

(No Model.)

A. A. ROBINSON.
METHOD OF MAKING LEAD TRAPS.

No. 406,146.

Patented July 2, 1889.

Fig. 1.

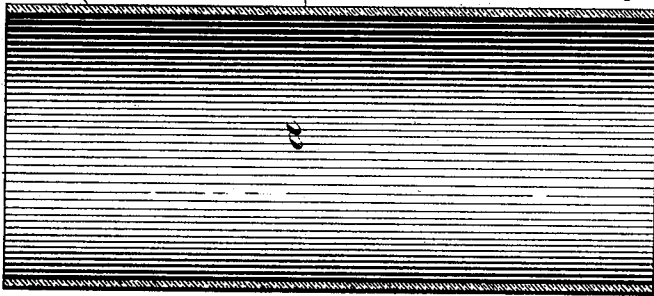


Fig. 2.

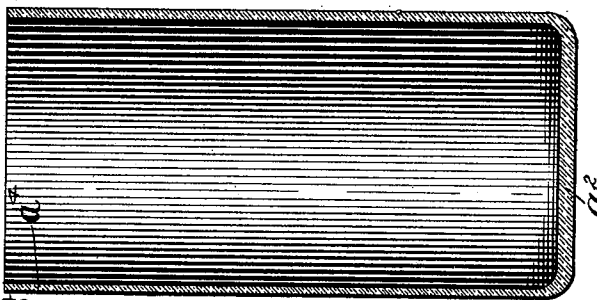


Fig. 3.

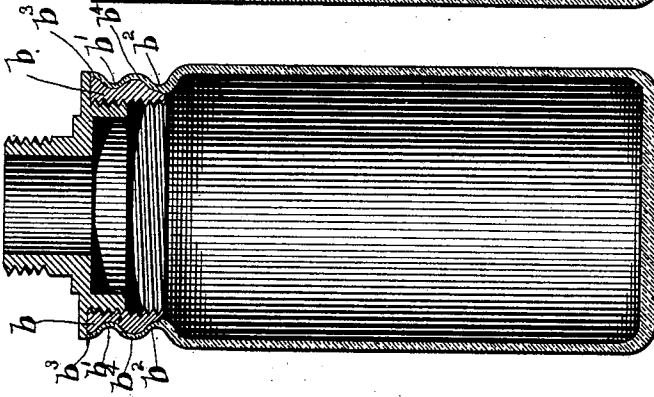
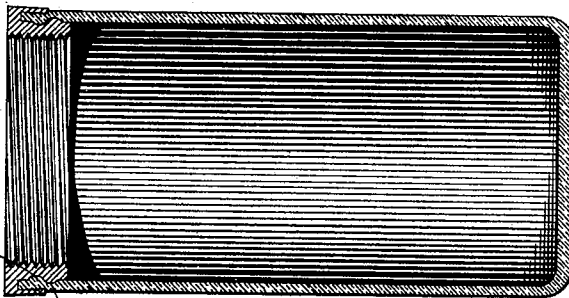
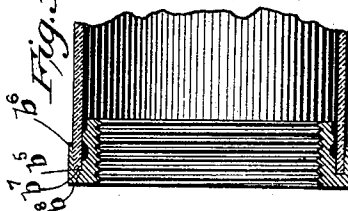


Fig. 4.



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Fig. 5.



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METHOD OF MAKING LEAD TRAPS.

SPECIFICATION forming part of Letters Patent No. 406,146, dated July 2, 1889.

Application filed January 9, 1889. Serial No. 295,874. (No model.)

To all whom it may concern:

Be it known that I, ALPHEUS A. ROBINSON, of Cambridgeport, in the county of Middlesex and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in the Method of Making Lead Traps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to an improved method of making lead traps by spinning in one end of a cylinder or tube to its center under pressure and friction sufficient to heat and fuse the metal and thus cause it to flow in and form a solid bottom integral with the sides or body of the trap.

Heretofore lead traps have been provided with bottoms which have not been integral with the metal of the sides of the trap, but have been formed by bending in a portion of the lower edge of the body of the trap, and then filling the opening remaining with solder or other material. The bottoms of lead traps have also been formed by spinning in the lower ends of the bodies of the traps nearly to the centers and subsequently filling the holes left at the centers by fusing the metal, as set forth in Patent No. 389,761 to Phillips; but this method required two operations, while by my improved method, which consists in spinning in the lower part of the section of the body to the center of the bottom under sufficient pressure and friction to cause the metal to flow and unite, an integral bottom is formed at one operation.

Referring to the drawings, Figure 1 represents in section a section of a lead tube from which the body of the trap is formed. Fig. 2 represents the lower section of the tube closed in by spinning under pressure to form the bottom of the trap. Fig. 3 is a view in section of the complete trap, representing the top of the lead body as spun upon the ring which forms a section of the coupling. Figs. 4 and 5 relate to a slight modification, to which reference is hereinafter made.

The tube or cylinder a of lead or other similar metal is submitted to a spinning operation, whereby, if desired, its diameter is increased and its lower section a' spun in un-

der pressure and friction to form the imperforate or solid bottom a^2 . In spinning this bottom the metal must be subjected to sufficient friction or pressure to cause the metal to become heated and to flow during the action of the spinning, and by this means I am enabled to spin a solid bottom, as the metal flows under the friction or heat to which it is subjected during the spinning operation and unites as it comes or is brought together. The bottom as thus formed is thicker, preferably, than the side a^3 of the body. The top a^4 of the body is then united by spinning to a ring, forming a section of the coupling and also the top of the trap. I have represented in Fig. 3 the ring b as having two recesses b' b^2 , extending about or around its outer edge, and the projections b^3 b^4 , and the upper part of the body of the trap is spun upon this surface to tightly fit the same.

In Figs. 4 and 5 I represent a slightly-different form of ring, and it is the one of the two that I prefer. It has a recess or groove equivalent to the groove b' extending about it, and also a projection equivalent to the projection b^4 extending around it. There is also formed on the ring a recess b^5 , which receives the upper end of the body and which is formed by means of a downward-extending ring or section b^6 of the ring b . This recess b^5 is of a size to receive the top of the body, and the upper surface or edge b^7 bears against the metal of the ring at b^8 . The upper section of the body and the ring b^6 are then spun in, causing the metal of the body to enter and fill the recess b' to hug the projection b^4 , and the ring b^6 to bear firmly against the outer surface of the body. (See Fig. 4.) This construction of trap is desirable because it is cheaply made and provides a solid or integral bottom where a bottom in two parts has heretofore been used, thus doing away with joints and rendering leakage practically impossible.

So far as I am aware, all lead traps heretofore made have not been provided with solid or homogeneous bottoms—that is, a bottom that is integral with the sides. This is due to the method of manufacture employed, which involves, as a rule, the partial spinning to an extent which varies in degree, but which always leaves a hole more or less large, and this

hole has been subsequently closed by either the application of solder, which of course involves the use of acid or rosin for the purpose of making a proper union, or by the subsequent melting of the edge of the metal about the hole to an extent to permit it to run together because of its fluidity under heat, but for no other reason. The method of closing the opening by solder is defective. If acid is employed, it sooner or later eats small holes through the solder or lead, causing the trap to be defective. It is of the utmost importance that the bottoms of these traps be solid and free from any defect which shall produce leakage, and that they be strong. Where the hole is closed by the subsequent melting of the metal about the edge, the metal necessary for this purpose is drawn or taken from the metal about the edge of the hole and from nowhere else, and consequently reduces materially the thickness of the bottom at that point—viz., at the center of the trap and immediately about it. It will be understood that by my method of forming the bottom it is necessary to employ a cylinder or tube of lead or metal somewhat longer than that which has heretofore been used in forming the traps by the combined operation of spinning and soldering or by spinning and melting, and that the forming of the bottom is accomplished by the use of spinning devices or tools under a continuous friction or pressure of sufficient extent to cause the metal to flow from the time that the spinning operation begins until it is completed, and that this spinning operation is continued under these conditions past or beyond the center of the bottom—that is, the spinning-tool is caused to run beyond the center of the bottom, and the spinning operation is continued until the entire body or mass of metal turned in or flowed in by the spinning-tool makes or becomes a portion of the bottom and is homogeneous with the sides, and

that this is accomplished without the use of any additional auxiliary heat excepting that obtained by the pressure or friction of the tool upon the metal, and upon the removal of the spinning-tool the bottom of the trap is complete. There is no subsequent application of solder or auxiliary heat of any kind to finish the bottom, and the bottom thus made is thick and substantial throughout, being as thick at the center as in any other part of the body.

I claim—

1. The improved method of forming the bottoms of lead traps, consisting in taking a tube or cylinder of a sufficient length and in spinning an end section of the cylinder or tube of sufficient length to or beyond the center of the tube or cylinder and under a pressure or friction sufficient to cause the metal to flow and unite and form a homogeneous seamless and complete bottom, as and for the purposes specified.

2. The improved method of forming lead-trap bodies, comprising the taking of a cylinder or tube of sufficient length to form the wall of proper height and a continuous homogeneous bottom and forming the homogeneous bottom by spinning in under heat produced by pressure or friction of the spinning-tool during the spinning operation an end section of the tube or cylinder sufficiently large to form the homogeneous bottom, and continuing said spinning operation under said heat past or beyond the center of the bottom, whereby all the metal of the spun-in section forms a part of the bottom of the trap, and subsequent melting or soldering of the bottom of the trap to close a hole dispensed with, substantially as described.

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In presence of—

F. F. RAYMOND, 2d.,
J. M. DOLAN.