J. G. MURDOCK.

COMBINED STOP-COCK AND COUPLING.

No. 192,654. Patented July 3, 1877.

FIG. 1.

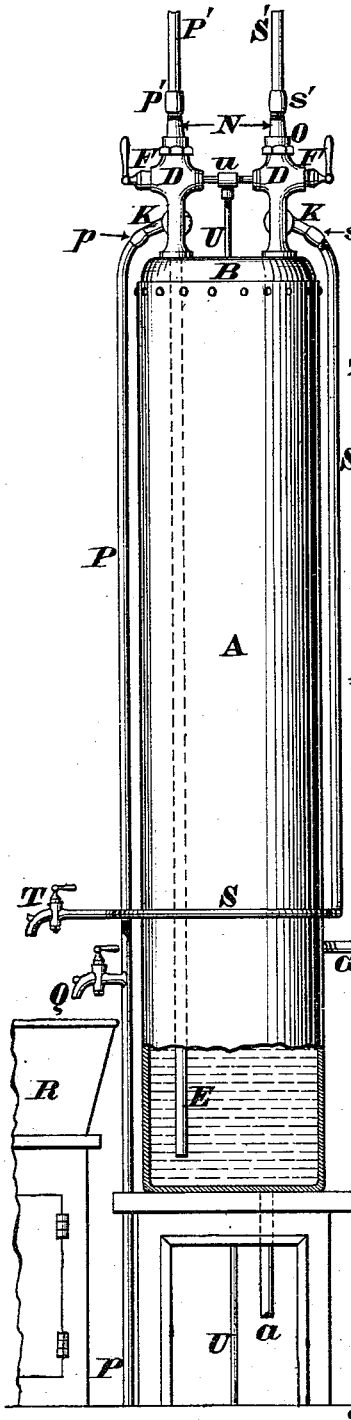

FIG. 2.

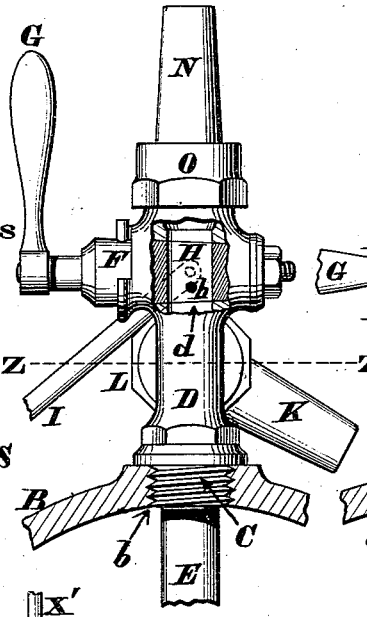

FIG. 3.

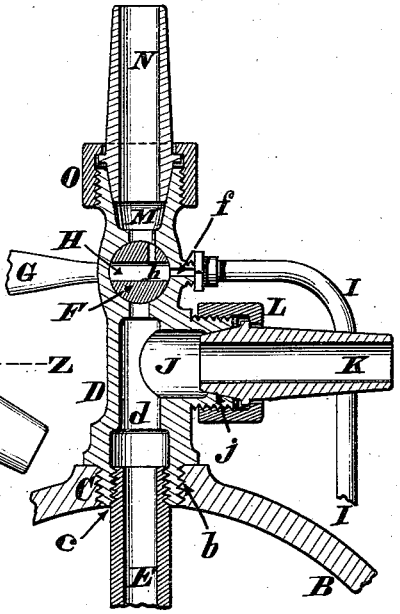

FIG. 4.

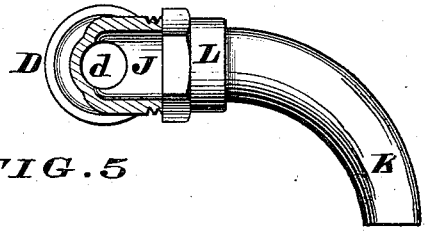

FIG. 5

Attest
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UNITED STATES PATENT OFFICE.

JOHN G. MURDOCK, OF CINCINNATI, OHIO.

IMPROVEMENT IN COMBINED STOP-COCK AND COUPLING.

Specification forming part of Letters Patent No. **192,654**, dated July 3, 1877; application filed July 1, 1876.

To all whom it may concern:

Be it known that I, JOHN G. MURDOCK, of Cincinnati, Hamilton county, Ohio, have invented a new and useful Combined Cock and Coupling, of which the following is a specification:

The object of my invention is to provide a device that will enable the present complicated, expensive, and unsatisfactory system of attaching pipes and faucets to hot-water boilers being entirely dispensed with; and I accomplish this result by means of a combined cock and coupling, whose peculiar construction and mode of operation will be hereinafter more fully explained.

In the annexed drawing, making part of this specification, Figure 1 is an elevation showing a pair of my cocks and couplings applied to a hot-water boiler, the lower portion of the latter being in section. Fig. 2 is a partially-sectionized elevation on an enlarged scale, showing the cock in its open position. Fig. 3 is an axial section taken transversely of the plug, and showing the cock closed and the wasteway open. Fig. 4 is a horizontal section of the device at the line Z Z, Fig. 2. Fig. 5 illustrates the old method of attaching cocks and pipes to a boiler.

A represents an ordinary upright boiler, to whose lower portion two pipes, *a* and *a'*, are secured, which pipes communicate with a coil or other water-heating apparatus fitted within a stove or range; but as this boiler and its heating appliances are old and well known, no further description of them is necessary in this specification.

The boiler is furnished with a customary head, B, tapped at *b* to receive the screw-threaded stem C of a cast barrel, D, which latter may be of any suitable size and shape. This stem C is screw-threaded interiorly at *c* to receive a pipe, E, which pipe reaches almost to the bottom of boiler A, as seen in Fig. 1.

Such a downwardly-projecting pipe is used only in connection with the cock that admits cold water to the boiler, the hot-water faucet requiring no appliance of this kind.

The cast barrel D has fitted within it a customary rotating plug or spigot, F, having a handle, G, and a channel, H, which latter is in line with the axial bore *d* of said barrel when faucet F is open. Communicating with channel or port H is a wasteway, *h*. The shell of the barrel surrounding plug F is pierced at *f*, with which aperture channel H communicates when the faucet is closed, as seen in Fig. 3, thereby allowing the water above said plug to be drawn off, either during the winter season or when the pipes in the upper stories of the house need repairing.

When the cock is open, as seen in Fig. 1, wasteway *h* does not communicate with aperture *f*, and consequently no escape of water can take place through said aperture.

I is a pipe for conducting the waste-water away from the apparatus.

Located at any suitable distance below plug F, and projecting laterally from barrel D, is a branch, J, having a seat, *j*, for the reception of an adjustable solder-tail, K, that may be curved, as shown in Figs. 2 and 4, or said tail may be straight, as represented in Fig. 3.

This solder-tail is maintained in contact with the ground joint or other seat *j* by means of a screw-threaded coupling, L, or its equivalent device.

The upper end of barrel D is furnished with a precisely similar ground joint or seat, M, to receive a solder-tail, N, which latter is secured in position with coupling O. By means of these two couplings, L and O, their respective solder-tails, K and N, may be turned to any convenient position for attachment of the proper pipes.

When my improved faucet is employed for supplying the boiler the solder-tail K has attached to it at *p* the cold-water pipe P, that communicates with the street main or other source of supply. In this case a continuation, P', of the cold-water pipe is soldered to the tail N at *p'*. Q is a faucet or cock for discharging cold water into sink R.

When my faucet is employed for discharging hot water from the boiler the tail K has soldered to it at *s* a pipe, S, which may be provided with a cock, T, convenient to the sink R, or any other place where hot water is required.

Soldered to the tail N at *s'* is a continuation, S', of pipe S, which continuation conducts hot water to the upper stories of the house as soon as cock F is opened.

The waste-pipes I of the two faucets may be united by a coupling, *u*, to a common discharge-tube, U.

It is apparent that the opening of the faucet which communicates with inlet-pipe P will allow cold water to flow into boiler A, and also to ascend through pipe P′ to the upper rooms of the house, where the discharge will be controlled by independent cocks.

In the winter season the supply of cold water is shut off from pipe P′ by turning plug F around to the position shown in Fig. 3, in which position of the cock all water contained in said pipe is drained off through passage *k*, channel H, aperture *f*, and discharge-tubes I and U.

This closure of the cold-water cock does not affect the supply to the boiler, as cold water flows into the latter through pipe E as rapidly as hot water is drawn off at the discharge-faucet.

When the hot-water cock is opened hot water can be discharged either through pipe S T, or else through its upward continuation S′. The closure of this hot-water cock simply shuts off the supply of hot water from the upper part of the house without interfering with the discharge below. When this cock is closed the ascending pipe S′ is drained in the same manner as is pipe P′.

As far as the previously-described operations of the cold and hot water cocks are concerned, they are essentially the same as the devices in common use; but my combined cock and coupling greatly facilitates fitting the various pipes to the boiler, and in order that this advantage of fitting may be more apparent, the old mode of attaching the pipes, &c., is represented in Fig. 5. An inspection of this illustration will show that a nipple, *v*, and coupling *v′* are necessary to unite the solder-tail V to boiler A, after which a joint, 1, has to be made before said tail can be secured to the branch pipe W. This branch requires a solder-joint, 2, to unite said branch with the cold-water-supply pipe X.

Another solder-joint, 3, is then required to secure the upper end of said pipe X to cock Y, the latter being attached to extension X′ by joint 4.

It will thus be seen that with the old method of attachment a nipple, coupling, solder-tail, branch pipe, and four solder-joints are necessary to unite the cold-water pipe X to boiler A′ and to faucet Y, and the hot-water pipe is attached by a precisely similar complicated, expensive, and unreliable system of connections.

Such a complicated system of connections requires considerable time and the most accurate workmanship to produce a neat job, and it necessitates the use of two extra pieces of pipe to make the union between the solder-tails and the inlet and discharge pipes.

After these various fittings have been properly cut, bent, adjusted, and then soldered, the pipes are liable to become loosened and twisted out of place by forcibly turning the faucet-handle when the plug sticks tightly in the barrel. In case some of the pipes should burst it would be necessary with the old form of fittings to cut off all the connections before the repairs could be proceeded with, and in so doing the walls and wood-work near the boiler would be defaced to a greater or less extent.

With my improved device I dispense with nipple *v* and coupling *v′*, and omit entirely the extra lengths of pipe necessary for the branches W. I also save the time, labor, and material employed in producing four solder-joints.

In addition to these important advantages, the accurate workmanship necessary with the old style of fittings is obviated, and on this account a boy can put up my apparatus in one-third of the time that has heretofore been consumed for similar jobs. Another advantage is found in the fact that the device is screwed in the most secure and rigid manner directly into the immovable head of the tank or boiler, and, consequently, no violent straining on the handle of the faucet can possibly twist or bend either the pipes or their joints.

Furthermore, in case one of the pipes should break or burst, the injured member can be detached and a new one substituted for it without tearing out all the attachments, or in any manner marring the surroundings of the boiler.

If one of the plugs should leak, the couplings K O can be unscrewed, the barrel D be detached from the boiler, and a new barrel and plug be secured in position in a few minutes, and without disturbing any of the pipes.

It is evident the shank or stem C can be screwed into the bottom of the boiler, and the pipe *a*, communicating with the coil, may be coupled to the solder-tail K, the other tail N being united to a drain-pipe, and the aperture *f* soldered up or otherwise closed.

By this arrangement the plug F, when opened, would allow sediment in the boiler being blown out through the tail N and its connection.

As the leading feature of my invention consists of a barrel, D *d*, having a lateral branch, J, projecting from it, and said barrel and branch being furnished with joints or seats, to which their respective tails are coupled, it is evident the details of construction may be varied.

With some cocks the wasteway *h f* may be omitted or its position changed, and a compression-bib or other convenient device may be substituted for the rotating plug F. The invention may be still further modified by employing flanges, bolts, and gaskets, instead of screw-couplings, for uniting the tails K and N to the seats *j* and M, and the outer ends of said tails may be screw-threaded for gas-pipe connections.

I claim as my invention—

1. The herein-described new article of manufacture, comprising the T-joint D *d* J, stop-

cock F H, and the ends constructed with screw-threads C O, the whole combined, constructed, and arranged substantially as and for the purpose herein set forth.

2. The within-described combined cock and coupling, consisting of a barrel, D *d*, rotating channeled plug F H, lateral branch J *j* K L, joint M, tail N, and coupling O, substantially as herein described, and for the purpose stated.

3. The herein-described new article of manufacture, comprising the T-joint D *d*, rotating plug F H, and lateral branch J, which branch is not situated in the same horizontal plane as is said plug, as and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

JOHN G. MURDOCK.

Witnesses:

JAMES H. LAYMAN,

JAMES POWELL.