

Aug. 6, 1968

G. J. DALTON
ERASER CLEANER

3,395,413

Filed May 17, 1967

3. Sheets--Sheet 1

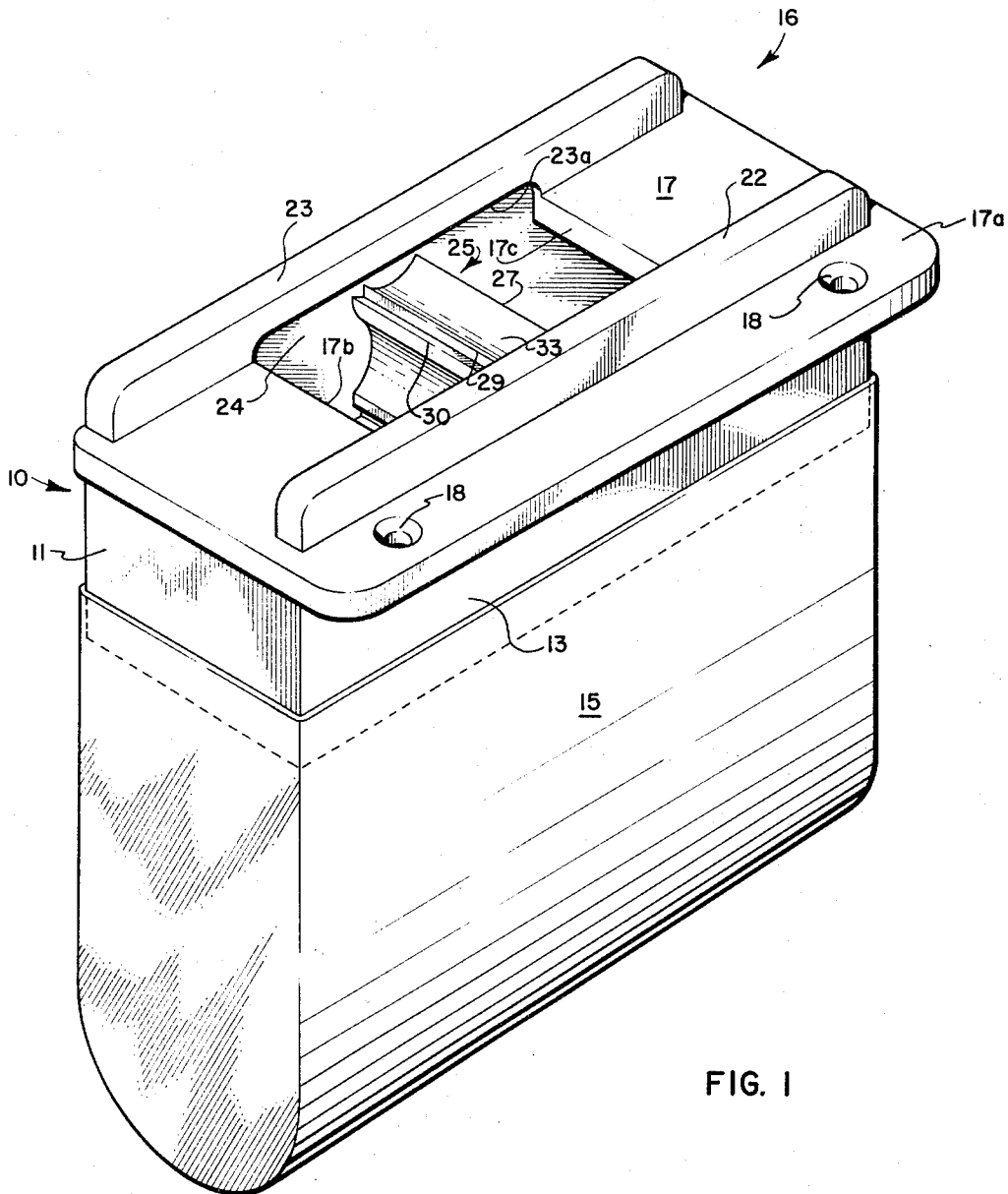


FIG. 1

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3 Sheets-Sheet 2

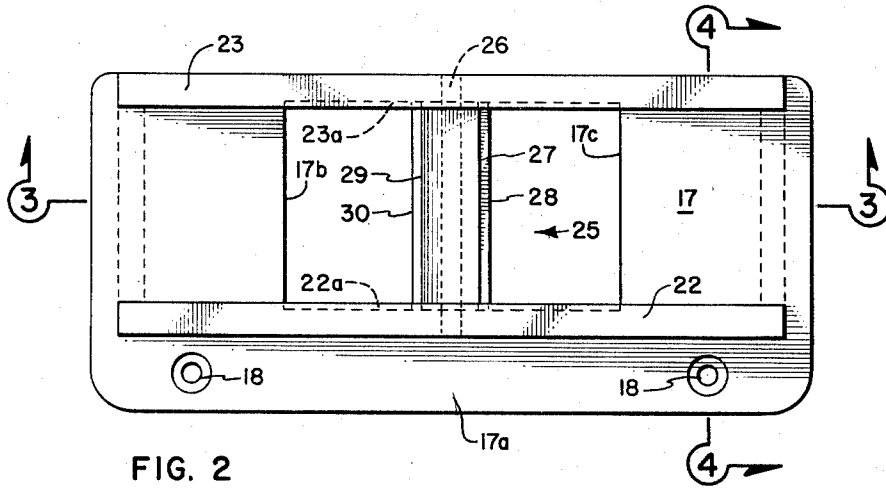


FIG. 2

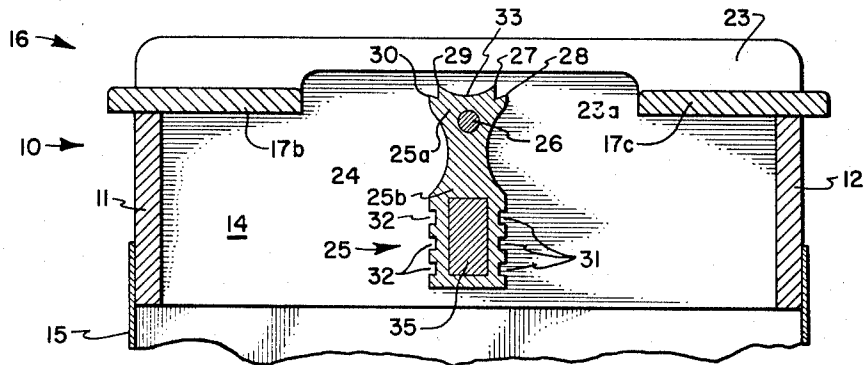


FIG. 3

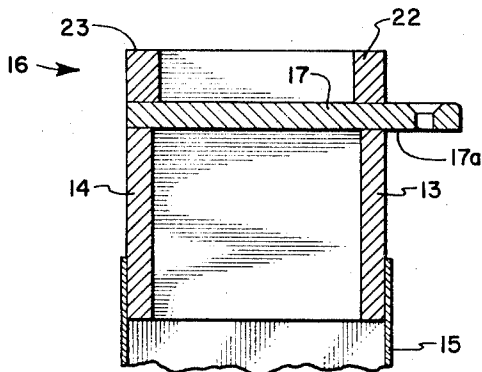


FIG. 4

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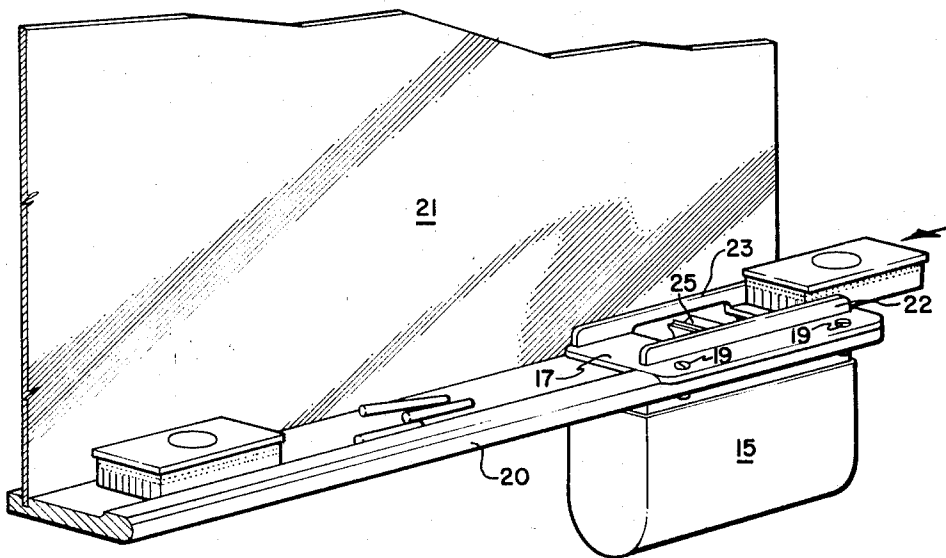
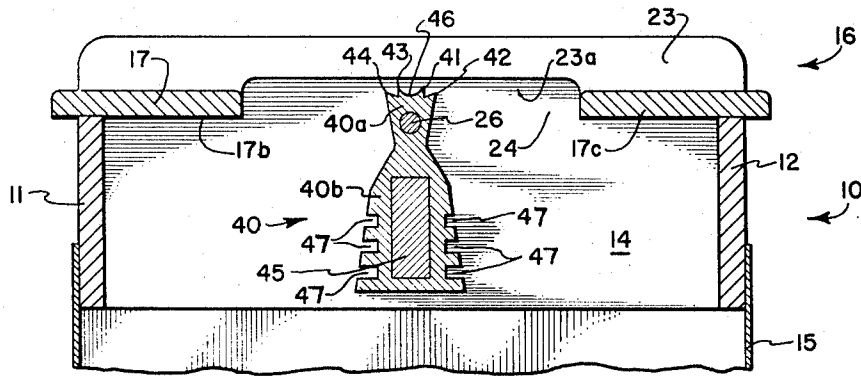
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3 Sheets-Sheet 3



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ERASER CLEANER

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ABSTRACT OF THE DISCLOSURE

A cleaner for chalkboard erasers, including a housing having an open bottom, a slideway for chalkboard erasers on the top of the housing and a scrubber-beater suspended in the housing and adapted to swing against the bottom of the eraser as it is moved back and forth in the slideway.

Brief description

Chalkboard erasers, whether made of fabric or of rubber, collect a great deal of chalk dust and thereafter are no longer effective to erase chalk from a chalkboard. As a result, there has long existed a need for some means to effectively clean erasers so that they are again usable.

In the past, a number of eraser cleaning devices have been proposed wherein erasers are repeatedly pounded against a screen or other structure. However, in spite of the existence of these devices, and others, teachers, school custodians and other persons who use or are responsible for the cleaning of erasers, have not been able to satisfactorily clean them. Some cleaning devices currently in use employ a source of vacuum to remove the dust and are expensive, do not do a thorough job of cleaning, are frequently noisy in operation and often spread chalk dust over a large surrounding area.

It is, therefore, an object of the present invention to provide an inexpensive cleaner for chalkboard erasers that is simple to construct and to operate, that is quiet in its operation and that confines released chalk dust to keep it from spreading over a large area.

I have found that a combined scrubbing and beating action effectively cleans chalkboard erasers and that the dust released can be effectively confined.

Principal features of my invention are a housing that has an open bottom through which chalk dust is discharged, and a slideway at the top, with an opening into which a scrubber-beater swings as an eraser is moved back and forth above it in the slideway.

Additional objects and features of the invention will become apparent from the following detailed specification and drawings, disclosing what are presently contemplated as being the best modes of the invention.

The drawings

- FIG. 1 is a pictorial view of the invention;
- FIG. 2, a top plan view;
- FIG. 3, a longitudinal, vertical section, taken on the line 3—3 of FIG. 2.
- FIG. 4, a transverse sectional view, taken on the line 4—4 of FIG. 2;
- FIG. 5, a view like FIG. 3, but showing another embodiment of the invention; and
- FIG. 6, a pictorial view showing the invention mounted for use in a chalkboard tray.

Detailed description

Referring now to the drawings:

The invention comprises a housing, shown generally at 10, made up of end walls 11 and 12 that are interconnected by side walls 13 and 14.

The bottom of the housing is left open or, if desired, the walls may have the mouth of a bag 15 fitted tightly therearound. The bag is preferably made of inexpensive mate-

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rial such as paper or polyethylene so that it can be disposed of after chalk dust has accumulated therein.

A slideway, shown generally at 16 is mounted on the top of the housing. The slideway includes a support surface 17 that rests on top of the side and end walls and that is extended outwardly from one of the side walls, as at 17a to provide a handle and to provide a surface for anchor holes 18, through which screws 19, FIG. 6, are inserted to secure the cleaner in an opening provided therefor through the tray 20 of a chalkboard 21.

Parallel guides 22 and 23, extend upwardly from support surface 17 and side walls 13 and 14, respectively, and are spaced apart the width of an eraser.

The support surface projects inwardly at 17b and 17c from the end walls 11 and 12, respectively, to define an opening 24 with the side walls 13 and 14, and are cut-out at 22a and 23a, respectively, to allow free swinging of a scrubber-beater member 25.

The scrubber-beater member 25 is eccentrically mounted with a small portion 25a normally extending above a pivot shaft 26 and an enlarged portion 25b suspended therebeneath. Shaft 26 extends between the walls 13 and 14, centrally of opening 24 and near the top of housing 10. A pair of cam edges 27 and 28 are provided at the top of one side of the scrubber-beater and similar cam edges 29 and 30 are provided at the top of the other side with the cam edges being equi-distant from the center of shaft 26. Grooves 31 are cut into one side face and grooves 32 are cut into the other side face of the scrubber-beater. The cam edges 27 and 29 are connected by a concave end 33.

The upper cam edges 27 and 29 protrude to a point just above the top of support surface 17 so that an eraser slid from right to left, as viewed in the drawings, will first catch cam edge 27 and will start the enlarged portion 25b of the scrubber-beater rotating upwardly in a counterclockwise direction about the shaft 26. Continued travel of the eraser over the support surface will move the adjacent cam edge 28 into engagement with the eraser so that further eraser travel in the same direction will swing the scrubber-beater until its side face on the side of cam edges 27 and 28 beats against the eraser and the eraser moves across the grooves 31, with a scrubbing action.

As the eraser is moved on the support surface 17, back to its starting position, the enlarged portion 25b of the scrubber-beater swings down and as the cam edges 29 and 30 of the other side are engaged by the traveling eraser the scrubber-beater is pivoted to beat the opposite side face against the eraser, with the eraser then moving across the grooves 32 with a scrubbing action.

Repeated back and forth travel of the eraser, between guides 22 and 23, and with the cleaning face of the eraser sliding on the support surface 17, will repeatedly swing the beater-scrubber to beat against the eraser to loosen chalk dust therein and to then provide a scrubbing or scraping surface to remove the dust.

Since the eraser fits closely between the guides, which extend over the ends of the scrubber-beater and since the scrubber-beater is constructed long enough to swing very close to the inwardly projecting portions 16b and 16c of the support surface, very little of the dust released from the cleaning face of the eraser can escape upwardly through opening 24. As a result, it must settle downwardly through the bottom of housing 10, and preferably into the bag 15.

In order to make the scrubber-beater even more effective, a weight 35 is preferably inserted in the enlarged portion 25b thereof. The weight increases the pendulum action of the scrubber-beater, thus making it easier to swing by moving the eraser thereover, after the enlarged portion has been initially raised, and also increases the

force with which the scrubber-beater pounds against the eraser to loosen chalk dust.

In FIG. 5, there is shown another embodiment of the invention, wherein another form of scrubber-beater is utilized. In this embodiment, the housing, bag (shown fragmentarily), support plate, guides, and all other components except the scrubber-beater 40 are identical with those previously described and are given the same numbers.

Scrubber-beater 40, like the scrubber-beater 25 previously described is eccentrically pivoted from shaft 26. A small portion 40a of the scrubber-beater, having cam edges 41 and 42 on one side and 43 and 44 on the other side thereof, extends above the shaft while an enlarged portion 40b, including a weight 45 hangs therebeneath.

Cam edges 41 and 43 are interconnected by a concave end surface 46 of the scrubber-beater and the cam edges are all equidistant from the center of shaft 26. In this instance, however, the cam edges are closer together and closer to the center of shaft 26 than are the cam edges of the scrubber-beater 25, and the side faces of the scrubber-beater are respectively flared outwardly to form a straight line with the edges 42 and 44. As in the previous embodiment grooves 47 are formed in the side faces. With this arrangement the eraser does not have a rise or bounce as it moves across the cam edges since they extend only very slightly above the support surface as the scrubber-beater is rotated. Thus, possibility of chalk dust escaping upwardly through opening 24 is even further reduced. With the side faces flared to form a line with the cam edges 42 and 44, they will be raised to contact the eraser by engagement of the eraser with these cam edges. Also, a shorter travel of the eraser, acting on the more closely spaced cam edges 41-44, will rotate the scrubber-beater faster, thus increasing cleaning effectiveness.

The eraser cleaner of the invention can be held in one hand, by grasping extension 17a of support surface 17 as a handle, and be operated by using the other hand to move the eraser to be cleaned back and forth across opening 24, on support surface 17 and between guides 22 and 23. It can also be permanently mounted at a desired location, such as for example, in a chalkboard tray 20 of a chalkboard 21. In this arrangement, an opening is formed in the tray, the eraser cleaner is set in place and screws 19 are inserted through holes 18, into the tray. Obviously, many other anchoring devices could as well be used.

No matter how the cleaner is used, either hand-held or permanently mounted, it does an effective cleaning job, is quiet in operation, is inexpensive, and effectively contains chalk dust.

While the invention is here shown with a single scrubber-beater arranged to swing into contact with an eraser, more than one such scrubber-beater can be used. In this case, they must be separated sufficiently to allow for free swinging movement.

Although certain preferred forms of my invention have been herein disclosed, it is understood that the present disclosure is made by way of example and that variations are possible without departing from the subject matter of the following claims, which subject matter I regard as my invention.

I claim:

1. An eraser cleaner comprising:

- a housing;
- a slideway on top of the housing, having an opening therethrough;
- a scrubber-beater member having at least one face adapted to swing up into the opening through the slideway;
- pivot means for eccentrically suspending said scrubber-beater member in the housing; and
- means on the scrubber-beater member adapted to be engaged by an eraser passed thereover on the slide-

way to swing the face into engagement with the eraser.

- 2. An eraser cleaner, according to claim 1, wherein the slideway includes a flat surface on top of the housing and upstanding, parallel side members spaced apart the width of an eraser; and the scrubber-beater member extends beneath each of the side members.
- 3. An eraser cleaner, according to claim 1, wherein the scrubber-beater member has an enlarged portion including the face adapted to swing up into the opening, said enlarged portion being normally suspended beneath the pivot means and a small portion normally extending above the pivot means; and cam edges on the small portion of the scrubber, extending upwardly through the opening to be engaged by an eraser travelled over the housing on the slideway.
- 4. An eraser cleaner, according to claim 3, wherein the housing has an open bottom.
- 5. An eraser cleaner, according to claim 4, further including a removable receptacle fitting onto the open bottom of the housing to catch dust therein.
- 6. An eraser cleaner, according to claim 3, wherein the slideway includes a flat surface on top of the housing and upstanding parallel side members spaced apart the width of an eraser; and the scrubber beater member extends beneath each of the side members.
- 7. An eraser cleaner, according to claim 6, wherein the scrubber-beater has grooves formed in opposite sides thereof to form scrubbing faces, each of said faces comprising a face swingable into the opening through the slideway to be contacted by an eraser passed thereover.
- 8. An eraser cleaner, according to claim 7, wherein a weight is provided in the enlarged portion of the scrubber-beater to increase the pendulum action thereof.
- 9. An eraser cleaner, according to claim 6, wherein the cam edges are each spaced equidistant from the center of the pivot means about which the scrubber-beater rotates; and the scrubbing faces each form a straight line with the lowermost cam edge on its respective side of the scrubber-beater.
- 10. An eraser cleaner, according to claim 9, wherein a weight is provided in the enlarged portion of the scrubber-beater to increase the pendulum action thereof.
- 11. An eraser cleaner, according to claim 10, wherein the scrubbing faces are flared outwardly to form planes projected from the lowermost cam edges.
- 12. An eraser cleaner, according to claim 11, wherein the flat surface on top of the housing projects outwardly therefrom to form a handle.
- 13. An eraser cleaner, according to claim 12, further including means carried by the handle for fixing the cleaner to a chalkboard tray.

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