

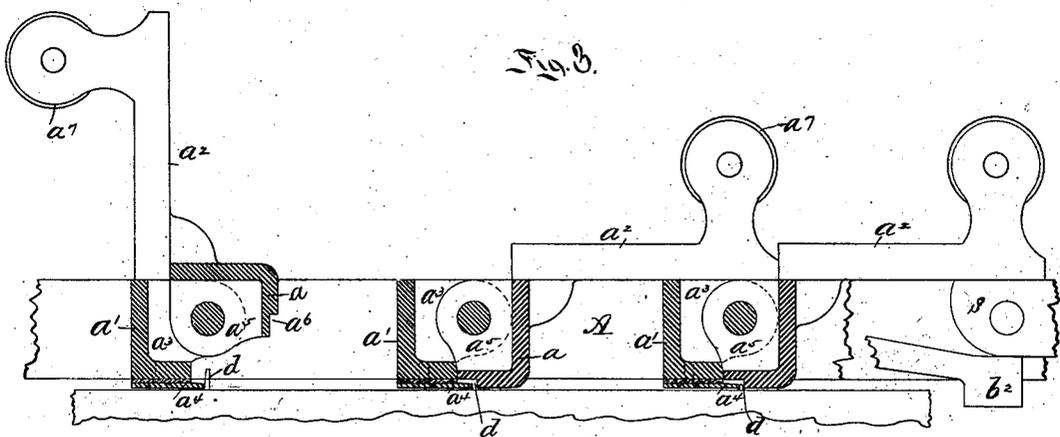
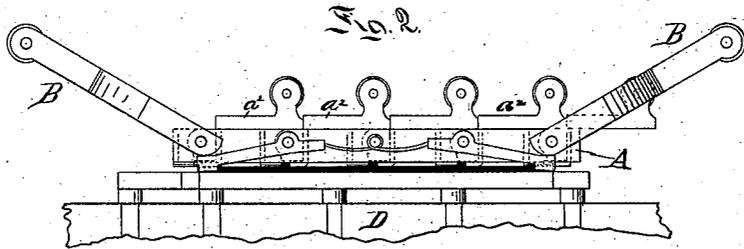
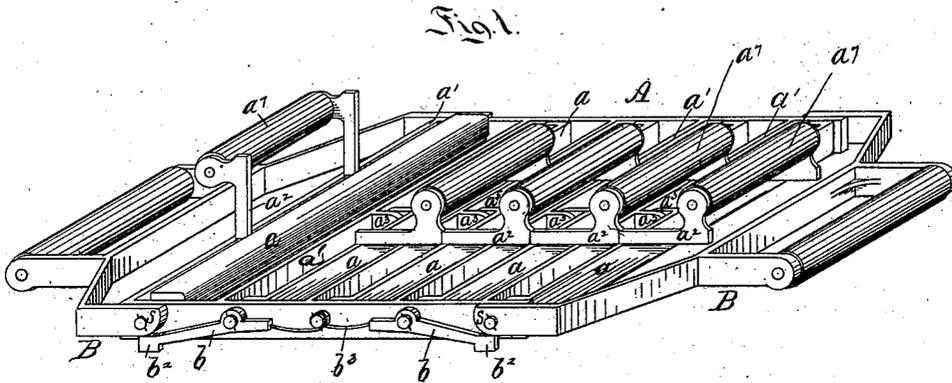
(No Model.)

C. F. BRUSH.

DEVICE FOR EXTRACTING CASTINGS FROM MOLDS.

No. 293,712.

Patented Feb. 19, 1884.



Witnesses
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UNITED STATES PATENT OFFICE.

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DEVICE FOR EXTRACTING CASTINGS FROM MOLDS.

SPECIFICATION forming part of Letters Patent No. 293,712, dated February 19, 1884.

Application filed October 24, 1883. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. BRUSH, a citizen of the United States, residing at Cleveland, county of Cuyahoga, State of Ohio, have invented or discovered a new and useful Improvement in Devices for Extracting Castings from Molds; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a perspective view of my improved casting-extractor. Fig. 2 is a side elevation of the casting-extractor resting on a mold, and showing the casting as caught by the extractor and partly withdrawn from the mold. Fig. 3 is an enlarged sectional view of the extractor resting on the mold.

In making soft-metal castings of comparatively thin web or plate portions, on which are formed on one or both sides long thin projections or leaves, it has been found to be exceedingly difficult to withdraw such castings from the molds without distorting or breaking some parts of the casting. To obviate this difficulty, I form on that side of the casting which is most easily exposed or detached from one part of a jointed or divided mold a series of transverse ribs, fins, or lugs, to which can be attached a device which will evenly draw the casting from the other half of the mold without danger of bending or breaking any of the parts of the casting.

The object of my invention is to provide a device whereby these fins may be firmly grasped and the plates evenly withdrawn from the mold; and my invention consists, in general terms, of the construction and combination of devices, all as more fully hereinafter described and claimed.

The casting-extractor is made with a rectangular frame, A, whose width should be equal or about equal to one of the dimensions of the frame of the mold in which the casting is formed. In the present case the width of the frame is nearly equal to the width of the mold-frame, as the ribs or fins are formed transversely across the casting. Within this frame I arrange a series of transverse angle-bars, a' ,

at proper distances apart, and on the under side of each of these transverse angle-bars a' , I form or secure a flange, a^1 , which is beveled or inclined outward on its upper edge, as clearly shown in Fig. 3. In the middle of these bars are formed lugs or ears a^2 , to which are pivoted angle-bars a by similar ears, a^3 , formed thereon. On the working edge or face of these bars a is formed a rectangular recess, a^4 , into which, when the bars a are turned down, the flange a^1 projects.

To the top of each of the pivoted bars a are secured two crank-arms, a^2 , between which is secured the handle a^7 , by which the bars a are operated.

On the side bars of the frame A, and near the ends of the same, are pivoted the dogs or levers b , and the levers b are held normally parallel with the side bars of the frame by a spring, b^3 .

Just above the outer ends of the levers b are pivoted the handles B, by which the extractor can be lifted. The ends of the handles B, outside their pivoting-points, are curved to an eccentric shape, as at s , so that when the handles are in a horizontal position they will bear on but will not depress the ends b^2 of the levers b ; but when the handles are turned up the eccentrics will gradually push the ends b^2 of the levers below the level of the frame A.

The operation of my device is as follows: The part of the mold in which the ribs, fins, or lugs are formed is removed. An operator, then, to prepare the extractor for use, seizes the handles a^7 of the crank-arms a^2 and moves them up into the position shown at the left hand of Figs. 1 and 3, thereby turning the pivoted bar a so as to separate the gripping-face of the bar a from the gripping-face of the angle-bar a' , and at the same time he turns down the handles B to the horizontal position, thereby allowing the lever b to assume a position parallel to the sides of the frame A, as shown. When the devices of the extractor are in the positions above described, it is so placed on the half D of the mold containing the casting that the ribs or fins d will project up between the transverse bars a' , and the ends b^2 of the lever b will rest on the sides of the mold. The frame A is then slid along until the grip-

ping-edges of the bars a' will bear against the ribs d , if not already in that position, as shown at the left hand of Fig. 3. The pivoted bars a are then turned down by the handles a' , beginning with the first bar at the right hand. On the turning down this bar a its gripping-face strikes the top of one of the ribs d and bends it down upon the flanges a' , and as the flanges a' are beveled off, as clearly shown in Fig. 3, these ribs will be tightly wedged in between the flanges a' and the side of the recess a'' . The crank-arms a'' of the pivoted bars a are so constructed that as each succeeding bar going to the left is turned down it locks the preceding bar in place by coming against the heel end of the same, as is clearly shown in all the figures. The operator now turns up the handle B, and thereby depresses the levers b , and as they bear against the mold the extractor is caused to gradually rise, pulling with it the casting, as shown in Fig. 2. The ends of the handles B are so shaped that the upward movement of the extractor is very gradual at first, as the greatest strain is required in starting the casting from the mold. After the casting has been started, as above described, it can be entirely removed from the mold by the operator lifting the extractor by the handles B, which have been turned up to a vertical position and placed on some convenient table. The pivoted bars a are then turned back by their handles and the extractor slid along until the gripping-faces of the bars a' are disengaged from the ribs d , when the extractor can be lifted from the casting.

While I have described the mechanisms employed in detail, it is still true that considerable variation may be made in the construction of such devices without departing from the scope of the present invention.

The operation of the gripping mechanisms may be varied at pleasure according to the size and weight of the casting; but one pair of grippers should be provided for each rib or lug or projection on the casting.

The essential characteristic features of the present invention consist in the presence, first, of a series of grippers suitably arranged for engagement with the corresponding series of ribs, lugs, or projections on the casting; and, second, a lifting mechanism which, being secured to and connected with the gripping mechanism, may be caused to act against the mold from which the casting is to be lifted, so as thereby to separate the grippers from the mold and raise the casting bodily therefrom, and for this latter purpose any mechanism known in the arts and adapted for such purpose may be substituted for the levers B. Nor will it be a

material departure from my invention that the mechanism for raising the grippers be connected with the mold, so as to operate on the grippers in the manner set forth, for the purpose of raising the casting clear of the mold, and while I believe this to be the essential characteristic feature of my improvement, the other features accordingly add materially to its utility and convenience and use.

In so far as relates to the device for locking the pivoted bar when it is turned down, it is not usually necessary that the bars a should be locked, as by simply turning down the bars a , and thereby bending the rib d onto the flange of the bars a' a sufficiently firm hold for most purposes will be secured on the rib, and hence in such cases the locking devices referred to may be omitted; but where there exists a very great or unusual adherence of the casting to the mold the locking devices may be added, or for greater precaution may be used at all times, if so preferred.

I claim herein as my invention—

1. In an apparatus for extracting castings from the mold, the combination of a gripping mechanism for taking a firm hold on the casting and a mechanism suitably arranged for forcing asunder the grippers and the mold in which the casting is made while the grippers retain their hold on the casting, substantially as set forth.

2. In an apparatus for extracting castings from molds, the combination of the frame A, transverse bars a' , pivoted bars a , and mechanism for causing said gripping mechanism to take a firm hold on the casting, substantially as set forth.

3. In an apparatus for extracting castings from molds, the combination of the frame A, transverse bars a' , provided with flanges a' , pivoted bars a , provided with recess a'' , and mechanism for lifting the frame from the mold, substantially as set forth.

4. In an apparatus for extracting castings from molds, the combination of a frame provided with mechanism for grasping and holding the casting, the levers b , and the handles B, substantially as set forth.

5. In an apparatus for extracting castings from molds, the combination of the frame A, transverse bars a' , provided with bars a , the levers b , and the handles B, substantially as set forth.

In testimony whereof I have hereunto set my hand.

CHARLES F. BRUSH.

Witnesses:

JNO. CROWELL,
CHAS. H. DORER.