

(No Model.)

H. B. COX.
CASTING APPARATUS.

No. 452,343.

Patented May 12, 1891.

Fig. 1.

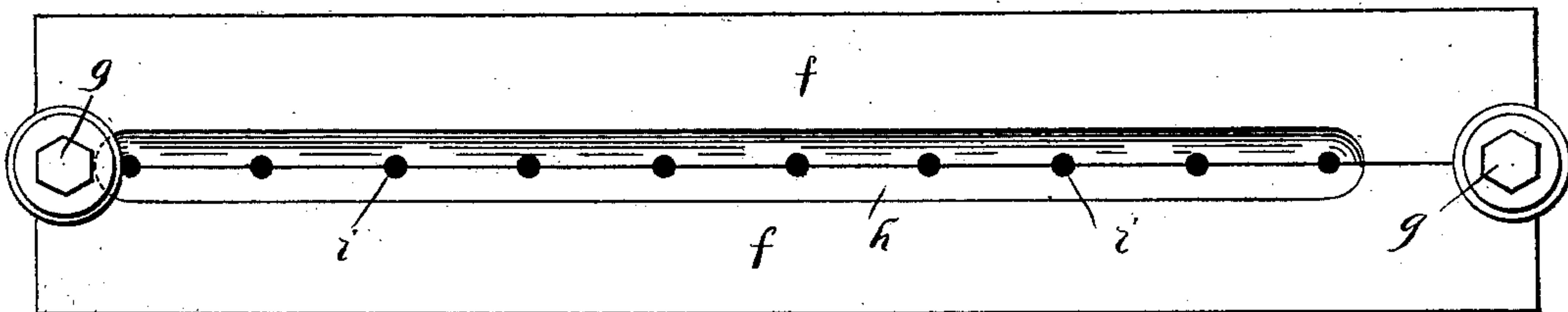


Fig. 2.

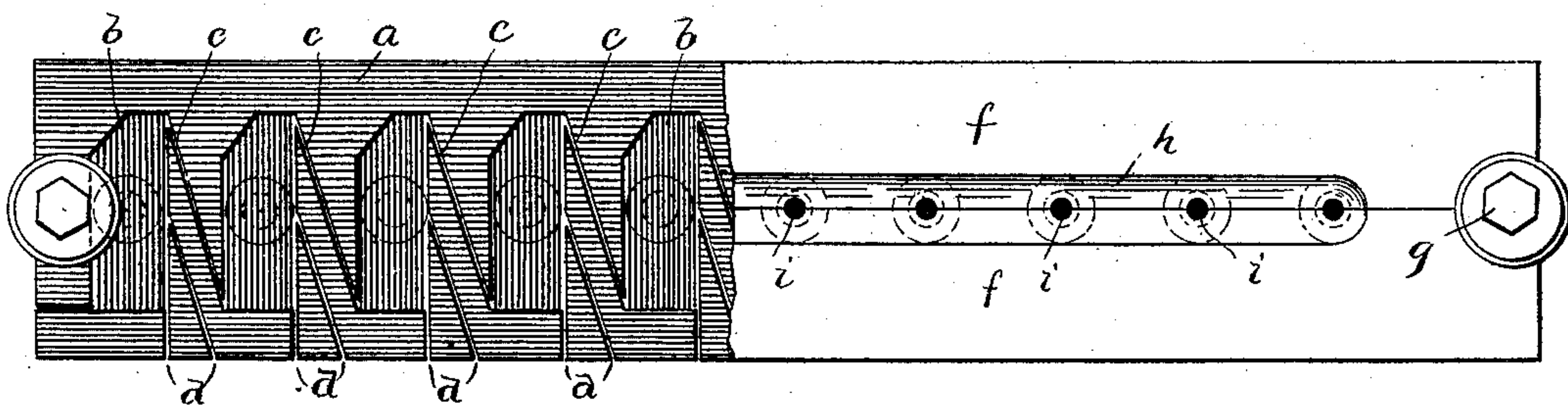
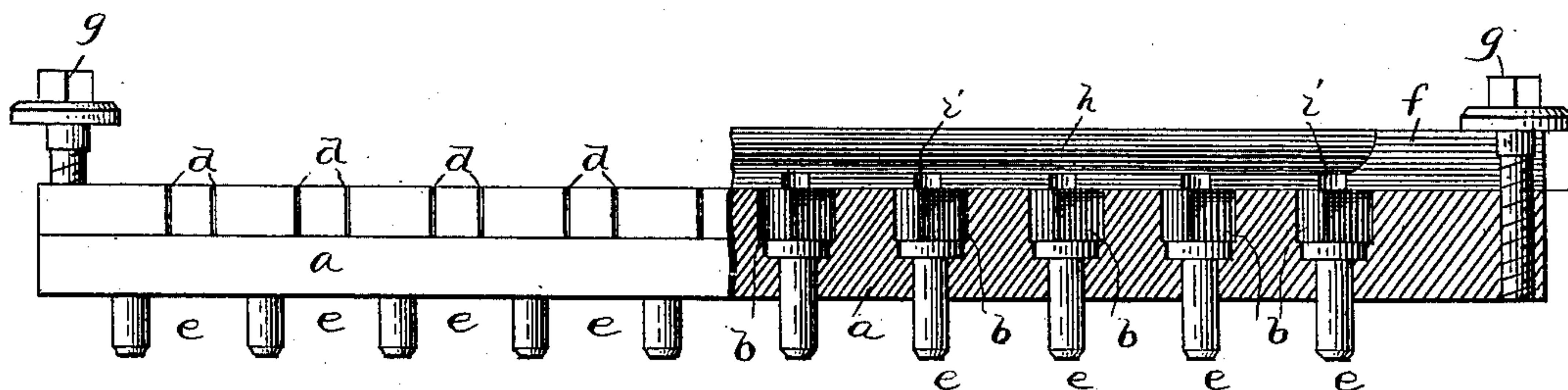


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY BARRINGER COX, OF HARTFORD, CONNECTICUT.

CASTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 452,343, dated May 12, 1891.

Application filed September 18, 1890. Serial No. 365,346. (No model.)

To all whom it may concern:

Be it known that I, HARRY BARRINGER COX, of Hartford, in the county of Hartford and State of Connecticut, have invented certain
5 new and useful Improvements in Apparatus for the Manufacture of Thermos; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it ap-
10 pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improve-
15 ments in the manufacture of thermo-electric piles.

Heretofore thermo-electric piles have usually been manufactured by casting of single couples and then forming the couples into a
20 thermo-pile by soldering or similarly connecting lugs and strips together.

The object of this invention is to manufacture a complete pile by a single operation and to provide improved mechanical means
25 for carrying out the method, whereby the piles can be manufactured with great rapidity, while the cost is greatly reduced and the efficiency of the article produced is highly increased. These objects are accomplished by
30 and this invention consists in certain novel features of construction and in combinations of parts hereinafter set forth, and particularly pointed out in the claims.

Referring to the accompanying drawings,
35 Figure 1 is a top plan of the complete apparatus. Fig. 2 is a top plan, a portion of the lid being broken away and parts shown in dotted lines. Fig. 3 is a partial sectional edge elevation, a portion of the lid being removed.

40 In the drawings, the reference-letter *a* indicates the bed-plate of the mold, preferably composed of a strong heavy piece of metal. This bed-plate in its upper face is provided with a series of molds or openings *b*, open at
45 the top and of the proper dimensions and shape to produce the large elements of the pile. These molds are located a suitable distance apart, and the corresponding opposite ends of the molds are connected by the deep
50 narrow diagonal groove *c*, so that the series of molds are connected. Similar grooves *d*

extend from corresponding sides of said molds in the same direction through one edge of the bed.

The bottom of each mold is provided with
55 a countersunk opening extending therefrom through the bottom of the bed-plate, and each opening loosely contains a pin *e*, having a head on its upper end located in and closing the countersink and flush with the bottom
60 of the mold, while the shank of the pin extends through and below the bed.

f is the cover, centrally and longitudinally divided into two sections, and the cover is
65 clamped on the bed-plate, and the sections thereof are clamped together by the set-screws *g*, extending through the cover into the bed-plate. This cover is provided with the central longitudinal feed-trough or depression *h*
70 in its upper side, extending along above the series of molds. The cap or cover is provided with the feed-holes *i* from the trough into the molds, each mold having a feed-hole from the feed-trough, opening substantially above the
75 center of the mold.

This apparatus is particularly intended to produce the thermo-pile shown in my patent, No. 434,500, dated August 19, 1890, and in operation the thin strips of metal connecting the
80 large elements of the pile and composing the other elements thereof are inserted in the grooves *c* with their ends projecting into the molds or receptacles for the molten metals. The thin strips of metal to form the radiators
85 or conductors of the pile are inserted in the grooves *d* therefor with their ends extending into the molds. The sections of the cover are then placed together and in position covering the bed-plate and receptacles and clamped
90 tightly together by the bolts. The strips have their ends which project into the molds bent, perforated, or slit in such manner that the molten metal can readily engage there-
95 with. The mold being placed on suitable supports, such as small blocks of metal, the molten metal is then poured into the feed-
100 trough of the cover and quickly flows through all the feed-holes, and fills all of the molds surrounding the ends of the strips projecting thereinto, and quickly hardens therein. The feed-trough in the cover is usually completely filled to insure a perfect filling of all the molds.

When the metal has entirely or partially set, the two halves of the lid are removed and the metal in the feed-trough and openings can be easily broken off, and the upper surfaces of
5 the elements smoothed off. The grooves for radiators can be omitted. By removing the bed-plate from its support and by placing the same on a flat surface under slight downward pressure the castings will all be simultaneously forced out by the headed pins, the
10 entire pile coming out as one piece or united integral with the conductors or radiators.

This apparatus, as is obvious, not only facilitates work and very greatly cheapens the
15 cost of manufactured article, but also very materially increases the efficiency of the same by doing away with all solder connections and preventing any faulty contacts, &c.

The peculiar method herein set forth is not
20 claimed in this specification, but forms the basis of an application filed by me June 21, 1890, Serial No. 356,268.

It is obvious that various changes might be made in the form and arrangement of the
25 parts described without departing from the spirit and scope of my invention. Hence I do not wish to limit myself to the precise construction herein set forth, but consider myself entitled to all such changes.

30 What I claim is—

1. In combination in an apparatus for the purpose mentioned, a bed-plate having a series of adjacent molds therein, slits or grooves connecting and opening into the corresponding opposite ends of adjoining molds, and a
35 cover for said molds, having a continuous feed-way opening into each mold, substantially as described.

2. In combination, the bed-plate having the series of molds, slits, or grooves connecting
40 opposite ends of adjoining molds, the cover centrally and longitudinally divided and having the central longitudinal continuous feed-way opening into each mold, and the means for clamping the cover together and to the
45 bed-plate, substantially as described.

3. An apparatus for manufacturing complete thermo-electric piles, consisting of a bed-plate having a series of adjacent molds therein, slits or grooves connecting the opposite
50 ends of adjoining molds, and means to force the complete pile from the molds and slits when formed.

In testimony that I claim the foregoing as my own I affix my signature in presence of
55 two witnesses.

HARRY BARRINGER COX.

Witnesses:

W. I. ROBINSON,
J. L. FENN.