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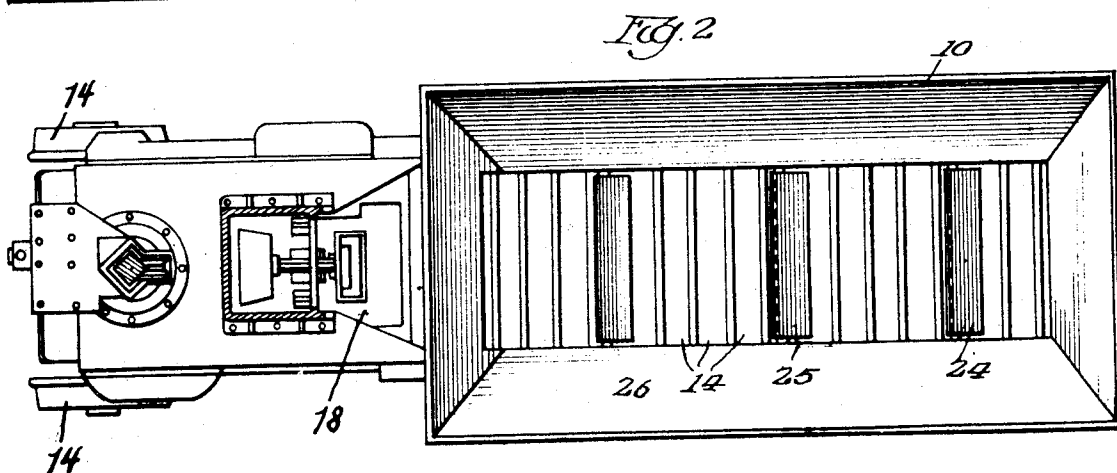
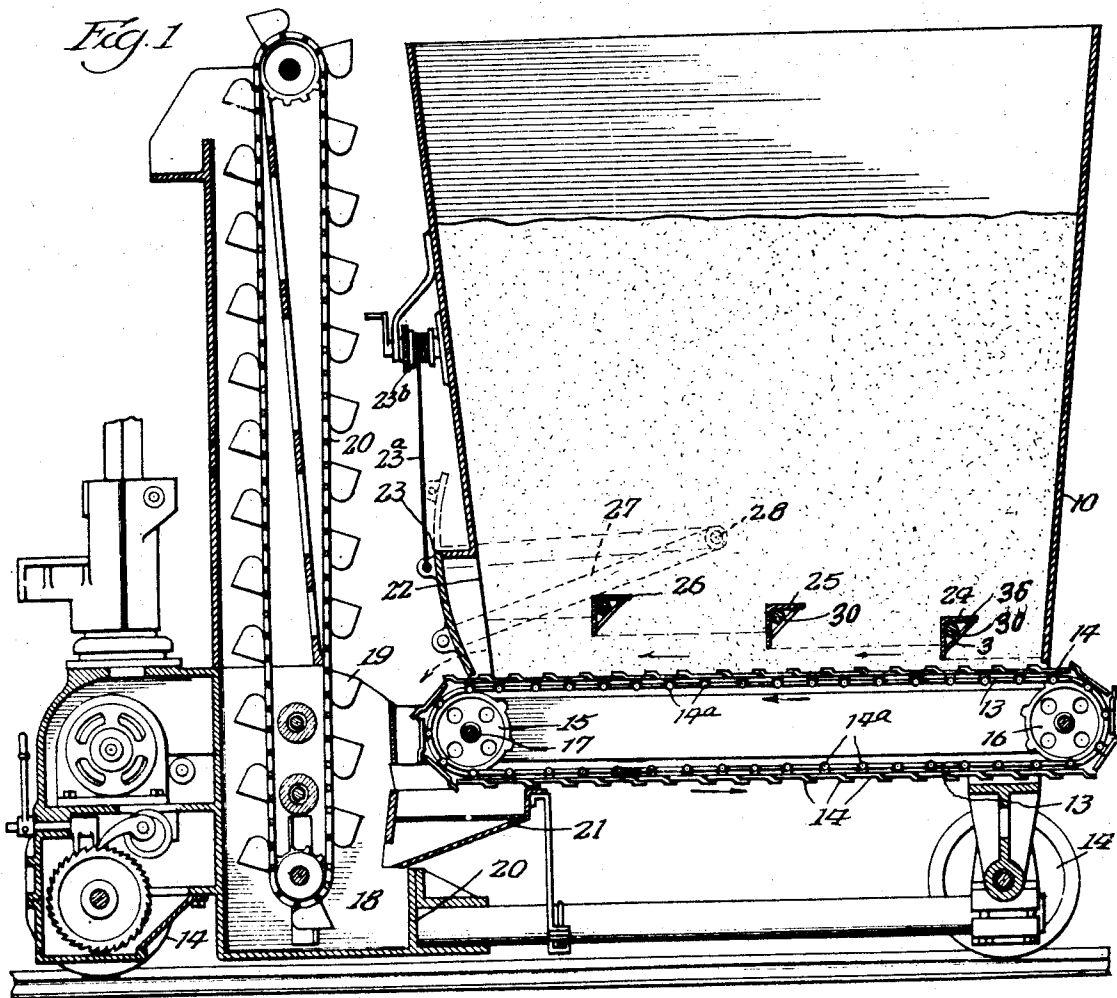
E. O. BEARDSLEY ET AL

1,752,549

SAND FEEDING MECHANISM FOR MOLDING MACHINES

Filed Oct. 19, 1928

2 Sheets-Sheet 1



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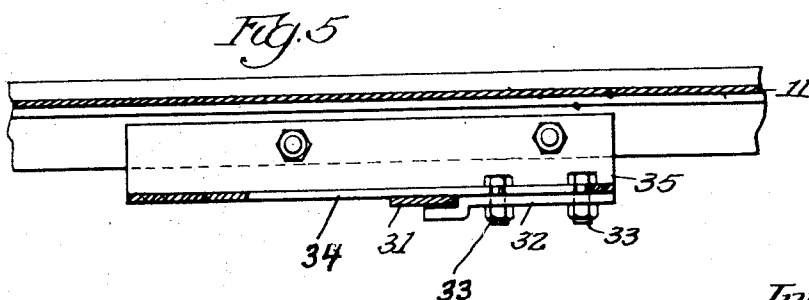
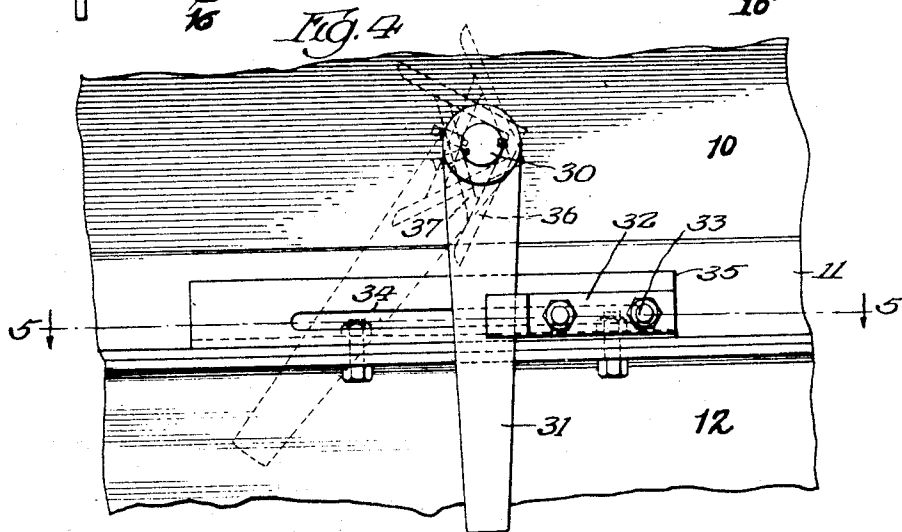
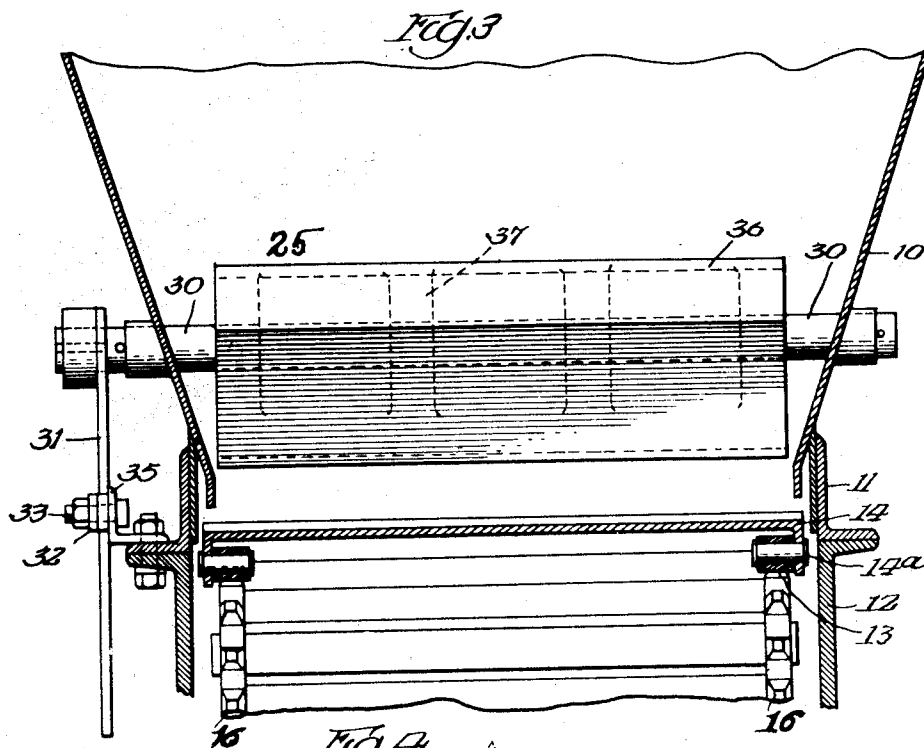
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SAND FEEDING MECHANISM FOR MOLDING MACHINES

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UNITED STATES PATENT OFFICE

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SAND-FEEDING MECHANISM FOR MOLDING MACHINES

Application filed October 19, 1928. Serial No. 313,619.

The invention relates to sand feeding mechanism for molding machines and the like.

In sand feeding mechanism of the type set forth in our application for Letters Patent filed Dec. 8, 1924, Serial No. 754,487, and in which sand is fed from a reservoir containing a supply for filling a number of molds, by an endless or slat conveyor at the bottom of the reservoir, it has been found that the sand is not uniformly delivered from all portions of the reservoir, and one object of the present invention is to provide devices in the reservoir for causing the sand to be uniformly discharged from all portions of the reservoir. In practice, it has been found that when a bottom conveyor is used to discharge the sand from the reservoir, the conveyor will be loaded adjacent the end of the reservoir at which the conveyor enters it, and the sand adjacent the discharge end will become packed, so that it will not freely fall on the conveyor and be removed thereby. In accordance with the present invention, baffles or gauge bars are placed in the reservoir and progressively spaced from the conveyor, to cause the latter to pick up the sand from all portions of the reservoir, so that the pile therein will be gradually lowered until the reservoir has been emptied.

Other objects of the invention will appear from the detailed description.

The invention consists in the several novel features hereinafter set forth and more particularly defined by claims at the conclusion hereof.

In the drawings: Fig. 1 is a vertical longitudinal section of a machine embodying the invention. Fig. 2 is a plan. Fig. 3 is a transverse section through the reservoir and conveyor. Fig. 4 is a detail of one of the adjustable devices for holding the baffles in different positions. Fig. 5 is section on line 5-5 of Fig. 4.

The invention is exemplified in a machine comprising a reservoir 10 which is adapted to contain a large quantity of molding sand, usually sufficient to fill a run of flasks. This reservoir has an open bottom, and a discharge opening 22 for the sand adjacent the bottom

and at one end thereof. The volume of sand discharged is controlled by a vertically adjustable gate or valve 23 which is mounted on arms 27 which are pivoted, at 28, to the reservoir. A suitable adjusting device, such as a cable 23^a and winding drum 23^b may be used to adjust the position of the gate to correspondingly vary the area of the discharge opening for the sand beneath it. An endless conveyor, for feeding the sand from the reservoir, comprises chains 13 and slats or plates 14 which are pivoted, at 14^a, to the chains. The conveyor extends under the open bottom of the reservoir, and is operated to discharge the sand through opening 22 under control of gate 23. The slats 14 are preferably of the overlapping type, so their raised or overlapping portions will positively engage the sand and carry it forward. Chains 13 are mounted to travel on a pair of driven sprockets 15 adjacent the discharge end of the reservoir, and a pair of idler sprockets 16 adjacent the other end. Sprockets 15 are operated to drive the conveyor to feed the sand forwardly through opening 22, by any suitable mechanism, such, for example, as that set forth in our aforesaid application No. 754,487. A series of baffles or gauges 24, 25, and 26 extend across the lower portion of the reservoir and are progressively spaced from the conveyor, the baffle 24 adjacent the end of the reservoir at which the conveyor enters being closest to the reservoir, and the others being spaced greater distances therefrom. As a result, the baffle 24 will act to retard the forward feeding of the sand adjacent the inlet end of the conveyor, and the baffle 25, which is spaced farther from the conveyor, will permit some of the sand above the lower edge of the baffle 24, to be carried forwardly by the conveyor, and the baffle 26, which is spaced farther from the belt than the baffle 25, will permit some of the sand above the lower edge of the baffle 25 to be fed forwardly by the conveyor. This, in practice, has been found to result in causing the pile of sand in the reservoir to be uniformly fed therefrom. In practice it has also been found that, without these baffles, the sand adjacent the inlet end of the conveyor would

settle and be carried forward by the conveyor and would cut its way through the pile toward the discharge end of the reservoir. In some instances, this would cut a path in the portion of the pile adjacent the discharge end, and the sand above it would become packed, so that it would not be freely and uniformly discharged as is desirable when sand in regulated quantity is to be delivered to a molding machine. This would also cause the sand adjacent the inlet end of the conveyor to be almost entirely removed without removing the portion adjacent the discharge end of the conveyor. By providing baffles which are progressively spaced from the conveyor, it has been found that the sand will be uniformly fed from all portions of the reservoir, and the pile will gradually settle, so it will be uniformly fed by the conveyor until all of the sand has been discharged.

The baffles are adjustable to release the sand according to the volume of sand to be discharged under the gate 23, and in accordance with the area of the discharge opening. For this purpose, each of the baffles is secured to a shaft 30 which extends through the side walls of the reservoir and is journaled therein, and a stop arm 31 is fixed to one end of said shaft. The forward feeding of the sand tends to swing the baffles forwardly, and by adjusting the position of the stop-arms 31, the operative positions of the baffles may be varied to bring their lower edges toward or from the conveyor to vary the spacings between them and the conveyor.

Stop lugs 32 are adapted to be engaged by arms 31 respectively, and these stop lugs are each adjustably secured by bolts 33 which extend through an elongated slot 34 in an angle iron bar 35 which is fixedly secured to the reservoir. By adjusting the stop lugs 32, the position of stop arms 31 may be individually varied to hold shafts 30 and the baffles in different positions. The baffles are preferably formed of bars of angle iron 36, to which lugs 37 are welded. Shafts 30 pass through lugs 37, and are keyed or otherwise secured to said lugs. This construction exemplifies means for individually adjusting the baffles so they can be set to retard more or less of the sand adjacent the conveyor.

The reservoir 10 is mounted upon a truck comprising a suitable frame 12 which is provided with wheels 14 which are adapted to run on a track, so that the machine may be transported over a molding room floor. The conveyor, which feeds the sand from the reservoir, discharges it into a sieve or riddle 21 which delivers the sand into the lower end of a housing 18, from which a bucket elevator 20 conveys the sand for delivery to the molding machine, as more fully set forth in our aforesaid application No. 754,487, to which reference may be had for a more detailed de-

scription and illustration of the truck and mechanism for operating the conveyor.

The invention exemplifies sand feeding mechanism of the type in which an endless conveyor travels across the bottom of a reservoir to deliver sand in regulated volume, in which devices are provided to cause the sand to be removed from all portions of the pile, and to prevent settling or packing of the sand in one portion, and the complete removal of the sand from another portion; also mechanism of that character in which the devices are individually adjustable for varying conditions in the sand.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent, is:

1. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom and at one end thereof, an endless conveyor at the bottom of the reservoir, for discharging sand through said opening, mechanism for driving the conveyor, and a series of baffles extending across the interior of the reservoir, said baffles being progressively spaced from the conveyor so as to retard the sand above consecutive portions of the conveyor in different quantities.

2. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom and at one end thereof, an endless conveyor at the bottom of the reservoir for discharging sand through said opening, mechanism for driving the conveyor, and a set of baffles extending across the interior of the reservoir, said baffles being arranged so as to leave progressively increasing unretarded portions of sand above the conveyor and cause a substantially uniform discharge of the sand from all parts of the reservoir during operation of said conveyor.

3. In a sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom and at one end thereof, an endless conveyor at the bottom of the reservoir, for discharging sand through said opening, mechanism for driving the conveyor, and baffles adjustable to and from the conveyor for retarding the sand during operation of said mechanism.

4. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom and at one end thereof, an endless conveyor at the bottom of the reservoir for discharging sand through said opening, mechanism for driving the conveyor, and a

series of baffles for retarding the sand during operation of the mechanism, said baffles being individually adjustable to and from the conveyor.

5 5. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom and at one end thereof, an endless conveyor at the bottom of the reservoir, for
10 discharging sand through said opening, mechanism for driving the conveyor, and pivoted baffles in the reservoir spaced from, and to retard the sand over, the conveyor.

15 6. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom and at one end thereof, an endless conveyor at the bottom of the reservoir for
20 discharging sand through said opening, mechanism for driving the conveyor, a baffle for retarding the sand during drive of the conveyor, a pivoted shaft for the baffle, and adjustable means for holding the shaft against rotation.

25 7. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom of the reservoir, an endless conveyor at the bottom of the reservoir for discharging
30 sand through said opening, mechanism for driving the conveyor, an adjustable gate for regulating the discharge of sand from the reservoir by the conveyor, and baffles spaced from the bottom of the conveyor to retard
35 the sand during drive of the conveyor.

8. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom of the reservoir, an endless conveyor
40 at the bottom of the reservoir for discharging sand through said opening, mechanism for driving the conveyor, an adjustable gate for regulating the discharge of sand from the reservoir by the conveyor, and baffles spaced
45 from the bottom of the conveyor to retard the sand during drive of the conveyor, said baffles being adjustable to and from the conveyor.

9. In sand feeding mechanism, the combination of a reservoir having an open bottom and a discharge opening adjacent the bottom of the reservoir, an endless conveyor
50 at the bottom of the conveyor for discharging sand through said opening, mechanism for driving the conveyor, a gate for regulating the discharge of sand from the reservoir
55 by the conveyor, and angle-iron baffles spaced from the bottom of the conveyor to retard the sand during drive of the conveyor.

60 Signed at Chicago, Illinois, this 16th day of October, 1928.

ELMER O. BEARDSLEY.
WALTER F. PIPER.