Jan. 3, 1939. H. H. FARR 2,142,097

SAND LINED CENTRIFUGAL PIPE MOLD

Filed Nov. 24, 1937

Fig 3

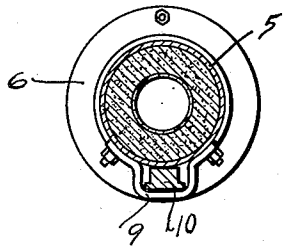


Fig. 1

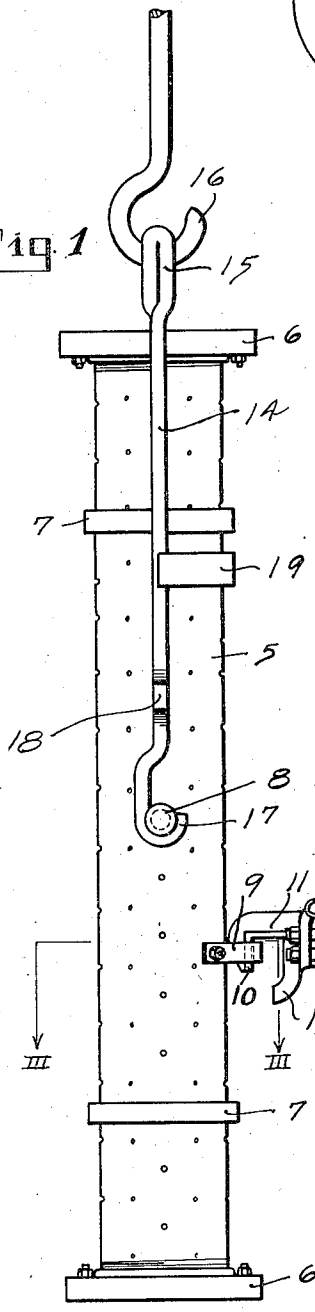
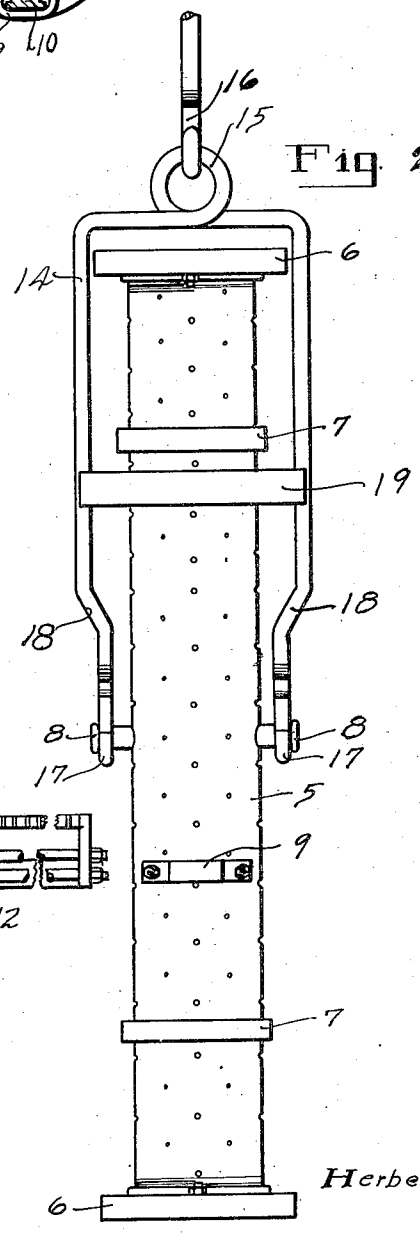


Fig. 2



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SAND LINED CENTRIFUGAL PIPE MOLD

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3 Claims. (Cl. 22—1)

My invention relates to a flask adapted for the production of sand cast centrifugal pipe, and my object is to design a flask and associated mechanism for the effective and convenient shake out of the finished pipe casting.

More particularly, my invention is concerned with flasks which are provided near each end with a riding ring which by engagement with spinning rollers will rotate the flask about its long axis on a spinning table to subject the molten metal therein to centrifugal forces that will distribute it uniformly about the sand mold in the flask.

In the manipulation of flasks of this general character, the practice is to spin the flasks in horizontal position during the pouring operation and then to remove the poured flask in any suitable manner and while still horizontal from the spinning table. It is thereupon necessary, in order to effectively shake out the casting, to suspend the flask in vertical position, and one object of my invention is to provide the flask, at or near its center, with a pair of trunnions, preferably spaced midway between its riding rings, for the reception of hooks on a U-shaped hoist bail by means of which the flask may be lifted and swung freely to vertical position ready for the shake-out operation.

A further object of my invention is to provide such a bail with a stop which will arrest the swing of the flask when it reaches substantially vertical position.

A further object of my invention is to equip such a flask near one end with a strap disposed 90° removed from the plane of the flask trunnions, and this strap is adapted to receive the hook, and sustain the weight, of an air operated vibrator, or like element, adapted, when pressed downwardly, to engage the flask and press it against the bail stop thus holding it in vertical position while vibrating it to shake out the sand and casting.

From the foregoing it follows that the bail must be disposed so as to present its stop to the side of the flask carrying the vibrator strap.

My invention further comprises the novel details of construction and arrangement of parts which in their preferred embodiment only are illustrated in the accompanying drawing, in which:—

Fig. 1 is a side elevation of my improved flask suspended in position for the shake out operation;

Fig. 2 is a front elevation of Fig. 1; and

Fig. 3 is a cross section on the line III—III of Fig. 1.

Similar reference numerals refer to similar parts.

In the embodiment of my invention illustrated, I show a cylindrical pipe flask 5 having end flanges 6 for the reception of stripping plates and complemental elements and having juxtaposed to each of these flanges 6 a riding ring 7, which supports the flask on the spinning table where grooved rollers receive these riding rings and are driven to rotate the flask rapidly about its long axis. Substantially at the center of the flask, and midway between its rings 7, I mount a diametrically opposite pair of trunnions 8 and between these trunnions and one of the riding rings 7 I attach, in any suitable manner, to the flask a strap 9 set with its center 90° removed from a vertical plane through the axes of the trunnions 8. This strap, as shown in Fig. 3, is adapted to receive the hook 10 on the head 11 of an air operated vibrator 12 which is typical of any power vibrator, but which preferably has a curved lower jolter arm 13 adapted to be rocked downwardly against the flask during the shake out operation.

To hoist and support the flask in shake out position, I provide a U-shaped bail 14 formed with an eye 15 at its top center to receive the hoist hook 16, and having its side legs adapted to straddle the flask and present hook ends 17 in position to engage the trunnions 8 and thereby pivotally support the flask. As shown in Fig. 2, the rods forming the side legs of the U-bail are bent inwardly at 18 to present their hook ends for engagement with the trunnions 8. The bail is applied so its hooks 17 face toward the side of the flask carrying the vibrator strap 9. A stop strap 19 is bent on the half circle roughly conforming to the shape of the flask, and its ends are welded or otherwise made fast to the bail legs in position to engage the upper end of the flask on its side bearing strap 9.

In practice, having picked up the horizontal flask by its trunnions 8 from its bed or other support, the operator hoists the flask upwardly and swings the desired end upwardly on its trunnions until it abuts the stop 19 with its shaker strap 9 underlying said stop. Thereupon the hook 10 of the rapping vibrator 12 is engaged in the loop of strap 9 and is pressed down to insure close vibratory engagement of the head 11 with the flask to shake it. This downward pressure, from the vibrator head applied off center, will swing the flask against the stop 19 which will hold it in upright position while the vibrator acts to shake out the sand and the casting. The vibrator may be swung down to cause its arm 13 to engage the

flask and rap it to assist in the shake-out operation. Thereupon the vibrator is disengaged from the strap 9, the flask is swung away from the stop 19 to horizontal position and deposited on a bed or track ready to be returned along with other empty flasks in the cycle of work.

While I have shown my invention in but one form, it will be obvious to those skilled in the art that it is not so limited, but is susceptible of various changes and modifications, without departing from the spirit thereof, and I desire, therefore, that only such limitations shall be placed thereupon as are imposed by the prior art or as are specifically set forth in the appended claims.

What I claim is:—

1. A shake-out mechanism for sand molds, comprising a bail, side elements on the flask with which said bail is adapted to engage and by means of which the flask is supported free to swing to upright position in the bail, a stop member carried by the bail to stop the swing of the flask when it reaches upright position, and means to couple a vibrating shake-out machine to the side of the flask in engagement with said bail stop.

2. A shake-out equipment for sand lined centrifugal pipe flasks which have substantially centrally disposed side trunnions, a bail having elongated legs terminating in hooks adapted to engage and pivotally support the flask by its trunnions free to swing to vertical position in the bail, stop means carried by the bail to check the swing of the flask when it reaches vertical position, and a strap mounted on the lower portion of the flask and on the side thereof disposed to engage said bail stop, said strap being shaped to receive the jaw of a vibrator and couple same in operative relation with the suspended flask.

3. A shake-out mechanism for sand molds having side trunnions, comprising a hoistable hanger adapted to engage said trunnions and lift the flask until it is free to swing therein on its trunnions into approximate upright position, means on the hanger adapted to serve as a stop to arrest the swing of the mold when it reaches substantially upright position, and means to couple a vibrating shake-out machine to the lower end of the suspended mold in position to unbalance by its weight the suspended mold and force it against the hanger stop means.

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