

No. 856,650.

PATENTED JUNE 11, 1907.

H. MUELLER.

BY-PASS AND WASTE FOR TAPPING MACHINES.

APPLICATION FILED JAN. 24, 1906.

2 SHEETS—SHEET 1.

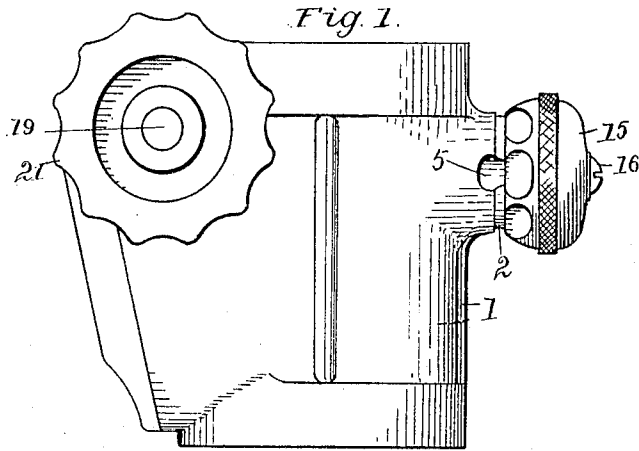


Fig. 4.

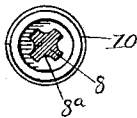


Fig. 3.

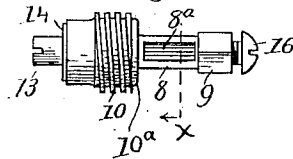


Fig. 2.

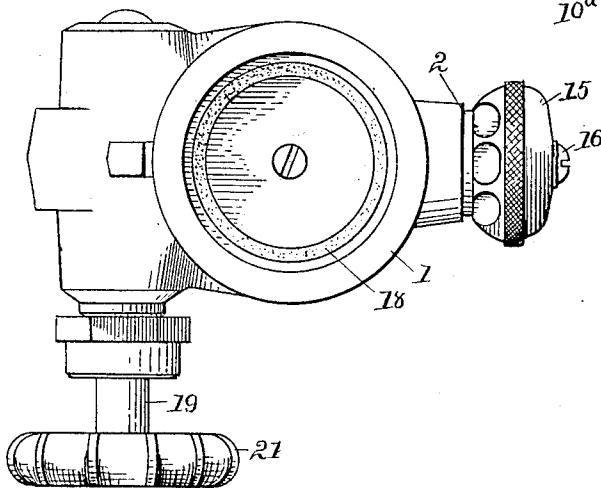
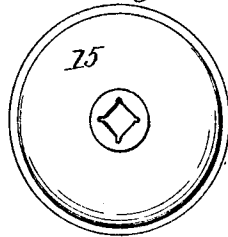


Fig. 5.



Witnesses.

Nora Graham.

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his attorney.

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2 SHEETS—SHEET 2.

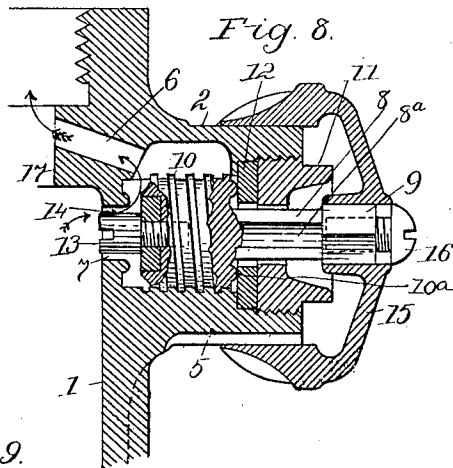
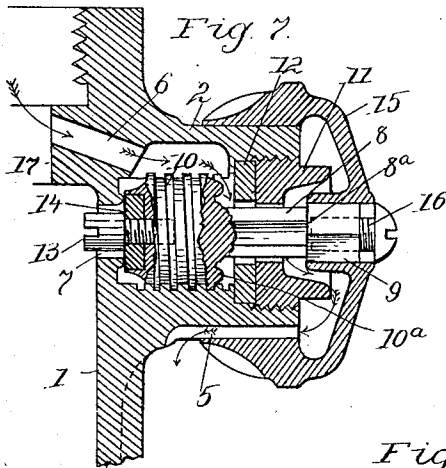
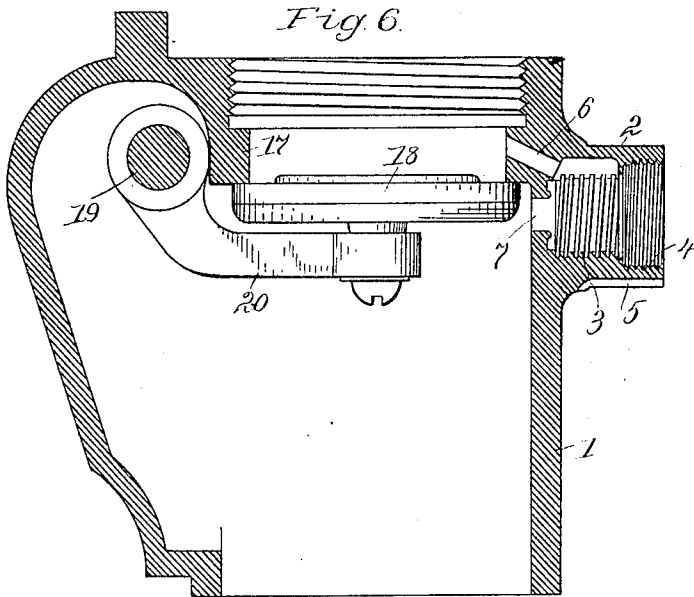
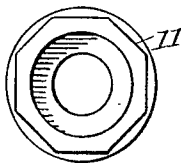


Fig. 9.



Witnesses.

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UNITED STATES PATENT OFFICE.

HENRY MUELLER, OF DECATUR, ILLINOIS, ASSIGNOR TO H. MUELLER
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BY-PASS AND WASTE FOR TAPPING-MACHINES.

No. 856,650.

Specification of Letters Patent.

Patented June 11, 1907.

Application filed January 24, 1906. Serial No. 297,708.

To all whom it may concern:

Be it known that I, HENRY MUELLER, a resident of the city of Decatur, county of Macon, and State of Illinois, have invented a certain new and useful By-Pass and Waste for Tapping-Machines, of which the following is a specification.

This invention is exemplified in the structure hereinafter described and it is defined in the appended claims.

One object of the invention is to afford secure protection for the handle of the stem of the by-pass and waste valves; another object is to direct the discharge of the waste so as to avoid annoyance and inconvenience, another object is to introduce a strainer feature into the by-pass structure, and still another object is to improve the details of construction in the by-pass and waste.

In the drawings forming part of this specification Figure 1 is an elevation of a valve body of a tapping machine provided with my improved by-pass and waste. Fig. 2 is a plan, or end view, of the body shown in Fig. 1. Fig. 3 is a diagram of the valve stem and valves used in my improvement. Fig. 4 is a section through the valve stem on line X in Fig. 3. Fig. 5 is an end view of the cap handle by means of which the by-pass valves are manipulated. Fig. 6 is a section through the valve body and the by-pass chamber, without the valves and the adjuncts thereof. Fig. 7 is a section through the by-pass chamber, showing the by-pass closed and the waste passage open. Fig. 8 is a section through the by-pass chamber, showing the by-pass open and the waste passage closed. Fig. 9 is a diagram of the threaded collar that holds the outside valve seat ring in place.

The valve body 1 is adapted to sit on the saddle that fits against the main to be tapped and it is threaded in its upper, or outer end to receive the cylinder of the tapping machine. A valve seat 17 is formed in the body 1 below the threads thereof and a valve 18 is closable against the seat. In this instance the valve is carried on an arm 20, which is fastened to shaft 19, and a handle 21, outside the body, provides means for swinging the valve.

The by-pass chamber 2 extends laterally from the valve body and it communicates with the interior of the body both above and below the valve seat thereof, as shown at 6 and 7. The by-pass chamber is cylindrical and it is bored and threaded internally to

two diameters, as shown at 3 and 4. The smaller bore 3 receives the threaded enlargement 10 of the valve stem 8 and the larger bore receives the threaded collar 11. The valve seat washer 12 fits against the shoulder formed by the enlarged outer bore 4 and it is held in place by the collar 11. The threaded enlargement 10 of the valve stem has a valve ring, 10^a, on one end, which is adapted to close against washer 12, and a valve washer 14, in the opposite end of the enlargement 10, is adapted to close against a valve seat formed on the partition that separates the by-pass chamber from the interior of the valve body. The outer end of the valve stem is square, or non-circular, to engage the cap handle 15 and a set screw 16 provides means for securing the cap handle on the stem. Between the square part 9 and the threaded enlargement 10 the valve stem is longitudinally grooved, as shown at 8^a, and the grooved part of the stem extends through the valve washer 12 and the collar 11. The valve ring 14 is held in place by a screw 13 the head of which is cylindrical and of a diameter slightly smaller than the waste passage 7, which is also cylindrical and concentric with the screw head.

The cap handle fits snugly but movably over the outer end of the by-pass chamber 85 and its interior forms a part of the waste passage. A groove, or grooves, 5, running lengthwise of the exterior of the by-pass chamber, inside the cap, complete the waste passage, and said grooves are preferably formed in the sides of the chamber surface, as shown in Fig. 1.

When in the operation of the tapping machine it becomes necessary to equalize the pressure on valve 18, the by-pass is opened, as shown in Fig. 8, and water is allowed to pass from below the valve to above the same, assuming the machine to be extending upward from the main.

When it is desired to draw off the water accumulated beyond valve 18, the by-pass is closed and the waste passage is opened, as shown in Fig. 7.

The by-pass passage is through bores 6 and 7 and the waste passage is through bore 6, along grooves 8^a of the valve stem, through the concaved end of the cap handle and out through grooves 5. The opening of the by-pass closes the waste passage, and the closing of the by-pass opens the waste passage.

The cap handle fits the by-pass chamber extension quite closely and any stress or jar that the handle may receive is sustained by the substantial and rigid extension of the valve body instead of by the smaller and somewhat frail valve stem. The cap handle also diverts the spurt of the waste flow toward the valve body, where it causes no inconvenience or annoyance.

The port 7 is larger than is needed for the by-pass and the opening is diminished by the cylindrical screw head, which converts the cylindrical port into a narrow annular passage way. The annular passage way is sufficiently narrow to preclude the entrance of chips into the by-pass, and the reciprocating motion of the screw head tends to push the chips away from the port, when the machine is operated in a position that permits the chips to move toward the by-pass chamber.

I claim as new and desire to secure by Letters Patent;—

1. A by-pass and waste for tapping machines, comprising a cylindrical lateral extension of the valve chamber of the tapping machine, internally shaped to form the by-pass and waste and having a longitudinal

groove in its exterior surface, a valve stem having its outer end projecting beyond the cylindrical extension, valves on the stem to control the by-pass and waste, and a cap-formed handle fastened to the outer end of the valve stem and fitted closely over the cylindrical extension that forms the by-pass chamber.

2. In a tapping machine, the combination with the valve body and the valve thereof, of a lateral by-pass chamber communicating with the interior of the valve body above the valve seat thereof and having an enlarged circular opening leading into the valve body below the valve seat, a valve stem in the by-pass chamber, a valve on the stem adapted to open and close the by-pass, and a cylindrical extension of the by-pass valve projected into the enlarged circular opening and forming thereof a narrow annular passage way.

In testimony whereof I sign my name in the presence of two subscribing witnesses.

HENRY MUELLER.

Witnesses:

ANNA MURPHY,
JOHN L. WADDELL.