

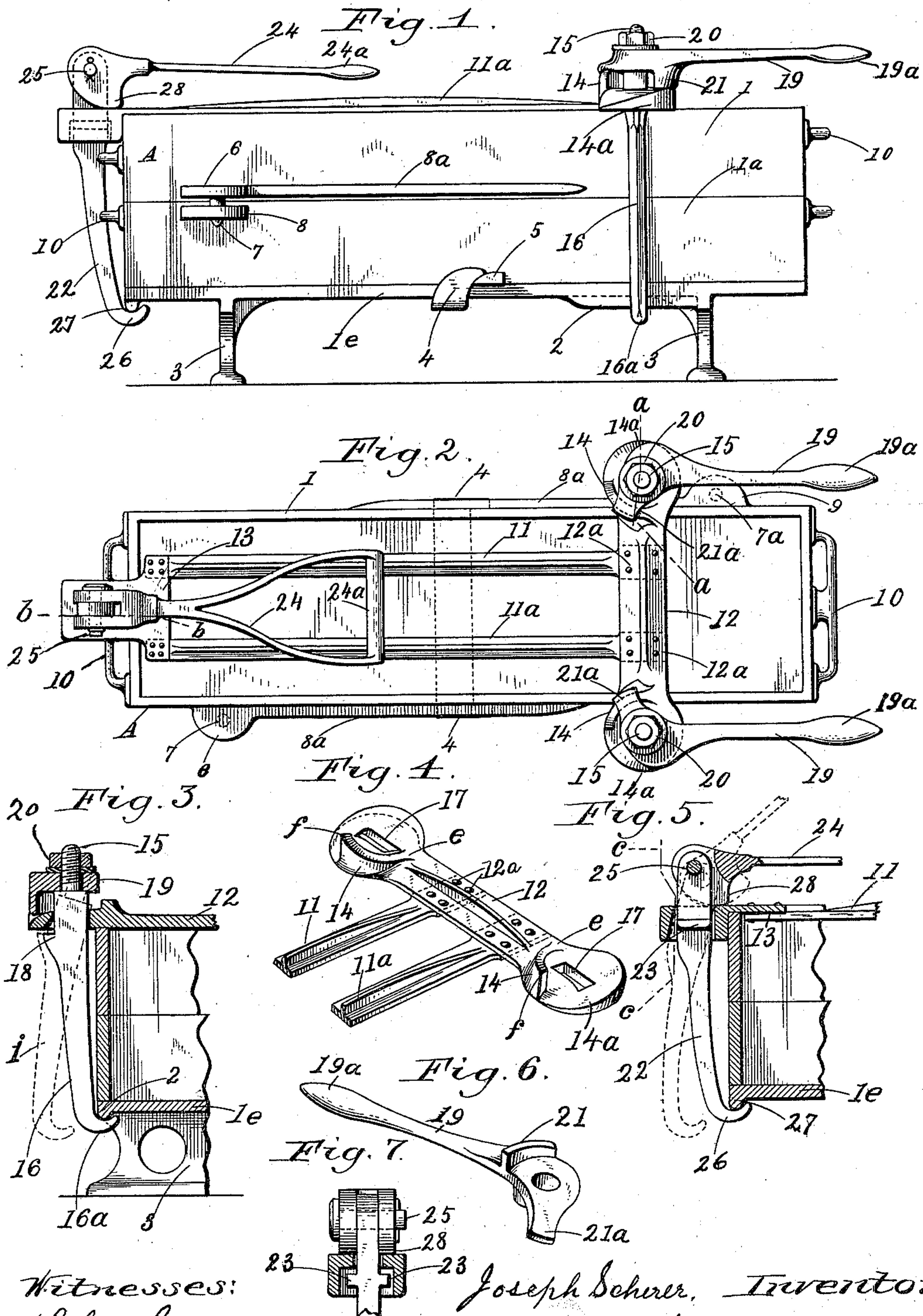
(No Model.)

J. SCHERER.

HAND CLAMPING DEVICE FOR MOLDING FLASKS.

No. 605,347.

Patented June 7, 1898.



Witnesses:

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# UNITED STATES PATENT OFFICE.

JOSEPH SCHERER, OF BUFFALO, NEW YORK, ASSIGNOR TO HIMSELF AND  
JOHN HEIDER, OF SAME PLACE.

## HAND CLAMPING DEVICE FOR MOLDING-FLASKS.

SPECIFICATION forming part of Letters Patent No. 605,347, dated June 7, 1898.

Application filed November 11, 1896. Serial No. 611,712. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH SCHERER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented certain new and useful Improvements in Hand Clamping Devices for Molding-Flasks, of which the following is a specification.

My invention relates to a convenient and expeditious means for clamping a molder's flask and mold and holding the sand securely in place until a casting has been made, and will be fully and clearly hereinafter described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 represents a side elevation showing the device secured to a flask and mold. Fig. 2 represents a top plan view, also showing the device attached to a flask and mold. Fig. 3 is a vertical section through a portion of the device and flask to which it is attached on or about line *a a*, Fig. 2. Fig. 4 represents a perspective view of a portion of the top frame, the cam-arms being omitted. Fig. 5 represents a vertical section on or about line *b b*, Fig. 2, cutting through a portion of the end of the flask and part of the cam-arm for operating the end clamping-arm. Fig. 6 represents a perspective view of one of the cam-operating arms inverted. Fig. 7 is a vertical section on or about line *c c*, Fig. 5, showing a back view of a portion of the end clamping-arm.

The object of my invention is to provide a simple and ready means for instantly securing a molder's flask after the sand mold has been made.

Referring to the drawings for the details, the two halves of the flask 1 1<sup>a</sup> and the bottom board 1<sup>c</sup> are preferably constructed of cast-iron as the most suitable material; but any of the well-known materials may be used. On the bottom of one end of the flask table or base 1<sup>c</sup> I secure or form in one piece with it two ledges 2, which extend lengthwise of the same, one at each side of the flask-table, to allow the clamping-hook to catch over, as will appear more clearly farther on.

The table or base 1<sup>c</sup> is supported up from the floor or ground by legs or supports 3, which extend transversely across the bottom there-

of. At each side of said base portion or table and rigidly secured to it is a hook 4, which extends upward and inclines forward, as in Fig. 1. At each lower side of the lower half 1<sup>a</sup> of the flask is an outward-extending wedge-shaped portion 5, (one being shown in Fig. 1,) adapted to pass under the hook portions 4 when it is pushed forward on the base to its proper position, as in Fig. 1, and thereby hold the two rigidly together.

Near the end A of the upper half 1 of the flask is an ear or lug 6, having a downward-extending pin 7, which extends down into an ear 8 on the lower half 1<sup>a</sup> of the flask when the two halves of the flask are put together, as in Fig. 1. Extending from the ear 6 is a strengthening-rib 8<sup>a</sup>. (See Figs. 1 and 2.) At the opposite side and near the opposite end of the flask is another similar ear 9, (see Fig. 2,) also having a pin 7<sup>a</sup>. (Shown in dotted lines in said Fig. 2.) It is also provided with a similar strengthening-rib 8<sup>a</sup>. (Shown in Fig. 2.)

At each end of the parts 1 1<sup>a</sup> composing the flask are the usual handles 10 by which they are lifted and carried.

The clamping device consists of two or more (I prefer two) T-iron longitudinal bars 11 and 11<sup>a</sup>, riveted securely to the head cross-bar 12 by rivets 12<sup>a</sup>, (see Fig. 2,) and at their opposite ends they are riveted (or bolted) to an end connecting-plate 13. The end connecting parts 12 and 13 may be made of wrought-iron, but cast malleable iron is preferable. At each circular end of the transverse connecting-bar 12 is a curved cam 14, each cam 14 commencing from the surface of the bar at *e* and extending upward on an incline to or about the point *f*. (See Fig. 4, also Fig. 2.) Each cam 14 forms part of a circle of which the upper screw ends 15 of the hook-arms 16 are in the center, or substantially so. The upper ends of the hook-arms 16 are made either square or rectangular in cross-section, so as to fit the holes 17 in the end of the bar 12 (see Fig. 4) and allow them to swing out sufficiently to carry the hook portions out away from the sides of the flask, (see dotted lines *i* in Fig. 3,) and at the same time prevent them from turning in said holes. The two arms 16 are fitted in the holes 17 by passing the ends 15 up



through them. A shoulder 18 (shown in Fig. 3) prevents them from going up too far. An operating-arm 19 is then secured to the end portions 15, so as to turn thereon without coming off, by means of the nuts 20. On the under side of each arm is a slightly-inclined curved rib 21, adapted to move up over the inclined cam portions 14<sup>a</sup> and the end portions 21<sup>a</sup> up over the cams 14 when the arms 19 are turned inward at right angles to the bar 12, or substantially so, as in Figs. 1 and 2, and thereby clamp the two parts of the flask tightly together by drawing the hooks 16<sup>a</sup> firmly upward over the portions 2. When it is desired to loosen them, all that is required is to turn the arms 19 outward each way substantially in a line with the bar 12, and thereby allow the parts to move down along the cams 14 and 14<sup>a</sup>.

At the opposite end of the clamping device is an end hook-arm 22, carried by the end plate 13. This hook-arm passes up through a rectangular hole in said plate 13 until stopped by the two shoulders 23 (see Figs. 5 and 7) and is provided at the top with a forked cam-arm 24, pivoted thereto by a pin 25. Its hook end 26 also catches over a ridge 27 when the flask is clamped thereby. Its operation will be readily understood by reference to Figs. 1 and 5. When the arm is turned down, as in Figs. 1 and 5, the end of the flask is clamped by means of the cam 28.

The operation of the device is as follows: The handle 24<sup>a</sup> being thrown up and back drops the hook 26, thereby releasing it from the flask at that end. The handles 19<sup>a</sup> are then turned outward, so as to be substantially or nearly in a line with the bar 12, which operation causes the parts 21 and 21<sup>a</sup> to move down on the inclined cams 14 and 14<sup>a</sup>, so that the hooks 16<sup>a</sup> drop downward below the ledges 2. A movement upward of the handles 19<sup>a</sup>, produced by lifting the device off from a flask, will then cause the hook ends of the arms 16 to simultaneously swing out away from both sides of the flask, as illustrated by the dotted lines *i* in Fig. 3, showing one arm thus operated. The clamping device can now be pushed back a short distance along the top of the flask to release the hooks 16<sup>a</sup> and 26 from the ledges 2 and 27, and can then be lifted up and transferred to another flask and clamped tightly thereon by dropping and moving the handles 19<sup>a</sup> and 24<sup>a</sup> to the positions shown in Figs. 1 and 2.

In some kinds of flasks the ledges 2 and 27 may be dispensed with, if desired. The longitudinal bars 11 and 11<sup>a</sup> secure the sand at the top of the mold, so that it cannot be forced outward by the metal when poured in, the bottom of the mold being firmly secured by the flat base portion 1<sup>a</sup>.

By the above-described means two or three of such clamping devices will answer for a large number of flasks, because after two or three flasks have thus been clamped and the

hot metal poured in the metal in the first flask has become sufficiently cool to allow the clamping device to be removed and applied to another flask, and so on through the series of flasks.

I claim as my invention—

1. In a clamping device for molding-flasks, the combination with a longitudinal supporting-frame for supporting the operating parts and holding the top of the mold in place, of a head cross-bar carrying a cam at each end, substantially vertical arms having clamping-hooks at their lower ends and mounted in openings at each end of said cross-bar so that while their lower ends are capable of a free swinging movement to bring their hook ends toward or from the sides of the flask they cannot turn out of the plane of their swinging movement, cam-arms mounted on the upper ends of the hook-arms adapted to turn horizontally thereon and engage with the cams for raising or lowering the hook-bars and simultaneously swinging their hooks toward or away from the flask, a clamping hook-arm at the opposite end of the clamping device, and means for operating it, substantially as described.

2. A molder's flask and clamping device therefor, comprising a flask formed in two sections, means for alining the sections when united, a supporting base or table having side projections, portions extending from the lower flask portion and engaging with the side projections of the table for limiting the forward longitudinal movement of said flask upon said table, a side clamping device having hooked arms for preventing transverse movement of the flask upon the table, and a forward clamp for preventing the rearward longitudinal movement of the flask upon the table, as set forth.

3. In a molder's flask and clamping device therefor, the combination with the flask formed in two separable halves and having means of alinement and wedge-shaped portions projecting from the lower half, of a supporting-base provided with a transverse ledge, longitudinal ledges, and hooks adapted to catch over the wedge portions projecting from the lower half, a cross-bar adapted to seat upon the top of the flask, a cam at each end of said bar, clamping-arms provided with hooks at their lower ends, adapted to fit over the longitudinal ledges, levers journaled to the upper ends of said clamping-arms and having portions adapted to travel upon the cams, a longitudinal bar or bars extending from the cross-bar to and over one end of the flask, a clamping-arm provided with a hook at its lower end adapted to fit over the transverse ledge and a lever for raising or lowering said clamping-arms, as set forth.

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