
Name	Tayan B. Patel	Registration Number	58402
Title (if Applicant is a juristic entity)			
Applicant Name (if Applicant is a juristic entity)			

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The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	Date (Optional)
<i>Anjana Baruah</i>	
Name	
Title	

डा. अंजना बरुआ / Dr. Anjana Baruah
मुख्य वैज्ञानिक एवं प्रमुख / Chief Scientist & Head

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