Sept. 23, 1958 R. W. TACCONE 2,852,820

MOLDING MACHINE WITH ROLLER STRIKE OFF

Filed March 14, 1955 2 Sheets-Sheet 1

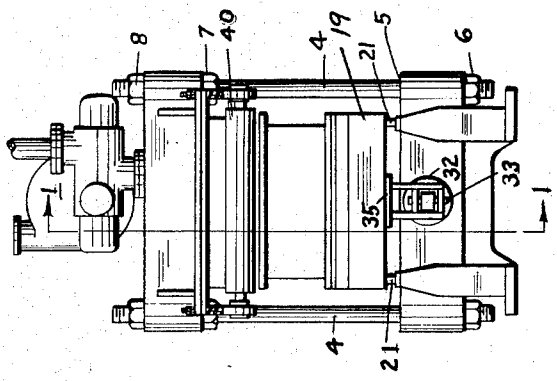


FIG. 2

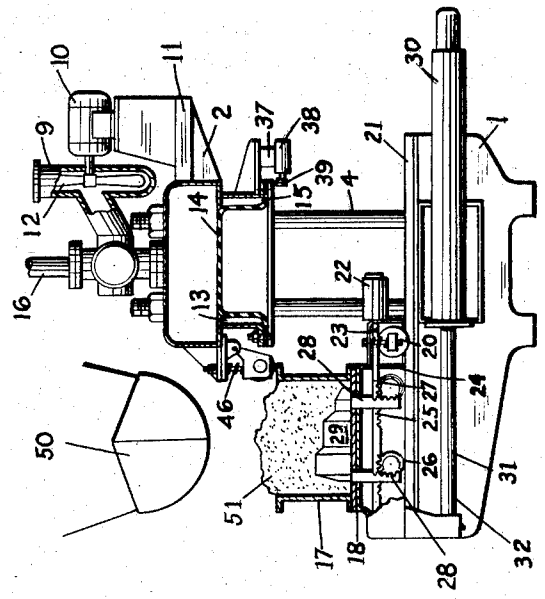


FIG. 1

Russell W. Taccone Inventor

By Charles L. Lovercheck

Attorney

Sept. 23, 1958 R. W. TACCONE 2,852,820

MOLDING MACHINE WITH ROLLER STRIKE OFF

Filed March 14, 1955 2 Sheets-Sheet 2

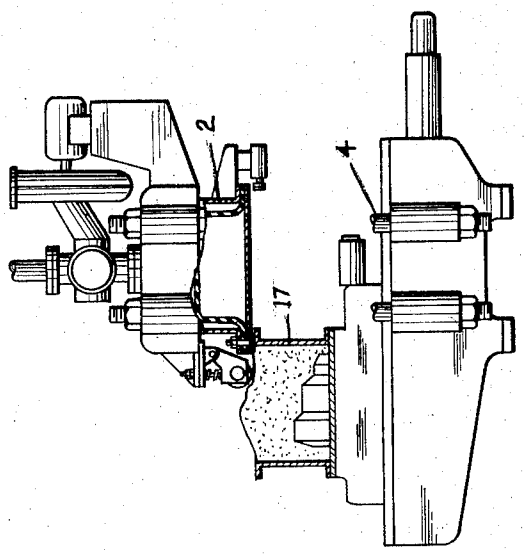


FIG. 3

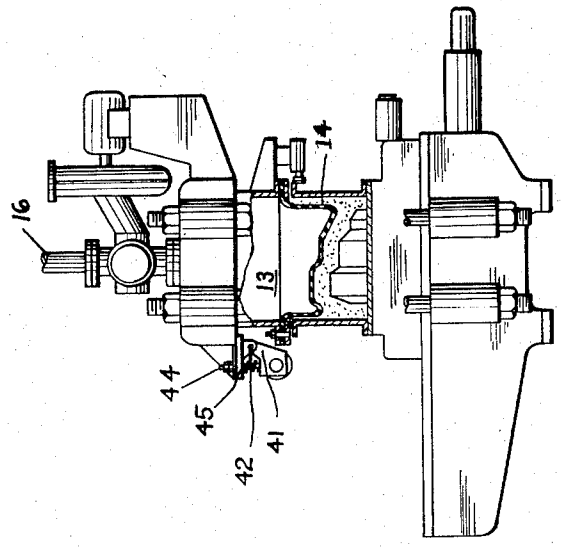


FIG 4

Inventor

Russell W. Taccone

By

Charles L. Lorenheck

Attorney

United States Patent Office 2,852,820
Patented Sept. 23, 1958

2,852,820

MOLDING MACHINE WITH ROLLER STRIKE OFF

Russell W. Taccone, Erie, Pa., assignor to Taccone Pneumatic Foundry Equipment Corporation, North East Township, Erie County, Pa., a corporation of Pennsylvania

Application March 14, 1955, Serial No. 493,969

3 Claims. (Cl. 22—46)

This invention relates to molding machines and more particularly to molding machines wherein a flask containing sand disposed around a pattern is packed in the flask by means of an obtruder.

This application is a continuation in part of application Serial No. 280,223, filed April 3, 1952, which issued as Patent No. 2,715,758 on August 23, 1955.

Molding machines made according to prior inventions wherein the sand is packed by means of pneumatic pressure behind an obtruder require a considerable depth of flask in order to contain enough sand so there will be a sufficient thickness of sand over the pattern when the said is in the molded condition. Also, a problem is always present in keeping spilled sand from falling on the floor around the machine.

It is, accordingly, an object of this invention to provide a means for pre-packing sand in a flask before the sand is exposed to pneumatic pressure.

Another object of the invention is to provide an improved strike off device for a molding machine.

Another object of this invention is to provide a roller means for packing and smoothing sand in a flask.

A further object of the invention is to provide means for pre-packing the sand in a mold to prevent the sand from spilling on the floor around the molding machine.

A still further object of this invention is to provide a molding machine which is simple in construction, economical to manufacture, and simple and efficient to use.

With the above and other objects in view, the present invention consists of the combination and arrangement of parts hereinafter more fully described, illustrated in the accompanying drawings and more particularly pointed out in the appended claims, it being understood that changes may be made in the form, size, proportions, and minor details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings:

Fig. 1 is a side view of a molding machine according to the invention partly in cross section taken on line 1—1 of Fig. 2;

Fig. 2 is an end view of the machine shown in Fig. 1;

Fig. 3 is a side view of the machine shown in Fig. 1 showing the sand in packed position under the molding head; and

Fig. 4 is a view of the machine similar to Fig. 3 showing the flask moved into position under the head.

Now with more specific reference to the drawings, a molding machine is shown having a base 1 and a molding head 2 supported thereon by means of upwardly extending rod members 4. The rod members 4 have shoulders 5 which rest on the base 1 and are held thereto by means of nuts 6. The upper ends of the rods 4 are threaded to receive nuts 7 and 8 on the threaded ends which extend through the head 2 and hold it in place.

A blower 9 is driven by motor 10 supported on the machine on the bracket 11 and has an impeller 12 which provides a means for evacuating the space 13 in the head

2. An obtruder 14 is secured to the head 2 at 15 in the manner disclosed in the said prior application and the blower 9 evacuates the space between the obtruder 14 and the head 2. A pipe 16 having a suitable valve therein is provided to supply compressed air to the space behind the obtruder 14 to force it down into compressing relation with the sand as shown in Fig. 4.

A flask 17 which may be a cope or drag is supported on a pattern plate 18 which is in turn supported on a car 19. The car 19 has wheels 20 thereon which operate on a track 21. A cylinder 22 is supported on the car 19 and has a piston rod 23 which has rack teeth 25 which engage gear teeth 26 on wheels 27. Racks 28 are attached to the plate 18 which is attached to flask 17 and when the piston rod 23 is retracted into the cylinder 22, the gear teeth 26 urge the racks 28 upward and lift the flask 17 off of pattern 29.

A double acting cylinder 30 has a piston rod 31 attached to a double acting piston slidable therein and the outer end 32 of the piston is attached by means of a pin 33 to bracket 34 which is in turn attached to the end of the car 19 at 35. Therefore, by applying air pressure alternately to either side of the piston attached to piston rod 31, the car 19 can be pulled under the molding head 2 or forced outward from below the head 2 and a sufficient operating clearance will be provided between the flask 17 and the head 2 as explained in co-pending application Serial No. 280,223. A bracket 37 supports an air dashpot 38 which has a buffer member 39 adapted to engage the flask 17 carried by the car 19 to limit its inward movement.

A roller strike off member 40 is supported by means of brackets 41 which are swingably attached at 42 to the head 2. A rod 44 is attached to the brackets 41 and is slidable through a hole in a frame member 45. A compression spring 46 is disposed between the brackets 41 and the frame member 45.

During operation, a clamshell bucket 50 may empty sand 51 into the flask 17 which will be disposed on the car 19 shown in Fig. 1. Then air pressure will be applied to the cylinder 30 which will cause the piston attached to the rod 31 to withdraw the car 19 toward its proper position under the head 2. As the car 19 is withdrawn, the roller 40 will roll over the sand which will be heaped up as shown in Fig. 1 and as the flask 17 moves under the head 2 as shown, the roller 40 will pack the sand 51 across the top of the flask 17 level as shown in Fig. 3. When the flask 17 is completely under the head 2, air pressure from the pipe 16 will be applied to the space 13 above the obtruder 14 which will cause it to pack the sand above the pattern 29 as shown in Fig. 4. When the sand has been packed according to a predetermined cycle of time, air pressure in pipe 16 will be removed and the blower 9 will be started which will draw out air above the obtruder 14 and thereby create a vacuum above the obtruder 14 and retract the obtruder 14 up into the head 2 as shown in Fig. 1. Then air pressure can be exerted behind the piston to cause it to force the car 19 with the flask 17 thereon which is now a completed mold out from under the head 2. Then the cylinder 22 can be operated which will cause it to draw the rack teeth 25 across the gear teeth 26, causing the support members 28 to strip the completed mold from the pattern 29. At this point, a mold will be completed and can be used to form a casting in the manner intended.

The foregoing specification sets forth the invention in its preferred practical forms but the structure shown is capable of modification within a range of equivalents without departing from the invention which is to be understood is broadly novel as is commensurate with the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A molding machine comprising a base, a head supported above said base, said head having means thereon to exert pressure on sand adapted to be supported therebelow, means to support a flask containing sand heaped above the upper surface thereof, means to move said flask laterally and horizontally to a position under said head, and an elongated prepacking and strike off roller member supported on said head at one side thereof and adapted to roll in engagement with said sand over heaped sand adapted to be disposed in said flask prior to engagement of said sand with said pressure means whereby said sand in said flask is prepacked and struck off.

2. A molding machine comprising a base, a car adapted to support a flask movable on said base, means to support a pressure exerting device above said base, means to move said flask horizontally under said pressure exerting device, and a roller supported on said means to support said pressure exerting device precompressing sand heaped

in said flask as said flask moves horizontally to a position under said pressure exerting device whereby said heaped sand is precompressed and struck off.

3. The molding machine recited in claim 2 wherein said pressure exerting device comprises an obtruder, means is provided to apply compressed air behind said obtruder to force it into engagement with said sand, and vacuum means is provided to withdraw said obtruder out of engagement with said sand.

References Cited in the file of this patent

UNITED STATES PATENTS

400,893	Bird	Apr. 9, 1889
569,743	Bryant	Oct. 20, 1896
1,184,356	Kramer	May 23, 1916
1,794,334	Haskins	Feb. 24, 1931
2,191,687	Skates	Feb. 27, 1940
2,317,574	Williams	Apr. 27, 1943
2,535,656	Smith	Dec. 26, 1950
2,698,976	Taccone	Jan. 11, 1955