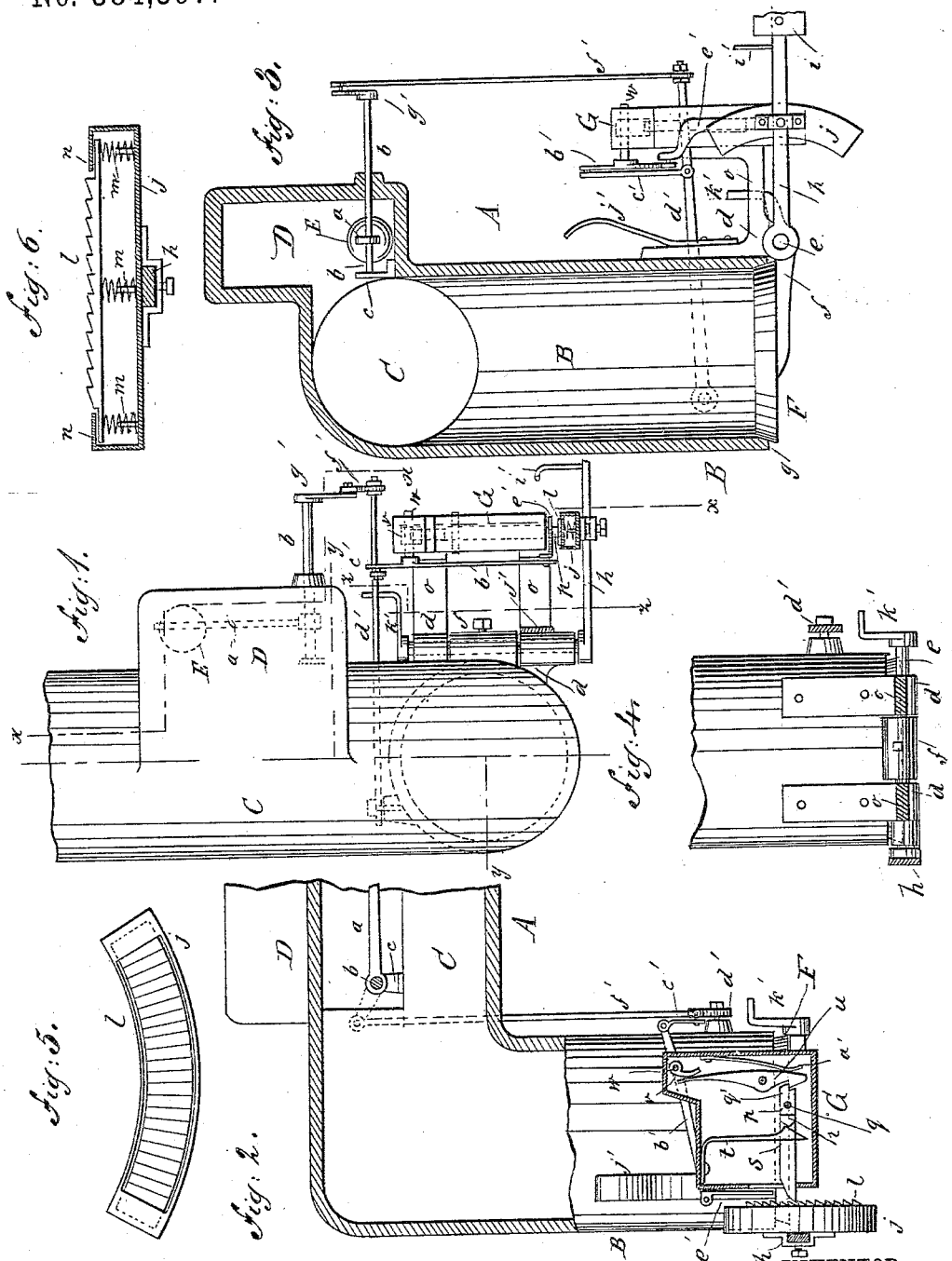
(No Model.)

C. H. SHEPHERD.

VALVE MECHANISM FOR SEWERAGE SYSTEMS.

No. 384,397. Patented June 12, 1888.



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VALVE MECHANISM FOR SEWERAGE SYSTEMS.

SPECIFICATION forming part of Letters Patent No. 384,397, dated June 12, 1888.

Application filed October 21, 1887. Serial No. 252,977. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. SHEPHERD, of the city, county, and State of New York, have invented new and Improved Valve Mechanism for Sewerage Systems, of which the following is a specification, reference being had to the annexed drawings, forming a part thereof, in which—

Figure 1 is a plan view. Fig. 2 is a side elevation, partly in section, taken on line *x x* in Fig. 1. Fig. 3 is a side elevation at right angles to the view in Fig. 1, partly in section, on line *y y* in Fig. 1. Fig. 4 is a side elevation, partly in section, taken on line *z z* in Fig. 1. Fig. 5 is a side elevation of the curved ratchet-bar, and Fig. 6 is a longitudinal section of the ratchet-bar case.

Similar letters of reference indicate corresponding parts in all the views.

The object of my present invention is to improve the sewerage system for which Letters Patent No. 361,456 were granted to me April 19, 1887.

My invention is designed to provide mechanism by which the discharge-valve of the sewage-pipe may be opened or closed, and by which the valve may be held securely in a partly-open position in case anything should become lodged between the valve and its seat.

My invention consists in the combination, with a discharge-pipe of a sewerage system provided with a float-chamber, of a counterweighted valve adapted to close the end of the discharge-pipe, novel mechanism for locking and releasing the valve, and a ratchet device, whereby the valve may be locked when partly opened, all as hereinafter more fully described.

The discharge-pipe A, to which my improvement is applied, is bent at a right angle and provided with a short downwardly-projecting part, B. The horizontal part C of the pipe is provided with a float-chamber, D, which extends above the level of the discharge-pipe and contains a float, E, mounted on an arm, *a*, attached to a rock-shaft, *b*, journaled at one end in the support *c*, and extending through the side of the wall of the float-chamber.

In ears *d*, projecting from the side of the lower end of the pipe A, is journaled the rock-shaft *e*, to which is secured an arm, *f*, projecting from the valve F. The valve F is fitted to its seat *g* in the lower end of the pipe A. To the forward end of the rock-shaft *e* is attached an arm, *h*, carrying a counter-weight, *i*, and a curved casing, *j*. To the curved casing *j* is fitted a curved ratchet-bar, *l*, which is pressed outward by spiral springs *m*, the outward movement of the ratchet-bar being limited by fillets *n* in the ends of the casing *j*.

Upon arms *o*, projecting from the ears *d*, is supported a casing, G, in which is pivoted a latch, *p*, on the stud *q*. The latch *p* projects through a slot in the casing G and engages the curved ratchet-bar *l*. The latch *p* is provided with a triangular projection, *r*, upon one side thereof, which is engaged by the triangular end *s* of the spring *t*, secured to the upper side of the casing G.

In the casing G is pivoted a trigger, *u*, which is adapted to catch the shorter arm of the latch *p* and hold it in horizontal position. The longer arm of the trigger *u* extends upward beyond its pivot in position to be engaged by a cam, *v*, on the shaft *w*, which extends through the sides of the casing G. The trigger *u* is pushed forward into engagement with the end of the latch *p* by a flat spring, *a'*.

Upon the shaft *w* is secured a lever, *b'*, one end of which is connected by a link, *c'*, with a lever, *d'*, the opposite end of the lever being provided with a curved bar, *e'*, for engagement with the end of the latch *p*, which projects through the end of the casing G. The lever *d'* is pivoted at one end to a boss projecting from the side of the pipe A, and is connected at its free end by a rod, *f'*, with a crank-arm, *g'*, upon the end of the rock-shaft *b*. To the end of the shaft *e* under the lever *d'* is attached an arm, *k'*, which is capable of touching the lever *d'* when the valve F opens, and of restoring the lever *d'* to its normal position. A short finger, *i'*, projects from the upper side of the arm *h*, and a flat spring, *j'*, is secured to the side of the pipe A in the path of the finger *i'*.

The operation of my improved apparatus is as follows: When the discharge into the sewage-pipe A fills it so as to lift the float E in the chamber D, the lever *d'* is pressed downward, turning the shaft *w*, through the connections between the levers *d'* and *b'*, until the

trigger *u* is released from the latch *p*, when the weight of the contents of the sewage-pipe resting on the valve F pushes down the valve F in opposition to the pressure of the weight *i*, when the valve immediately opens, allowing the contents of the pipe to discharge; and in opening, the arm *k'* strikes the lever *d'* and returns the latch *p* and the trigger *u* to their normal positions, and when the finger *i'*, projecting from the arm *h*, strikes the spring *j'*, the arm rebounds and quickly closes the valve, at the same time bringing the curved ratchet-bar *l* into engagement with the latch *p*.

In case of an obstruction between the valve and its seat the latch *p* engages the ratchet-bar *l*, so as to hold the valve in the position in which it stops. By the engagement of the triangular end *s* of the spring *t* with the triangular projection *r* the latch *p* is made to remain in one of two positions—either in position to engage the ratchet-bar *l* or in an elevated position where it is incapable of engaging the said ratchet-bar.

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

1. In valve mechanism for sewerage systems, the combination of the valve F, hinged to the lower end of the discharge-pipe A, the arm *h*, connected with the valve F and carrying the spring-actuated ratchet-bar *l* and the counterweight *i*, the latch *p*, adapted to engage the ratchet-bar *l*, the spring-actuated trigger *u*, arranged to engage the latch *p*, the cam *v*, the lever *b'*, the lever *d'*, and the float E, substantially as described.

2. The combination, with the lever *b'*, adapted to be operated by the float E, and the latch *p*, adapted to engage the ratchet *l*, of the bar *e'*, connected with the end of the lever *b'* for replacing the latch *p* after the valve F has been operated, substantially as specified.

3. The combination, with the lever *d'*, float E, lever *b'*, the bar *e'*, and latch *p*, of the arm *k'*, the shaft *e*, and the valve F, substantially as specified.

4. The combination, with the valve F and arm *h*, connected therewith, of the spring *j'*, substantially as specified.

5. The combination, with the valve F, carrying the arm *h*, of the spring-actuated ratchet-bar *l* and the spring-actuated latch *p*, for holding the valve closed or partly open, substantially as specified.

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Witnesses:
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