July 13, 1943. F. L. HENNEFER 2,323,908

ERASER CLEANER

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Fig. 1.

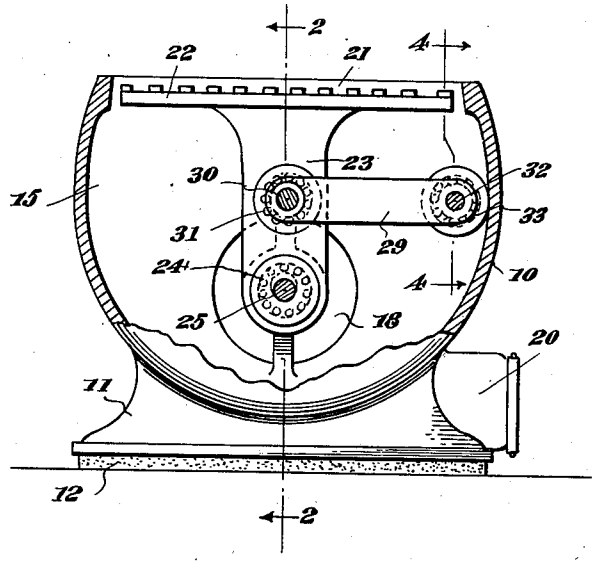
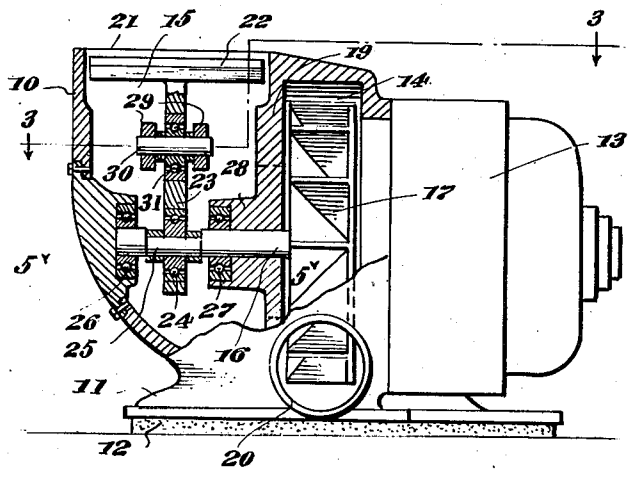


Fig. 2.



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Fig. 3.

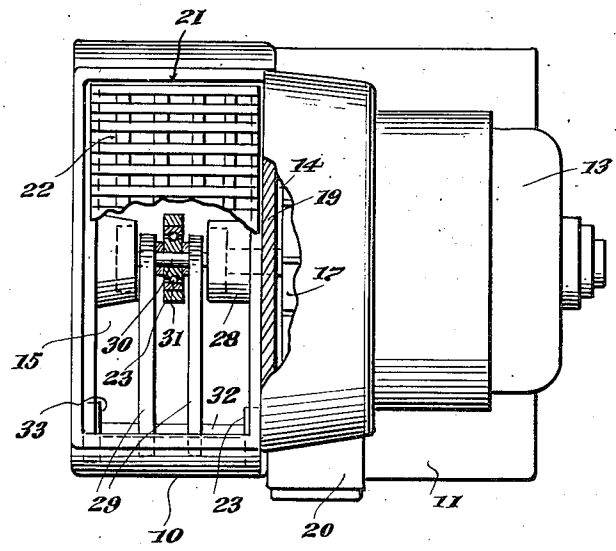


Fig. 4.

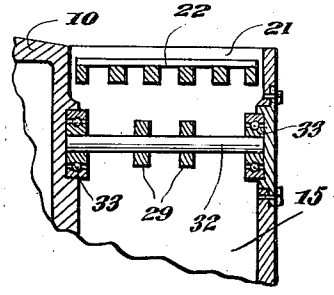


Fig. 5.

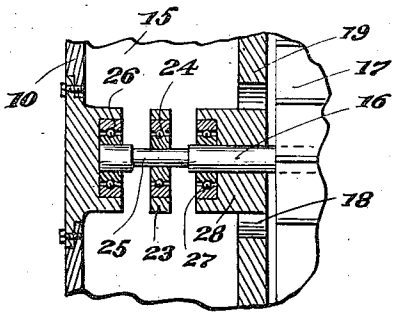
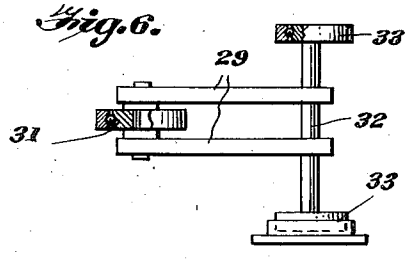


Fig. 6.



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ERASER CLEANER

Fred L. Hennefer, Salt Lake City, Utah

Application February 19, 1941, Serial No. 379,669

1 Claim. (Cl. 15—12)

This invention relates to improvements in cleaners and more particularly to a machine especially designed for cleaning blackboard erasers, and the like, the primary object of the present invention being the provision of means for bracing the vibrating or cleaning element in a manner to relieve strain from the motor bearing.

A further object of the invention is the production of an improvement over my previous Patent No. 2,163,788, upon an Eraser cleaner, issued June 27, 1939, wherein the parts are so assembled as to reduce wear to a minimum, and the device is mounted upon a suitable cushion to reduce noise while the device is in operation.

Other objects and advantages of the present invention will appear throughout the following specification and claim.

In the drawings:

Figure 1 is a vertical sectional view, certain parts being shown in elevation;

Figure 2 is a vertical sectional view taken on line 2—2 of Figure 1, certain parts being shown in elevation;

Figure 3 is a horizontal sectional view taken on line 3—3 of Figure 2;

Figure 4 is a fragmentary sectional view taken on line 4—4 of Figure 1;

Figure 5 is a horizontal sectional view taken on line 5—5 of Figure 2;

Figure 6 is a plan view of the rocker arm assembly, bearings and associated parts.

By referring to the drawings, it will be seen that a casing 10 is mounted upon a suitable base 11, which base 11 is supported upon a cushion or sponge rubber pad 12. A motor chamber 13 is provided at one end of the casing 10, as shown in Figures 2 and 3, and this chamber 13 is adapted to contain an electric motor of a conventional type. A fan chamber 14 is arranged adjacent the inner end of the motor chamber 13, and a cleaning chamber 15 is arranged adjacent the fan chamber 14, as shown. A shaft 16 of the electric motor is extended from the motor chamber 13 substantially centrally through the chambers 14 and 15, as shown.

An exhaust fan 17 is mounted on the shaft 16 and is mounted and adapted to withdraw or exhaust air from the chamber 15 through the opening 18 of the wall 19 which wall 19 separates the chambers 14 and 15. The air is then discharged through spout 20 which is adapted to receive and support the mouth of a suitable dust bag.

The cleaning chamber 15 is provided with a rectangular opening 21, as shown in Figures 1, 2 and 3, at the top thereof. A rectangular cleaning element 22 similar to that shown in my previous patent above identified is mounted in this opening 21 in spaced relation relative to the side walls of the opening 21, as shown in Figure 1 and is arranged to reciprocate therein. An eraser is adapted to be held by an operator at the upper end of the opening 21 for beating contact with the cleaning element 22. The cleaning element 22 is in the form of a grid consisting of transverse and longitudinal bars or slats, so as to permit of the free entry of air and dust to the cleaning chamber 15. The cleaning element 22 is connected by an integral supporting arm 23 with the motor shaft 16 through the medium of a ball-bearing 24 riding upon an eccentric crank pin 25 forming a part of the motor shaft 16. As the shaft 16 rotates, the cleaning element 22 because of the connection with the eccentric crank pin 25, will reciprocate rapidly and produce a bearing action against an eraser held in beating contact with the cleaning element 22. The shaft 16 is journaled in the ball-bearings 26 and 27, the bearing 27 being supported by the boss 28 carried by the wall 19 and within the opening 18. In this way, the shaft 16 will be efficiently supported upon opposite sides of the supporting arm 23 by ball-bearings 26 and 27.

A pair of bracing links 29 are secured at their inner ends to a shaft 30, which shaft 30 is mounted in a ball-bearing journal 31. The bearing 31 is carried by the supporting arm 23 directly above the bearing 24 and the eccentric crank pin 25. As shown, in Figures 2 and 3, the links 29 extend at approximately right angles to the vertical axis of the supporting arm 25, and are arranged one bracing link upon each side of the arm 25. The opposite ends of the bracing links 29 are rockably anchored to a journal pin 32, which pin 32 has its end portions mounted in the ball-bearing journals 33 carried by the inner faces of the side walls of the cleaning chamber 15.

It will be noted by considering the drawings that the bracing links 29 will brace the supporting arm 23 above the eccentric crank pin 25 and hold the supporting arm 23 against any appreciable forward and backward movement or lateral movement and at all times out of contact with the side walls of the opening 21, as will be obvious by considering Figure 1, because of the space between the side walls of the opening 21 and the side edges of the cleaning element 22. The links 29 are connected to the supporting arm 23 by ball-bearing journals and are secured at their opposite ends to the casing 10 by means

of ball-bearing journals as described. The supporting arm may properly reciprocate under the movement of the eccentric crank pin **25**, and this arm **23** may slightly swing upon the joural pin **30** to compensate for the movement of the crank pin **25**, the links **29** having an up-and-down swinging movement. These links **29** will provide an efficient brace for the supporting arm **23** above the eccentric crank pin **25**, and because of this bracing action and the mounting of the ball-bearings a quiet and efficient movement of the parts may be provided particularly in view of the fact that the base **11** is mounted upon the cushioning pad **12**, which pad is preferably formed of sponge rubber. Furthermore, the bearing **27** will brace the shaft **16** and relieve considerable strain from the motor which drives the shaft **16**. While free up-and-down motion is provided for the cleaning or beating element **22**, the braces **29** will efficiently hold the supporting arm **23** and the beating element or vibrator **22** against side-to-side and end-to-end movement.

Certain detail changes in the construction may be employed without departing from the spirit of the invention, so long as such changes fall within the scope of the appended claim.

Having described the invention, what I claim as new is:

An eraser cleaner of the class described comprising a casing having an eraser cleaning chamber formed therein, said casing having an eraser receiving opening in the upper end thereof into which opening an eraser to be cleaned is adapted to be fitted, said opening communicating with said cleaning chamber, an eraser cleaning element mounted within said opening and inset with respect to the outer end thereof for contacting an eraser placed within said opening for cleaning the eraser, the cleaning element and opening being substantially rectangular in shape, a supporting arm engaging the cleaning element and extending inwardly of the cleaning chamber, an eccentric shaft engaging the inner end of said supporting arm and extending transversely of the cleaning chamber and located inwardly relative to the open outer end of said chamber, means for driving said eccentric shaft for reciprocating said cleaning element in a manner whereby the cleaning element will beat against an eraser placed within said eraser receiving opening, a second transverse shaft journaled upon said supporting arm and interposed between said cleaning element and said eccentric shaft, said shafts extending in substantially parallel alignment, parallel bracing links journaled at their inner ends to said second transverse shaft and extending laterally of said supporting arm, and means for journalling the opposite ends of said links to the casing near one side of said chamber for holding said supporting arm against undue swaying movement and holding said cleaning element at all times out of contact with the side walls of said open outer end to facilitate free movement of the cleaning element during the operation of said cleaning element.

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