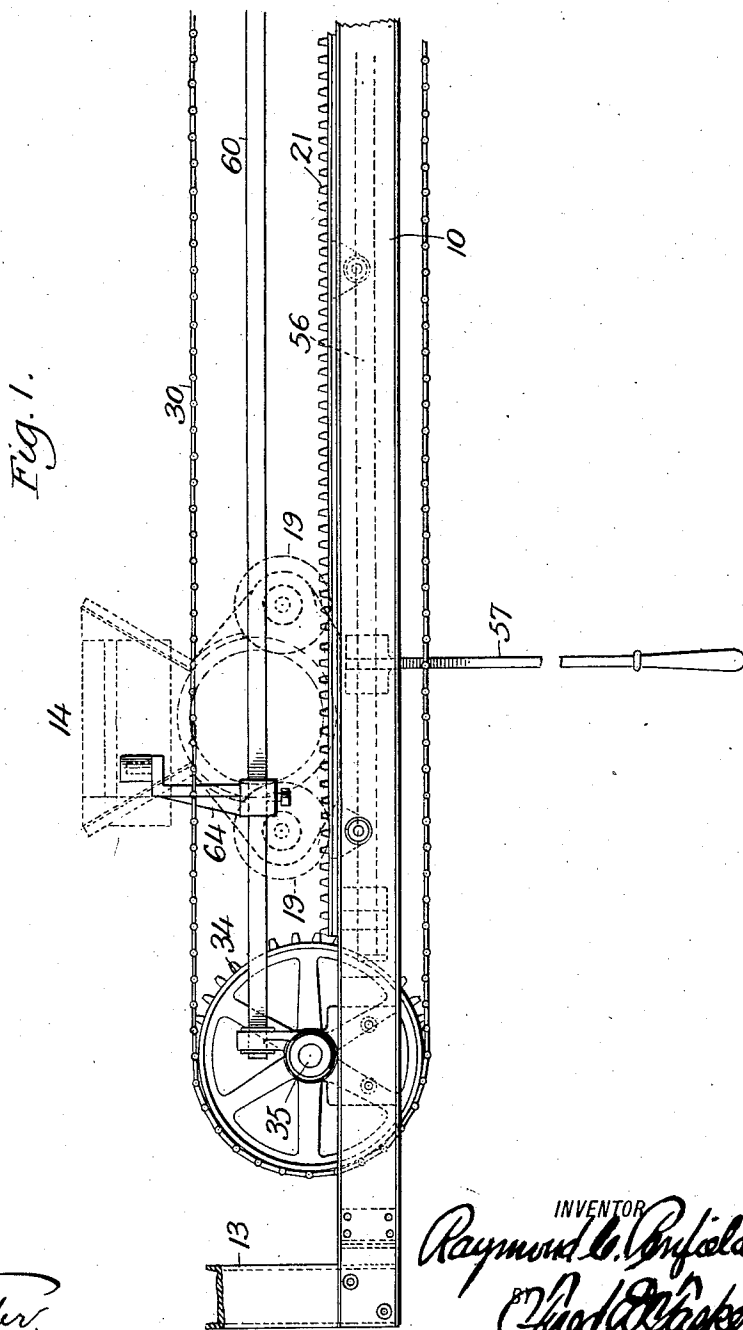


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R. C. PENFIELD.
BRICK SANDING MACHINE.
APPLICATION FILED JULY 13, 1909.

Patented Dec. 17, 1912.
4 SHEETS—SHEET 1.



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4 SHEETS—SHEET 2.

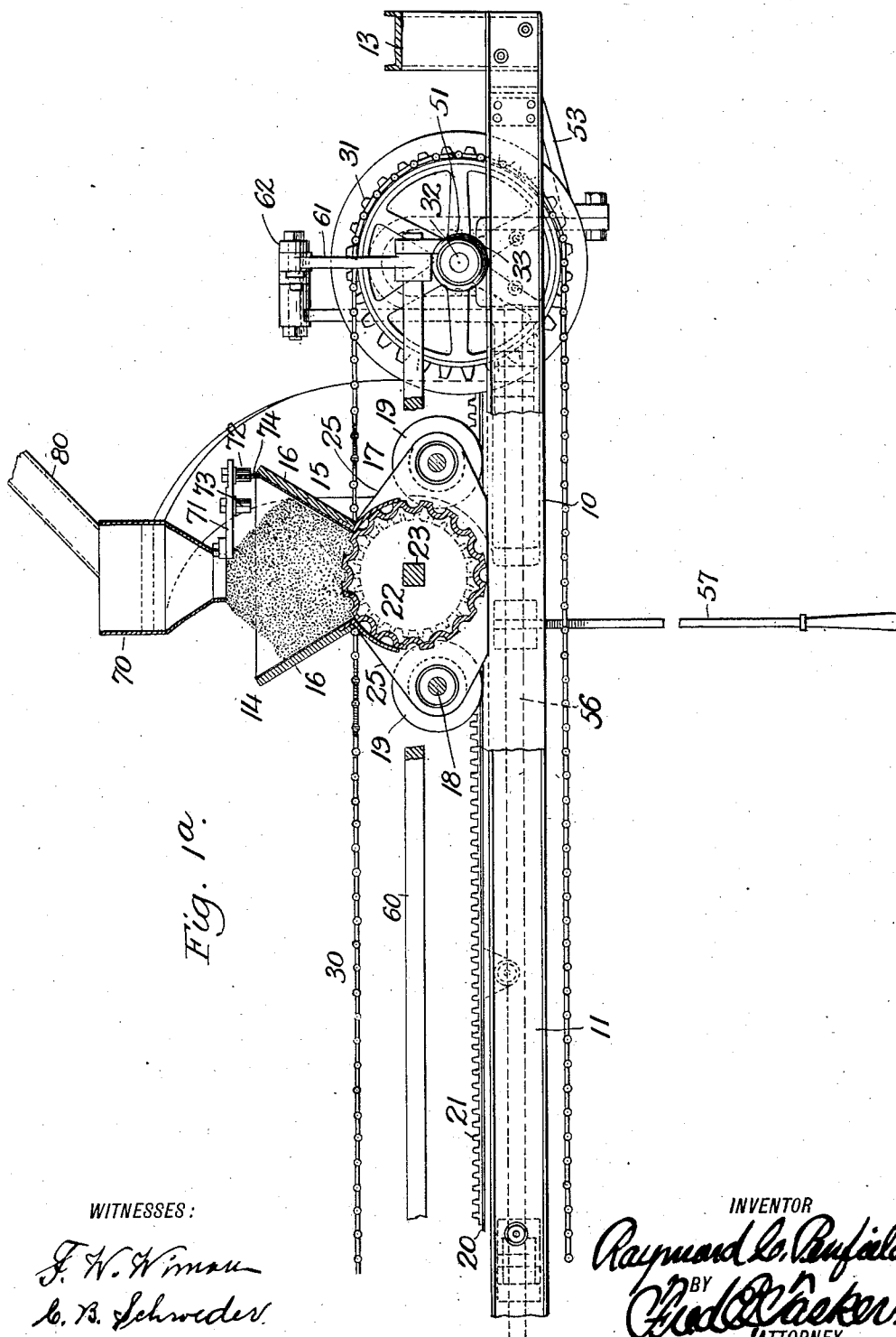


Fig. 1a.

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4 SHEETS—SHEET 3.

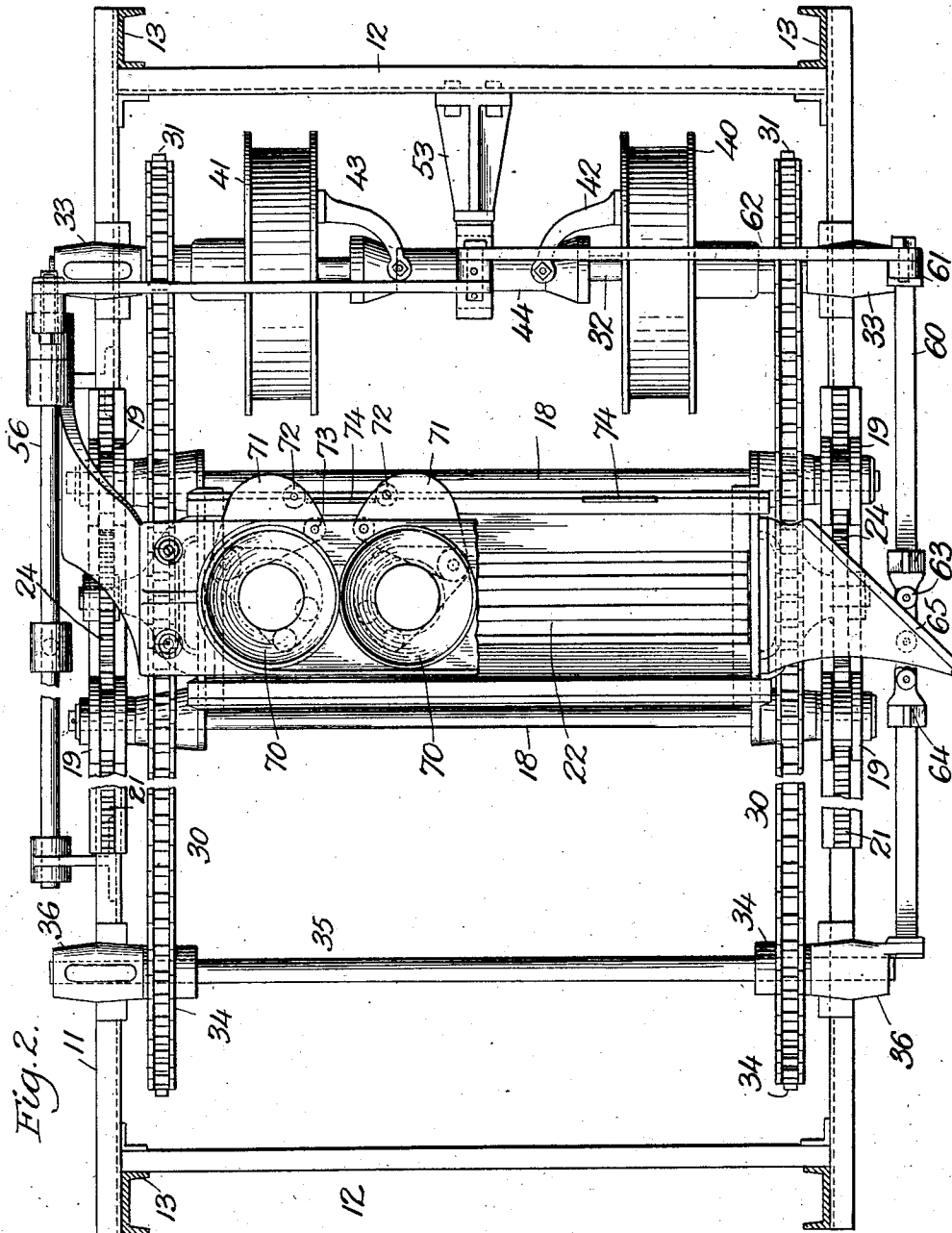


Fig. 2.

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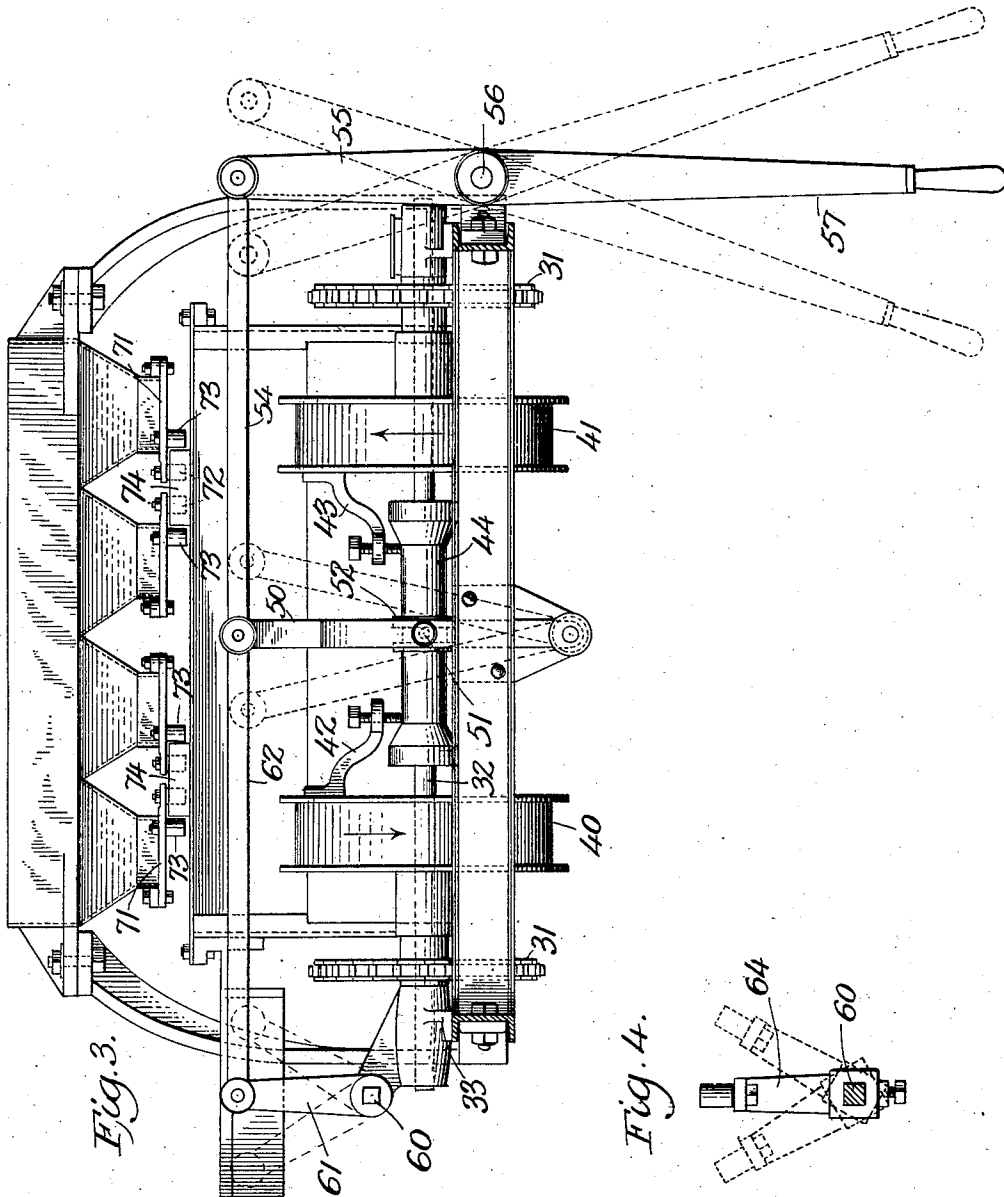
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BRICK-SANDING MACHINE.

1,047,695.

Specification of Letters Patent.

Patented Dec. 17, 1912.

Application filed July 13, 1909. Serial No. 507,425.

To all whom it may concern:

Be it known that I, RAYMOND C. PENFIELD, a citizen of the United States of America, residing at New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Brick-Sanding Machines, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a machine or apparatus for distributing sand or other granulated or finely comminuted or powdered material in thin, even layers; and more particularly to a machine or apparatus for sprinkling sand over successive layers or courses of brick as the latter are placed in setting formation preparatory to being burned.

In making various kinds of brick, it is necessary, in order to prevent the bricks from sticking or adhering together when burned in the kiln, to sprinkle sand over the successive layers as they are piled up in setting formation. This has heretofore been done by hand. Such hand sanding of the bricks necessitates the employment of extra labor, or takes up the time of the men setting the bricks, and, moreover, the sand is usually distributed unevenly and parts of the bricks are left unsanded, with the result that when they are burned some of the bricks stick together and are ruined or damaged.

The object of the present invention is to provide a brick sanding machine or apparatus which will dispense with hand labor in sanding the bricks, and which will operate to distribute the sand in an even, uniform layer over the successive courses of brick as they are piled up, and which will do this without care or attention, beyond the mere throwing of a lever or other device for starting the mechanism in operation after each course of brick is laid.

A full understanding of the invention can best be given by a detailed description of a preferred form of brick sanding machine embodying the various features of the invention, and such a description will now be given in connection with the accompanying drawings, in which:—

Figures 1 and 1^a show the machine in side elevation with parts broken away and parts in section. Fig. 2 is a plan view of the machine with portions of the longitudi-

nally extending parts of the construction broken away and with the end portions of the construction brought together. Fig. 3 is an end view of the machine looking in the direction of the arrow 3 on Fig. 2 with parts omitted for the sake of clearness. Fig. 4 is a detail hereinafter explained.

Referring to the drawings, the various operative and other parts of the machine as shown are carried by a horizontal frame formed of side bars 10 and 11 and cross connecting bars 12. This frame may be supported in any suitable manner. As shown it is supported from above by hangers 13. The machine shown is intended especially to be used for sanding bricks as they are hacked on the dry cars after coming from the cutters or repressers, and when so used the frame will be supported over the car tracks and at a sufficient height so as not to interfere with setting of the bricks on the car.

Mounted to move longitudinally back and forth on the side bars 10 and 11, is a sand distributing device 14 comprising a sand holder or hopper 15 and means for dropping the sand from the hopper as it travels back and forth. The hopper is formed by inclined sides 16 extending between and carried by end plates 17. The plates 17 extend below the sides of the hopper and carry bearings for two shafts 18, on the ends of which are mounted running wheels or rollers 19 which run on rails 20 secured to the tops of the side bars 10 and 11 to form a track for the distributing device. Each of the rails 20 is formed with a longitudinally extending rack 21 which, as shown, is arranged centrally of the rail, the tread of the running wheels 19 being centrally recessed or grooved to receive the rack and allow the wheels to rest on the track on either side of the rack. The lower edges of the sides 16 of the hopper are separated and the open bottom thus formed is closed by a feeding roll 22 which is carried by shaft 23 mounted in bearings on the end plates 17. The shaft 23 carries beyond the end plates 17 pinions 24 which gear with the racks 21, so that as the hopper is moved in either direction on the rails 20 the feeding roll 22 will be rotated to carry sand from the hopper and drop it on to the bricks over which the hopper is being moved. The surface of the feeding roller will preferably be grooved or fluted, as shown, or otherwise formed with pockets for positively feeding sand

from the hopper. In order to prevent the escape of sand from the hopper when the roller is stationary, shields or aprons 25 may be provided, extending outwardly and downwardly from the lower edges of the sides of the hopper over the surface of the feeding roller, and made preferably of suitable flexible material such as heavy rubber and canvas fabric.

The sand distributor is caused to travel back and forth by means of sprocket chains 30 which are connected therewith, and which run on driving sprocket wheels 31 fast on a shaft 32 mounted in bearings 33 on side bars 10 and 11 at one end of the frame, and on sprocket wheels 34 carried by a shaft 35 mounted in bearings 36 on the side bars 10 and 11 near the other end of the frame. The shaft 32 is driven from either one of two driving pulleys 40 and 41 which are mounted to run freely on the shaft, and each of which is provided with a clutch mechanism, not shown, but which may be of any suitable construction, and which through the action of clutch arms 42 and 43, respectively, may be operated to cause the shaft to rotate with its driving pulley. The clutch arms 42 and 43 are operated to clutch the respective driving pulleys to the shaft by means of a sliding cone sleeve 44 mounted on the shaft 32 between the driving pulleys and provided with oppositely inclined cones for engaging the ends of the clutch arms, so that when the cone sleeve is moved to the left in Fig. 3 the clutch arm 43 will be thrown to cause the shaft 32 to be rotated by the pulley 41, and when the cone sleeve is moved in the opposite direction the clutch arm 42 will be moved to cause the shaft to be driven by the pulley 40. The pulleys 40 and 41 will be driven in opposite directions by belts from a counter-shaft or in any other suitable manner.

The cone sleeve normally stands in the position shown in Figs. 2 and 3 in which position both driving pulleys are disconnected from the shaft 32, and the sleeve is moved for connecting one or the other of the driving pulleys with the shaft through the operation of a branched shifting lever 50 which carries pins 51 which extend into a groove formed by collars 52 on the sleeve. The lever 50 is pivotally mounted below the cone sleeve on a bracket 53 extending from the cross bar 12, and the upper end of the lever is connected by link 54 with an arm 55 extending upwardly from a rock shaft 56, which shaft also carries a downwardly extending hand lever 57, so that by throwing the hand lever 57 to the right in Fig. 3 the shaft 32 may be connected with the driving pulley 41, and by throwing the hand lever to the left, the shaft 32 may be connected to the driving pulley 40. The rock shaft 56 is mounted in bearings on the side bar 11 and

is preferably extended to carry a second hand lever 57 at a convenient point near the far end of the machine.

To provide for automatically stopping the movement of the sand distributor as it reaches the end of its run in either direction, a rock shaft 60 is provided at the opposite side of the machine from the shaft 56 and mounted, as shown, in bearings formed in lugs extending upward from the bearings of the shafts 32 and 35, which shaft 60 is connected with the shifting lever 50 by means of an upwardly extending arm 61 and a link 62. The shaft 60 also carries two arms 63 and 64 which are adapted to be engaged by a cam plate 65 carried by the sand distributor, so that as the distributor reaches the end of its run in either direction, the shaft 60 will be rocked to cause the shifting lever 50 and the cone sleeve 44 to be returned to position to disconnect the shaft 32 from whichever driving pulley it was being driven by. Fig. 4 shows in full lines the normal position of the shaft 60 and arms 63 and 64 to which they are returned by the cam plate 65, and shows also by dotted lines the position taken by the shaft and arms when the driving pulleys are connected with the shaft 32. The position of the arms 63 and 64 longitudinally of the shaft 60 will determine the distance to which the distributor will run, and these arms are preferably adjustable on the shaft 60 so that the movement of the distributor may be regulated as desired. As shown, these arms are carried by sleeves mounted to slide on the shaft 60 and secured in position by means of set screws.

The sand holder or hopper of the traveling distributor may be made of any convenient or desired size and may be supplied with sand in any suitable manner. Preferably, however, means are provided for automatically supplying sand to the traveling hopper. For this purpose there is provided in the construction shown a supply hopper 70 which is mounted above the position of rest of the traveling hopper at one end of the machine, and is formed with a plurality of nozzles, each of which is provided with a horizontally swinging gate 71 for closing the nozzle and preventing the escape of sand therethrough. These nozzle gates 71 are arranged to be automatically opened as the traveling distributor reaches its position of rest beneath the supply hopper, and to be automatically closed as the distributor moves forward from beneath the supply hopper. For this purpose, each of the gates 71 is provided with two downwardly projecting lugs 72 and 73, respectively, which may be provided with anti-friction rollers as shown, and which lugs are engaged by upwardly projecting plates 74 on the right hand side of the hopper 15 in Fig. 1^a. The

lugs 72 and 73 on each of the gates 71 are positioned so that when the gate stands in its closed position, as shown by dotted lines in Fig. 2, the lugs 72 will be in the path of movement of one of the plates 74, and the lug 73 will be out of the path of movement of such plate 74, and that when the gate has been swung back to its open position, shown in Fig. 1^a and by full lines in Fig. 2, the lug 73 will stand in the path of movement of such plate 74. As the distributor approaches the end of its movement to the right in Figs. 1 and 1^a and 2, the plates 74 will engage the lugs 72 and the gates will be opened by the continued movement of the distributor. When the distributor comes to rest in the position shown in Fig. 1^a, the lugs 73 will have been moved in behind the plates 74 and will stand in the path of the plates, so that when the distributor starts on its movement to the left from the position shown in Fig. 1^a, the lugs 73 will be engaged by the plates 74 to cause the hopper gates to be closed, and by the swinging movement of the gates to their closed position, the lugs 73 will be swung out of the path of movement of the plates 74, and the lugs 72 will be moved into the path of the plates in position for the opening of the gates at the end of the next movement of the distributor. The supply hopper 70 may be fed by a chute or chutes 80 from a conveyer or bin or by other suitable means.

The operation is as follows: The parts of the mechanism described, with the exception of the driving pulleys 40 and 41, will normally be at rest. With the traveling distributor in the position shown by full lines in the drawings, when it is desired to start the machine to cause sand to be distributed on a layer of brick, one of the hand levers 57 will be thrown to the right in Fig. 3, to connect the driving pulley 41 with the shaft 32 and to rock the shaft 60 to throw the arms 63 and 64 outward to the position *a* shown by dotted lines in Fig. 4. The shaft 32 will then be driven by the pulley 41 in the direction to cause the distributor to move to the right from the position shown in full lines in Figs. 1^a and 2. As the distributor starts on such movement, the gates of the supply hopper 70 will be closed, and during all of such movement of the distributor the feeding roller 21 by reason of the engagement of the pinions 24 with the racks 21 will be turned to carry sand from the hopper and drop it on to the layer of bricks over which the hopper is traveling. Just before the distributor reaches the end of its run, the cam plate 65 will come into engagement with the arm 64 on the rock shaft 60 and will throw said arm back to its vertical position, thereby rocking the shaft 60 and causing the shifting lever 50 and the cone sleeve 44 to be returned to the central position shown in

the drawings to disconnect the pulley 41 from the shaft 32. The movement of the distributor will thereby be stopped and it will come to rest in the position indicated by dotted lines in Fig. 1, and as the feeding roll 21 rotates only during the movement of the distributor the feeding of the sand from the holder will also be stopped. When another layer of brick is ready to be sanded, the sand holder will be started on its movement in the opposite direction by throwing one of the levers 57 to the left in Fig. 3 to connect the driving pulley 40 with the shaft 32 and to rock the shaft 60 to throw the arms 63 and 64 inward to the position *b* shown by dotted lines in Fig. 4. The distributor will then move to the right from the position shown by dotted lines in Fig. 1 and the feeding roll will be turned as before, but in the opposite direction, to cause the sand to be dropped from the distributor. The movement of the distributor and the feeding of the sand will continue until the distributor is stopped in the position shown by full lines in Fig. 1^a through the action of the cam plate 65 on the arm 63 disconnecting the pulley 40 from the shaft 32. As the distributor runs beneath the supply hopper 70, the gates 71 will be opened and sand will flow from the hopper 70 to replenish the supply in the traveling hopper. The flow of sand from the hopper 70 will cease when the sand in the traveling hopper reaches the nozzles of the hopper 70 as shown in Fig. 1^a, and the gates 71 will be closed when the distributor starts on its next movement as above explained.

It will be understood that the invention is not to be limited to the exact construction and arrangement of parts as shown in the drawings and to which the foregoing description has been mainly confined, but that it includes changes and modifications thereof within the claim. It is to be understood further that the term "sand" and "sanding" used in the claim is not to be construed as a limitation, and that the constructions claimed may be employed for the distribution of other materials for which they may be found adapted.

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

The combination with a distributing device adapted to move alternately in opposite directions and comprising a sand holder and means for delivering sand from the holder, of a supply nozzle for supplying sand to the sand holder when the distributing device is in its position of rest at the end of its movement in one direction, a swinging gate 71 for controlling the flow of sand from the supply nozzle, a plate 74 carried by the distributing device, a lug 72 on the gate 71 adapted to be engaged by the

plate 74 to cause the gate to be opened as the distributing device reaches the end of its movement in one direction, and a lug 73 on the gate 71 adapted to be engaged by the
5 plate 74 to cause the gate to be closed as the distributing device starts on its movement in the opposite direction.

In testimony whereof I affix my signature in presence of two witnesses.

RAYMOND C. PENFIELD.

Witnesses:

JEANNETTE STORK,
C. B. SCHROEDER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
