B. S. MOORE.

BRICK HACKING MACHINE.

APPLICATION FILED MAR. 3, 1917.

1,288,962.

Patented Dec. 24, 1918.

2 SHEETS—SHEET 1.

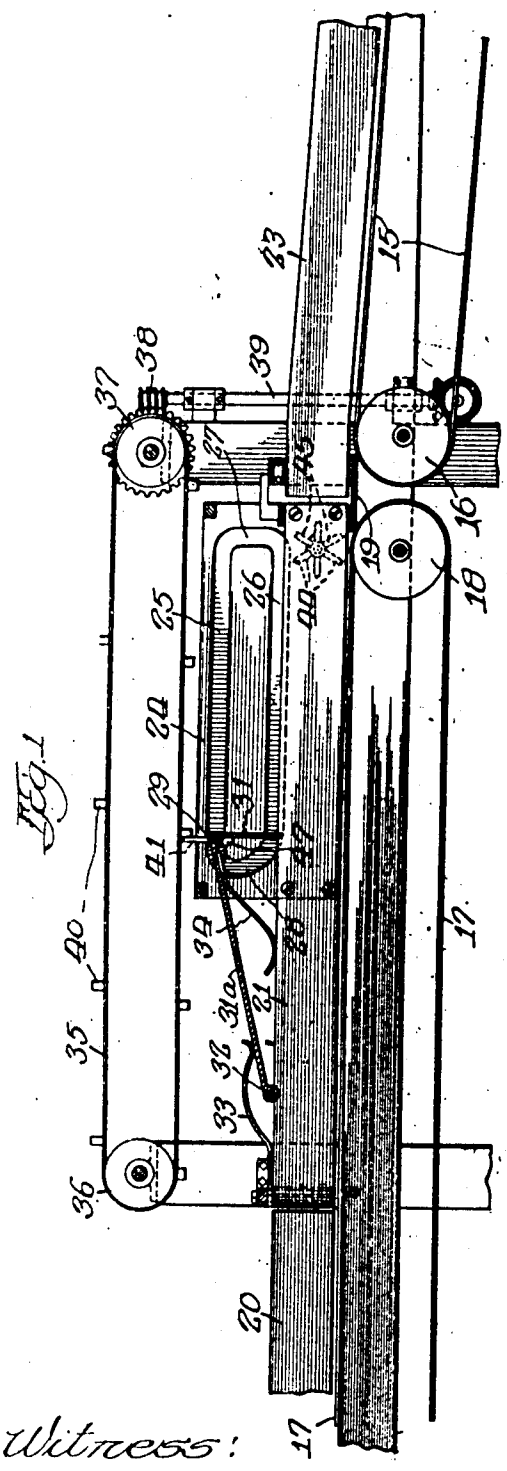


Fig. 1.

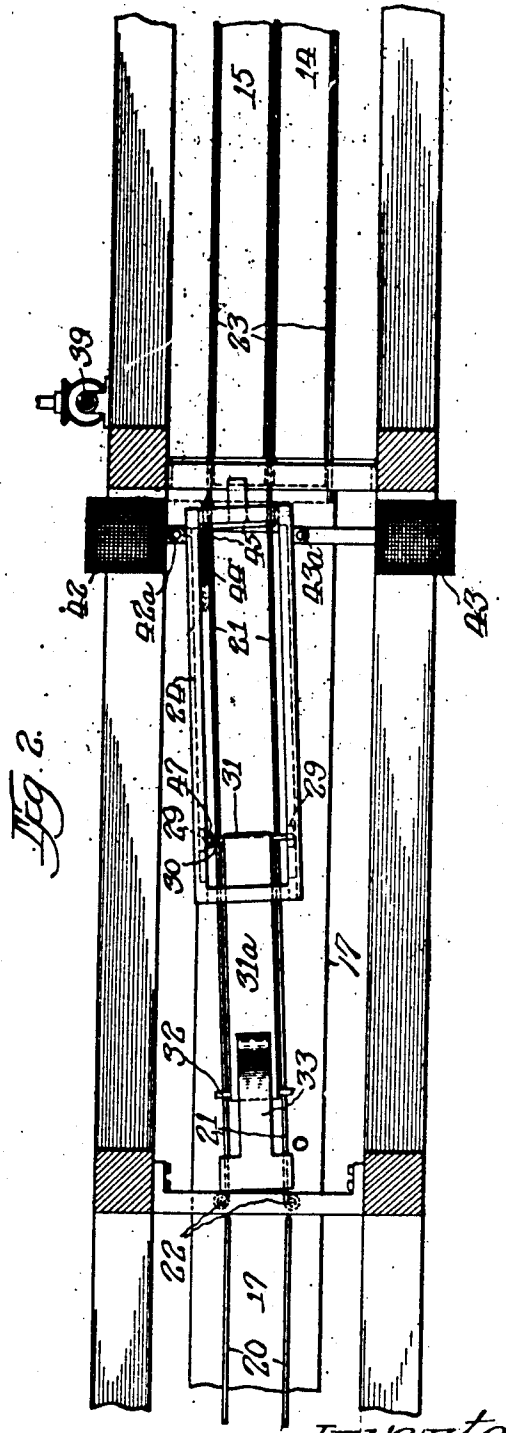


Fig. 2.

Witness:

Fred. C. Dawson

Inventor

Benjamin S. Moore

By Cromwell, Greist & Warden

Attys.

B. S. MOORE.

BRICK HACKING MACHINE.

APPLICATION FILED MAR. 3, 1917.

1,288,962.

Patented Dec. 24, 1918.

2 SHEETS—SHEET 2.

Fig. 3.

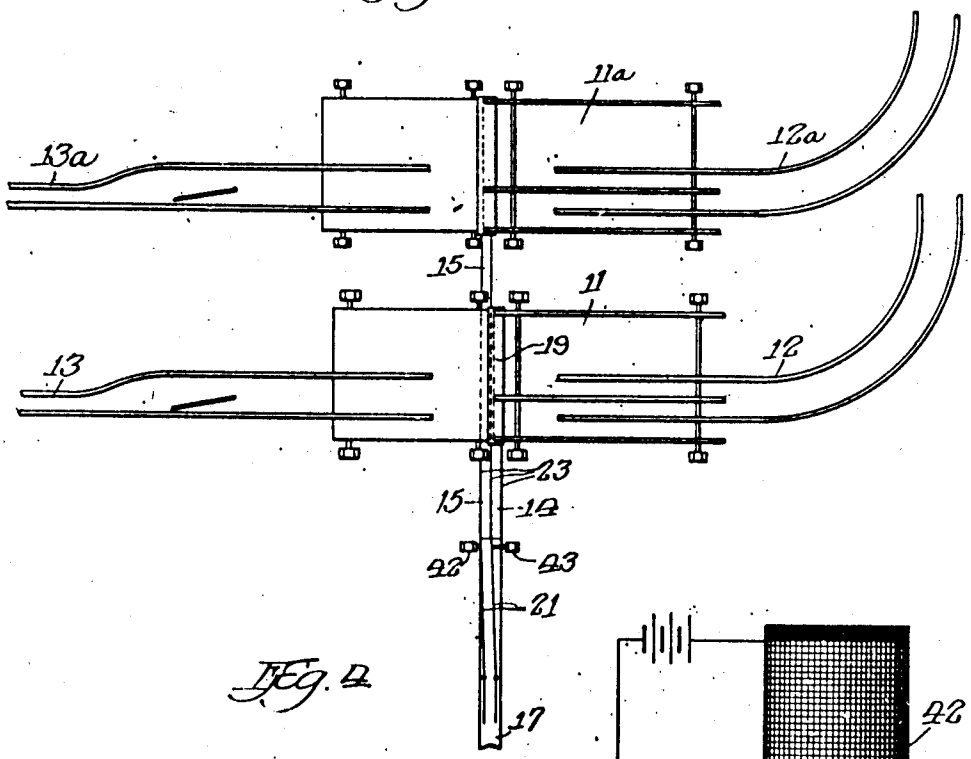


Fig. 4.

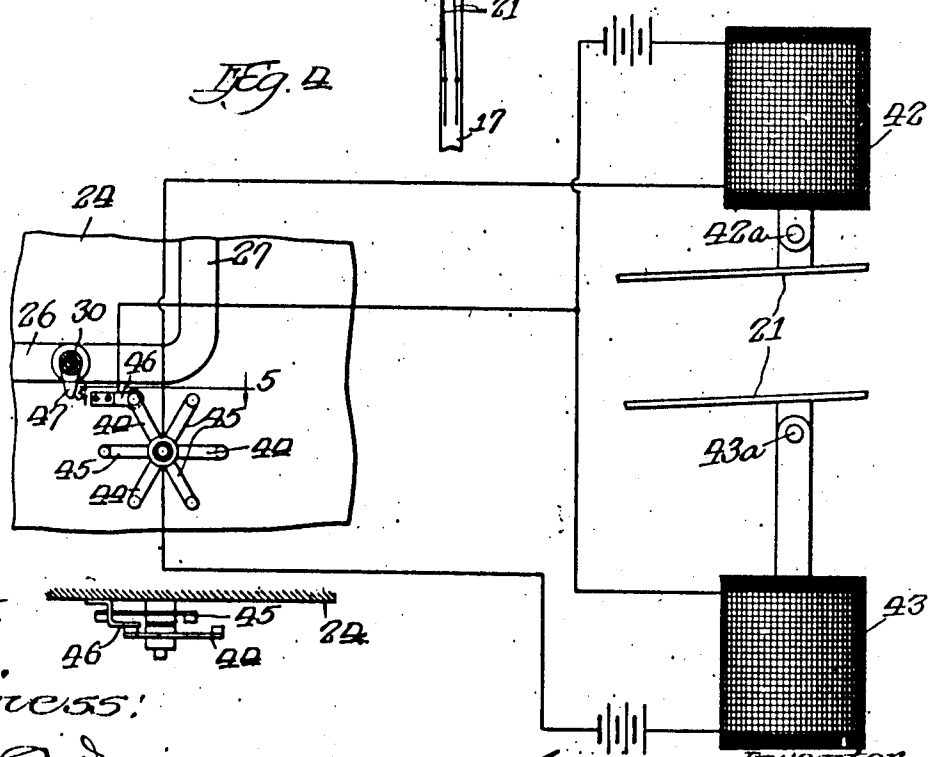


Fig. 5.

Witness:

F. C. Davison

Inventor

Benjaman S. Moore

By Connell, Grist & Warden

Attys.

UNITED STATES PATENT OFFICE.

BENJIMAN S. MOORE, OF JOLIET, ILLINOIS, ASSIGNOR TO RAYMOND C. PENFIELD, OF NEW YORK, N. Y.

BRICK-HACKING MACHINE.

1,288,962. Specification of Letters Patent. Patented Dec. 24, 1918.

Application filed March 3, 1917. Serial No. 152,237.

To all whom it may concern:

Be it known that I, BENJIMAN S. MOORE, a citizen of the United States, residing at Joliet, in the county of Will and State of Illinois, have invented certain new and useful Improvements in Brick-Hacking Machines, of which the following is a specification.

The invention has for its particular object the provision of improved particularly efficient means for handling brick and delivering the same concurrently to a plurality of cars, conveyers or other receiving media.

In the loading of brick by means of a traveling delivery belt or the like it is usual to move the car or receiving platform forward or to lower it step by step as one tier is completed to bring opposite the delivery belt the space for reception of the next tier. This necessitates the stoppage of the delivery after loading each tier until the receiving platform can be moved.

By my invention I provide for the continuous delivery of the brick, loading two cars concurrently by delivering to each in alternation a tier of brick, and utilizing the interval of time while one car is receiving its quota of brick to move the other car to a proper position to receive its next tier.

The invention is herein described and illustrated in an embodiment adapted for use in connection with a brick conveyer such as that forming the subject matter of my copending application Serial No. 95829, but it is to be understood that such embodiment and the description and illustration thereof are an exemplification only and that the invention is in no sense limited to the particular form of construction shown as constituting an illustrative basis for the claims defining the invention. In the drawings—

Figure 1 is a side elevation partly in section of a hacking device embodying the invention;

Fig. 2 is a top plan view showing the operating parts;

Fig. 3 is a diagrammatic view illustrating its application to the placing of brick concurrently on two cars;

Fig. 4 is a diagrammatic illustration of the electro-magnetic operating mechanism; and

Fig. 5 is a detail plan from the line 5—5 of Fig. 4.

Having reference first to Fig. 3 of the drawings, the reference numerals 11 and 11ª designate a first and second brick carrier suspended from and traveling upon the aerials 12 and 12ª respectively to the point of loading and moved therefrom to the kiln or drying yard by the aerials 13 and 13ª.

A delivery conveyer belt 14 leads to the first carrier 11 while a similar delivery conveyer belt 15 leads beneath the first carrier 11 to the second carrier 11ª. At the point where the two delivery conveyers 14 and 15 leave the drive pulleys 16 the said conveyers are at substantially the same horizontal level and are arranged in parallel relation side by side, but while the delivery carrier 14 continues to move in a substantially horizontal direction, the delivery carrier 15 descends at a slight inclination so as to pass beneath the carrier 11 on its way to the carrier 11ª.

Leading from the molding machine, not shown, is a conveyer belt 17 driven by the pulley 18 and having advantageously a width substantially equal to the aggregate width of the delivery conveyer belts 14 and 15, the terminal portion of the conveyer belt 17 being arranged adjacent the initial portions of the conveyer belts 14 and 15 and the space therebetween being bridged by a plate 19.

Coming from the molding machine the brick resting upon the conveyer belt 17 are guided between upright retaining walls 20 defining the receiving conveyer section, and as they reach the terminus of the receiving conveyer and while resting upon the belt 17 they are guided between the walls 21—21 of a distributing conveyer frame which is so hinged at 22—22 as to permit of swinging laterally, the range of movement of the forward ends of the distributing conveyer being equal to substantially half the width of the conveyer belt 17 or to one of the conveyer belts 14, 15, so that while the pivoted end of the distributing conveyer remains above the medial portion of the belt 17, the free end of the swinging frame may move from a position where its walls 21, 21 are alined with the retaining walls 22 of the conveyer belt 14 to a position in longitudinal alinement with the retaining walls 23 of the conveyer belt 15.

It will thus be seen that the retaining walls 21 form a laterally swinging distributing conveyer frame having the moving conveyer belt 17 as a bottom, by which brick

entering between the retaining walls 21 may be delivered either to the conveyer belt 14 or to the conveyer belt 15, and in alternation at such intervals of time as may be desired.

On each side of the distributing conveyer frame is mounted a plate 24 having thereon a guiding element comprising parallel upper and lower grooves 25 and 26 respectively and ascending and descending grooves 27 and 28, respectively. Within these grooves 25, 26, 27 and 28 travel rollers 29, 29, at the two ends of the rod 30 upon which is mounted a substantially L-shaped segregator having a vertically disposed head 31 and an elongated body 31^a. The rear trailing portion of the body 31^a is provided with a cross rod 32 the projecting ends of which are adapted to ride upon the upper edges of the retaining walls 21 of the frame. A leaf spring 33 is arranged to bear upon the body 31^a of the segregator at one position of the latter and has a tendency to press the same downward whereas another leaf spring 34 underlies the body 31^a and presses the same upwardly.

Above the distribution conveyer section defined by the guide walls 21 is mounted a propelling belt 35 traveling upon the pulleys 36, 37, the latter of which is toothed and driven by a worm 38 upon the drive shaft 39. The propeller belt 35 carries a series of lugs 40 which are adapted in the elevated position of the segregator 31^a to engage an upstanding arm 41 and thus propel the segregator to the left as seen in Fig. 1.

The length of the cam grooves 25, 26 defines the throw of the segregator. As the same is moved to the left along its elevated path clear of the bricks moving with the conveyer belt 17 it reaches the cam groove 28 and, the body portion 31^a having entered beneath the stationary spring 33, is by means of the spring pressed downward through said groove, removing the arm 41 out of contact with the propelling lug 40 and interposing the head 31 of the segregator between two bricks resting upon the conveyer belt. The segregator now moves forward through the groove 25 being propelled by bricks upon the conveyer belt 17 until the rollers 29 reach the groove 27 whereupon the same is elevated by means of the spring 34 out of contact with the bricks on the conveyer belt and with the arm 41 in engagement with the lug 40 by which the segregator is again returned along its elevated path to its original position as illustrated at the left in Fig. 1.

In order to shift the swinging distributing conveyer, a pair of solenoids 42, 43, have their cores connected at 42^a and 43^a with the forward end of the frame 24 and the retaining wall 21. Adjacent the free end of the distributing conveyer section is mounted a star wheel switch 44 and a counterpart star wheel switch 45, the respective arms being arranged to contact in alternation with the terminal 46 and to be actuated by the impact of the tappet 47 on the cross rod 29 of the segregator.

It will thus be seen that at each actuation of the star wheel 44, 45 the free end of the conveyer section carrying the frame 24 will be shifted laterally transferring its load of brick to the conveyer belts 14 and 15 in alternation. Immediately upon the actuation of the star wheel by the tappet 47 the conveyer section will be shifted and the bricks therein will be delivered, for instance, to the conveyer belt 15 (Fig. 2). Thereupon the segregator 31 will pass upwardly guided by the groove 28 and, being engaged by the lug 40 will move rearwardly to the position shown in Fig. 1, will then descend through the groove 28, and move forwardly with the brick in the conveyer section to the right hand end of the groove 26. By this time the entire load of brick within the distributing conveyer section will have been delivered to the conveyer belt 15, and as the segregator reaches the end of the groove 26, and the tappet 47 actuates one of the star wheel switches, the said conveyer section will shift to a position to deliver to the delivery conveyer belt 14 and the segregator will rise and traverse its next cycle.

During the interval just described when the conveyer was delivering bricks to the conveyer belt 15, or the corresponding interval when the conveyer belt 15 was delivering its bricks to the carrier 11^a, the carrier 11 will be advanced to bring a proper space opposite the conveyer belt 14 for the reception of another tier; and during the next interval when the conveyer belt 14 is delivering bricks to the carrier 11 the carrier 11^a will be moved forward to bring the next space opposite the delivery belt 15 for the reception of its next tier. It will thus be seen that the two carriers 11 and 11^a are supplied with brick concurrently, successive tiers being placed upon each in alternation, thus saving any stoppage of the delivery mechanism and the waste of time incident to such stoppage and to the movement of the carriers for the reception of successive tiers of brick.

I claim:

1. In a device of the character described, the combination with a single receiving conveyer, and multiple delivery conveyers arranged side by side, of a distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end alternately into discharging relation to the delivery conveyers, electromagnetic means for swinging the discharge end of the distributing conveyer alternately to the delivery conveyers, a member moving with the

material on the distributing conveyer, a switch disposed in the circuit of the electromagnetic operating means and in the path of the moving member and arranged to be operated thereby, whereby to swing the distributing conveyer after the discharge of a predetermined amount of material.

2. In a device of the character described, the combination of a receiving conveyer belt, and delivery conveyer belts arranged in multiple side by side, of a distributing conveyer arranged to take the material from the receiving conveyer and discharge the same to the delivery conveyers in alternation, a frame for each of the conveyers having side retaining walls, the frame of the distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end successively into discharge relation with the delivery conveyers, the distributing conveyer having side plates with vertically spaced horizontal guides and vertical connecting guides, a segregator arranged to move longitudinally with and laterally into and out of the material on the distributing conveyer, the segregator having guiding connection with the guides of the plate whereby after the segregator has traveled with the material to the end of the lower horizontal guide it will be elevated along the ascending guide out of the material, and a propelling member arranged to engage the segregator in its elevated position and to return the same along the upper guide to the descending guide by which it will be again lowered into the material on the conveyer, and means actuated automatically at intervals corresponding to a cycle of travel of the segregator to swing the free end of the conveyer from discharge relation to one delivery conveyer to another.

3. In a device of the character described, the combination of a receiving conveyer belt, and delivery conveyer belts arranged in multiple side by side, of a distributing conveyer arranged to take the material from the receiving conveyer and discharge the same to the delivery conveyers in alternation, a frame for each of the conveyers having side retaining walls, the frame of the distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end successively into discharge relation with the delivery conveyers, the distributing conveyer having side plates with vertically spaced horizontal guiding grooves and vertical connecting grooves, a segregator arranged to move longitudinally with and latterly into and out of the material on the distributing conveyer, the segregator having guiding rollers traveling in the grooves of the side plates whereby after the segregator has traveled with the material to the end of the lower horizontal guide groove it will be elevated along the ascending guide groove out of the material, a propelling belt having lugs arranged to engage the segregator in its elevated position and to return the same along the upper guide groove to the descending guide groove by which it will be again lowered into the material on the conveyer, and electromagnetic means actuated automatically at the end of the forward travel of the segregator to swing the free end of the distributing conveyer from discharge relation to one delivery conveyer to another.

4. In a device of the character described, the combination of a receiving conveyer belt, and delivery conveyer belts arranged in multiple side by side, of a distributing conveyer arranged to take the material from the receiving conveyer and discharge the same to the delivery conveyers in alternation, a frame for each of the conveyers having side retaining walls, the frame of the distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end successively into discharge relation with the delivery conveyers, the distributing conveyer having side plates with vertically spaced horizontal guides and vertical connecting guides, a segregator comprising a vertically disposed head portion and a trailing inclined body portion, the head arranged to move longitudinally with and laterally into and out of the material on the distributing conveyer, the segregator having guiding connection with the guides of the side plates whereby after the segregator has traveled with the material to the end of the lower horizontal guide it will be elevated along the ascending guide out of the material, a propelling belt having lugs arranged to engage the segregator in its elevated position and to return the same along the upper guide to the descending guide by which it will be lowered into the material on the conveyer, and means actuated automatically at the end of the forward travel of the segregator to swing the free end of the distributing conveyer from discharge relation to one delivery conveyer to another.

5. In a device of the character described, the combination of a receiving conveyer belt, and delivery conveyer belts arranged in multiple side by side, of a distributing conveyer arranged to take the material from the receiving conveyer and discharge the same to the delivery conveyers in alternation, a frame for each of the conveyers having side retaining walls, the frame of the distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end successively into discharge relation with the delivery conveyers, the dis-

tributing conveyer having side plates with vertically spaced horizontal guides and vertical connecting guides, a segregator arranged to move longitudinally with and laterally into and out of the material on the distributing conveyer, the segregator having guiding connection with the guides of the plate whereby after the segregator has traveled with the material to the end of the lower horizontal guide it will be elevated along the ascending guide out of the material, and a propelling member arranged to engage the segregator in its elevated position and to return the same along the upper guide to the descending guide by which it will be again lowered into the material on the conveyer, and means actuated automatically at intervals corresponding to a cycle of travel of the segregator to swing the free end of the conveyer from discharge relation to one delivery conveyer to another, said means comprising a pair of oppositely acting solenoids connected with the free end of the distributing conveyer, and a switch disposed in the circuits of the solenoids and in the path of the segregator, and arranged to be operated thereby whereby to actuate the solenoids to swing the distributing conveyer.

6. In a device of the character described the combination of a receiving conveyer belt, and delivery conveyer belts arranged in multiple side by side, of a distributing conveyer arranged to take the material from the receiving conveyer and discharge the same to the delivery conveyers in alternation, a frame for each of the conveyers having side retaining walls, the frame of the distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end successively into discharge relation with the delivery conveyers, the distributing conveyer having side plates with vertically spaced horizontal guides and vertical connecting guides, a segregator comprising a vertically disposed head portion and a trailing inclined body portion, the head arranged to move longitudinally with and laterally into and out of the material on the distributing conveyer, the segregator having guiding connection with the guides of the side plates whereby after the segregator has traveled with the material to the end of the lower horizontal guide it will be elevated along the ascending guide out of the material, a propelling belt having lugs arranged to engage the segregator in its elevated position and to return the same along the upper guide to the descending guide by which it will be lowered into the material on the conveyer, and means actuated automatically at the end of the distributing conveyer from discharge relation to one delivery conveyer to another, said means comprising a pair of oppositely acting solenoids arranged on the two sides of the said free ends and connected therewith, a pair of contacts one for each solenoid, and a star switch disposed in the circuits of the solenoid and in the path of the segregator and arranged to be operated thereby to actuate the solenoids to swing the distributing conveyer.

7. In a device of the character described, the combination of a receiving conveyer belt, and delivery conveyer belts arranged in multiple side by side, of a distributing conveyer arranged to take the material from the receiving conveyer and discharge the same to the delivery conveyers in alternation, a frame for each of the conveyers having side retaining walls, the frame of the distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end successively into discharge relation with the delivery conveyers, the distributing conveyer having side plates with vertically spaced horizontal guides, and vertical connecting guides, a segregator comprising a vertically disposed head portion and a trailing inclined body portion, the head arranged to move longitudinally with and laterally into and out of the material on the distributing conveyer, the segregator having guiding connection with the guide grooves of the side plates whereby after the segregator has traveled with the material to the end of the lower horizontal plate it will be elevated along the ascending guide out of the material, a propelling member arranged to engage the segregator in its elevated position and turn the same along the upper guide to the descending guide by which it will be again lowered into the material on the conveyer, a spring arranged adjacent the descending guide to engage the segregator and press the same down into the material, and a spring arranged to press the segregator upward out of the material and along the ascending guide, and means actuated automatically at intervals corresponding to a cycle of travel of the segregator to swing the free end of the distributing conveyer from discharge relation to one delivery conveyer to another.

8. In a device of the character described, the combination of a receiving conveyer belt, and delivery conveyer belts arranged in multiple side by side, of a distributing conveyer arranged to take the material from the receiving conveyer and discharge the same to the delivery conveyers in alternation, a frame for each of the conveyers having side retaining walls, the frame of the distributing conveyer hinged at its receiving end to the terminal portion of the receiving conveyer and arranged to swing to bring its discharge end successively into discharge relation with the delivery conveyers, the distributing conveyer having side plates with

vertically spaced horizontal guides, and vertical connecting guides, a segregator comprising a vertically disposed head portion and a trailing inclined body portion, the head arranged to move longitudinally with and laterally into and out of the material on the distributing conveyor, the segregator having guiding connection with the guide grooves of the side plates whereby after the segregator has traveled with the material to the end of the lower horizontal plate it will be elevated along the ascending guide out of the material, a propelling member arranged to engage the segregator in its elevated position and turn the same along the upper guide to the descending guide by which it will be again lowered into the material on the conveyor, a spring fixed adjacent the descending guide and adapted to be brought to bear upon the segregator body and press the same down with its head entering the material on the conveyer, and a spring carried by the segregator and arranged to press the same upward out of the material and along the ascending guide.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

BENJIMAN S. MOORE.

Witnesses:
MARY C. BROWER,
ELLA F. NYDEN.