

1,064,344.

D. L. KIBLER,  
SCREENING MACHINE.  
APPLICATION FILED OCT. 30, 1911.

Patented June 10, 1913.  
3 SHEETS—SHEET 1.

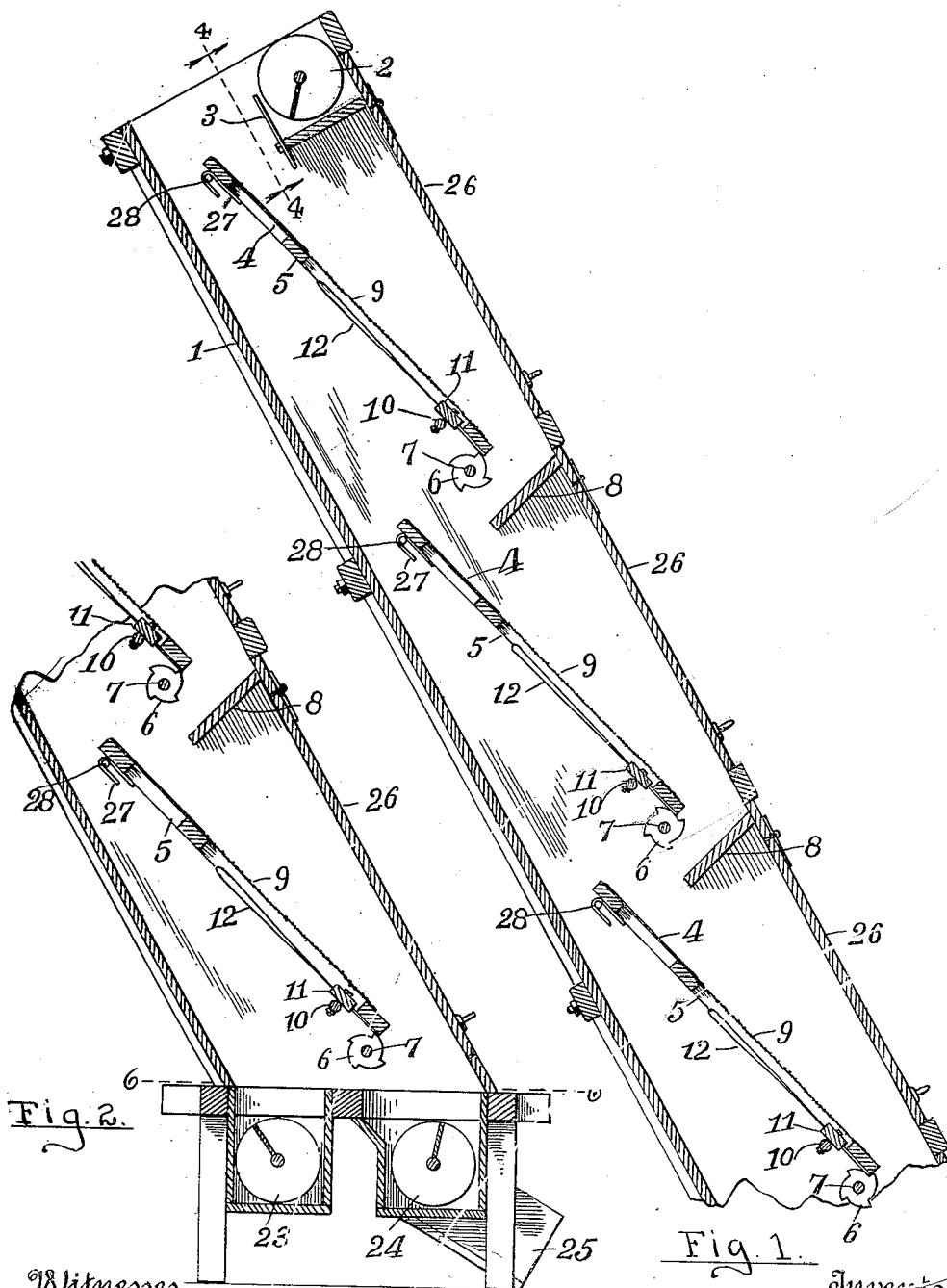


Fig. 2.

Fig. 1.

Witnesses  
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Anna De Windt

Inventor  
Daniel L. Kibler  
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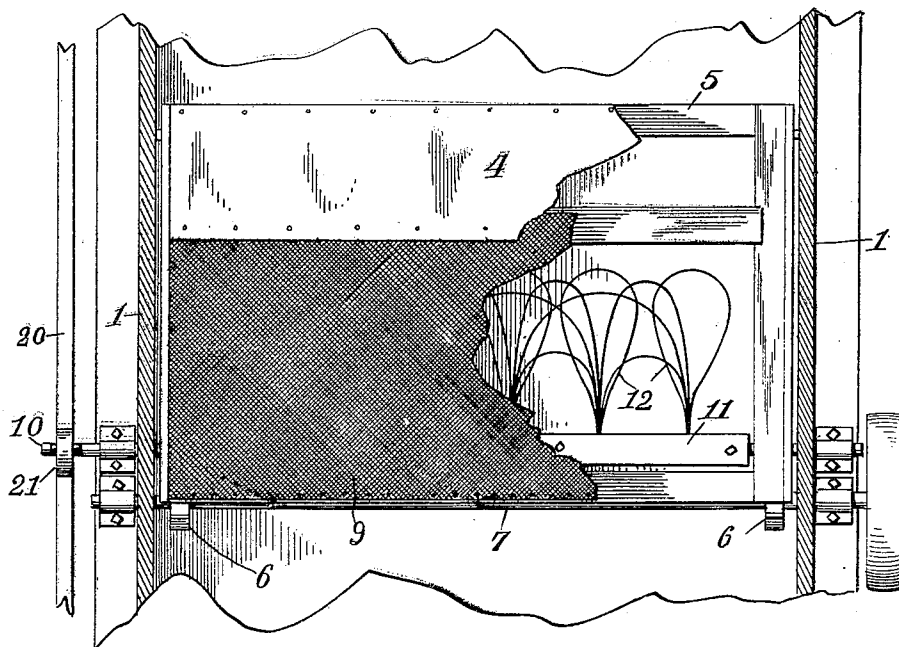


Fig. 3.

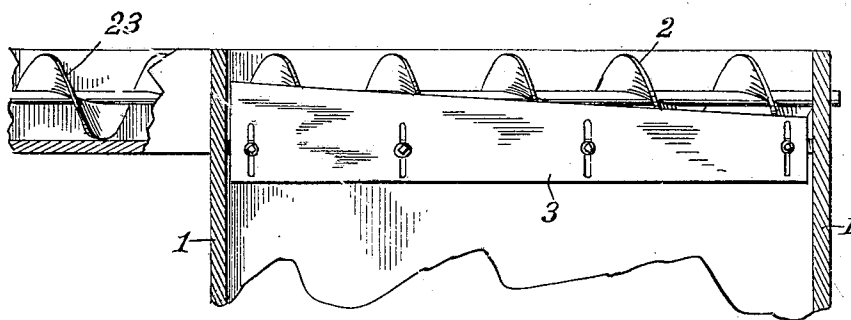


Fig. 4.

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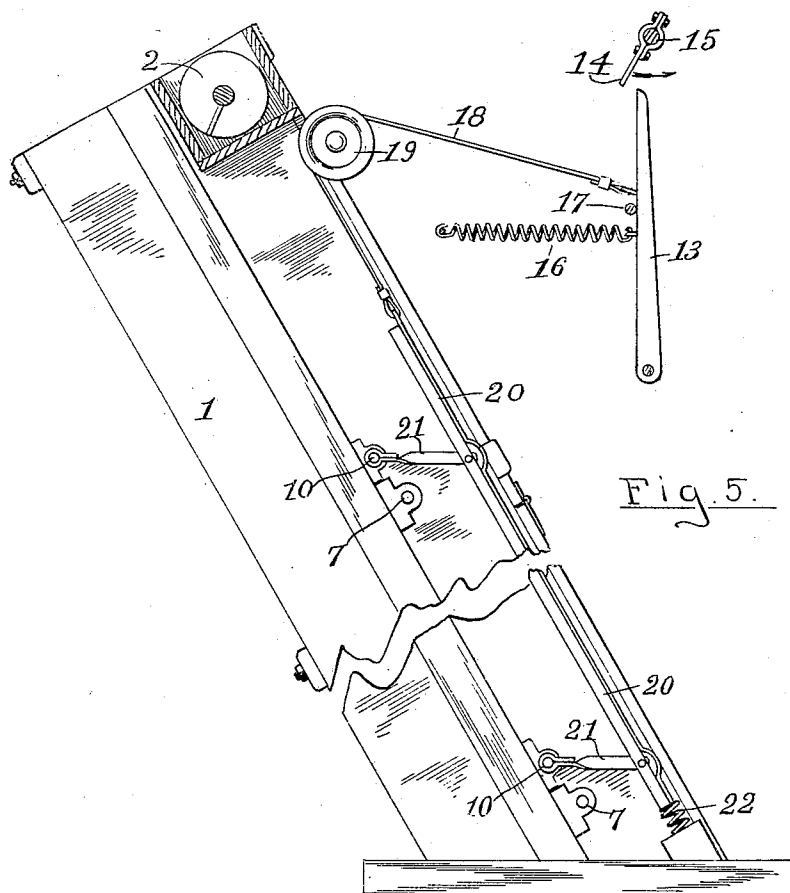


Fig. 5.

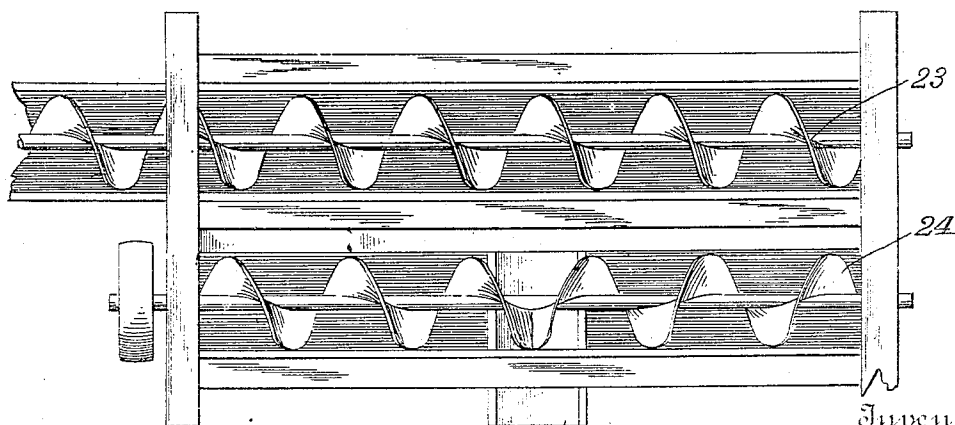


Fig. 6.

Witnesses  
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# UNITED STATES PATENT OFFICE.

DANIEL L. KIBLER, OF GRAND RAPIDS, MICHIGAN, ASSIGNOR TO ACME CEMENT PLASTER CO., OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

## SCREENING-MACHINE.

1,064,344.

Specification of Letters Patent.

Patented June 10, 1913.

Application filed October 30, 1911. Serial No. 657,486.

*To all whom it may concern:*

Be it known that I, DANIEL L. KIBLER, a citizen of the United States of America, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Screening-Machines; 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.

My invention relates to improvements in screening machines and more particularly to machines adapted to separate fine grades of cement or plaster from the coarser grades, and its object is to provide a machine which is simple in construction and operation, easily accessible for inspection or repairs and one which will operate rapidly and to provide the device with various new and useful features hereinafter more fully described and particularly pointed out in the claims, reference being had to the accompanying drawings, in which:—

Figure 1 is a sectional elevation of the upper portion of a device embodying my invention; Fig. 2 the same of the lower part of the same; Fig. 3 a plan view of one section of the machine with the top removed; Fig. 4 is a sectional elevation on the line 4—4 of Fig. 1; Fig. 5 is a side elevation of the device with a portion removed; and Fig. 6 is a sectional plan on the line 6—6 of Fig. 2 showing the conveyers at the bottom of the machine.

Like numbers refer to like parts in all of the figures.

1 is the case or frame of the machine which is an elongated box-like structure inclined from the vertical at an angle preferably of about 30°. At the upper end of this case and extending transversely across its width is a feeding conveyer 2. This conveyer is of the screw type and one side of the box or trough in which it rotates is made lower to allow the material to spill over the side and be deposited upon the screens below. This lowered edge is higher at the incoming end of the conveyer and gradually slopes downward to the opposite end so that the material will be evenly distributed throughout the width of the case and is preferably provided with an adjustable member 3 to insure this even distribution.

Beneath this conveyer is a series of screens 55 which extend across the case 1 being pivotally attached to the case at their upper ends and spaced away from the bottom of the case. The lower ends of the screens are spaced apart still farther from the bottom of the case and overlap the upper end of the screen next below, each screen being supported at the lower end upon vibrator wheels 6 which are mounted on rotative shafts 7 extending outside of the case and driven by any convenient means.

Beneath the lower edge of each screen a deflector board 8 is arranged to divert the fall of the material that passes over this screen above and changes the course of said material so that it will strike the upper part of the next screen below. The upper portion of each screen is provided with a strip of sheet metal 4 upon which the material strikes first as it escapes from the lower edge of the deflector board. The balance of the screen is preferably formed of an open woven fabric 9 which will permit the finer grades of material to pass through, the coarser grades passing over the first screen and onto the next screen below.

In order to prevent the screens from becoming clogged a rock shaft 10 is provided which extends beneath the lower end of the screen and a bar formed of a strip of wood 11 is mounted upon this shaft in which is fixed a series of wire loops 12 which extend directly beneath the screen and at intervals as the shaft 10 is oscillated these wire loops strike the screen jarring loose any material which may become clogged in it. The vibratory movement imparted to the screen by the rotation of the vibrator wheel 6 also tends to keep the screen open and jar the finer grades of material through it.

The mechanism which operates the rock shaft 10 preferably consists of a lever 13 pivoted at its lower end and engaged intermittently at its upper end by an arm 14 attached to a rotating shaft 15. As the arm 14 engages the upper end of the lever 13 the lever 13 is moved a short distance and when disengaged it is moved back by a spring 16 against a stop pin 17. A cable 18 attached to the lever 13 passes over a pulley 19 and is attached to a connecting rod 20. This connecting rod extends downward outside the case and one end of each of a series

of levers 21 is pivotally attached to said connecting rod. The other end of each lever 21 is attached to a respective rock shaft 10. As the lever 13 is operated by the arm 14 movement is transmitted to each lever 21 and rock shafts 10 causing the loops of wire 12 to alternately move away from the screens and fly backward striking the screens. The levers 21 counterbalance the rods 20, serving as counter-balancing weights. They counter-balance the wire loops on the rock shafts so that when the lever 13 is released the loops are swung against the screens. The spring 22 engaging the rod 20 holds the loops normally clear of the screens. When the arm 14 shifts the lever 13 the cable 18 pulls the rod 20 upwardly. This rod 20 being connected to the levers 21 and the latter in turn connected to the shafts 10, the latter are rocked. Immediately upon release of the lever 13 by the arm 14 and a quick return movement of the lever 13 by the spring 16 into engagement with the stop 17, the rod 20 falls and consequently the shafts 10 are rocked, causing the loops 12 to strike against the screens. A cushion spring 22 is provided at the lower end of the machine against which the lower end of the connecting rod 20 cushions on its downward movement.

The finer grades of material which have passed through the screens fall upon the bottom of the case 1 and slide down its inclined surface into the conveyer 23 by which it is carried away to be packed for shipment. The coarser grades after passing over each successive screen finally drop into the conveyer 24 which carries them to a spout 25 to be conveyed to a machine for re-grinding.

The top of the case 1 is provided with hinged doors 26 so that the interior of the machine may be inspected at any time.

The pivotal connection at the upper edge of the screens consists of hook shaped members 27 attached to the under side of the screen which hooks pivotally engage stud bolts 28 secured to the sides of the case and as the lower edge of each screen is supported upon a vibrator ratchet wheel 6 the screen may be easily removed from the case by raising it enough to unhook the hooks 27 from the studs 28.

What I claim is:—

1. A screening machine, comprising an inclined case, inclined screens in the case pivotally attached at their upper ends to the sides of the case and arranged one above the other with the lower edge of each screen overlapping the upper edge of the screen below, shafts journaled in the case and extending beneath the lower edge of each screen, vibrator wheels on the shafts to support the lower ends of the screens, means for rotating the shafts, beaters beneath the

screens, means for operating the beaters, and deflector boards beneath the lower edge of each superposed screen.

2. A screening machine, comprising a screen, a rock-shaft below the screen, beaters projecting laterally from the shaft to strike the screen and arranged normally in spaced relation to the screen and parallel therewith, a counterweight to swing the beaters against the screen, and means for periodically turning the rock-shaft to move the beaters away from the screen and for releasing the shaft to permit the beaters to strike the screen.

3. A screening machine, comprising a screen, a rock-shaft near the screen, beaters extending laterally from the shaft and normally near the screen, a counterbalance to swing the beaters against the screen, means for periodically raising the counterbalance and releasing the same, and a cushion spring to support the counterbalance and hold the beaters in normal position.

4. A screening machine, comprising a screen, a rock-shaft beneath the screen, beaters attached to the shaft and normally held thereby close to the screen and parallel therewith, an arm on the rock-shaft serving as a counterweight, means connected to the arm to periodically raise the arm and to release the same to first move the beaters away from the screen and then allow the same to strike the screen.

5. A screening machine, comprising a series of inclined screens, a rock-shaft beneath each screen, beaters extending laterally from each shaft, and disposed normally parallel with the screens, an arm on each shaft, a rod connecting the arms, said arms and rod serving to overbalance the beaters and swing them against the screens, and means for periodically raising the rod and arms and releasing the same, to swing the beaters against the screen.

6. A screening machine, comprising a series of screens, a rock-shaft beneath each screen, beaters laterally projecting from each shaft and normally close to the screens, an arm on each rock-shaft, a rod connecting the arms, a cushion spring engaged by the rod, a lever connected to the rod to move the same in one direction, an arm to engage the lever to move the same and raise the connecting rod, and to release the same to release the connecting rod.

7. A screening machine, comprising a frame, a series of screens in the frame, rock shafts adjacent to each screen and extending outside of the case, oscillatory beaters on the said rock shafts, a lever on each rock shaft, a connecting rod pivotally attached to each lever, a cushion spring at the lower end of the connecting rod, a lever pivoted at one end, a stop pin engaged by said lever, a spring to yieldably hold the said pivoted

lever against the stop pin, an arm mounted on a rotative shaft to intermittently engage the pivoted lever and a cable to connect the pivoted lever with the connecting rod to  
5 intermittently oscillate the beaters.

8. A screening machine comprising an inclined case, pivotally mounted inclined screens in the case arranged one above the other, means for vibrating the screens, a  
10 rock shaft extending beneath the lower portion of each screen and projecting outside of the case, beaters carried by the rock shafts, arms on the ends of the rock shafts, a longitudinally movable connecting rod connected  
15 to the outer ends of each of said arms and

adapted to hold said rock shafts normally against rocking movement with the beaters normally spaced from the screens and normally in parallelism with the latter, and means operable to lift said connecting rod 20 and drop it intermittently so as to rock said rock shafts and cause the beaters to strike the screens.

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

DANIEL L. KIBLER.

Witnesses:

HAROLD O. VAN ANTWERP,  
LUTHER V. MOULTON.