

Aug. 24, 1937.

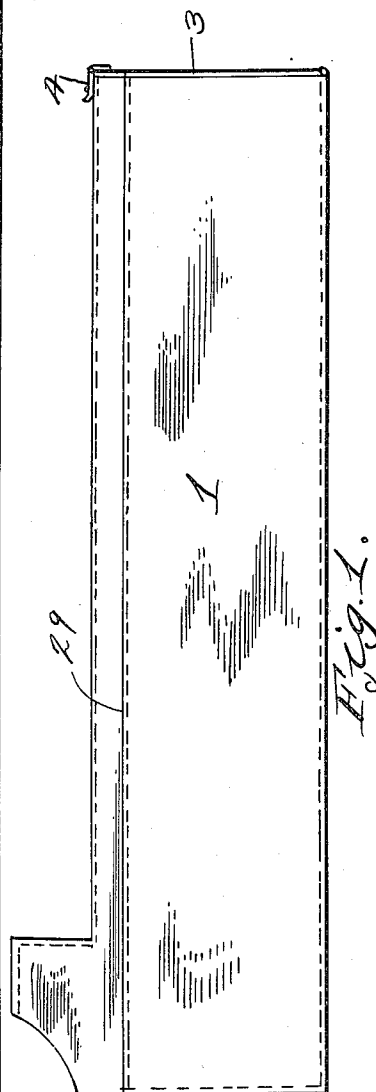
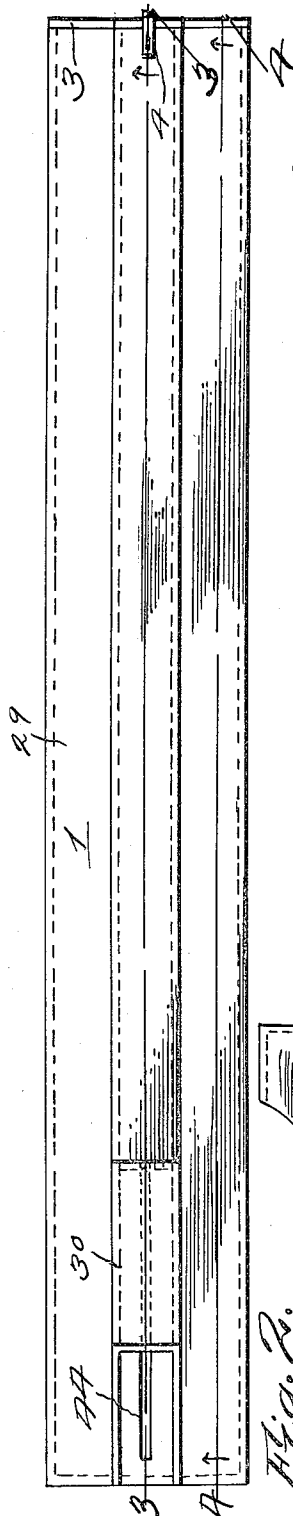
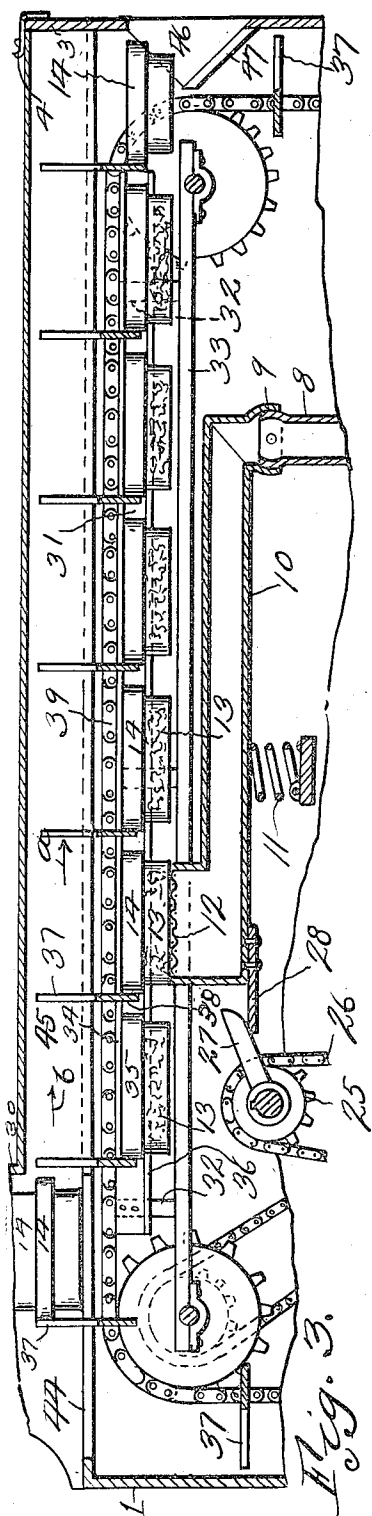
L. W. BAKER ET AL

2,090,777

BLACKBOARD ERASER CLEANER

Filed April 6, 1936

2 Sheets-Sheet 1



Inventors
Loren W. Baker
Christian A. Iansen
Philip A. Farrell
Attorney

Aug. 24, 1937.

L. W. BAKER ET AL

2,090,777

BLACKBOARD ERASER CLEANER

Filed April 6, 1936

2 Sheets-Sheet 2

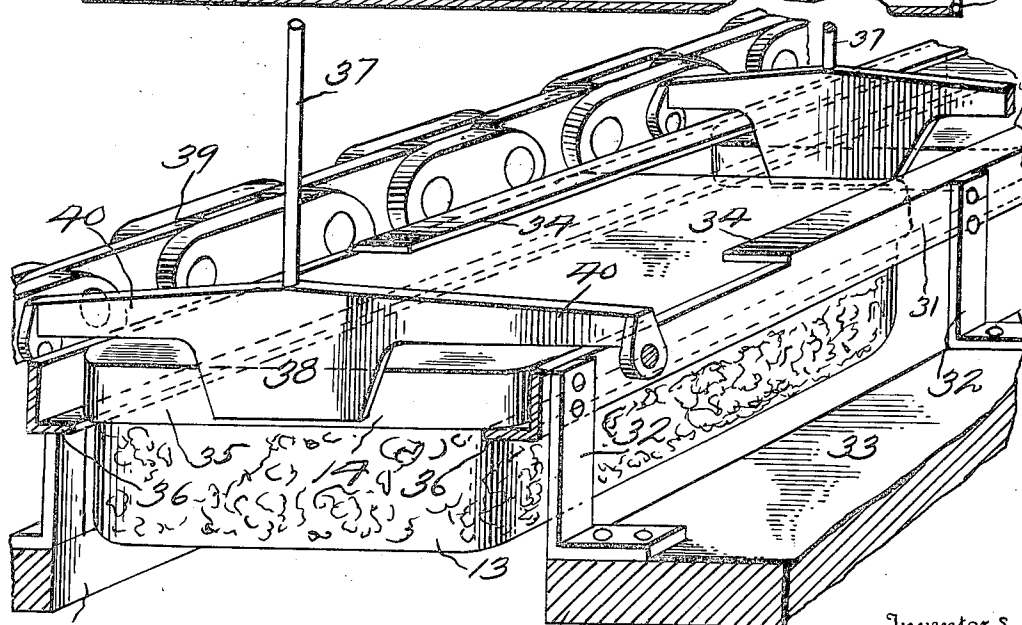
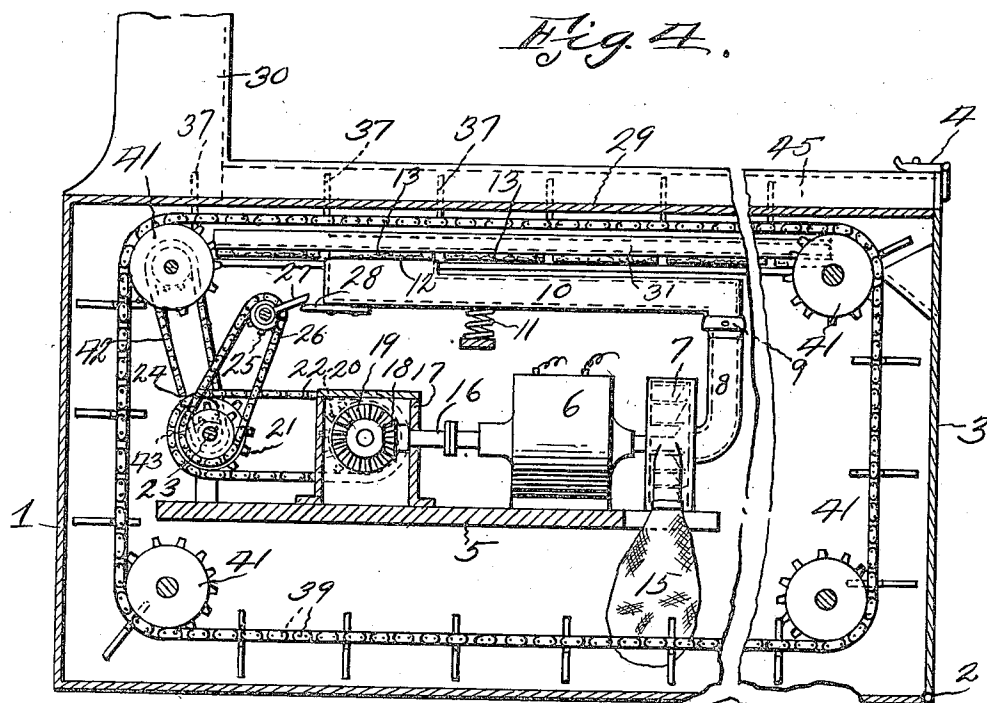


Fig. 5.

Inventors

Lena W. Baker
Christian A. Iansen

By *Philip A. Sirell*
Attorney

UNITED STATES PATENT OFFICE

2,090,777

BLACKBOARD ERASER CLEANER

Lena W. Baker and Christian A. Lausen, Fort Worth, Tex.; said Lausen assignor to said Baker

Application April 6, 1936, Serial No. 73,011

5 Claims. (Cl. 15—12)

The invention relates to blackboard eraser cleaning machines, and has for its object to provide a device of this character comprising an endless eraser conveyor, onto which erasers are fed from a hopper, and an oscillator beater arm within the machine for beating the erasers and simultaneously collecting and conveying the chalk particles dislodged from the erasers to a fan which in turn discharges the chalk particles into a collecting bag.

A further object is to provide a trackway onto which the erasers are fed, said trackway, at the eraser receiving end having its members L-shaped in cross section for receiving and supporting the erasers in their initial movement and U-shaped in cross section beyond the eraser receiving ends for holding the erasers against upward or downward movement as they are advanced to the beating position.

A further object is to provide spaced endless chains above the trackways, said chains being connected together transversely by feeder blades extending downwardly for engaging the ends of the erasers and forcing them through the machine to a discharge position.

A further object is to provide the eraser moving blades with upwardly extending arms adapted to pass through a longitudinal slot in the upper side of the casing of the machine and in the path of the bottom eraser of the stack of erasers in the hopper for feeding erasers to the machine and to the conveyor between the blades.

A further object is to provide a single motor for driving the fan, rotating the conveyor and oscillating the suction beater arm. Also to provide gearing means for rapidly oscillating the beater arm and rotating the conveyor chains at a speed which will allow a sufficient beating operation.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:

Figure 1 is a side elevation of the machine.

Figure 2 is a top plan view of the machine.

Figure 3 is a vertical longitudinal sectional view through the upper portion of the machine, taken on line 3—3 of Figure 2.

Figure 4 is a vertical longitudinal sectional

view through the machine taken on line 4—4 of Figure 2.

Figure 5 is a detail perspective view of a portion of the conveyor showing the eraser receiving end thereof.

Referring to the drawings, the numeral 1 designates the casing of the machine, which is preferably rectangularly shaped as shown and hingedly connected at 2 to one end of the casing is a closure 3, normally held closed by a hinged hasp 4 so that access may be had to the interior of the machine for repair or cleaning purposes.

Disposed within the case 1 is a horizontal shelf 5, on which is mounted a motor 6, which motor drives a fan 7 also mounted on the shelf 5. The fan 7 is of the suction type for creating a vacuum and has connected thereto an upwardly extending suction arm 8, to the upper end of which is universally connected at 9 the horizontal beater arm 10, which is adapted to be oscillated upwardly and downwardly for a beating operation. During the downward stroke of the beater arm 10 an expansion spring 11 is compressed, and which expansion spring, when the free end of the beater arm is released, forces the beater arm upwardly so that its screened intake end 12 will engage the felts 13 of the erasers 14 as they pass through the machine in the direction of the arrow *a*, Figure 3. The beater arm 10 is chambered as shown in Figure 3, and the dislodged particles of chalk are sucked through the arm 10, and thence through the arm 8 to the fan and discharged by the fan, preferably tangentially, as shown in Figure 4, into the bag 15, which may be of fabric or of a porous paper bag, which can be entirely discarded when it becomes full, thereby obviating the necessity of cleaning the bag as is now the practice where fabric bags are used.

The motor 6 is provided with a shaft 16, which extends into a gear casing 17 and drives through a bevelled gear 18 a reduction gear 19, which reduction gear drives a sprocket 20 and extending over the sprocket 20 and a sprocket 21 is a sprocket chain 22.

When the sprocket 21 is rotated, the shaft 23, on which it is mounted, also rotates, and as the sprocket 24 rotates with the shaft 23, the trip finger sprocket 25 will be rotated through the sprocket chain 26. The trip finger 27 rotates rapidly, and as it rotates it intermittently engages the finger 28 carried by the free end of the hollow beater arm 10 and forces the same downwardly against the expansion spring 11, which spring, upon release of the beater arm forces the beater arm upwardly for the rapid beating operation of

each eraser as it is longitudinally fed through the machine.

The upper side 29 of the casing 1, at one end thereof is provided with a hopper 30, in which the erasers 14 are placed in stacked position, and from which they are intermittently fed to a conveyor means for passing them through the machine. The conveyor means comprises spaced U-shaped guide channels 31, supported by means of brackets 32 on shelves 33 within the casing in spaced relation. The ends of the U-shaped guide channels 31 adjacent the eraser hopper 30 have their upper flanges 34 cut away so that erasers intermittently discharged from the hopper 30 will drop downwardly between the channel members 31 and the backs 35 thereof will rest upon the lower flanges 36 of the channel members and support the erasers with their felt portions 13 downwardly disposed. It will be noted that as the erasers are forced longitudinally through the channels, they will assume a position where the flanges 34 and 36 will prevent upward movement of the erasers in the feeding mechanism during the beating operation of the beater arm 10, which engages the under side of the felt 13.

The erasers 14 are moved intermittently from the hopper 30 by means of upwardly extending fingers 37 carried by the transverse eraser engaging plates 38, and which plates are connected to endless sprocket chains 39 by the plate arms 40, as clearly shown in Figure 5. The endless sprocket chains 39 pass over sprockets 41 adjacent the four corners of the casing 1 and are driven by a sprocket chain 42, which extends over a sprocket 43 carried by the shaft 23. As the eraser engaging arms 37 move upwardly as shown in Figure 3, they pass through an elongated slot 44 in the casing top 29 and into engagement with one end of the eraser 14. The eraser 14 is then moved in the direction of the arrow b into the chamber 45 in the top 29, and then drops downwardly between the sprocket chains 39 onto the supporting flanges 36 as shown in Figure 5. As the plates 38 continue their forward movement the erasers 14 are forced forwardly so that their backs 35 will enter between the flanges 34 and 36 of the guide channels 31. When the erasers continue their forward movement they will pass over the beating positions shown in Figure 3 and will then be conveyed forwardly to the discharge position shown in Figure 3, and will be discharged into a hopper 46. It will be noted that the hopper 46 is provided with a slot 47 which will allow passage of the arms 37. The movement of the conveyor means is timed in relation to the beater oscillations of the beater arm whereby there will be a relatively slow movement of the erasers in relation to the oscillations of the beater arm to insure a sufficient beating of each eraser.

From the above it will be seen that an eraser beating machine is provided which is simple in construction and one wherein the erasers are automatically fed through the machine, cleaned by a beating operation and the dislodged chalk particles collected in a bag by suction means, which may be removed when desired.

The invention having been set forth what is claimed as new and useful is:

1. An eraser cleaning machine comprising a casing, a conveyor extending through said casing, means for intermittently feeding erasers onto said conveyor, means for holding said erasers as they are moved by the conveyor, a beater arm movable towards and away from the erasers and in the path thereof, said beater arm having an air passage therethrough and means for creating a suction through said air passage.

2. An eraser cleaning machine comprising a casing, a conveyor within the casing, longitudinal eraser guide channels within the casing and below said conveyor, means carried by the conveyor and cooperating with erasers fed to the conveyor for discharging the same through the conveyor to a position where they will enter longitudinally into the guide channels, an oscillatable beater arm within the casing and adjacent said conveyor, said beater arm having an eraser engaging suction end, a chamber extending through the beater arm, means for creating a suction in said chamber, spring means for forcing the free end of the beater arm towards the eraser in the conveyor and means cooperating with the free end of the beater arm for forcing the same away from the erasers during the oscillating operation.

3. A device as set forth in claim 2 comprising a suction fan casing, a suction fan in said casing, an intake pipe connection to the suction fan and on which the oscillating arm is hingedly mounted, said pipe having its chamber in communication with the chamber of the oscillating arm through its hinged joint and a dust collecting member carried by the fan casing.

4. A device as set forth in claim 2 including a hopper carried by the casing, L-shaped guide channels for the erasers adjacent the hopper, thereby allowing the erasers to be supported on the horizontal flanges thereof and to be fed longitudinally into the U-shaped portions of the channels.

5. A device as set forth in claim 2 comprising plates carried by the endless conveyor and extending downwardly into the path of ends of erasers after they are fed into the channels and adapted to move said erasers longitudinally in the channels, said means for initially feeding erasers comprising arms carried by said plates.

LENA W. BAKER.

CHRISTIAN A. LAUSEN.