

J. GILLIGAN.
PIPE STOP OR SHUT OFF.

No. 509,575.

Patented Nov. 28, 1893.

Fig. 1.

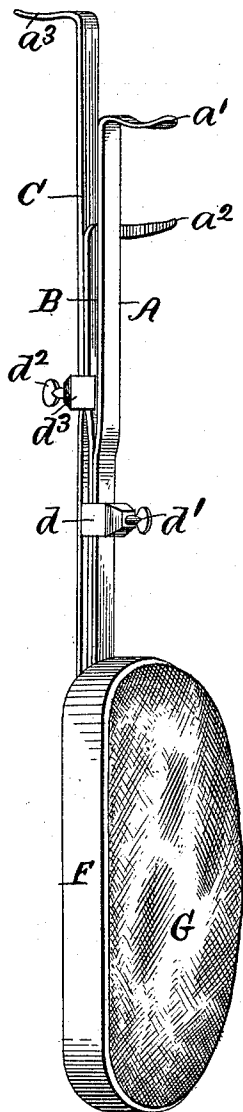


Fig. 3.

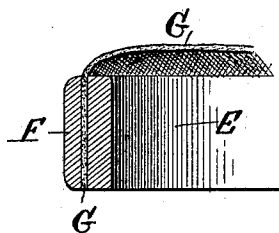


Fig. 4.

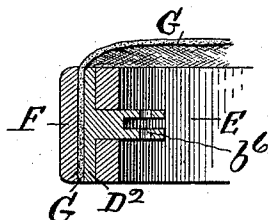


Fig. 2.

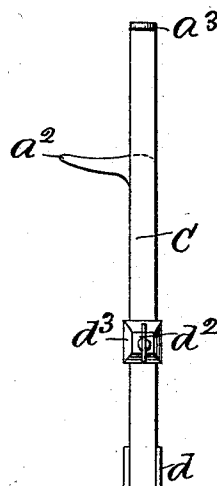
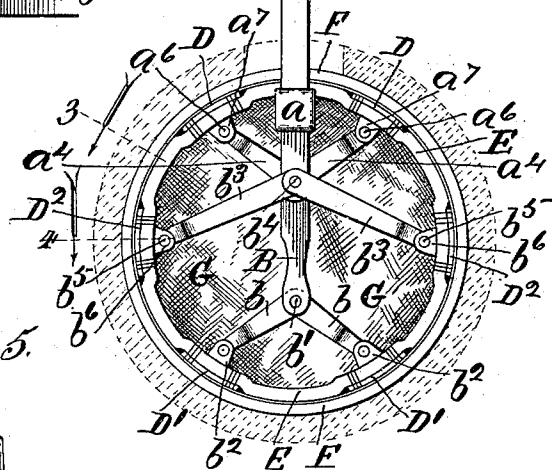
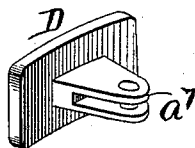


Fig. 5.



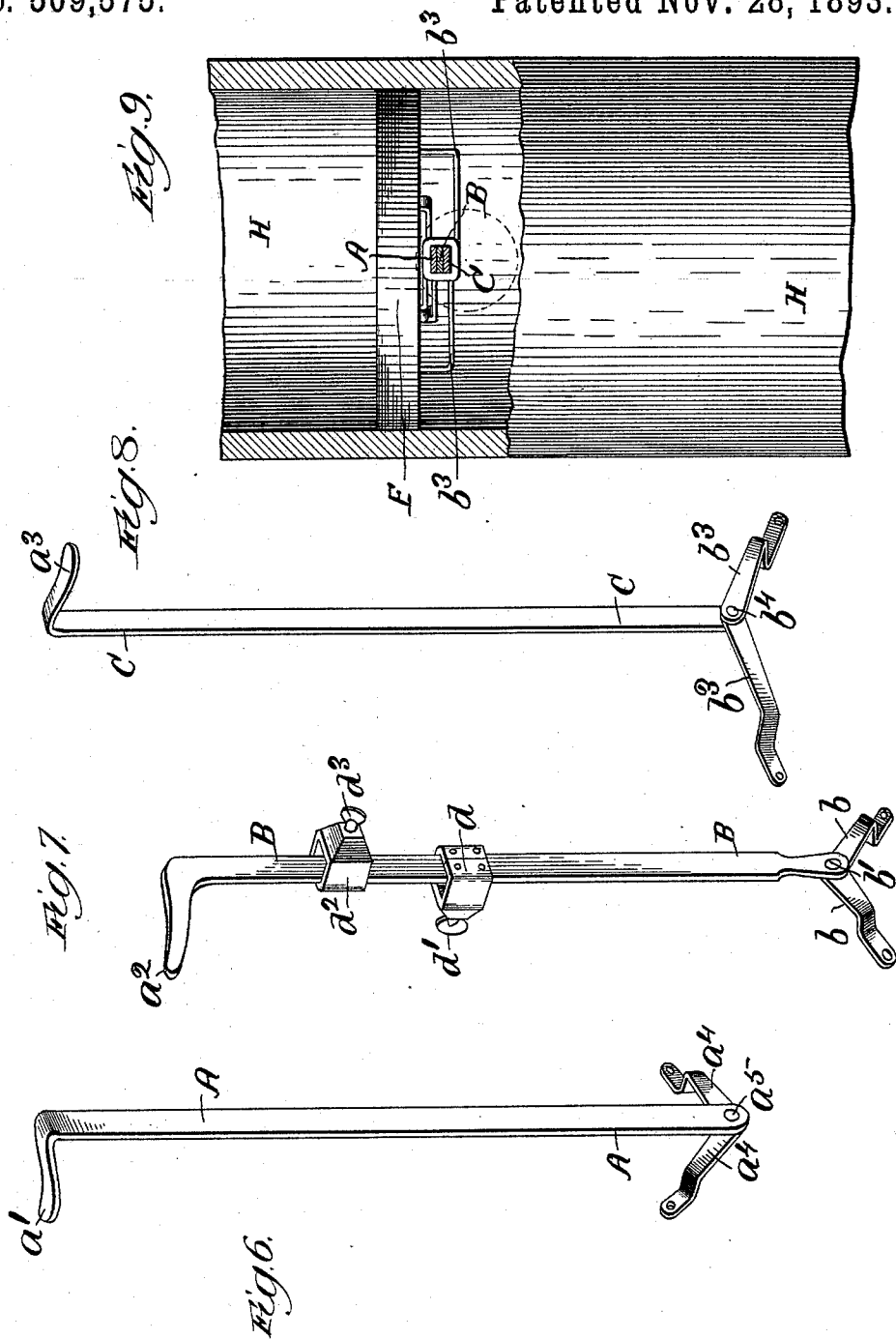
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UNITED STATES PATENT OFFICE.

JOHN GILLIGAN, OF CHICAGO, ILLINOIS.

PIPE STOP OR SHUT-OFF.

SPECIFICATION forming part of Letters Patent No. 509,575, dated November 28, 1893.

Application filed April 27, 1893. Serial No. 472,051. (No model.)

To all whom it may concern:

Be it known that I, JOHN GILLIGAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pipe Stops or Shut-Offs, of which the following is a full, clear, and exact description, that will enable others to make and use the same, reference being had to the accompanying drawings, forming a part of this specification.

The object of this invention is to provide a device for temporarily closing pipe-mains at the point where repairs are to be made, or branches are to be connected, without having to shut off an entire section or district.

The device is collapsible so that it may be compressed into a small compass and inserted through a small hole and then expanded to the full interior diameter of the pipe, and tightly closing the passage therethrough. Heretofore a rubber sack has been used for this purpose, which, after being inserted in the pipe, was inflated with air. The objections to this were many; among others that it was quite difficult to either get the sack in or out of position, and the rough edges, surrounding the aperture, would often puncture and destroy the sack for all further usefulness.

The device is adapted to be used for gas, water and oil-pipes or mains.

Figure 1 is an elevation in perspective, showing the device in a folded position. Fig. 2 is a front elevation showing the device in its expanded position inside of the pipe; Fig. 3, a broken-away transverse section on line 3, Fig. 2, looking in the direction indicated by the arrow; Fig. 4, a broken-away transverse section on line 4, Fig. 2; Fig. 5, a detached detail in perspective. Figs. 6, 7 and 8 are elevations in perspective of the different adjusting-handles; and Fig. 9, a broken-away elevation and part section of a piece of pipe, showing the device in a shut-off position.

The handles A, B and C are arranged side by side in a parallel plane and are held loosely together by a sliding band or clip a , located along toward the inner ends, as shown in Figs. 2 and 9. The outside handle A (Fig. 6.) is provided with the handle-end a' turned outwardly at right angles there-

from; the middle handle B (Fig. 7) with the handle-end a^2 turned downwardly at right angles; and the outside handle (Fig. 8) with the handle-end a^3 turned outwardly, so that the different handles may be manipulated in adjusting the device. To the inner end of handle A is pivoted the inner ends of companion arms $a^4 a^4$, as at a^5 . The respective outer ends of these arms are pivoted, as at a^6 , to the lugs $a^7 a^7$ formed on and projecting inwardly from the segment-plates D. The inner end of the middle handle B (Fig. 7) extends across to the opposite side of the circle and has the inner ends of arms $b b$ pivoted thereto, as at b' . The opposite ends of arms $b b$ are pivoted to lugs b^2 formed on segment-plates D'. To the inner end of outside handle C is pivoted the inner ends of arms $b^3 b^3$, as at b^4 . The outer ends are pivoted, as at b^5 , to lugs b^6 formed on segment-plates D², diametrically opposite each other, as shown in Fig. 2. The relative position of the expanding arms, shown in Figs. 6, 7 and 8, correspond to the position illustrated in Fig. 2. The series of segment-plates (one of which is shown in Fig. 5) is arranged between the inside flexible ring E and the outside flexible ring F, which parts may be wired or otherwise suitably secured together. The edge of the flexible diaphragm G is clamped between these rings and closes one side. These rings will be, ordinarily, of rubber, leather or other suitable material; while the diaphragm will usually be of canvas cloth.

It is obvious that the parts can be so constructed that one flexible ring will have the same functions as the two shown.

The outside handle A and middle lever B are embraced by a clip d , provided with a hand clamping-screw d' . The opposite outside lever C and the middle handle are embraced by a clip d^2 , provided with a similar clamping-screw d^3 . By this arrangement the series of handles is retained in proper position for an endwise movement only, and may be locked together to hold the arms and rings in the expanded position shown in Fig. 2.

In practical use, a hole is first drilled in the pipe H, of about the size indicated by the broken lines in Fig. 9, relative to the diameter thereof. The device is then flattened or compressed edgewise (Fig. 1) folding the ex-

panding arms inwardly nearly parallel with their respective handles by drawing the same outwardly. The device is then inserted into the pipe and expanded out to have a close bearing on the interior surface, by pushing inwardly on the different handles until the passage is closed.

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

1. In a device of the character described, the combination with, a number of handles, loosely joined together and having an independent endwise movement with reference to each other, of a flexible ring, a series of expanding-arms, pivotally connecting said levers and ring, and a flexible diaphragm, attached to and closing the passage through said ring, substantially as set forth.

2. In a device of the character described, the combination with, a number of handles,

loosely joined together side by side, of a series of expanding arms, a number of segment-plates, provided with inwardly projecting lugs, said arms pivotally connecting the handles and plates, the flexible rings between which said plates are embedded, and a flexible diaphragm, secured to and closing the passage through said rings, substantially as set forth.

3. In a device of the character described, the combination of a number of handles, a sliding clip, embracing and loosely retaining said handles in position, the clips d d^2 and their clamping-screws, a flexible ring, and the series of arms, connecting the inner ends of said handles and ring, substantially as set forth.

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