(No Model.)

C. E. HEISS.

APPARATUS FOR FORMING LEAD SASH WEIGHTS.

No. 362,623. Patented May 10, 1887.

Fig 1

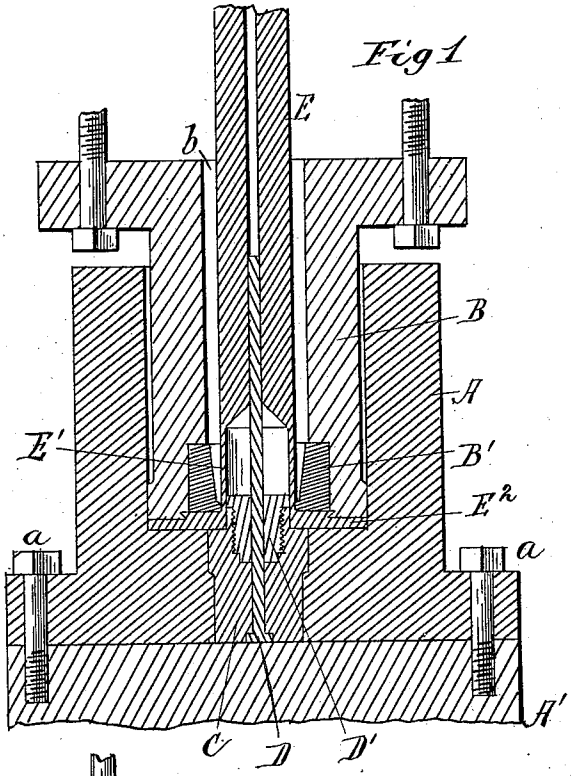


Fig 2

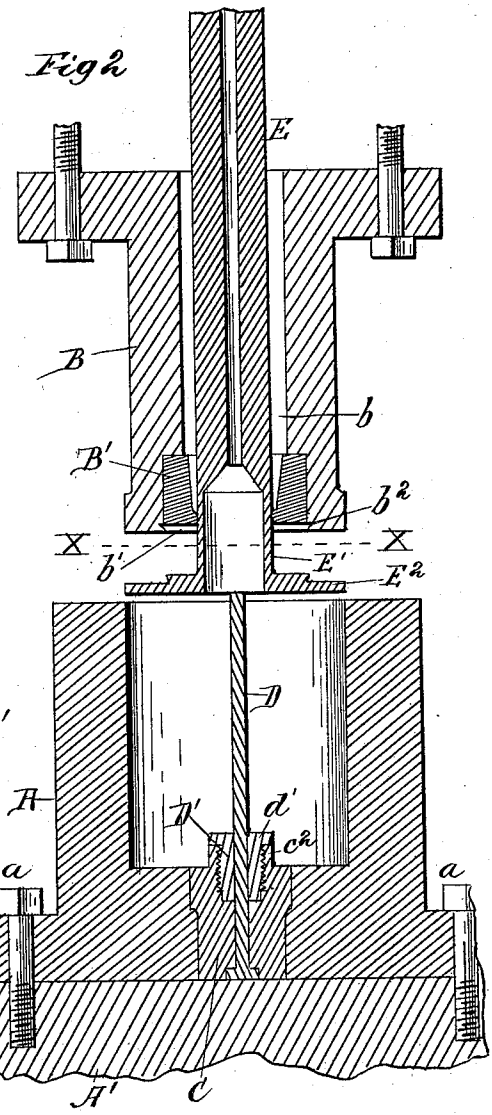


Fig 3

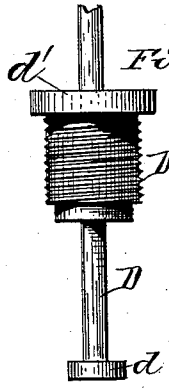


Fig 4

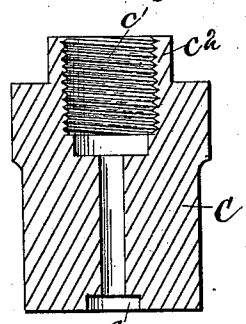


Fig 5

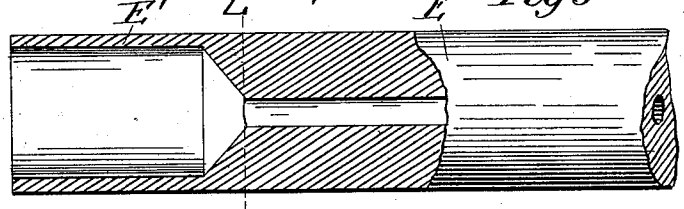
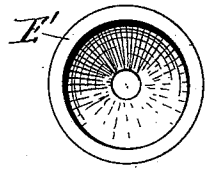


Fig 6



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UNITED STATES PATENT OFFICE.

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APPARATUS FOR FORMING LEAD SASH-WEIGHTS.

SPECIFICATION forming part of Letters Patent No. 362,623, dated May 10, 1887.

Application filed January 8, 1887. Serial No. 223,817. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. HEISS, a citizen of the United States, and residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Apparatus for Casting Lead Sash-Weights, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional view of a machine embodying my invention; Fig. 2, a similar view with the parts in another position; Fig. 3, a detail elevation of the core detached; Fig. 4, a detail sectional view of the core-support detached; Fig. 5, a detail view, partly in section, of the lower end of the unfinished sash-weight after its removal from the machine; and Fig. 6, an end elevation of the same. Figs. 1 and 2 are on the same scale; Figs. 3 to 6, inclusive, are on the same scale with respect to each other, but on an enlarged scale with respect to the remaining figures.

Like letters refer to like parts in all the figures of the drawings.

My invention relates to apparatus for casting lead sash-weights, and has for its object to produce a machine which will be more economical both in the use of material and in the time and labor employed than those before used; and to these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claims.

In the drawings, A represents the lead cylinder, and B the piston or plunger co-operating therewith, one of these parts being movable and the other fixed, or both movable, as desired. In the present instance, for the sake of illustration, the piston will be considered as fixed and the cylinder as movable toward and from the same. In this case the part A′, upon which the cylinder is mounted and secured by bolts *a*, will represent a portion of the ram of a hydraulic press or any other suitably-actuated device for operating the cylinder. In the center of the cylinder-head is mounted a block, C, which forms the core-support, this block being shown in detail in Fig. 4 of the drawings.

The core-bar D extends centrally through this support, as shown, and is provided at its lower end with the head *d*, which fits in a corresponding recess, *c*, in the support and prevents displacement of the core-bar in an upward direction, while the part A′, upon which both support and core-bar rest, prevents displacement in the opposite direction. The lower end of the core bar D, immediately above where it enters the support C, is provided with an enlarged portion of greater diameter than the core-bar proper. This enlargement may of course be either formed in one piece with the core-bar or mounted thereon in any suitable manner, the construction which I prefer for the purpose being that shown, in which D′ represents a sleeve which fits over the core-bar D, and is externally threaded to screw into a correspondingly-threaded socket, *c′*, in the core support C. In the construction shown the lower threaded portion of this sleeve is somewhat reduced in diameter, thereby forming an enlarged head, *d′*, upon the top of the sleeve, and the core-support C is provided with an upwardly-extending collar, c^2, of equal diameter with said head, and upon which said head rests when the parts are in position, as shown.

In case the former construction is employed, in which the enlargement is in one piece with or permanently attached to the core-bar, some details of the construction shown will be correspondingly modified, and the head *d* will, if retained, be made separable—as, for instance, in the form of a nut screwing onto the end of the core-bar; or the head may be dispensed with and the core-bar secured in the support C in any suitable manner.

The piston B is provided with the usual central passage, *b*, for the core and sash-weight, and with the usual die, B′, for acting in conjunction with said core to form the sash-weight by reason of the forcing of the lead from the cylinder between the two as the cylinder rises around the piston or the piston descends into the cylinder. In addition the under side or face of the piston is provided with a shallow central recess, *b′*, having a beveled or undercut wall or margin, b^2, for the purpose hereinafter described. The core-bar D is of very much smaller diameter than the die, while the enlarge-

ment D′ thereof is almost equal in diameter to the die, leaving but a small space between the two when the enlargement enters the die.

The machine is more particularly devised to produce compressed-lead sash-weights, such as are set forth in Letters Patent No. 296,410, granted to me April 8, 1884, or, in other words, to produce a compressed-lead sash-weight having a longitudinal central aperture of small diameter, and its operation is as follows: The lead-cylinder having been filled with molten lead, the piston enters the cylinder, and the lead is forced out between the die and core-bar D, forming the sash weight E, with the central aperture, *c*. When the machine is near the end of its stroke, the enlargement D′ of the core enters the die B′ and reduces the space between the die and core, thereby forming a thin-walled tubular portion, E′, which connects the sash-weight proper, E, with the residuum of metal or "slug" E^2 remaining in the bottom of the cylinder when the machine has finished its stroke in one direction. The direction of the stroke is then changed and the cylinder and piston separated, the parts assuming the position shown in Fig. 2 of the drawings, in which position the slug E^2 is held partly by its connection with the sash-weight proper, E, and partly by means of the under-cut margin b^2 of the recess b' in the face of the piston. A handsaw or other suitable means is then employed to sever the sash-weight from the slug, cutting along the line X X of Fig. 2, across the thin tubular connection portion E′, and when severed the sash-weight may be readily removed, and the slug, being supported only by the undercut margin b^2 of the recess b', may be easily detached and removed for remelting.

The undercut margin is not of such a size as to hold the slug E^2 very strongly, and when this latter is deprived of that portion of its support which it derives from the sash-weight proper, E, it may be removed by hand with the greatest ease. The sash-weight proper, E, is removed through the top of the plunger, being supported and lifted by means of a rope or chain from above, if necessary or expedient. The length, size, and weight of the sash-weight depend, of course, upon the size of the die and core, the capacity of the cylinder, and the amount of lead originally placed therein.

Heretofore, where the core-bar has been of an equal and small diameter throughout its entire effective length, the operation of severing the slug from the sash-weight has necessitated sawing through the entire thickness of the lead composing the sash-weight, an operation requiring much time and manual labor. Moreover, all that portion of the sash-weight below the line of cut—a considerable mass of metal in itself—was consigned to the scrap heap for remelting. By reason of my improvement I form a thin connecting-tube between the weight and slug, which not only economizes metal, but which can be sawed through in but a small fraction of the time and with much less exertion than is required by the former method above described. The machine is thus rendered capable of a much higher production at a greatly reduced cost.

After the sash-weight is removed its unfinished end may be readily removed by a circular saw by cutting across the line Z Z of Fig. 5.

It is obvious that various modifications in the details of construction and arrangement of the parts may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described and shown in the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for casting lead sash-weights, a core consisting of a smaller upper portion and an enlarged lower portion, substantially as and for the purposes specified.

2. In an apparatus for casting lead sash-weights, the combination, with the piston and its die, of the cylinder, and the core mounted therein having an upper portion of small diameter, and an enlargement at its base of a diameter slightly less than the die, substantially as and for the purposes specified.

3. In an apparatus for casting lead sash-weights, the combination, with the piston B, having passage *b* and die B′, of the cylinder A, the core-support C, mounted therein, and the core-bar D, and sleeve enlargement D′, mounted in said core-support, substantially as and for the purposes specified.

4. In an apparatus for casting lead sash-weights, the combination, with the cylinder A, of the core-support C, having threaded socket *c′* and central aperture for the core-bar, the core-bar D, mounted in said support, and the sleeve D′, surrounding the core-bar D and threaded externally to screw into the socket *c′*, substantially as and for the purposes specified.

5. The combination, with the cylinder A and core-bar D, of the core-support C, in which said core-bar is mounted, said core-support being provided with internally-threaded socket *c′* and collar c^2, and the sleeve enlargement D′, externally threaded to enter said socket, provided with cap or head *d′*, and fitting over the core-bar D, substantially as and for the purposes specified.

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W. C. CORLIES.