(No Model.)

P. J. FITZSIMONS.

MOLD FOR CASTING COMPOUND INGOTS.

No. 257,307. Patented May 2, 1882.

Fig. 1.

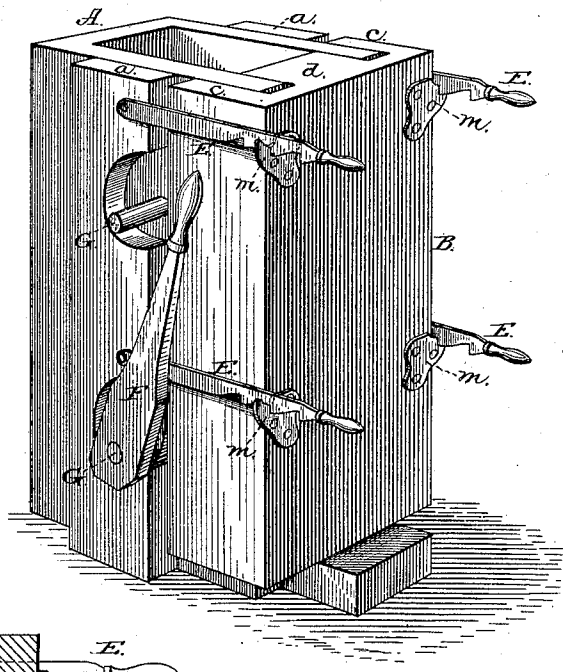


Fig. 4.

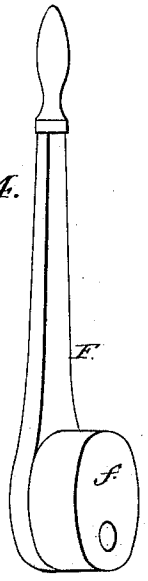


Fig. 2.

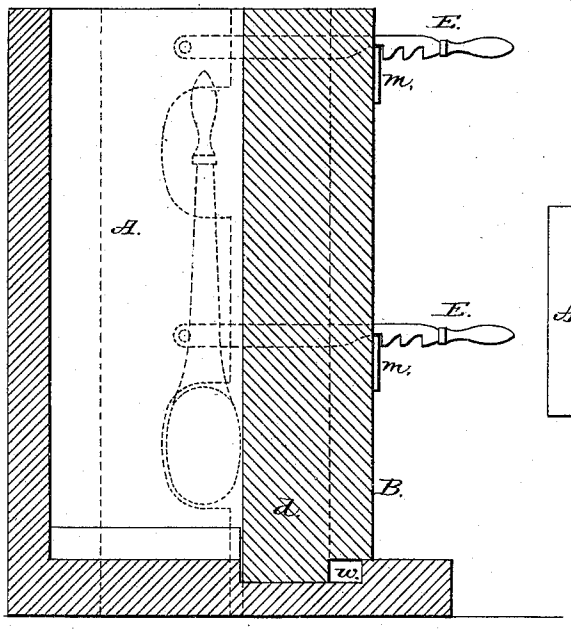
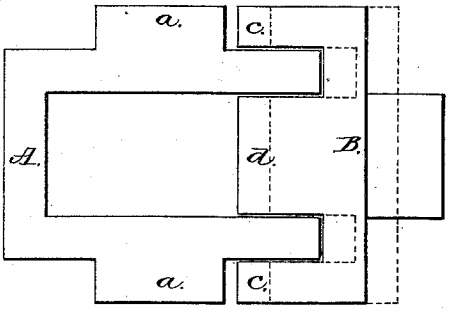


Fig. 3.



WITNESSES

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UNITED STATES PATENT OFFICE.

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MOLD FOR CASTING COMPOUND INGOTS.

SPECIFICATION forming part of Letters Patent No. 257,307, dated May 2, 1882.

Application filed February 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, PATRICK J. FITZSIMONS, a resident of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Molds for Casting Compound Ingots; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

My invention relates to molds or flasks for uniting steel and iron in a solid ingot by the process of casting; and it has for its object a quick and ready enlargement of the mold in one direction by the movement of a single detachable covering-plate so constructed as that the depth or width of the mold may be thereby increased without other change in its proportions.

In the accompanying drawings, Figure 1 is an elevation in perspective of my improved mold, the cover being partly forced off. Fig. 2 is a vertical central transverse section. Fig. 3 is a top view of the same, the dotted lines indicating the position of the cover when forced out to its full extent; and Fig. 4, a view of one of the detachable cam-levers used for moving the cover detached from the mold.

The mold A is of the usual size and general form of construction adapted to produce the shape of ingot required. One face thereof is left open to be closed by a detachable covering-plate, B, constructed with projecting sides *c c*, adapted to fit over and embrace closely the sides of the mold. An offset, *a*, is formed on each side of the mold, its outer surface being flush with the outer face of the flange *c* of the cover when it is fitted to the mold.

Upon the inner face of the cover B a central follower or core-strip, *d*, is formed, adapted to fit and project closely and accurately within the cavity of the mold to a depth corresponding to that of the flanges *c c*, and reduce thereby proportionately its transverse area, so that the depth of the cavity in the mold may be increased or diminished at pleasure by an adjustment of said covering-plate in or out therefrom. The plate, when adjusted, is secured by means of latches E E, pivoted at one end to the offsets *a a* upon the sides of the mold, and which, extending beyond the face of the cover, engage lugs *m m*, projecting laterally therefrom, as shown in the drawings.

The lower end of the covering-plate B fits into a recess, *w*, Fig. 2, in the bottom of the mold. This recess is properly enlarged to admit of the inward and outward adjustment of the cover, and is sunken below the level of the bottom of the body of the mold, as shown in Fig. 2. The covering-plate B is forced out or off the mold, as required, by means of detachable levers F F, each terminating in a cam, *f*, formed on one side thereof, and which are adjusted to the mold by means of pivot-pins G G′, projecting from recesses in the offsets *a a* on the sides of the mold, as shown in Fig. 1. The depth of the recesses is slightly less than that of the thickness of the lateral cams *f f*, so that the levers F F, turning upon the pivot-pins G G, may swing down freely over the sides *c c* of the cover. The lateral cams *f f* are thus brought to bear against the edges of the flanges *c* in the cover and force them out from the mold.

In the use of the mold thus constructed the cover B is first fitted closely down upon the side of the mold, so as to reduce the cavity therein to the minimum. The cover is then secured by the latches E E, as shown in Fig. 1, and the mold filled with molten iron. So soon as the metal has set sufficient to stand alone the latches E E are released and the cam-levers F F, readily applied to the pivot-pins G G on each side of the mold, are turned so as to bring the cams to bear powerfully upon the flanges of the cover, and thereby force it out into the position shown in dotted lines, Fig. 3. A second cavity is thus produced in the mold, outside of the body of the cast metal, into which a charge of molten steel is immediately poured while the first charge of iron is still at a welding-heat. The two metals are thus brought into contact in a condition favorable to their close assimilation and perfect union, and an ingot is produced in which the two metals are closely and inseparably united in a solid mass, having the different metals upon its two opposite faces. As the bottom of the recess in which the cover moves is deeper than that of the mold proper, the second charge or layer of metal will extend beyond the first, so that the

line of contact and relative thickness of the two metals will be readily apparent in the ingot. If desirable, a third or fourth charge of metal may be thus added to the ingot, each charge differing in quality or grade of metal from that preceding it.

It is evident that various forms of latches may be substituted as equivalents for the latches E E in securing the cover B in its different adjustments.

I claim as new and desire to secure by Letters Patent—

In a mold for casting compound ingots, an adjustable cover or side plate, B, a central follower, *d*, formed upon said cover and adapted to fit accurately within the mold, and devices for securing the cover when adjusted, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

PATRICK J. FITZSIMONS.

Witnesses:
J. F. ACKER, Jr.,
E. ELBERT NOSTRAND.