

(No Model.)

H. C. APEL.
STOP AND WASTE DEVICE.

No. 495,575.

Patented Apr. 18, 1893.

Fig. 1.

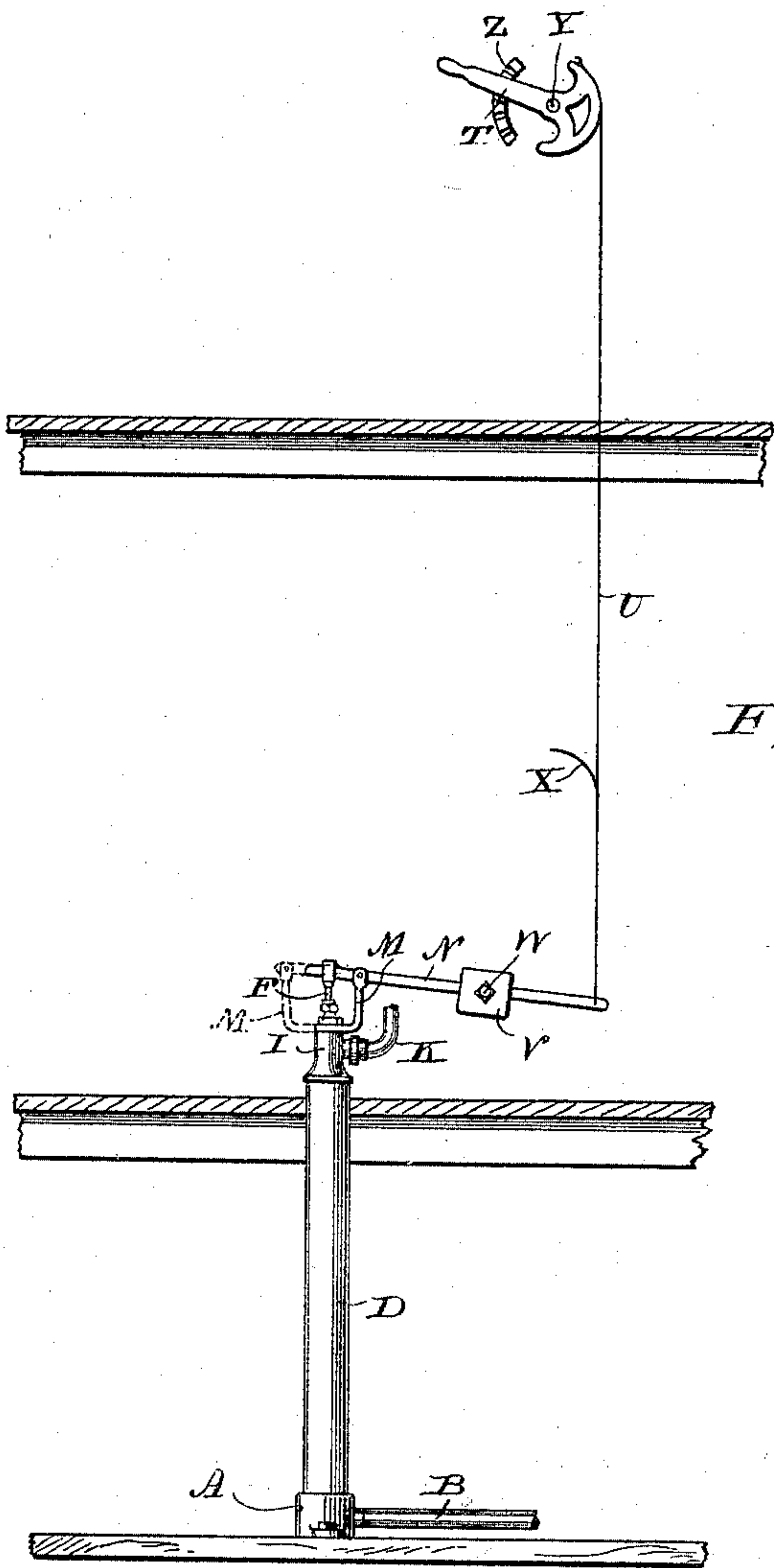
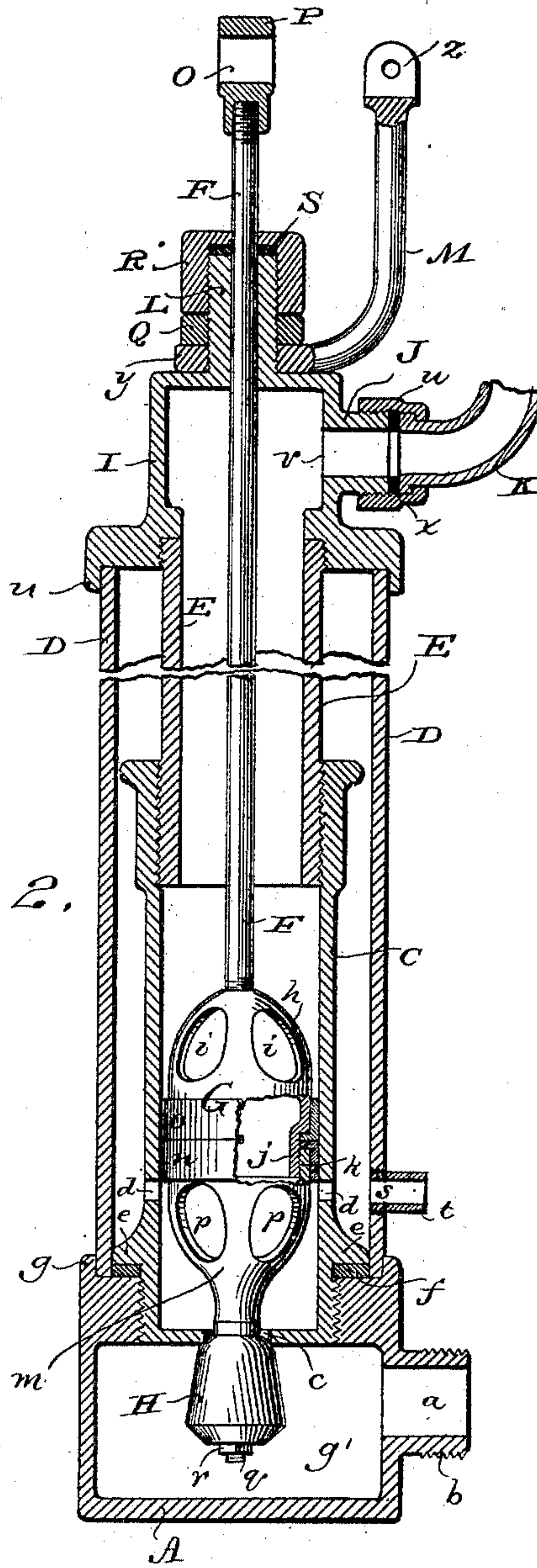


Fig. 2.



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STOP AND WASTE DEVICE.

SPECIFICATION forming part of Letters Patent No. 495,575, dated April 18, 1893.

Application filed April 17, 1888. Serial No. 270,896. (No model.)

To all whom it may concern:

Be it known that I, HERMANN C. APEL, of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Stop and Waste Devices; and I do hereby declare that the following is a full, clear, and exact description thereof.

My invention relates to stop and waste valve mechanism, and the invention consists in certain peculiar and novel features of construction and arrangement, as hereinafter described and pointed out in the appended claim.

In order that my invention may be fully understood, I will proceed to describe it with reference to the accompanying drawings, in which—

Figure 1 is a side elevation of my improved stop and waste valve mechanism. Fig. 2 is a transverse vertical section of the valve casing.

The objects of my invention are to produce a valve-mechanism which shall be direct and positive in its action and which shall operate to simultaneously shut and drain off water from the service pipes; and furthermore to produce a valve-mechanism which shall, without any abnormal change in its parts, either hold the water normally shut off or let on as desired. These results I attain by virtue of the construction which I will now proceed to describe.

Referring to the drawings, A designates the inlet casing which constitutes the base of the valve and drainage casing, and which has, at one side, an inlet opening *a* the nipple *b* of which is externally screw-threaded to receive the street-connection B from the water-main. The upper part of this casing is formed with a wide internally screw-threaded opening to receive the externally screw-threaded lower end of the vertical valve-casing C. This valve-casing C is of elongated cylindrical form and is provided near its lower end with an external annular flange or shoulder *e* which rests upon a packing-ring *f*, the latter resting, in turn, upon the top of the inlet casing A contiguous to its opening. In its lower part, adjacent to and just above the flange *f*, the casing C is provided with one or more drain openings or ports *d*, and the upper end of the

casing is internally screw-threaded for a purpose to be presently explained. The lower end of this casing is closed, excepting a small central port or opening *c*, the purpose of which will also be hereinafter explained.

D designates the drainage-casing which is also of oblong cylindrical form and of greater length than the valve-casing C so as to rise above the latter, as shown. The lower end of this drainage-casing rests upon the top of the inlet casing A and is confined thereon by an annular upwardly extending flange *g* formed on the top of the casing A and abutting against the outer sides of said casing D. Thus the lower end of the drainage-casing fits snugly between the flanges *e*, and *g*, and the joint is packed by the ring *f* before described, so that no leakage can occur. Near its lower end the casing A is provided with a drain-opening or port *s* the nipple *t* of which is externally screw-threaded to receive a drain-pipe (not shown) which may lead to a sewer or to any other desired point. Within the internally screw-threaded upper end of the valve-casing C is inserted the externally screw-threaded lower end of a short cylindrical extension E, the upper end of which is externally screw-threaded to enter a socket in the lower end of the cap I. This cap I is of cylindrical form and has an outwardly enlarged base on the margin of which is formed a pendent annular flange *m* within which the upper end of the drainage-casing D is confined. At one side the cap I is formed with an outlet opening *v* the nipple J of which is externally screw-threaded to receive a gland *u* by which the service-pipe K is connected to the outlet opening *v*; a packing-ring *x* being interposed between the adjacent ends of the nipple and pipe, to form a tight joint. The top of the cap I is formed with an upwardly projecting extension L having a central vertical bore and externally screw-threaded, as shown. Through the bore of this extension L extends the valve-rod F; a gland R being screwed upon the upper end of the extension to compress a packing-ring S between it and the top of the gland, so as to form a tight joint around the valve-rod F. To the lower end of this valve-rod L is secured the double-valve G, H. The upper or drainage valve G is of hollow elliptical form and is composed of an upper half-

section *h* and a lower half-section *m*; said upper section having large openings *i* in its sides, and the lower section having similar openings *p* in its sides so that the valve, as a whole, is of skeleton form. The lower part of the upper section *h* of this valve is formed with a reduced externally screw-threaded end *j*, to receive the internally screw-threaded upper end of the lower section *m*. Two packing-rings *n, o*, surround the upper and lower ends respectively of the lower and upper valve-sections *m, h*, and the adjacent edges of these rings are turned inwardly and confined between the upper end of the lower valve-section and the external shoulder formed by the reduction of the lower end *j* of the upper section *h*. The lower valve *H* is conical in form and surrounds a stem *q* pendent from the lower end of the lower section of the upper valve *G*; a nut *r* being screwed upon the lower end of stem *q* to retain the valve *H* thereon. Thus it will be seen that the upper valve *G* works wholly within the valve-chamber *C* while the lower valve *H* works wholly within the chamber *g'* of inlet-casing *A*.

From the description, thus far given, it will be seen that when the valve stem is raised as shown in Fig. 2, the lower valve *H* is seated in the opening *c* in the lower end of the drainage-valve chamber and thus the water is cut off from the house-service pipe *K*. When, however, the valve-stem is lowered, the valve *H* is depressed out of its seat *c*, the rings *n, o*, cover the drainage-ports *d*, and the water flows freely upward from inlet casing *A*, through drainage-valve casing *C*, and cap *I*, and into service-pipe *K*; thus supplying the water to the building as desired. If the valve-stem be now raised, the valve *H* again seats itself in the opening *c* cutting off the inlet chamber *g'*. Simultaneously the rings *n, o*, of the upper valve move upward off of the drainage-ports *d* and the water flows by gravity through the upper valve *G*, out through the drainage-ports *d* and thence through the outlet-port *s*.

It will be observed that the concentric space between the casings *C, D*, and *E* extends the full length of the former, and the purpose of this arrangement is to produce a reservoir and air-chamber for the outflowing water, so that when the discharge from the drainage-openings *d* exceeds the emptying capacity of the outlet *s*, the water shall rise in the concentric chamber and thus permit the house-service pipes to empty themselves more rapidly than they could if the water had to flow directly through the openings *d, s*. When these pipes have emptied themselves the compressed air in the upper part of this concentric chamber forces the remaining water entirely out of the chamber, thus wholly emptying the casings *C, D*.

The above described movements of the valve-stem are effected by the following connections: *M* designates an L-shaped arm or standard the upper arm of which extends ver-

tically and is bifurcated at its upper end; to receive a lever *N*; a hole *Z* being formed transversely through each bifurcated member of the standard to receive a pin by which said lever is pivotally connected to the standard. The upper end of the valve-stem *F* is screw-threaded to receive a nut *P* which is formed with a transverse opening *O* in which the lever *N* works loosely. The lower end of the standard *M* loosely surrounds the extension *L* so that the standard may swing freely about said extension *L* as a pivotal center without requiring any abnormal change in the relative positions of the upper part of the valve and drainage casings. The long arm of this lever *N* is connected by a wire or other flexible connection *U* with a lever *T* pivoted at *Y* and having its free end arranged to engage notches in a segment plate *Z*. This lever and its segment plate are assumed to be placed against the wall of a room or apartment of a building. One or more branch wires *X* may be connected, directly or indirectly to the wire *U* and are designed to connect with similar levers in different apartments of the building. Ordinarily, the valve will be depressed, so that in warm weather the water shall flow freely through the service pipes and an adjustable weight *V* is mounted upon the arm *N* and is secured in any desired position of adjustment by a set screw *W*. This arrangement is shown in dotted lines in Fig. 1. In winter the valve will be normally held in raised position which is effected by the relative arrangement of parts indicated in dotted lines in Fig. 1—that is to say, is swung around to the opposite side of the stem *F* from that shown in solid lines in said figure.

From the above description it will be seen that I have produced a simple and compact valve mechanism, the parts of which can be readily assembled or separated, and which, without any abnormal change in the casing can be adapted either to normally cut off, or let on the flow of water from the street main.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

In a stop and waste valve mechanism, the combination with a drainage valve casing and an inlet casing located below the drainage casing and communicating with the latter by a port, of an upper drainage valve formed of two skeleton semi-elliptical half sections and a conical plug stop valve pendent from the lower section of the drainage valve and working within the inlet casing, substantially as set forth.

In testimony that I claim the foregoing I have hereunto set my hand, at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses.

HERMANN C. APEL.

Witnesses:

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N. E. OLIPHANT.