No. 620,048.

Patented Feb. 21, 1899.

S. A. OYER.

GYRATOR.

(Application filed Dec. 9, 1897.)

(No Model.)

2 Sheets—Sheet 1.

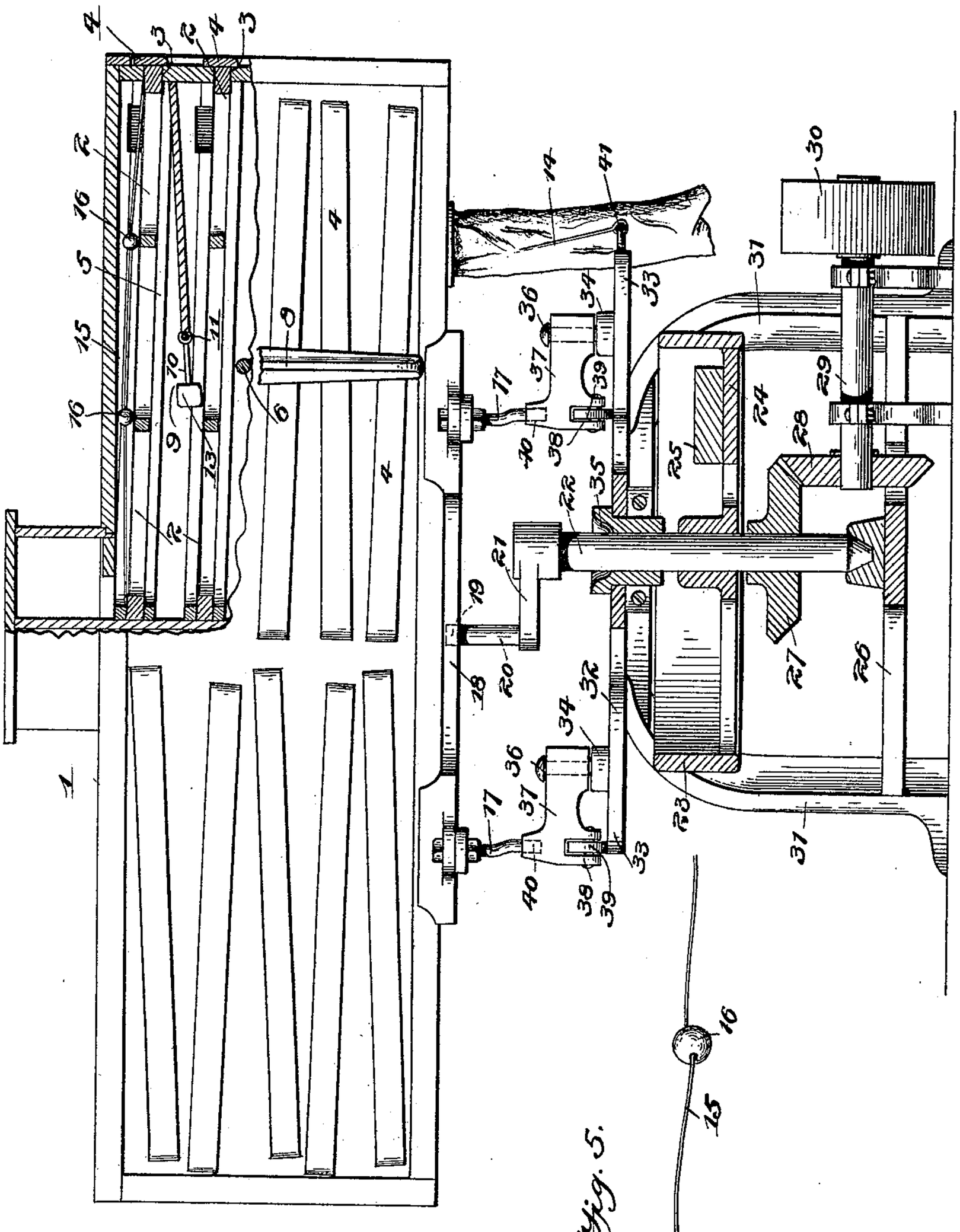

Fig. 1.

Fig. 5.

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2 Sheets—Sheet 2.

Fig. 2.

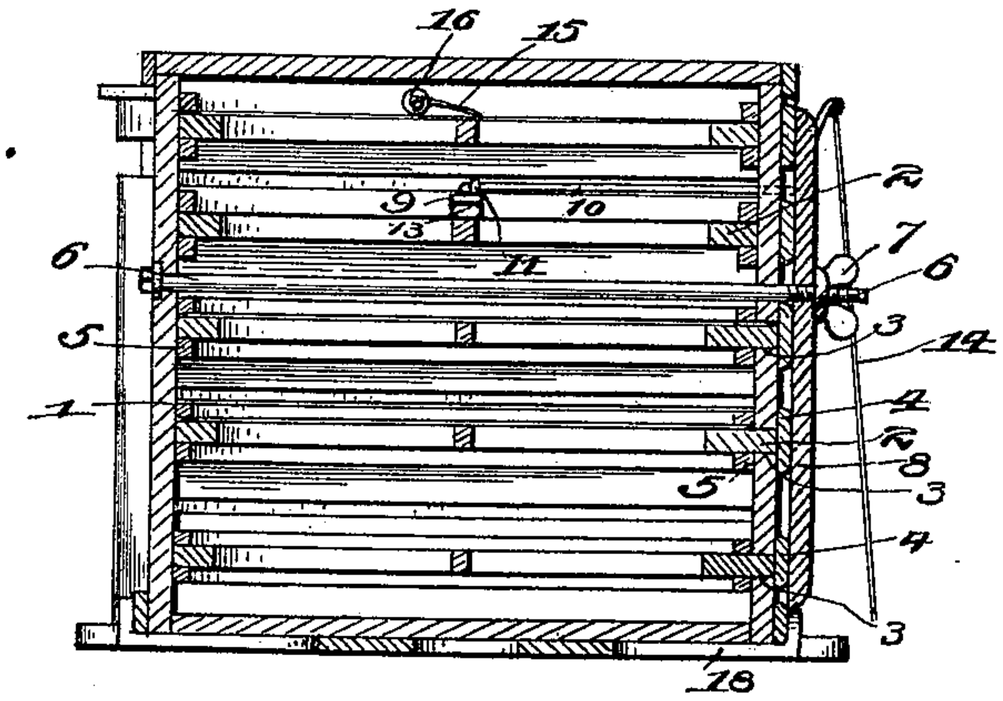


Fig. 3.

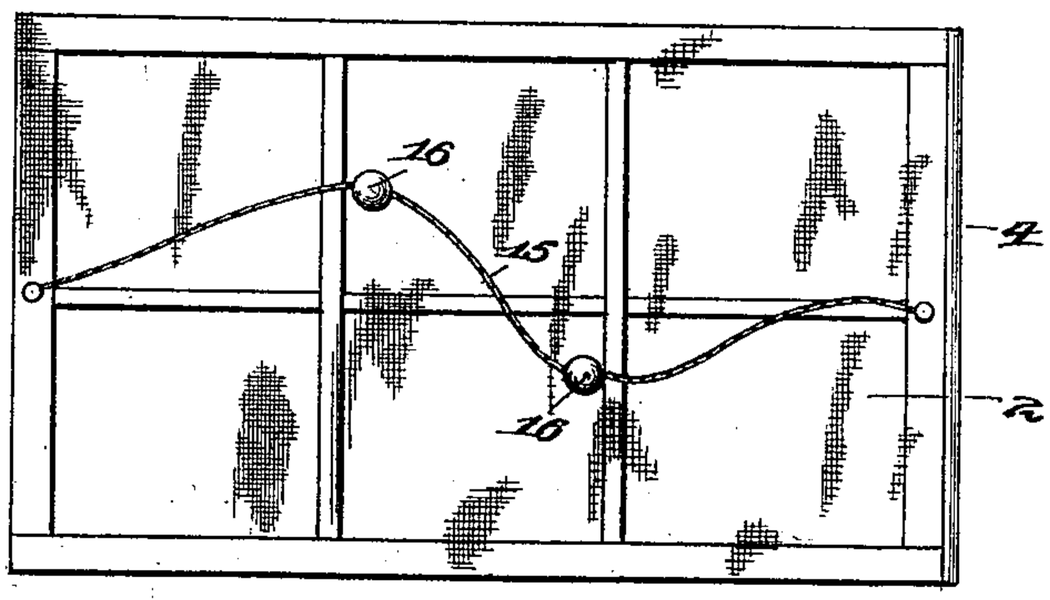


Fig. 4.

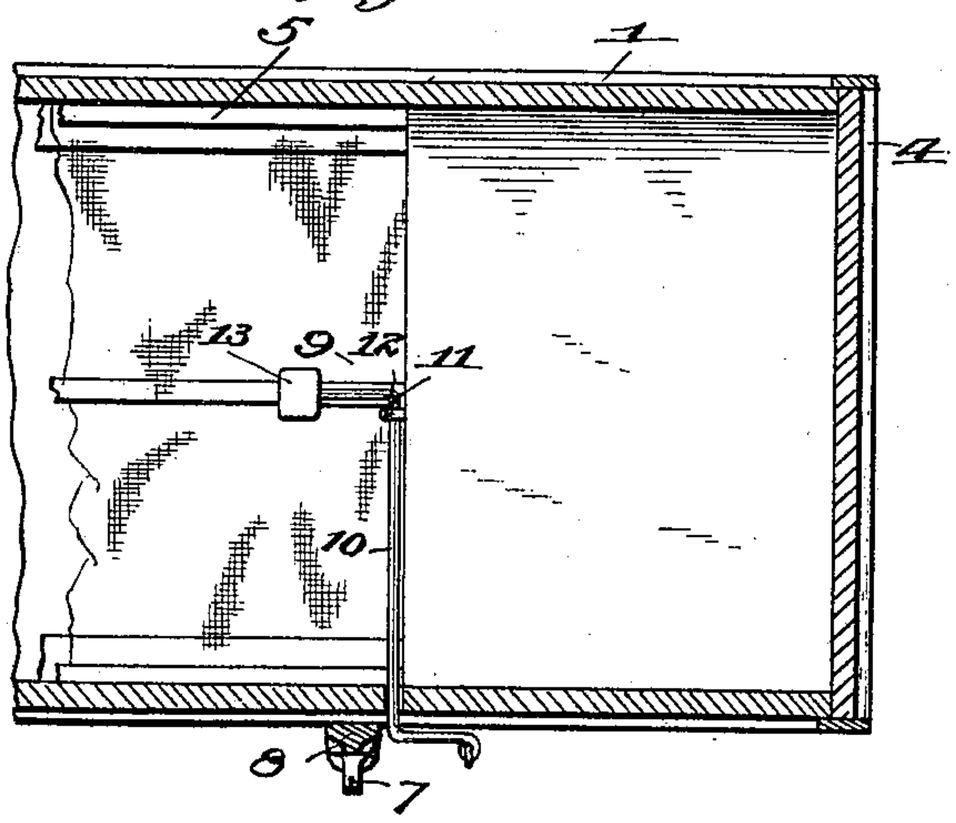
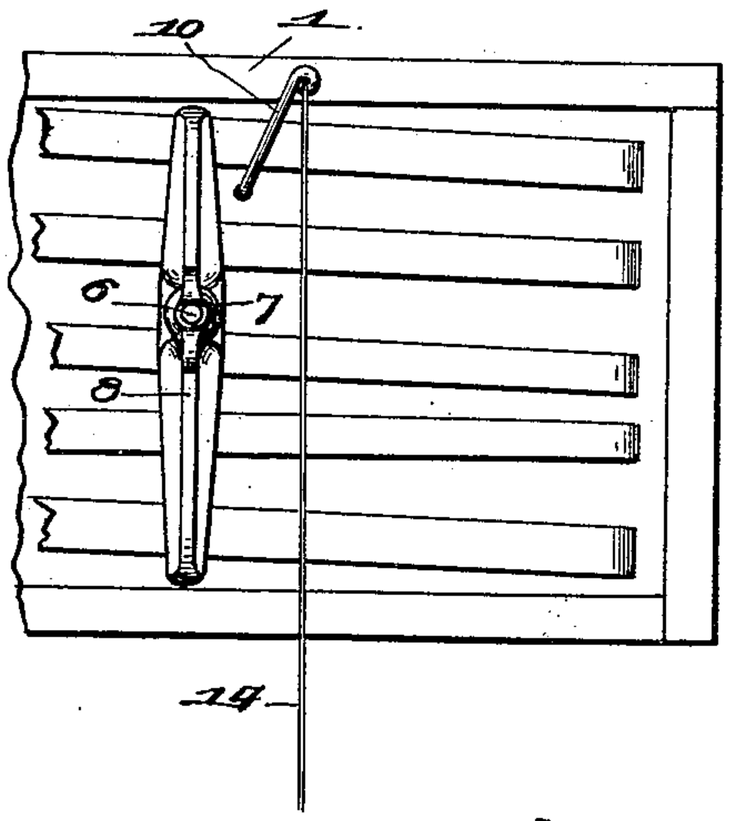


Fig. 6.



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UNITED STATES PATENT OFFICE.

SOLOMAN A. OYER, OF CHAMBERSBURG, PENNSYLVANIA.

GYRATOR.

SPECIFICATION forming part of Letters Patent No. 620,048, dated February 21, 1899.

Application filed December 9, 1897. Serial No. 661,302. (No model.)

To all whom it may concern:

Be it known that I, SOLOMAN A. OYER, a citizen of the United States, residing at Chambersburg, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Gyrators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to shaking-bolts or milling-machines, and particularly that class known as "gyrators."

The invention also consists of the details of construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

The object of the invention is to improve and simplify devices of this character and render them more positive and convenient in operation and also to reduce the cost of manufacture to a minimum.

In the accompanying drawings, Figure 1 is a partial longitudinal vertical section of the improved device, showing the novel features applied thereto. Fig. 2 is a transverse vertical section through the screen box or casing. Fig. 3 is a top plan view of one of the sieves, showing the improved cleaner applied thereto. Fig. 4 is a horizontal section of a portion of the device, showing the arrangement of the knocker. Fig. 5 is a detail perspective view of the screen or sieve cleaning device. Fig. 6 is an elevation of a portion of the screen box or casing, showing means for holding the screens in place.

Referring to the drawings, wherein similar numerals of reference are employed to indicate corresponding parts in the several views, the numeral 1 designates a box or casing having a series of bolting screens or sieves 2, removably mounted therein and superimposed, being in the present instance in the form of drawers, which are inserted in or withdrawn through openings 3 in one end and one side of the said box or casing. Each screen or sieve is provided with an outer covering-strip 4 to close over the openings 3, and along the opposite sides and ends of each screen-compartment guide-strips 5 are properly positioned to receive the said screens and hold them relatively to each other and at such distances apart as may be desired and found necessary. It will be understood by those skilled in the art that the screens or sieves in the present instance are also reinforced by transverse and longitudially-disposed intersecting braces to prevent puncture or injury to the bolting-cloth by the weight of the material falling thereupon. These screens will be also used and formed with the necessary accessories and appurtenances commonly employed in this class of devices, such as chutes and feed-openings, to convey the refuse material from the several screens or sieves to a suitable point, where it may be deposited as waste or collected and used for different purposes.

As clearly shown in Figs. 2 and 6 and to hold the screens in place within the box or casing, a tie-rod 6 extends transversely through the latter and is screw-threaded at one end to receive a winged nut 7 or other analogous device which is adapted to bear against a clamping-strip 8, which is movable and is applied against the adjacent side of the box or casing, as shown by Fig. 6, and over the covering-strips of the screen. When the said clamping-strip is tightened against the covering-strips of the screens or sieves, the latter are prevented from moving and held firmly in position. The tie-rod also insures a rigid construction of the box or casing, as will be observed, and loosening of the parts which might be caused by the shaking movement of the box or casing incidental to its gyration is avoided. As shown by Fig. 4 also, a knocker 9 is mounted within the box or casing, and comprises a rod 10, which extends outwardly through one side of the casing, bent at an angle, and having bearings in the side of the box or casing and also in an eye 11, secured on the interior of the screen-compartment to a suitable protection or partition board. The inner end of the said rod is also bent at an angle, as at 12, and stands away or projects outwardly from the said eye 11 and has on its free ends a weight 13, which is so positioned as to strike the longitudinal braces of the upper and lower screens between which it is placed. This knocker is operated by the movement of the machine, and the outer end of the rod 10 may have attached thereto a cord 14, which will run to mechanism here-

inafter specified, and by a variation in tension on the said cord the knocker will be actuated to alternately deliver blows to the upper end lower screens or sieves with the advantage which will be readily understood.

As clearly shown in Fig. 5, the screens are adapted to have applied thereto a cleaning device consisting of a cord 15, secured at its opposite ends to about the central portion of the ends of the screen, and on the said cord are rubber or elastic balls 16, which play over the surface of the screen as the box or casing is gyrated and thereby prevent clogging of the said screen.

Projecting downwardly from the bottom of the box or casing and arranged at regular distances apart are posts 17, carried on the outer portions near the opposite ends of the metallic frame 18, secured to the said box or casing. In the center of the said frame an opening or socket 19 is constructed or provided, which is engaged by a vertically-disposed pin or post 20, carried at the outer end of a crank-arm 21, secured on the upper end of a vertical shaft 22, upon which is mounted a fly or balance wheel 23, having a web 24 therein, to which is keyed a counterbalancing-weight 25, adapted to overcome dead-center and insure a regular rotation and unbroken gyration of the box or casing 1. The said shaft 22 is stepped at its lower end in a base spider-frame 26 and has thereon a beveled drive-gear 27, which meshes with a companion gear 28 on a counter-shaft 29, which is operated by a band-pulley 30. As the shaft 22 is rotated it carries the crank-arm 21 around therewith, and through the medium of the center pin 20 the box or casing 1 is irregularly moved in a horizontal plane of motion. Rising from the outer ends of the base-spider 26 are curved arms 31, which connect at their upper ends with the arms of a spider 32, which surrounds the vertical shaft 22, and on the outer end of the arms thereof are circular tables or runways 33, provided with central sockets 34. At the center of the spider 32 an oil cup or basin 35 is located which may have running therefrom suitable pipes leading to the bearings of the several parts, whereby oil applied at one point will be distributed to the several moving mechanisms. Rotatably fitted within the sockets 34 are posts 36, secured to the inner ends of carriage-arms 37, having outer lower bifurcations 38, in which rollers 39 are journaled and bear upon the circular tables or runways 33. Above the bifurcation the said carriage-arms are formed with sockets 40, in which are removably fitted the downwardly-projecting posts 17 on the box or casing 1. As the shaft 22 rotates and the box or casing 1 is moved the said carriage-arms 37 are also rotated and the box or casing is held in steady position thereby and at a proper level. The cord 14 from the outer end of the rod 10 of the knocker 9 may be attached to an eye 41, secured to the spider-table 32 or rather to one of the circular tables or runways 33, and in this connection it will also be understood that a number of the said knockers may be employed, if desired.

The screens may be applied to both ends of the box or casing and suitable feed mechanism supplied in accordance with the requirements of the device as an entirety.

Many advantages will appear from time to time to those using the device, and it is obviously apparent that changes in the proportions, dimensions, and minor details of construction could be made and substituted for those shown and described without in the least departing from the nature or spirit of the invention.

Having thus described the invention, what is claimed as new is—

1. In a device of the character set forth, the combination of a box or casing having depending posts and an under socket, a vertical shaft carrying a crank-arm having a center pin or post at the end thereof, adapted to engage the said socket, a spider-table with outer circular tables or runways, carriage-arms rotatably mounted on the said circular tables or runways and having sockets therein to receive the posts depending from the box or casing, and means for actuating the said shaft, substantially as described.

2. In a device of the character set forth, in combination, a casing, a vertical shaft carrying a crank-arm, a pin connection between said crank-arm and the casing, a spider-table comprising outer circular tables or runways, carriage-arms rotatably mounted on the circular tables or runways and connected at their outer ends to the casing, and means for actuating said shaft, substantially as described.

3. In a device of the character set forth, the combination with a casing, and a screen mounted therein, of a rock-shaft journaled in the casing, a knocker carried thereby, a flexible operating connection between said shaft and a fixed point on the stationary frame, and means for imparting a gyratory movement to the casing, substantially as described.

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

SOL. A. OYER.

Witnesses:
JOHN W. ELDER,
JOHN ELDER.