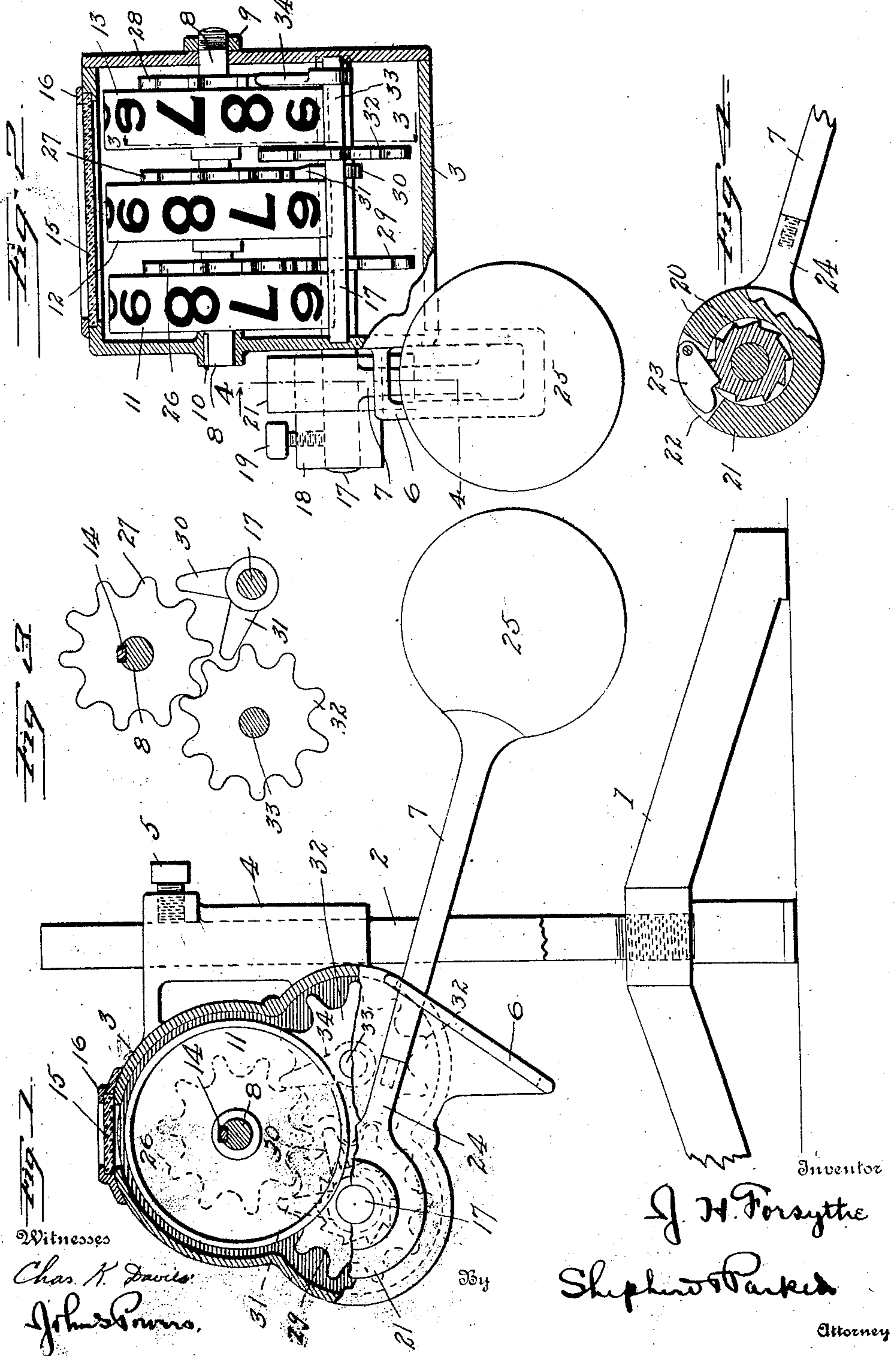


No. 848,232.

PATENTED MAR. 26, 1907.

J. H. FORSYTHE.
INDICATING MECHANISM.
APPLICATION FILED SEPT. 18, 1906.



UNITED STATES PATENT OFFICE.

JESSE H. FORSYTHE, OF WASHINGTON, PENNSYLVANIA.

INDICATING MECHANISM.

No. 848,232.

Specification of Letters Patent.

Patented March 26, 1907.

Application filed September 18, 1906. Serial No. 335,157.

To all whom it may concern:

Be it known that I, JESSE H. FORSYTHE, a citizen of the United States, residing at Washington, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Indicating Mechanism, of which the following is a specification.

This invention relates to new and useful improvements in indicating mechanisms, and it contemplates an apparatus especially adapted for use in connection with flush-tanks for sewer and distribution or service systems.

The invention especially relates to flush-tanks having an automatic action and aims to provide means controlled by the rise and fall of the water in the tank for indicating successively the number of operations in a given period of time.

The invention further aims to provide a mechanism of the above type which shall be simple in construction, inexpensive to manufacture, and practical and efficient in use.

The detailed construction will appear in the course of the following description, in which reference is had to the accompanying drawings, forming a part of this specification, like numerals designating like parts throughout the several views, wherein—

Figure 1 is a central longitudinal section of an indicating mechanism constructed in accordance with my invention. Fig. 2 is a central transverse section thereof. Fig. 3 is a diagrammatic plan on the line 3-3 of Fig. 2, illustrating the arrangement and relation of the interdependent actuating elements; and Fig. 4 is a vertical central section on the line 4-4 of Fig. 2, showing the operative connections between the prime actuating element and the main shaft.

Referring specifically to the accompanying drawings, the numeral 1 designates a cruciform supporting-base within which is adjustably positioned a vertical post 2, from which the indicating mechanism is suspended.

The mechanism is housed within a suitably-shaped casing 3, provided in its rear portion with an offset integral sleeve 4, surrounding the post 2 and adjustably held thereon by a set-screw 5.

The casing 3 is provided at one side thereof with a depending integral frame 6, which serves as a guide for a prime actuating-lever 7 in its operative movement.

A shaft 8 is mounted transversely in the upper portion of the casing 3, being held from displacement and rotation by a nut 9 and a key 10.

Mounted upon the shaft 8 is a units indicator-wheel 11, tens indicator-wheel 12, and a hundreds indicator-wheel 13. The wheels 11, 12, and 13 are arranged in spaced parallel relation and are rotatable upon the shaft 8; but said wheels are normally held from rotation by the pressure upon the hubs thereof of a leaf-spring 14. The numerical characters "1" to "0" are arranged in similar order upon the units-wheel 11 and the tens-wheel 12, but in reverse order upon the hundreds-wheel 13. This arrangement is necessary on account of the differential transmission between the wheel 13 and the wheel 12, whereby the former moves in a reverse direction to the latter. The casing 3 is provided with an opening in the top thereof which is closed by a glass 15, held in a frame 16. The indications of the numeral-wheels can be read at will through the glass 15.

Mounted in the lower forward portion of the casing 3 is a main shaft 17, which projects therebeyond and carries on its free end a sleeve 18, adjustably held by a set-screw 19 and provided adjacent to the casing 3 with ratchet-teeth 20. Surrounding the sleeve 18 is a collar 21, provided with a slot 22, within which works a pivoted gravity-pawl 23, designed to operatively engage the teeth 20. The collar 21 is provided with a rearward extension 24, to which is secured the above-mentioned prime lever 7, carrying at its free end the float 25.

The wheels 11, 12, and 13 are provided on each side thereof with respective pinions 26, 27, and 28, which are each provided with ten teeth proportionately spaced to the numerical designations on said wheels. Mounted upon the shaft 17 is a pinion 29, which meshes with the pinion 26. The shaft 17 is also provided with angularly-arranged fingers 30 and 31, the finger 30 being designed for engagement with the pinion 27 and the finger 31 being designed for engagement with a pinion 32, mounted upon a shaft 33, journaled transversely in the lower rear portion of the casing 3. The shaft 33 carries adjacent its end a finger 34, designed for engagement with the pinion 28.

It will be readily understood that the indicator-wheels are to be made in sizes propor-

tionate to the depth of the tank and the amplitude of the movement of the lever 7 as governed by such depth. With this fact in view the operation will be readily understood.

5 When the tank flushes, the float 25 and lever 7 drop by gravity, and as the tank fills said float and said lever rise with the water. In this action the pawl 23 engages the teeth 20, as shown in Fig. 4, and imparts rotation to the
10 shaft 17. Such rotatory movement is transmitted, through the pinions 29 and 26, to the units-wheel 11 upon each successive actuation of the float 25 and lever 7, as above set forth. When the wheel 11 rotates until the character "0" appears, the finger 30 of the shaft 17
15 engages the pinion 27 and rotates it for the distance of the width of one tooth, thereby moving the wheel 12 to display the character "1." It will be seen that ten actuations of
20 the wheel 11 are made with one revolution of the shaft 17 and that one actuation of the wheel 12 is made during a revolution of the shaft 17. In like manner the finger 31 engages the pinion 32 and moves said pinion
25 one-tenth of its movement during a single revolution of the shaft 17. When the shaft 33 completes a revolution under the actuation of the pinion 32, as described, the finger 34 engages the pinion 28 for a single actua-
30 tion of the wheel 13. It is believed that the denary relation in their multiplied ratio of the wheels 11, 12, and 13 is clearly apparent from the foregoing description. When the
35 wheels 11, 12, and 13 display the number "999," the parts are in such position that the apparatus must be reset. This is done by manually raising the lever 7, which will effect a simultaneous movement of all the wheels
40 to display three zeros—thus, "000." While the invention is shown as adapted to indicate up to the number "999," it will be readily apparent that by increasing the number of elements and arranging them so as to
45 preserve the denary relation of the number-wheels the number of indications may be increased as desired.

While the elements herein shown and described are well adapted to serve the functions set forth, it is obvious that various minor

changes may be made in the proportions, 50 shape, and arrangement of the several parts without departing from the spirit and scope of the invention as defined in the appended claims.

Having fully described my invention, what 55 I claim is—

1. In a device of the type set forth, a main shaft, a float-lever mounted thereon a pawl-and-ratchet connection between said float-lever and said main shaft, a second shaft, 60 number-wheels rotatably mounted thereon, a third shaft, connections between said main shaft and one of said number-wheels, whereby each movement of the former is imparted to the latter, a connection between said main 65 shaft and another of said number-wheels whereby said last-named number-wheel is actuated once upon ten actuations of said main shaft, a pinion carried by said third shaft, a finger carried by said main shaft and 70 engaging said pinion, a pinion carried by the last of said number-wheels and a finger carried upon said third shaft and engaging said last-named pinion.

2. In a device of the type set forth, a cas- 75 ing, a main shaft, number-wheels loosely mounted thereon, and arranged in series of denary mathematical progression, said number-wheels being provided on one side thereof with pinions, a second shaft, a master-pinion 80 thereon meshing with the pinion on the units number-wheel of said denary series, a tooth on said second shaft designed to engage the pinion on the tens-wheel of said denary series, a second tooth on said second shaft 85 spaced away from said first-named tooth, a third shaft, a pinion on said third shaft, said second tooth engaging said last-named pinion, a tooth on said third shaft engaging the pinion on the hundreds-wheel of said denary 90 series and means for actuating said second shaft.

In testimony whereof I affix my signature in presence of two witnesses.

JESSE H. FORSYTHE.

Witnesses:

W. R. BAKER,
S. B. REESE.