

May 13, 1952

R. J. HINES

2,596,401

FLASK HANDLING DEVICE

Filed Sept. 27, 1947

2 SHEETS—SHEET 1

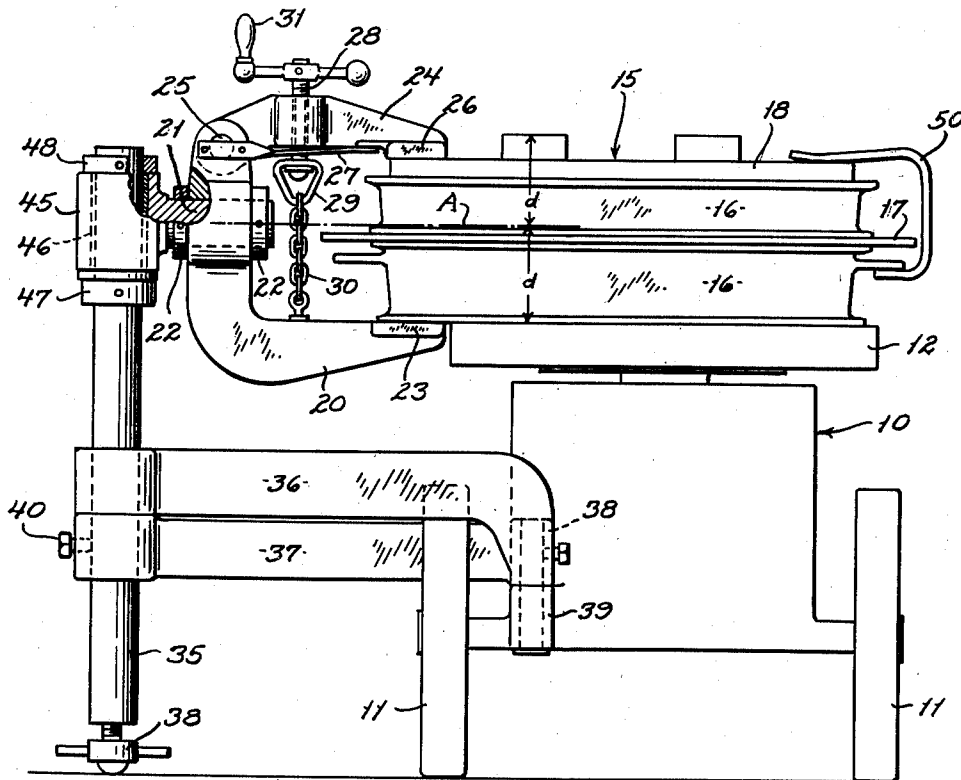


Fig. 1

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2 SHEETS—SHEET 2

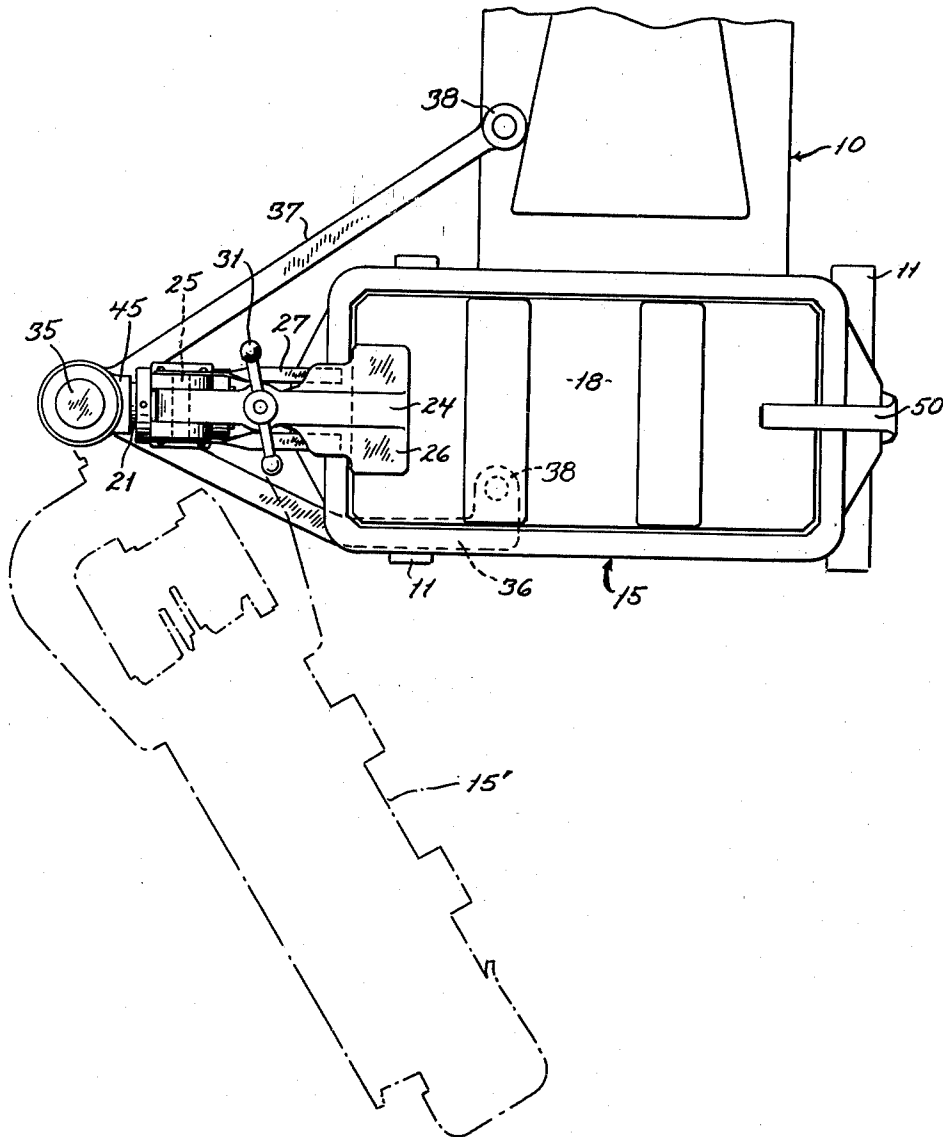


Fig. 2

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FLASK HANDLING DEVICE

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2 Claims. (Cl. 214—1)

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This invention relates to flask handling equipment for foundries and particularly to a device by means of which a flask may be inverted.

In the production of a mold, preparatory to casting, the inversion of the mold halves and of the completed mold is frequently required. In the average small foundry most of the flask handling must be performed manually and, because of the great weight of the composite flask, pattern, and sand, the mere act of removing it from a bench or other support, inverting it and then replacing it becomes a difficult task requiring the combined efforts of two or more operators. A great need is felt, in such cases, for a means of supporting the flask in such a manner that it can be easily turned and replaced by a single operator.

The principal object of this invention, therefore, is to provide a device which will fill the mentioned need.

A further object is to provide such a device in a simple and inexpensive form which will perform its required operation in an expeditious manner.

These objects I accomplish by means of a universally mounted clamp which is adapted to grip the flask and support it while it is swung to a clear position and while it is turned over and then returned. The mounting for the clamp is carried by a standard which, in its most convenient form, comprises a weight carrying post resting upon the floor and braced and positioned relative to the flask-supporting table or molding apparatus by brackets secured thereto.

In the drawings, Fig. 1 is an elevational view of the flask handling device of this invention in conjunction with a portable molding machine and a flask supported thereon, and Fig. 2 is a plan view of the same.

In the drawings, the numeral 10 designates a portable molding machine, that is, a jolter or squeezer of any of the numerous types now in use. The machine is provided with wheels 11 and with a table 12 which is adapted to support a flask and perform a designated operation thereon.

A flask indicated generally at 15 is shown as resting upon the table and comprises two mold halves 16, a pattern plate 17, and a platen 18. This ensemble is to be inverted upon the table for subsequent operations.

The flask handling device of my invention comprises a base, a member which may be secured to the flask, and a pivoted mounting of the member upon the base. The device allows

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the flask to be swung parallel to the table until it is clear of the same and then allows it to be inverted and swung back into table-supported position.

In the preferred embodiment of my invention illustrated in the drawings the flask engaging member takes the form of a C-clamp. The lower fixed jaw 20 of the clamp is carried on a horizontal trunnion 21, later to be described, and positioned endwise thereon by collars 22. An enlarged pad 23 on the jaw is adapted to slide beneath the flask, the latter being slid to overhanging position on the table 12 for the purpose.

An upper hinged jaw 24 is pivoted on the lower one at 25 and is provided with an enlarged pad 26 for engagement with the flask. The jaw 24 is normally held in a raised, flask-clearing position by resilient means such as the two spring leaves 27 illustrated. Clamping pressure is applied by means of a screw 28 threaded in the upper jaw and tied, through a swivel 29, to the lower jaw as by a chain 30. The screw is provided with a crank 31 convenient to the operator.

The base, in the form shown, comprises a post 35, and brackets 36 and 37. To provide an adjustment in height for the proper placing of the lower jaw relative to the flask, a floor-engaging foot 38 may be screw-threaded into the post.

To adapt the device to a particular molding machine and thereby to correctly position the post and jaws laterally of the table, the brackets 36 and 37 are made of proper lengths and provided with hollow bosses whereby they may be pinned to similar bosses 39 on the machine. The brackets are slidable axially of the post and the lower one may be clamped as at 40 at the correct height. A rigid tripod is thus obtained which is well adapted to support the cantilevered weight of the clamp and flask.

While a universal mounting of the clamp upon the post, as exemplified by a ball and socket joint, would support half of the weight while allowing the flask to be removed from the table, reversed and returned, I prefer to employ the more rigid construction illustrated. The horizontal trunnion 21, previously mentioned as carrying the clamp, is formed integrally with a sleeve 45 rotatable on a bushing 46 on the post 35. The bushing rests upon a shoulder of the post or upon a collar 47 as shown. A second collar 48 may be provided above the sleeve.

In the inversion operation the far end of the flask ensemble is clamped together, as by the spring 50, and the flask is then slid to overhang by an appropriate amount. The clamp 20—24

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is then rotated on the post from idle position to engagement with the flask and sufficient pressure is applied by means of the crank 31 to support the flask. Flask and clamp are then rotated upon the post to a position clear of the table, where they are turned about the trunnion 21 to effect the inversion. The broken lines 15' in Fig. 2 indicate the position of the partly turned flask.

It will be noted that the parts are so proportioned that the axis A of the trunnion 21 is at the same distance d from the upper and lower surfaces of the flask assembly. After inversion, therefore, the clamp and flask may be returned about the vertical pivot and the flask slid back upon the table. While the flask is clear of the table, the operator needs support little or none of the weight and need only swing it about its pivots. After return of the flask, the clamp is disengaged and moved to idle position and the flask is slid to a desired position upon the table.

While I have described and illustrated a specific embodiment of my device, it will be apparent that numerous changes and modifications may be made in the base, clamp and pivoted connection therebetween without departing from the spirit and scope of my invention.

I claim:

1. The combination of a vertical post, a sleeve rotatably embracing the post and provided with a horizontal stud rigid therewith, an L-shaped jaw having a vertical arm swiveled on the stud, the other arm projecting away from the post, a second jaw pivoted to the L-shaped jaw on the opposite side from said projecting arm, one of the jaws having a threaded aperture extending therethrough, a screw shaft in threaded engagement with the aperture having a crank at the outer end thereof, and a chain including a swivel attached at one end to the inner end of the screw shaft and at the other end to the opposing jaw.

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2. A portable device for assisting in removing a flask from a support, inverting the flask, and returning it to the support, comprising the combination of a support on which a flask may rest, a post, a foot screw-threaded into the lower end of said post for adjusting it with respect to a supporting surface, a pair of arms, means for adjustably mounting one end of said arms for vertical and pivotal movement on said post, said arms extending from said post at an angle to each other, means for removably securing the extended end of each of said arms to said flask support, a member rotatable about a vertical axis on the post, a second member adapted to engage the flask while on the support and rotatable about a horizontal axis on the first member, and adjustable means for securing and supporting the flask on the second member.

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