Dec. 11, 1923. 1,476,688

E. S. CARMAN

FLASK FILLING MACHINE

Filed June 8, 1922

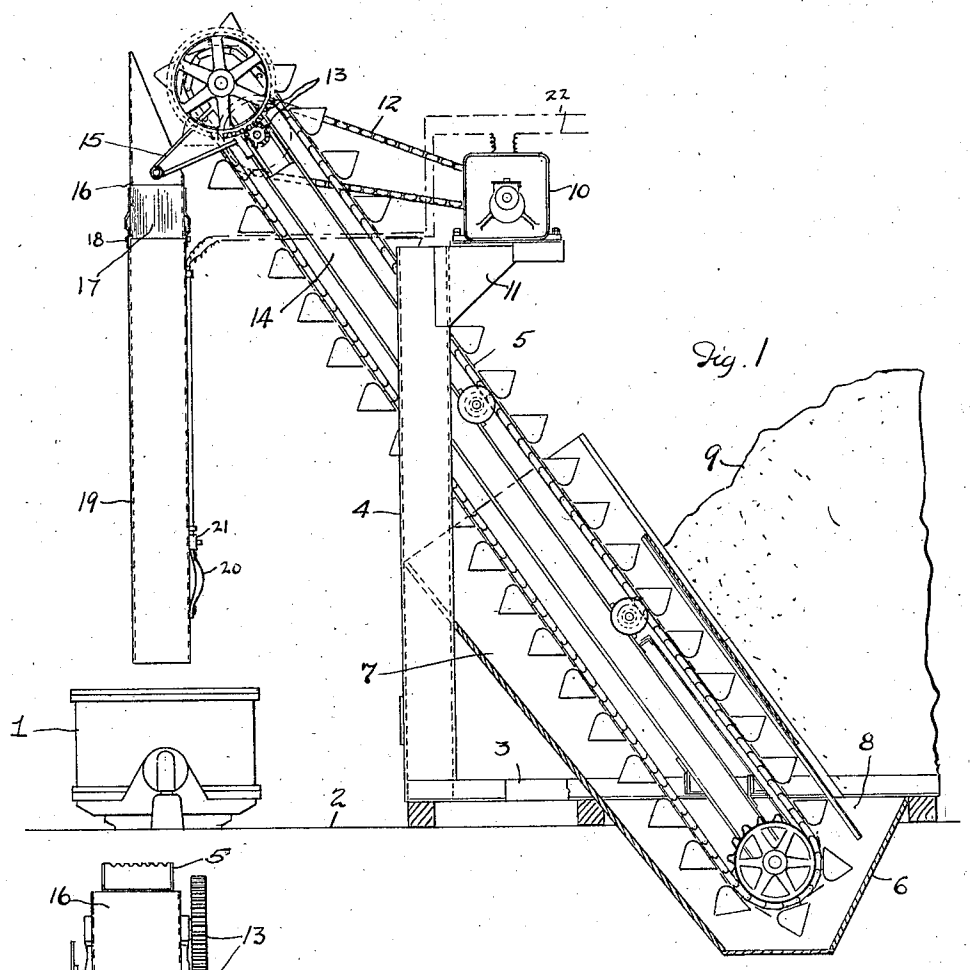


Fig. 1

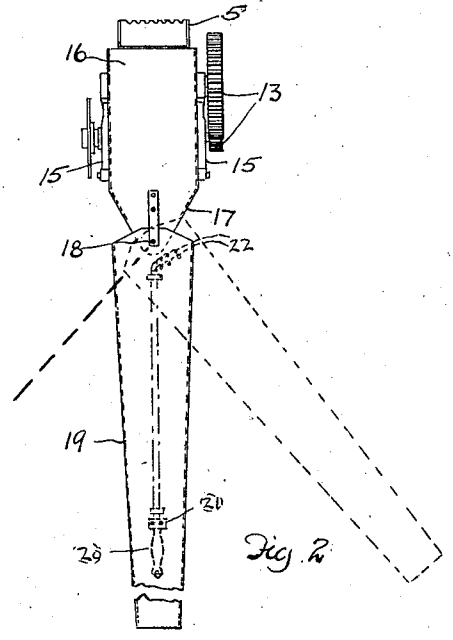


Fig. 2

INVENTOR.
Edwin S. Carman
BY
Fay, Oberlin & Fay
ATTORNEYS

Patented Dec. 11, 1923. 1,476,688

UNITED STATES PATENT OFFICE.

EDWIN S. CARMAN, OF EAST CLEVELAND, OHIO, ASSIGNOR TO THE OSBORN MANUFACTURING COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

FLASK-FILLING MACHINE.

Application filed June 8, 1922. Serial No. 566,839.

To all whom it may concern:

Be it known that I, EDWIN S. CARMAN, a citizen of the United States, and a resident of East Cleveland, county of Cuyahoga, and State of Ohio, have invented a new and useful Improvement in Flask-Filling Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

The present improvements have to do more particularly with the filling of flasks on molding machines although applicable as well to the filling of flasks resting simply on the foundry floor. It has been the general practice heretofore to manually shovel the sand into such flask, and while an attempt to save the heavy labor thus involved has been made by conveying the sand into a hopper located above or to one side of the flask and then allowing same to discharge into the latter through suitable control gates, this method is likewise unsatisfactory, since the sand so discharged will naturally pile up higher at the central point of discharge and so require to be subsequently distributed, entailing not only additional labor but leaving the sand unevenly compacted.

The object of the present invention is to provide a conveying and distributing mechanism whereby the sand may not only be elevated to the necessary height for filling the flask, but can be evenly distributed upon the latter, reducing the amount of manual leveling to a minimum and depositing the sand under uniform pressure conditions throughout the entire extent of the flask. To the accomplishment of the foregoing and related ends, the invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims, the annexed drawing and the following description setting forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used.

In said annexed drawing:—

Fig. 1 is a partial side elevation and partial vertical section of my improved flask filling machine; and Fig. 2 is a broken front elevational view of the same, more particularly showing the discharge chute.

The flask 1 illustrated in the drawing is shown as supported on an automatic molding machine of the type designed to be sunk substantially below the level of the foundry floor 2, but, as previously indicated it is a matter of indifference, so far as the operation of the machine of present interest is concerned, how said flask is supported. The frame of the flask filling or loading mechanism is located adjacent the filling station and includes a platform 3 from which rise vertical standards 4. Between the latter is supported an endless conveyor 5 preferably of the bucket type, as shown, such conveyor inclining at an angle to the vertical so that its upper end will project not only above but clear of the standards. The lower end of the conveyor extends into a hopper-like receptacle 6, preferably sunk below the floor level, and is laterally enclosed on all sides for some distance above such floor level by a box-like structure 7. The front wall of such enclosure, however, terminates short of the adjacent wall of the hopper so as to leave an opening 8 through which the sand from a pile 9 may descend into the latter and be picked up by the buckets of the conveyor 5.

For the purpose of driving the conveyor, an electric motor 10 is mounted on a bracket 11 projecting rearwardly from the upper ends of standards 4, said motor being connected with the conveyor through a sprocket chain 12 and suitable reduction gearing 13.

Projecting forwardly from the frame 14 that directly supports the conveyor 5 are two laterally spaced arms 15, between which is oscillatorily hung about an axis aligned with the buckets an upper chute member 16. The front wall of the latter is considerably higher than the rear wall and the lower end of said member is laterally narrowed to form a V-shaped funnel 17 as best shown in Fig. 2. Pivotally attached to such funnel end of chute member 16 about an axis 18 at right angles to the axis of said member is a second chute member 19 that is preferably of slightly tapering form from its upper to its lower end, the length of such member being such that its lower end terminates directly above the flask 1.

For the convenience of the operator in manipulating the chute, a handle 20 is attached thereto, preferably on the rear side so that the operator can readily grasp the

same while standing alongside the flask 1 on the molding machine. Associated with such handle, in such position that it may be actuated by the same hand used to grasp such handle without releasing the latter, is an electric switch 21, that is interposed in one of the leads 22 to the motor 10. Said switch is preferably of the usual rocking or push-button type, the buttons for turning the current off and on being located so as to be operable by the thumb of the hand while still holding on to the handle.

In operation, the motor 10 will be energized to drive the conveyor only during the length of time necessary to fill the particular flask, such time depending of course on the size of the flask and the capacity of the conveyor, the latter being commercially made to handle as much as two yards of sand per minute. During the discharge of the sand from the conveyor through the pendent chute the latter may be swung both back and forth in the plane of Fig. 2 and at right angles to such plane, as indicated in Fig. 2, so that the sand delivered through such chute will be evenly distributed throughout the whole of the flask, as will be readily understood. Very little leveling will accordingly be necessary and the sand will be uniformly compacted as thus delivered.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. In a machine for filling sand in flasks and the like, the combination of an inclined elevating conveyor, an electric motor for operating said conveyor, a shiftable pendent chute supported at the upper end of said conveyor, said chute being arranged to receive the material discharged from said conveyor, a handle on said chute for oscillating same, and a switch for controlling said motor associated with said handle, said switch being located so as to be operable by the same hand wherewith said handle is held.

2. In a machine for filling sand in flasks and the like, the combination of a suitable frame including a platform, vertical standards rising therefrom, an inclined endless conveyor supported between said standards, an enclosure laterally surrounding the lower end of said conveyor save for an opening on the upper side thereof, and a pendent chute arranged to receive the material discharged from the upper end of said conveyor, said chute comprising an upper member oscillatory about a fixed axis supported at the upper end of said conveyor, and a lower member attached to the lower end of said first member so as to be oscillatory about an axis at right angles to such fixed axis, the front wall of said upper chute member rising higher than the rear wall and the lower end of said member being of funnel form.

3. In a machine for filling sand in flasks and the like, the combination of a suitable frame including a platform, vertical standards rising therefrom, an inclined endless conveyor supported between said standards, an enclosure laterally surrounding the lower end of said conveyor save for an opening on the upper side thereof, a shiftable pendent chute arranged to receive the material discharged from the upper end of said conveyor, said chute comprising an upper member oscillatory about a fixed axis supported at the end of said conveyor, a lower member attached to the lower end of said first member so as to be oscillatory about an axis at right angles to such fixed axis, the front wall of said upper chute member rising higher than the rear wall thereof, a handle on said lower chute member for oscillating same, and a switch for controlling the operating mechanism of said conveyor, said switch being associated with said handle and so located as to be operable by the same hand wherewith said handle is held.

Signed by me this 5th day of June, 1922.

EDWIN S. CARMAN.