(No Model.)

F. HYDE.

DEVICE FOR PREVENTING PERCUSSION OR WATER HAMMERING IN PIPES.

No. 301,124. Patented July 1, 1884.

Fig. 1.

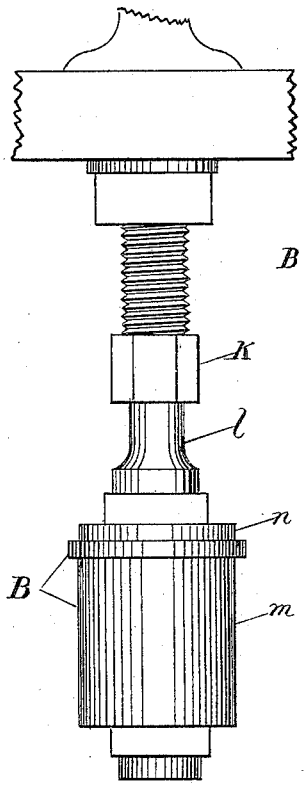


Fig. 2.

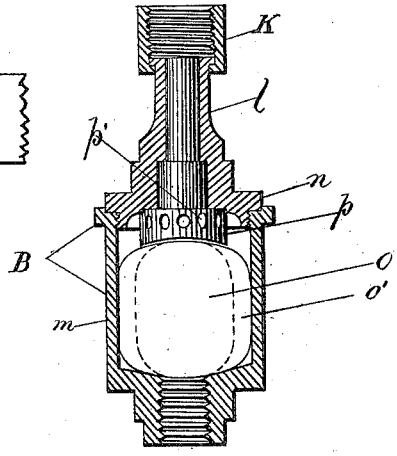


Fig. 3.

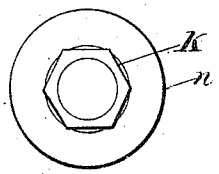
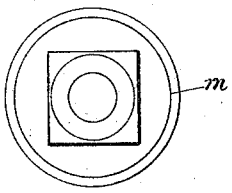


Fig. 4.



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UNITED STATES PATENT OFFICE.

FRANCIS HYDE, OF TORONTO, ONTARIO, CANADA.

DEVICE FOR PREVENTING PERCUSSION OR WATER-HAMMERING IN PIPES.

SPECIFICATION forming part of Letters Patent No. 301,124, dated July 1, 1884.

Application filed July 5, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS HYDE, of the city of Toronto, in the county of York, in the Province of Ontario, Canada, have invented a certain new and useful device, which I call a "percussion-chamber," for the purpose of softening the percussion or water-hammering which takes place in water-pipes under a high pressure; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to the violent disturbance which takes place in water-pipes under a high pressure from the sudden closing of the taps or valves therein. The momentum or force of the water, when suddenly stopped, reacting on the body of water closely following the same, causes a considerable noise and disturbance from the percussion of the water therein, which frequently bursts the pipes, causing considerable damage thereby.

The object of my invention is to do away with the percussion or water-hammering herein referred to; and it consists of a chamber, in which I place a flexible and preferably oblong ball, equal in diameter to the interior of the chamber, and having longitudinal conduits cut in its periphery for the water to pass through when the tap is open. By the peculiar construction and arrangement of the parts comprising my device, I neutralize the percussion aforesaid and its injurious effects on the pipes resulting therefrom, hereinafter more fully described.

In the accompanying drawings, Figure 1 shows an elevation of my percussion-chamber attached to the tap of a wash-basin. Fig. 2 is a sectional elevation of the device. Fig. 3 is a plan view of the cover thereof. Fig. 4 is a plan view of the chamber.

Similar letters indicate similar parts in all the views; and in this specification—

B represents the percussion-chamber, which, for the purpose of illustrating its operation, is attached as aforesaid to the tap of a wash-basin, but is intended for general use. K is a union-coupling, which connects the said chamber to the tap, the connection being made underneath the basin-table; *l*, a short connection-pipe between the coupling and the chamber; *m*, the chamber proper; *n*, the cover of said chamber, constructed with a small circular vessel, *p*, on its inner face, having lateral apertures *p'* in its periphery for the passage of the water from the chamber to the tap, and having a spherical cavity on its lower face, in which the ball is pressed when the tap is being closed; *o*, a flexible ball, located in and fitting closely the interior of the chamber *m*, through which the water must pass, as well as through the lateral apertures *p'* in the vessel *p* aforesaid, in its passage from the pipes to the delivery-nozzle of the tap.

To describe the same more particularly is as follows: The water, in rushing along the pipes when the tap is open, first enters the percussion-chamber *m*, and passes through the longitudinal conduits *o'* in the ball *o*. It then passes through the lateral apertures *p'* in the periphery of the vessel *p* to the interior of said vessel, which is a continuation of the connecting-pipe *l*, and thence to the tap.

It will be seen that with my percussion-chamber, when the tap is being closed, there is not the usual hammering in the pipes so generally complained of, which is now neutralized from the operation of my percussion-chamber as follows: On the instant of closing the tap the sudden stoppage of the water in the pipes under any ordinary city pressure, as hereinbefore stated, causes the water near the tap to react with great force on the body of water following the same, which, being possessed of considerable momentum proportional to its velocity, causes the percussion or hammering in the pipes, and which is relieved, as shown in this case, by the compression of the flexible ball, which neutralizes and softens the shock, and thereby prevents any damage being done to the pipes.

Having thus described my invention, I claim—

1. A percussion-chamber, B, provided with a compression-ball, *o*, having longitudinal conduits *o'* in the periphery thereof, and placed in the chamber proper, *m*, having a cover, *n*, combined with vessel *p*, having orifices *p'*, as shown and described, and operating as set forth.

2. A percussion-chamber, B, constructed with a compression-ball, *o*, acting in combination with taps or valves in water-pipes under a pressure, substantially as specified and described.

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Witnesses:
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