

(No Model.)

F. L. MENTEL.

WATER HAMMER PREVENTIVE.

No. 312,882.

Patented Feb. 24, 1885.

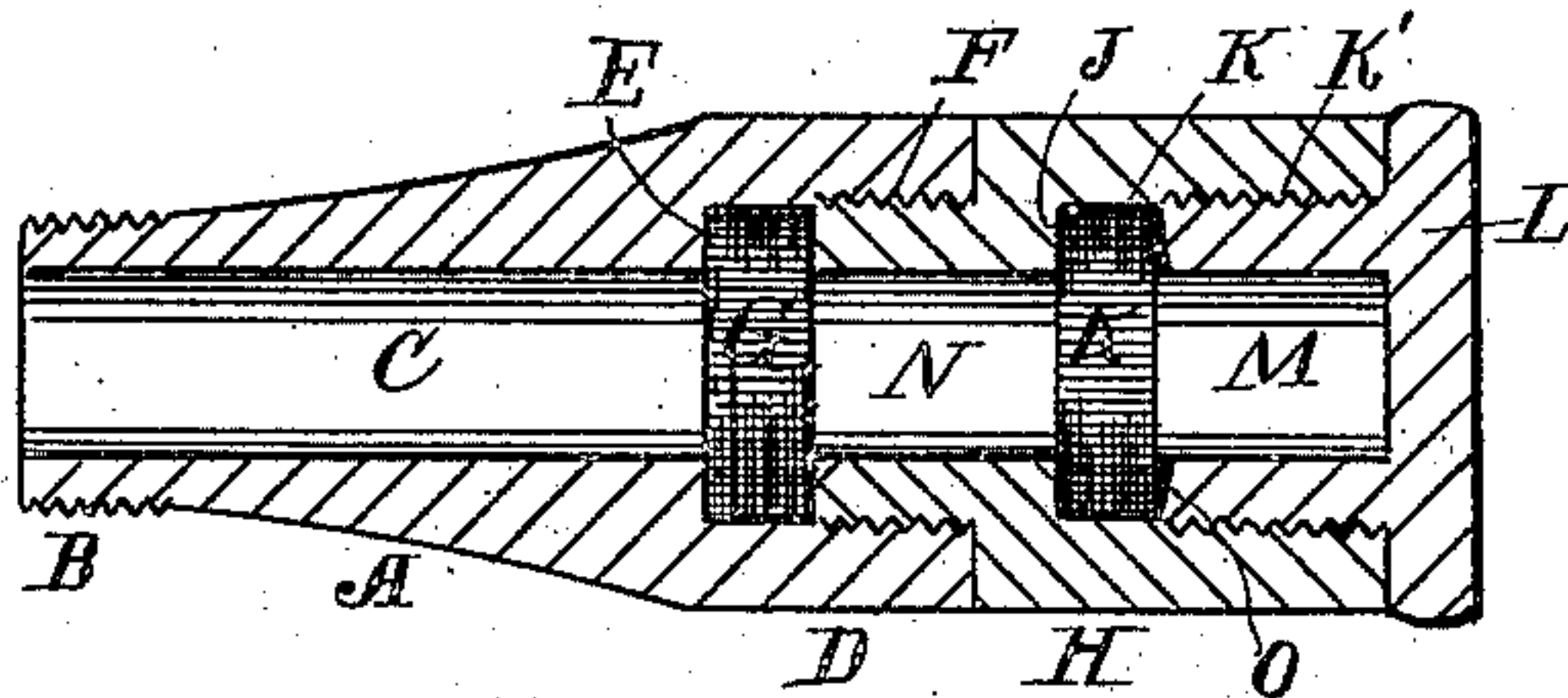


Fig. 1.

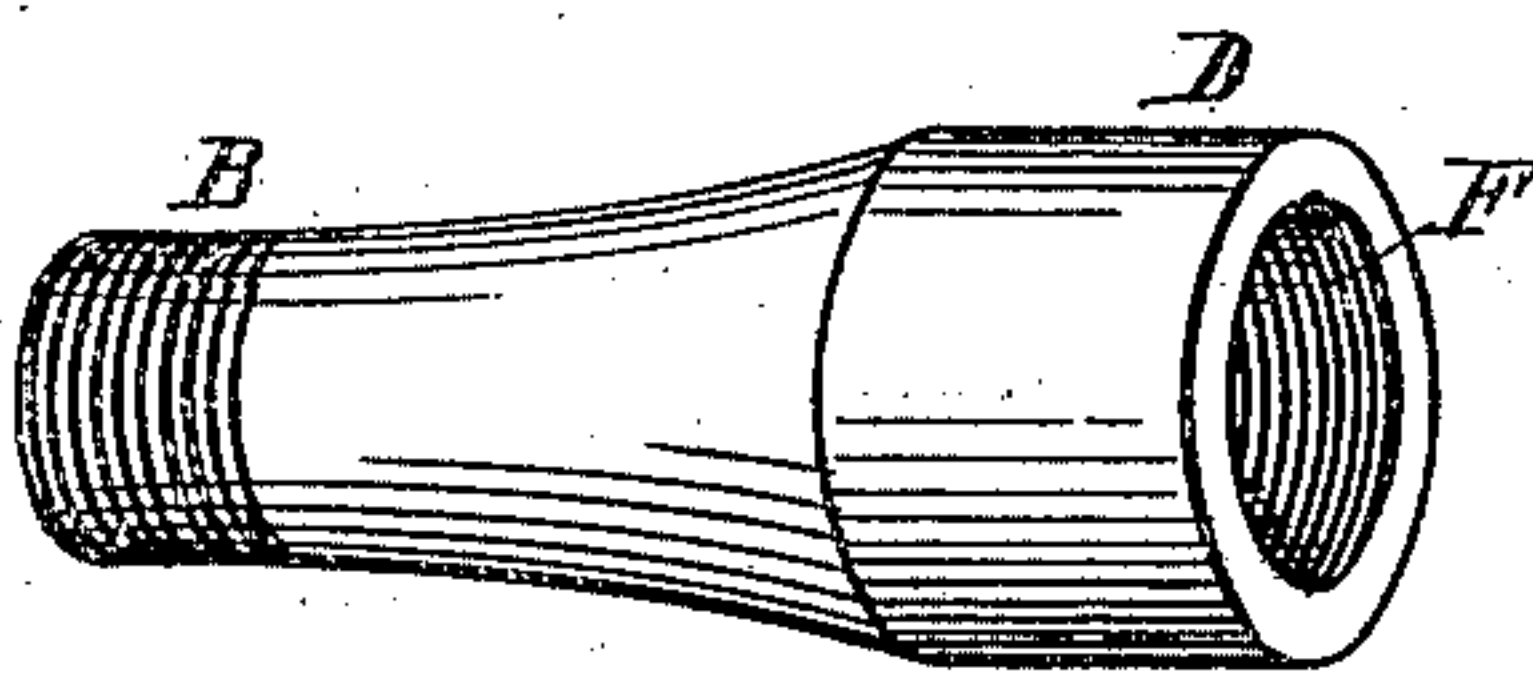


Fig. 2.

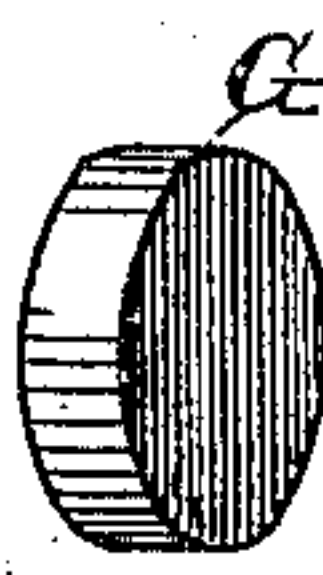


Fig. 3.

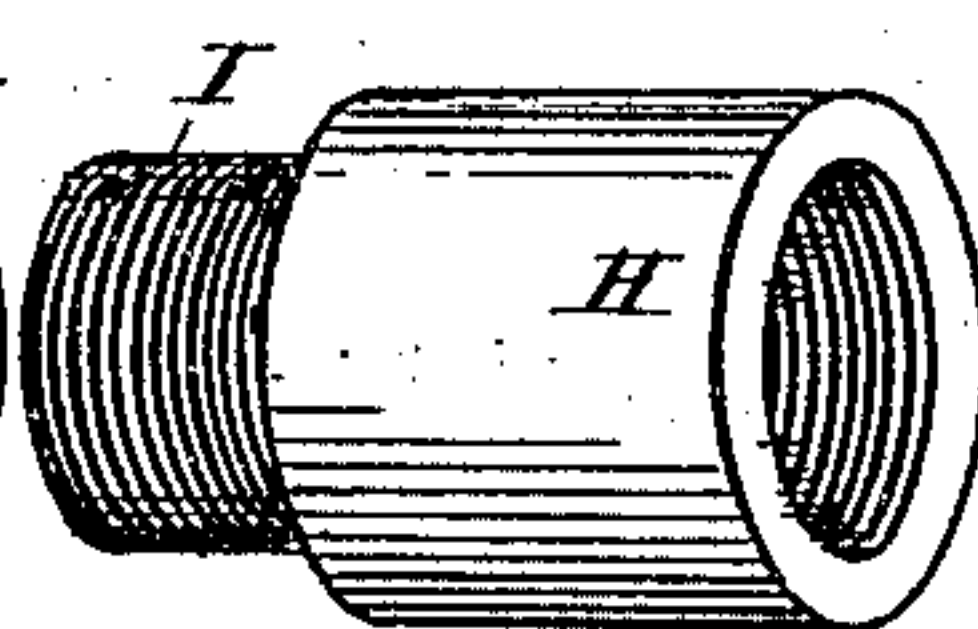


Fig. 4.



Fig. 5.

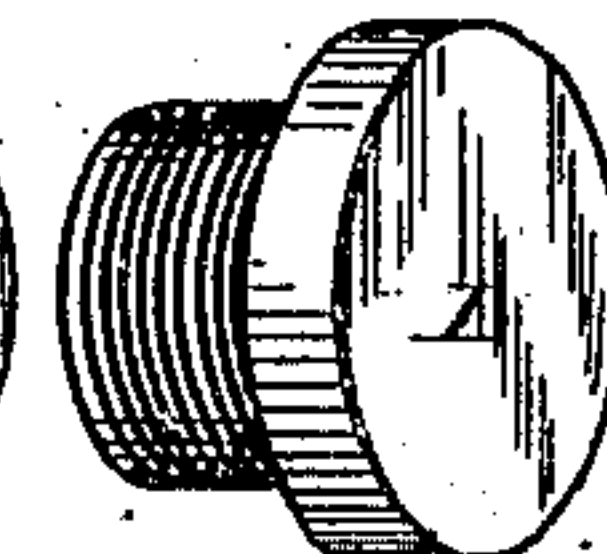


Fig. 6.

WITNESSES:

Robert Kirk

C. D. Zerbe

INVENTOR :

F. L. Mentel

By

C. D. Zerbe

Attorney.

UNITED STATES PATENT OFFICE.

FERDINAND L. MENTEL, OF CINCINNATI, OHIO.

WATER-HAMMER PREVENTIVE.

SPECIFICATION forming part of Letters Patent No. 312,882, dated February 24, 1885.

Application filed August 14, 1884. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND L. MENTEL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Water-Hammers, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a vertical longitudinal section of my improved water-hammer. Fig. 2 is a perspective view of the tube which is attached to the water pipe; Fig. 3, a perspective view of the elastic cushion in contact with the water; Fig. 4, a perspective view of the tube forming the air-chamber; Fig. 5, an elastic cushion for the air; and Fig. 6 is the tube forming the air-chamber and head of the device.

The object of the present invention is to provide a new and improved water-hammer for pipes, so arranged that the water, in gaining admission to the tube device, comes in contact with an elastic cushion, which cushion has on its opposite side an air-chamber, the opposite end of which chamber has a secondary elastic cushion backed by a secondary air-chamber, so that the force of the water as it strikes the main cushion is counteracted, not only by the elastic cushion, but by the two independent air-chambers, all of which will now be fully set forth in detail.

In the accompanying drawings, A represents the main tube, which is attached to the water-pipe either by means of the threaded end B or by soldering to the water-pipe, as may be most convenient. Centrally is an aperture, C, which may or may not conform with the size of the water-pipe to which it is attached. The opposite end of this tube is enlarged exteriorly, as shown at D, and provided within with an enlarged portion, so as to form an annular seat or shoulder, E. The one rim is screw-threaded, as shown at F, to receive the tubular part H, Fig. 4. An elastic cushion, G, is placed in the opening, so as to rest upon the shoulder E, and the tubular part H, having its end I reduced and screw-threaded, is designed to be screwed into the end of the tube A, so that it will bind the

cushion G snugly in its seat. The opposite end of the intermediate tube, H, is provided with a similar socket and seat, J, to receive a rubber cushion, K. The end is also screw-threaded, as shown at K', to receive the head or cap L. The cap L is hollowed within, as shown at M, so as to provide an air-space similar to the air-space N in the intermediate tube, H. The inner end of the cap L, which abuts the cushion K, is preferably concaved, as shown at O, so as to provide for compression of the cushion K.

When the water enters the tube C, which first moves inwardly, the elastic cushion G in turn imparts pressure to the cushion K through the intervention of the compressed air within the chamber N. Thus the two independent air-chambers N M receive the force or impact of the water in quick succession, and prevent the blow of the water upon the pipe.

Having described my invention, what I claim is—

1. A water-hammer consisting of the screw-threaded tubular section A, the screw-threaded hollow cap L, the intermediate screw-threaded hollow section H, and the two elastic cushions confined in said sections and forming two air-chambers, substantially as described.

2. A water-hammer composed of three screw-threaded sections connected together, as described, the elastic diaphragms therein, and the two air-chambers, as specified.

3. In a water-hammer, the combination of the tube A, adapted to be attached to a water-pipe having at its opposite end of the attachment, within a suitable recess, an elastic cushion, the intermediate tube, H, having an air-chamber, N, and the cap or head L, having a secondary chamber or air-space, M, with the elastic cushions G K, as and for the purposes substantially as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 17th day of July, 1884, in the presence of witnesses.

FERDINAND L. MENTEL.

Witnesses:

J. S. ZERBE,

C. D. ZERBE.