

L. J. KNOWLES.

Air-Chamber for Steam-Pumps, &c.

No. 160,206

Patented Feb. 23, 1875.

Fig. 1.

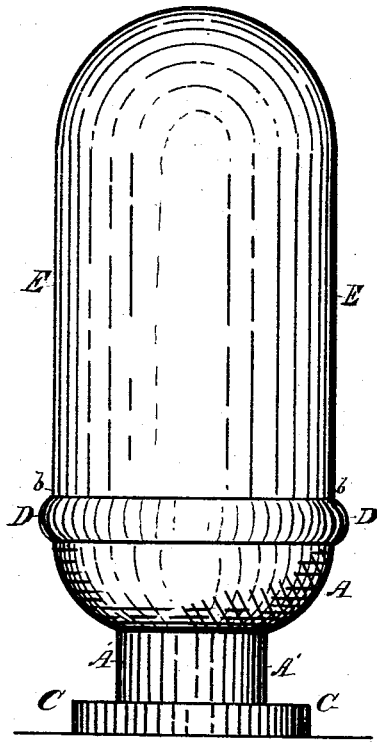
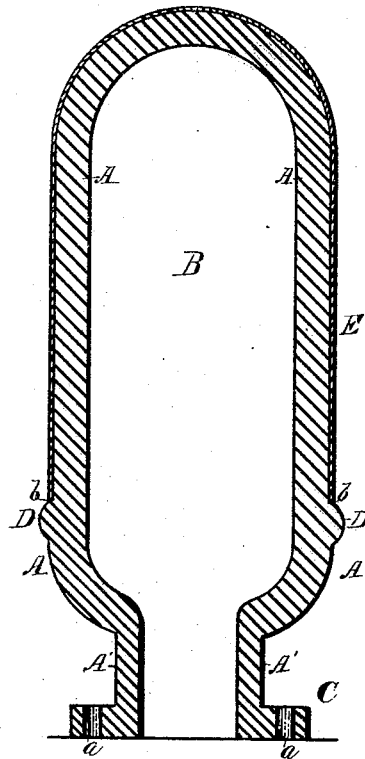


Fig. 2.



Witnesses;
Thos. H. Dodge
Edwin C. Moor

Inventor;
Lucius J. Knowles

UNITED STATES PATENT OFFICE

LUCIUS J. KNOWLES, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN AIR-CHAMBERS FOR STEAM-PUMPS, &c.

Specification forming part of Letters Patent No. **160,206**, dated February 23, 1875; application filed January 28, 1875.

To all whom it may concern:

Be it known that I, LUCIUS J. KNOWLES, of the city and county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Combined Cast-Iron and Wrought-Metal Air-Chambers for steam-pumps and other similar machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a side view of an air-chamber for steam-pumps embracing my said improvements, and Fig. 2 represents a vertical central section of the air-chamber shown in Fig. 1.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

Air-chambers for steam-pumps, as constructed previous to my said invention, were usually made of copper, and, as they were required to sustain great internal pressure, they had to be made quite thick, and were necessarily very expensive. Then, again, they were liable to injury by indentation in consequence of accidental blows received during transportation or while in use, thereby occasioning indentations and often punctures, which injury could not be remedied without much expense and inconvenience, and then only by a stoppage of the pump while such repairs were being made. Still, again, as the air-chambers of steam-pumps are required to be ornamental as well as strong and durable, it is necessary to have their upper exterior surface so made that it can be kept polished.

To obviate the foregoing objections to air-chambers as heretofore constructed, while at the same time securing all the advantages thereof, is the object of my present invention.

In the drawings, the part lettered A is made of cast-iron, having an interior chamber, B, to receive and hold the compressed air. It is also provided with a neck, A', and a flange, C, having holes *a*, by means of which it is

bolted or secured to the pump. It is also provided with a rounded projection, D, near its lower end. E represents a thin copper or brass covering, which can be made quickly and cheaply from brass or copper by the "spinning process," so called. The lower edge *b* of the cap or shield E rests against the upper edge of the rounded projection D, while the interior surface of the said cap or shield is made so as to fit closely to the upper exterior surface of the strong cast-iron part A.

From the foregoing description it will be seen that my improved air-chamber possesses great strength and durability in consequence of the cast-iron part A, while at the same time, in consequence of the thin sheet-metal casing or cap E, the upper part of the air-chamber can be kept highly polished, and that, too, at a trifling expense, since the cap or shield E can be removed from the cast-iron part to be polished or cleaned.

Then, again, as the thick, strong cast-iron part A supports the interior surface of the sheet-metal cap or casing in all its parts, the latter is not liable to be injured or disfigured or indented by accidental blows; but, in case it should be so injured, it can be quickly removed, and that, too, without stopping the pump, and the injury remedied by placing the cap or shield upon a former block or plunger, when its original shape can be almost instantly produced, and at the same time, and while in said position, its exterior surface can be repolished.

Having described my improvements in air-chambers for steam-pumps and other similar purposes, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

A combined cast-iron and sheet-metal air-chamber for steam-pumps and other similar machines, composed of the cast-iron part A and sheet-metal part E, constructed and combined together substantially as and for the purposes set forth.

LUCIUS J. KNOWLES.

Witnesses:

THOS. H. DODGE,
EDWIN E. MOORE.