

G. R. BARTHOLOMEW.  
SACK TURNER.  
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2 SHEETS—SHEET 1.

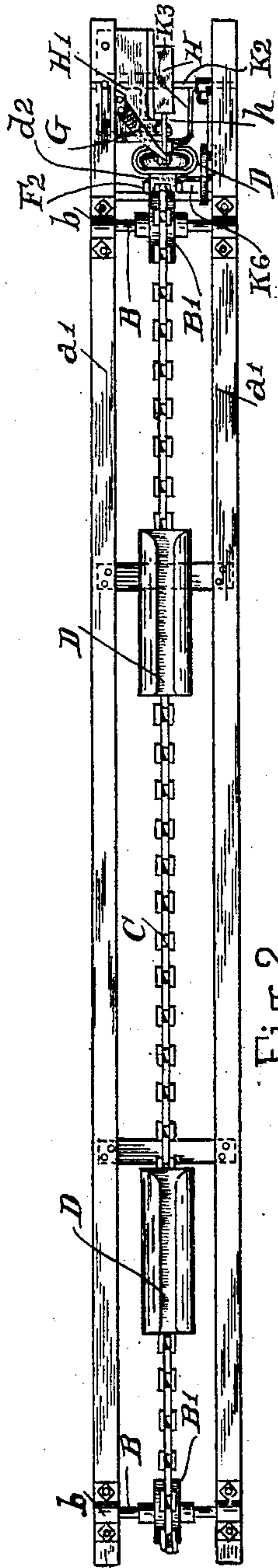


Fig. 2.

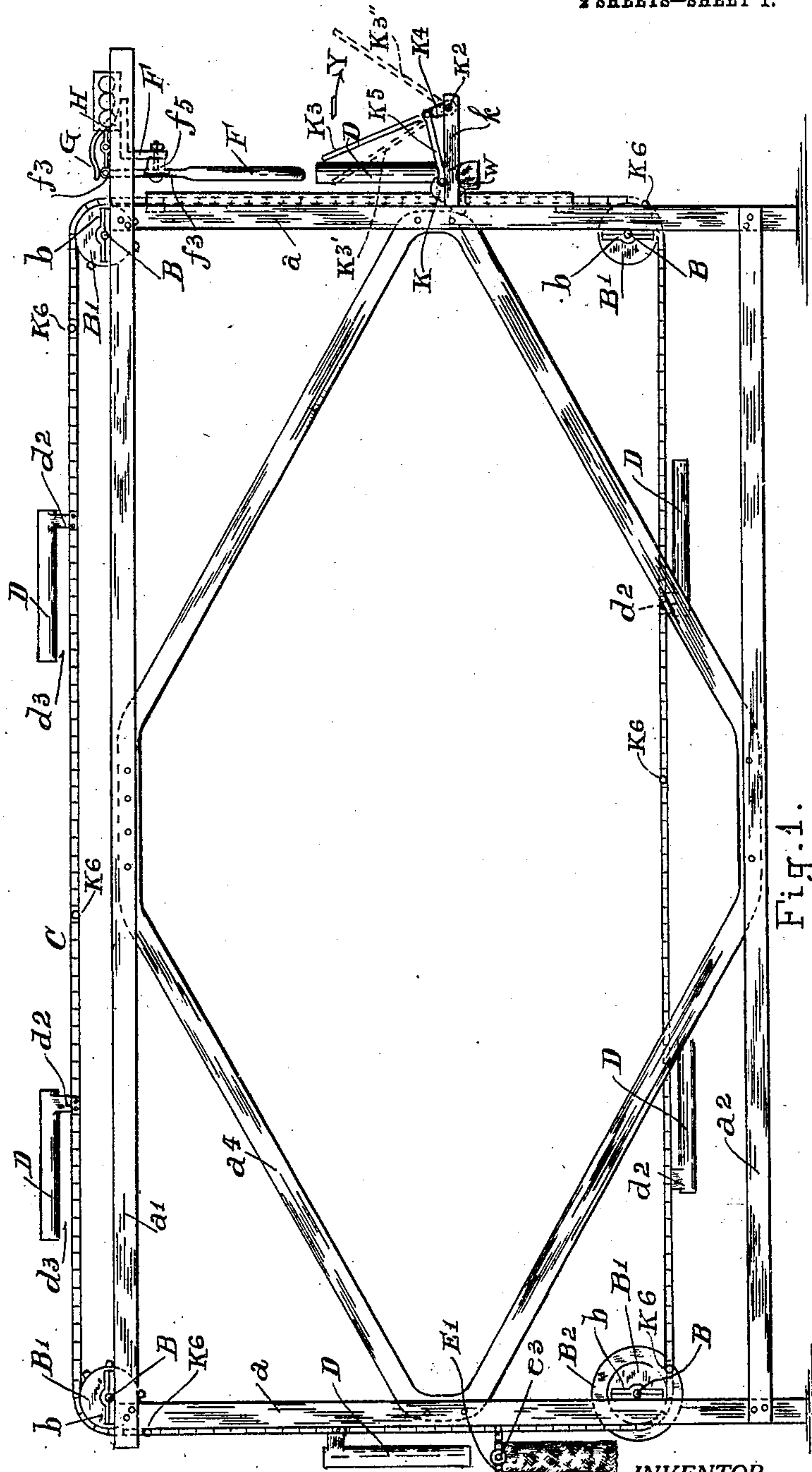


Fig. 1.

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2 SHEETS--SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## SACK-TURNER.

No. 925,267.

Specification of Letters Patent.

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*To all whom it may concern:*

Be it known that I, GEORGE R. BARTHOLOMEW, a citizen of the United States, residing at Hannibal, in the county of Marion and State of Missouri, have invented certain new and useful Improvements in Sack-Turners, of which the following is such a full, clear, and exact description as will enable others skilled in the art to which it appertains to make and use my said invention.

This invention relates primarily to means for turning cement sacks, but obviously is applicable to turning sacks of any other kind.

The purposes of the invention are to provide means for holding the sacks in position to be seized by the sack-carriers; to provide means to take sacks in succession from the holder and carry them into position to be turned by the reverser; to provide a reverser of improved construction; to provide means for preventing lateral movement of the sack-carriers; to provide means for counting the number of sacks turned; and to provide means for piling the turned sacks.

With these ends in view my invention consists in the novel features of construction and combinations of parts shown in the annexed drawings, to which reference is hereby made, and hereinafter particularly described and finally recited in the claims.

Referring to the drawings in which similar reference letters and characters designate like parts in the several views; Figure 1 is a side elevation of the machine; Fig. 2 is a top plan; Fig. 3 is an enlarged left-hand end elevation; Fig. 4 is an enlarged right-hand end elevation; Fig. 5 is a horizontal transverse section on the line 5. 5. of Fig. 3; Fig. 6 is a horizontal transverse section on the line 6. 6. of Fig. 4; and Fig. 7 is an enlarged side elevation of the piler mechanism.

The main frame is preferably of angle iron and comprises vertical corner posts  $a$ , parallel top rails  $a^1$ , side rails  $a^2$ , cross pieces  $a^3$  and braces  $a^4$ , all firmly secured together to make a stable structure. Shafts B extend across the machine and turn in suitable boxes  $b$  secured on the main frame. Sprocket wheels  $B^1$  are secured on the shafts B, respectively. A pulley  $B^2$  secured on one of the shafts B carries a belt for actuating the machine. An endless sprocket chain C, of any suitable construction runs on the sprocket wheels  $B^1$ .

Sack-carriers D, spaced suitable distances apart are secured on and travel with the chain C. The sack-carriers D are trough shaped structures preferably of sheet metal and each having lateral members  $d$  preferably curved as shown, and bounding a space  $d^1$  between the members. The sack-carriers D are slightly tapering in order that smaller leading or lower end of the carriers may readily enter the sack and the somewhat broader upper part may fill the sack so that when the carrier has fully entered the sack, the sack will be slightly stretched and will therefore be held by friction in place on the carrier so that the sack will not fall from the carrier while it is traveling between the sack holder and the reverser. The sack-carrier D has a shank  $d^2$  riveted or otherwise secured on a link of the chain and supporting the sack-carrier parallel to the chain and separated therefrom by a space  $d^3$ , sufficient to permit the sack-carrier to pass through the sack holder and into the sack when the sack is hanging on the sack holder. The sack holder is adapted for quickly placing the sack on the holder and supporting it opened so that the carrier may easily and certainly enter the sack, and after the carrier has entered the sack it may be pulled from the holder and carried along on the sack carrier.

The sack holder comprises parts which will now be described. A horizontal arm E is fixed on one of the parts  $a$  and has a downwardly extending stretcher-member  $e$ . An arm  $E^1$  fixed on one of the posts  $a$  in the same horizontal plane with the arm E, has at its outer end a hub  $e^1$ . A stem  $E^2$  is slidable in the hub  $e^1$  and has a handle  $e^3$ . A stretcher member  $e^2$ , substantially the same as the member  $e$ , is fixed on the inner end of the stem  $E^2$ . A spring  $E^3$  surrounds the stem  $E^2$  and normally holds the parts in the position shown in Fig. 5, so that the downwardly traveling carrier D may travel between the stretcher-members  $e$  and  $e^2$ . In the drawings I have shown carrier-members  $d$  and stretcher-members  $e$  and  $e^2$  of concavo-convex form, as I have found that form convenient in practice; but members of any other suitable form adapting the carrier to pass between the stretcher-members may be used, within the scope of my invention. In placing the sack on the holder the mouth of the sack will be opened



by hand and the sack will be placed in such position that the member  $e$  will be within the sack and the inner surface of the sack will lie against the outer wall of the member  $e$ ; the handle  $e^3$  will then be pushed inward to move the member  $e^2$  toward the member  $e$  sufficiently to permit the easy placing of the sack around the downwardly extending part of the member  $e^2$ , in the position shown in Fig. 3; and upon releasing the handle the spring  $E^3$  will act to move the member  $e^2$  to the right thereby stretching the fabric sufficiently to cause the sack to remain suspended by frictional contact with the members  $e$  and  $e^2$ , until the carrier D enters the sack and travels onward far enough to pull the sack from the holder. The sack carrier with the sack stretched thereon then travels to the reverser which coöperates with the sack carrier to turn the sack inside out as hereinafter described.

The reverser F is in the form of a paddle provided with a relatively broad part  $f$  fitting loosely in the space  $d^1$  of the carrier D, a stem  $f^3$  and an intermediate part  $f^1$  having a longitudinal slot  $f^2$ . A fixed bracket  $F^1$  supports the reverser F in such position that the carrier D may travel upward while the reverser occupies the space  $d^1$  within the carrier. The reverser F is supported on the bracket by a bolt  $f^4$  passing through the slot  $f^2$ . Guides  $f^5$  on the bracket  $F^1$  permit vertical movement and prevent oscillative movement of the reverser F. The reverser is slidable vertically in order that it may operate the counter H as hereinafter described. A channel plate  $F^2$  is secured on the cross pieces  $a^3$  in a vertical position midway between the rear posts  $a$ . The neck  $d^2$  of the sack-carrier D travels in the channel of the plate  $F^2$  and assures the traveling of the carrier in strict alinement with the reverser F.

In practice when, the sack carrier D in the course of its travel reaches the position shown in Fig. 4, the sack will be stretched upon and will surround the carrier and the bottom of the sack will be adjacent to the lower end of the reverser F, and further upward movement of the carrier will cause the bottom of the sack to strike against the lower end of the reverser and cause the reverser to slide upward to effect the operation of the counter as hereinafter described. Here it is to be noted that if the carrier is traveling without a sack thereon, it will travel upward along and past the reverser without moving the reverser upward, and the reverser being at rest, will not effect the operation of the counter; but if a sack is on the carrier the bottom of the sack will engage with the lower end of the reverser and push the reverser upward as described; it will be seen therefore that the operation of the counter depends upon the

presence of the sack on the carrier; if the sack is present the counter will operate, and if the sack is absent the counter will not operate. The counter will therefore accurately register the number of sacks which are actually turned. During the travel of the carrier upward along the reverser the guides  $f^5$  lie in the space between the members  $d$  of the carrier D and therefore do not interfere with the upward movement of the carrier.

In turning the sack the operation is as follows: The bottom of the sack which is upon the upwardly moving carrier strikes against the lower end of the reverser F, and after the reverser has moved upward as far as the slot  $f^2$  will permit, the reverser stops, but the carrier continues to move and further upward movement of the sack being stopped by the reverser the upwardly moving carrier reverses the sack as the carrier travels along the reverser so that the sack will be turned upon the reverser, and when the carrier has passed the reverser the sack stopped from vertical movement by the reverser within the sack, will be pulled from the carrier and will drop onto the piler, to be disposed of as hereinafter described. Under ordinary conditions of operation the reverser will gravitate to its initial position after the carrier has passed the reverser, but in operating upon very dirty sacks there is danger that dirt accumulating in the slot  $f^2$  may cause the reverser to stick and not gravitate to its initial position. I overcome this difficulty by providing a spring G having one end fixed on any suitable stable support and its free end acting on the upper end of the stem  $f^3$  of the reverser F to push the reverser downward. The counter H which may be of any approved construction, is supported on a bracket  $H^1$  preferably secured on one of the top rails  $a^1$ . A lever  $h$  connected to actuate the counter wheels in the usual well known manner is pivotally connected with the upper end of the stem  $f^3$  so that each upward movement of the stem  $f^3$  will operate the lever  $h$  to cause the unit counter-wheel to move one step; thereby registering in succession each sack which has been turned.

The sacks having been turned and counted as described it is desirable to pile them away from the machine so that the accumulating turned sacks will not interfere with the operation of the machine. The means for piling the sacks will now be described. A weighted triangular plate K is oscillative on a stud  $K^1$  fixed on the main frame. A shaft  $K^2$  is oscillative on suitable supports  $k$  fixed on the main frame. The flipper  $K^3$  is preferably a bar bent in U-shape and having both ends secured to the shaft  $K^2$ . A fixed guard plate  $k^1$ , preferably of light sheet metal, is central lengthwise of the flipper



K<sup>3</sup> and prevents the upwardly traveling carriers D from catching on the flipper. A crank K<sup>4</sup> is secured on the shaft K<sup>2</sup>. A connecting rod K<sup>5</sup> connects the crank K<sup>4</sup> with the plate K. Laterally projecting pins K<sup>6</sup> secured on links of the chain C at suitable distances apart, successively engage with the lower edge of the plate K to cause the plate to turn upwardly as indicated by the arrow X, and the plate pushes upon the rod K<sup>5</sup> to turn the shaft K<sup>2</sup> and cause the flipper K<sup>3</sup> to turn quickly downward, as indicated by the arrow Y. When the pin K<sup>6</sup> has turned the plate K far enough to permit the pin to pass the plate, the weight W on the plate will act by gravity to turn the plate downward and thereby return the plate and connected parts to their initial positions in readiness to be again operated by the next succeeding pin K<sup>6</sup>. The pins K<sup>6</sup> are so located on the chain C, that a pin will engage with the plate K at the instant that the sack pulled from the upwardly moving carrier D begins to fall from the reverser K, so that the sack will drop onto the flipper and the flipper will act to throw the sack away from the machine. When the parts are in the position shown in Figs. 1 and 4 the upper end of the flipper K<sup>3</sup> will lie against the carrier D and will be held in such light contact therewith by the weight W that the flipper will not interfere with the upward movement of the carrier; and when the end of the carrier passes the upper end of the flipper the weight W will cause the flipper to occupy the position under the reverser F indicated by the dotted line K<sup>3'</sup>; and immediately thereafter the sack will fall onto the flipper; whereupon the pin K<sup>6</sup> will act upon the plate K to cause the flipper to turn downward to the position indicated by dotted lines K<sup>3''</sup> and discharge the sack, and the weight W will immediately gravitate to return the flipper to its initial position in readiness to throw the next succeeding sack; and so on, as long as the machine continues in operation. The sacks thrown from the flipper will fall in a pile at such distance from the machine as not to interfere with its operation.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a sack turner, the combination of a sack holder adapted to support an open sack, a continuously moving sack-carrier adapted to enter and carry the sack supported on said sack holder, and a reverser in the line of travel of said sack-carrier and cooperating therewith to turn the sack.

2. In a sack turner, the combination of a sack holder adapted to support an open sack, a continuously moving sack-carrier adapted to enter and carry the sack supported on said sack holder, a slidable reverser in the line of

travel of and coacting with said sack-carrier to turn the sack, and a counter actuated by said reverser.

3. In a sack turner, the combination of a sack holder adapted to support an open sack, a continuously moving sack-carrier adapted to enter and carry the sack and present it to the reverser with the bottom of the sack in the lead, a slidable reverser in the line of travel of said sack-carrier and acted upon by the bottom of the sack to slide said reverser and coacting with said sack-carrier to turn the sack, and a counter connected to be operated by said reverser.

4. In a sack turner, the combination of a main frame, revoluble sprocket wheels mounted on the main frame, an endless sprocket chain running on said sprocket wheels, a plurality of sack carriers mounted on said chain, a sack holder adapted to support an open sack in the line of travel of said sack carriers, and a reverser in the line of travel of said sack carriers and coacting therewith to turn the sacks carried by said sack carriers.

5. In a sack turner, the combination of a continuously moving sack carrier, a fixed sack holder device and a movable sack holder device shaped to fit within an open sack and spaced to permit the sack-carrier to travel between said sack holder devices to enter the sack.

6. In a sack-turner, the combination of a continuously moving sack-carrier having longitudinal members, separated by a space, a sack holder adapted to support an open sack in the line of travel of said sack-carrier, and a reverser in the line of travel of said sack-carrier and fitting loosely in the space between the longitudinal members of said sack-carrier and adapted to permit said sack-carrier to traverse the entire length of said reverser and turn the sack thereon.

7. In a sack turner, the combination of a fixed sack-holder-device having a member adapted to fit within a sack, a movable sack holder device having a member adapted to fit within a sack and coacting with the fixed sack holder device to stretch the sack and support it by frictional contact of the sack with the members of said sack holder devices, and a sack carrier adapted to travel between said sack-holder devices and engage the bottom of the sack to detach it from said sack holder devices.

8. In a sack turner, the combination of a sack holder adapted to support an open sack by frictional contact of the sack with said sack holder, and a moving sack carrier adapted to enter the supported sack and engage with the bottom thereof to detach the sack from said sack holder.

9. In a sack turner, the combination of continuously moving sack carriers, a sack holder adapted to support an open sack in



the line of travel of said sack carriers, a reverser in the line of travel of said sack carriers and coöperating therewith to turn the sacks carried by said sack carriers, a  
5 flipper located to receive sacks dropping in succession from said reverser and means for throwing said flipper immediately upon the dropping of a sack thereon.

10 10. In a sack turner, the combination of a plurality of sack carriers, means for propelling said sack carriers continuously, a sack holder adapted to hold sacks in succession in position to be entered by said sack carriers respectively, a reverser coacting with

said sack carriers to turn the sacks carried thereon respectively, an oscillative flipper gravitating into operative relation to said reverser, and means for actuating said flipper in time to throw each sack carried by  
20 said sack carriers respectively.

In witness whereof I have hereunto signed my name at Hannibal, in the county of Marion, and State of Missouri, this first day of June, 1908.

GEORGE R. BARTHOLOMEW.

Witnesses:

ALLEN E. KENT,

Mrs. L. D. BARTHOLOMEW.