

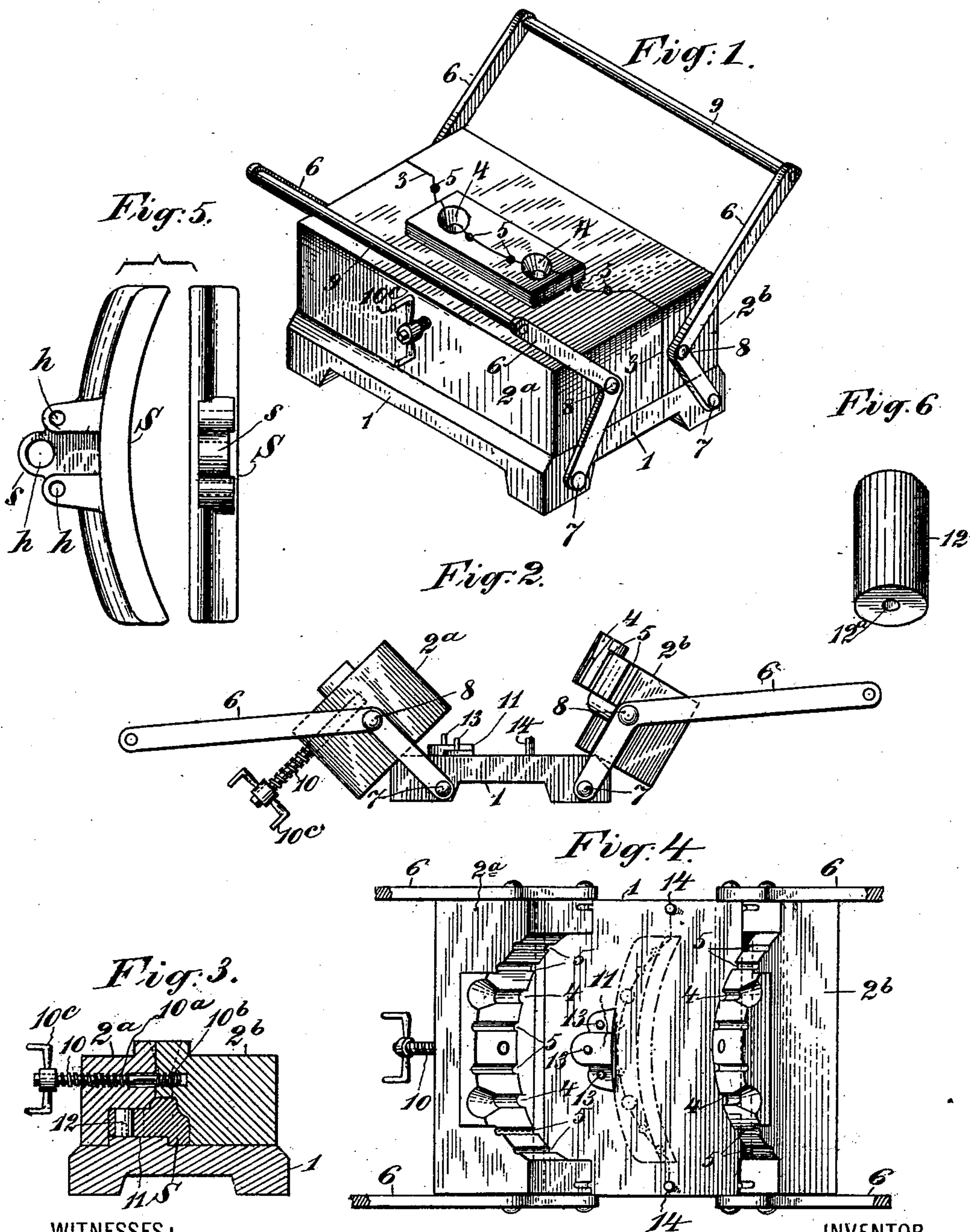
No. 714,061.

Patented Nov. 18, 1902.

C. S. SZEKELY.
CASTING APPARATUS.

(Application filed Jan. 21, 1902.)

(No Model.)



WITNESSES:

J. H. Wiman
Peter A. Ross

INVENTOR

Charles S. Szekely
BY
Henry C. Cunniff
ATTORNEY

UNITED STATES PATENT OFFICE.

CHARLES S. SZEKELY, OF NEW YORK, N. Y.

CASTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 714,061, dated November 18, 1902.

Application filed January 21, 1902. Serial No. 90,616. (No model.)

To all whom it may concern:

Be it known that I, CHARLES S. SZEKELY, a subject of the Emperor of Austria, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Casting Apparatus, of which the following is a specification.

This invention relates to molds for casting metals, and particularly to the class of mold made from metal, and the object is to facilitate and cheapen the operation of casting articles from molten metal partly by the reduction in the time employed for the work and partly from the peculiar construction, which permits of the use of cores and enables inexperienced labor to be employed in operating the mold and handling the metal. The mold may be employed for making castings from metals of any kind which become liquid when heated to the melting-point, and it is especially well adapted for making iron castings. The mold itself may be of any suitable metal, iron being preferred for general uses.

In the accompanying drawings, which serve to illustrate an embodiment of the invention, the mold is represented as adapted for producing a cast-iron brake-shoe of a known form; but it will be obvious that the invention may be applied to the production of molds for almost any article of cast metal.

In the drawings, Figure 1 is a perspective view of the closed mold. Fig. 2 is an end view of the mold, showing it open. Fig. 3 is a transverse vertical section of the closed mold with casting in it. Fig. 4 is a plan view of the open mold. Fig. 5 includes two views of the brake-shoe cast in the mold illustrated, and Fig. 6 is a view of one of the sand-cores.

In the embodiment of the invention shown in the drawings the mold is constructed of three principal sections or parts, one of which is stationary and forms the base or bottom of the mold, the other two being movable and forming the sides or separable sections thereof. These latter come together face to face along the parting-line, and ordinarily a portion of the casting will be formed in each. The base also forms a shaping part of the mold, and in the construction shown the cores are mounted thereon.

1 represents the base or bottom of the mold and 2^a 2^b the movable sections or members,

which rest on the base. 3 shows the parting-line between the members. 4 4 are two gates for filling the mold, and 5 air-holes or gas-outlets. The members 2^a 2^b of the mold are drawn and clamped together by a screw and are operated for opening and closing by handles, as will now be described. Each member 2^a and 2^b has a handle consisting of two elbow-levers 6, fulcrumed at 7 on the base and pivoted to the respective ends of the mold sections or members at 8. The levers of each pair are rigidly connected by a bar 9. The pivotal points 8 will be, for convenience of handling the rather heavy mold-sections, placed approximately at the center of the section—that is to say, at points where the mass of metal in the section will be approximately balanced. This arrangement is not absolutely essential to the operation of the mold, but it facilitates the opening and closing of the latter.

The screw 10 has two screw-threaded portions 10^a and 10^b , with a plain portion between them, and it is provided at its end with a suitable operating-handle 10^c . The pitch of the screw-threads 10^a and 10^b is reversed—that is, one is a right-hand and the other a left-hand thread, and the screw extends through one of the mold-sections and screws into the other. As here shown, the thread 10^a engages an internal screw-thread in the section 2^a , and the thread 10^b engages an internal screw-thread in the section 2^b . Obviously when the movable mold-sections are brought together face to face and the screw 10 driven into the section 2^b the effect will be to draw the two mold-sections together forcibly face to face and hold them locked together. By turning the screw in the opposite direction the mold-sections will be driven apart to an extent sufficient to free the threaded end 10^b of the screw from the mold-section 2^b , when they may be further displaced by the handles. The bore for the screw 10 in the part or section 2^a will not be screw-threaded all the way through, as a space must be left for the portion 10^b of the screw to draw into. This part of the bore will have a diameter as large as the full outer diameter of the screw.

In the lower side of the brake-shoe S (seen in Figs. 3 and 5) there is a recess, (as the shoe rests in the mold,) and this is formed by an

elevated molding-surface 11 on the base 1, and in the projecting portion *s* at the back or convex side of the shoe are three holes *h*, which are produced by sand-cores 12, one of which is seen detached in Fig. 6. The core has in its end a socket 12^a to receive an upright supporting stud or pin 13, set in the piece 11.

The operation is as follows: The mold is opened, as seen in Fig. 2, the cores set in place, and the molding cavities and surfaces coated, if desired, to prevent the molten metal from adhering. The mold-sections 2^a 2^b are now brought together by the handles and locked firmly together by the screw 10. The mold is now filled by pouring in the molten metal at one of the gates 4. After sufficient time has elapsed for the casting to become firm the operation is reversed by first forcing the mold-sections apart with the screw 10 and then swinging them out by means of the handles. The casting will be left resting on the base 1 and may be lifted off with tongs. The mold is prepared in the same manner as before for the next casting, and when ready the molten charges will be poured into the mold at the other gate 4, the gates being used alternately as the operation of molding proceeds in order to allow the metal surface of the gate-aperture to cool a little between molding operations, and thus avoid disintegration or burning, which would be more liable to occur if one gate were used constantly. The operations of molding succeed each other quite rapidly, and this makes the two gates the more important. The air-holes 5 may be placed conveniently along the parting-line, and the number used will vary according to the size and character of the casting. In order that the screw 10 may be enabled to force apart the mold-sections horizontally, the bent arms 6 will be rather loosely mounted at their fulcrum-points 7. The ordinary looseness of the pivotal points will usually suffice for this purpose. In order that the mold-sections may come together evenly or with the proper register when the mold is closed, two pins 14 are set in the base 1 coincident with the parting-line of the two sections, and when the latter are brought together the studs engage recesses in the faces of the sections. This compels the sections to register when the mold is closed. The fulcrum-points 7 of the elbow-levers 6, which form the handle, are placed out near the side margins of the base, and the pivotal attachments to the mold-section at 8 are farther in. This causes the section to rise a little in swinging outward.

It will be understood that this invention is not restricted to a mold for casting articles of any special size or form nor from any particular metal. The particular form of the article will of course govern the relative weights or sizes of the sections 2^a and 2^b and the size,

form, and arrangement of the cores employed. Obviously also the mold may be employed for casting from other molten substances than metals. The bed or bottom 1 of the mold is herein spoken of as "stationary;" but this is not meant to imply that it is fixed, but merely that it is not movable in the process of casting.

Cores of any suitable material may be used with my mold, and as I am able to remove the article cast in from ten to thirty seconds after the mold is filled the latter will last almost indefinitely.

Having thus described my invention, I claim—

1. A metal-mold for casting articles, having a stationary base, mold-sections resting movably thereon and having in them mold-cavities, means for independently lifting and swinging said mold-sections, said means comprising connected pairs of lever-arms fulcrumed on the base and pivotally connected to the ends of the respective mold-sections in a manner to lift said sections off the base when the mold is opened, means for drawing and locking the mold-sections together when closed, and means independent of the lever-arms, for disengaging and forcing apart the said sections before they are lifted and swung back to open the mold.

2. A metal-mold for casting articles, comprising a base which forms one molding-surface, two mold-sections mounted movably on said base and having in them mold-cavities and molding-surfaces, lever-like handles for operating said mold-sections, said handles being fulcrumed on the base and pivotally connected to the respective mold-sections, and a screw with right and left screws, which screws through one of said mold-sections and into the other, for drawing together the mold-sections face to face and locking them together and to the base.

3. A metal-mold for casting articles, consisting of the base 1, the upper surface of which forms a molding-surface, the two movable mold-sections 2^a and 2^b, having molding-surfaces in their contiguous or meeting faces, the lever-like handles, fulcrumed on the base and pivotally attached to the respective mold-sections at the ends of the latter, and the screw 10, having right-hand and left-hand screw-threads and extending through one of said sections and engaging the other, said sections having along the parting-line suitable gates and air-holes, substantially as set forth.

In witness whereof I have hereunto signed my name, this 17th day of January, 1902, in the presence of two subscribing witnesses.

CHARLES S. SZEKELY.

Witnesses:

HENRY CONNETT,
PETER A. ROSS.