Jan. 5, 1960 T. D. COLE 2,919,457

DUST MOP WITH REPLACEABLE DUSTING MATERIAL

Filed May 10, 1956

Fig. 1.

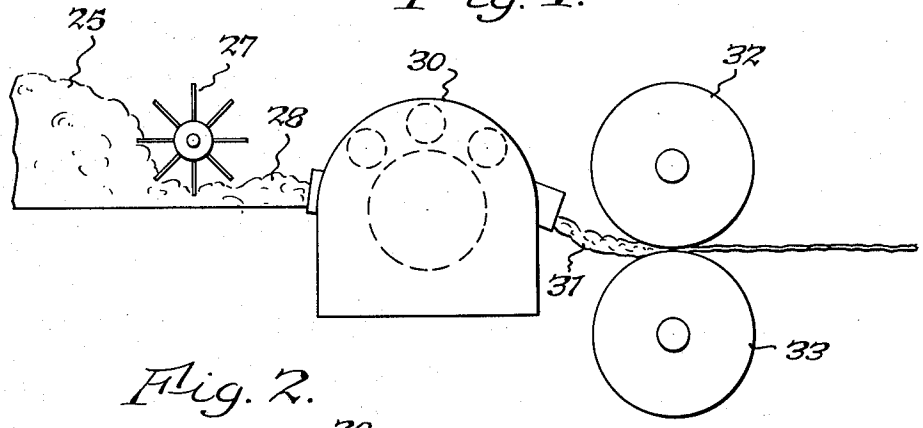


Fig. 2.

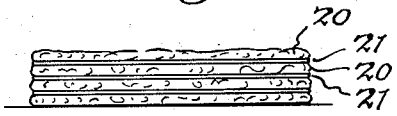


Fig. 3.

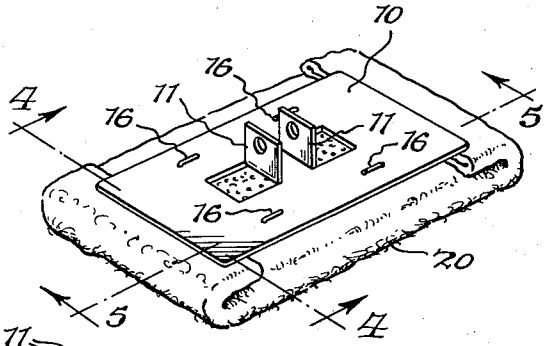


Fig. 4.

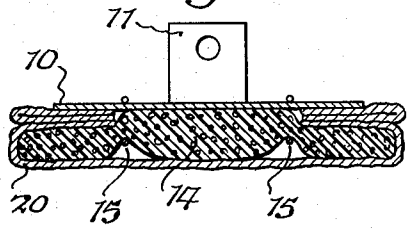


Fig. 5.

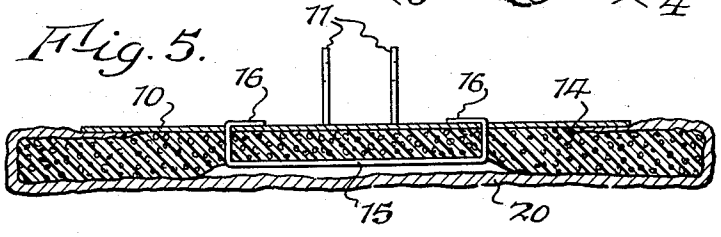
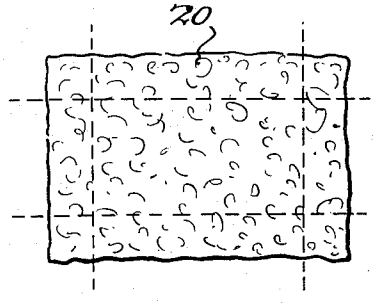


Fig. 6.



INVENTOR.
Thomas D. Cole
BY
Parker, Prochnow & Farmer,
Attorneys.

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DUST MOP WITH REPLACEABLE DUSTING MATERIAL

Thomas D. Cole, Lockport, N.Y., assignor to Lockport Mills, Inc., Lockport, N.Y.

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2 Claims. (Cl. 15—231)

This invention relates to improvements in dust mops and particularly to dust mops having a readily replaceable sheet of dusting material applied thereto.

A number of different materials have been used for removing dust from furniture, walls and floors, many of which however, have not been particularly satisfactory because of the fact that the material used does not have sufficient adhesion to the dust and dirt particles, so that only a part of the dust is removed from the surface being dusted. For example, paper has been used for removing dust, but has not been found to be sufficiently retentive of dust and granular dirt particles to be satisfactory.

One of the objects of this invention consequently is to provide a dust mop with a material which has a high degree of retention of dust, sand and similar small particles or granules.

It is a further object of this invention to provide a material of this kind which is inexpensive and which, after use, can be discarded and quickly replaced.

A further object is to provide a mop which is constructed to facilitate the removal and replacing of the dusting material therefrom.

Another object is to provide a mop having a pad of absorptive material which may be used with water for mopping the floor and which also serves when dry as a support for the dust-removing material.

I have found that fibrous batting is a very desirable material for use in connection with removing dust from surfaces, and it is also sufficiently inexpensive so that it can be discarded after one use, thus eliminating the step of washing the dust cloth or other materials heretofore used for this purpose.

I have also found that by providing the mop with a spongy, resilient pad, fibrous batting will adhere to the porous, spongy pad and will not tend to slide relatively to the same, which may possibly be due to some interlocking action between the fibers and the pores of the pad. Consequently, by using a porous, resilient pad with fibrous batting, the pad will reinforce the fibrous batting so that the tendency of the batting to tear or pull apart is greatly reduced, thus making it possible to use relatively thin sheets of fibrous batting.

In the accompanying drawings:

Fig. 1 is a diagrammatic side elevation of apparatus which may be used in connection with the manufacture of sheets of dusting material embodying this invention;

Fig. 2 is an elevation showing a series of replaceable dusting sheets or layers separated from each other by paper or similar material;

Fig. 3 is a perspective view of a dust mop embodying this invention;

Fig. 4 is a transverse, sectional view thereof on an enlarged scale taken approximately on the line 4—4, Fig. 3;

Fig. 5 is a longitudinal, sectional elevation thereof approximately on the line 5—5, Fig. 3.

Fig. 6 is a top plan view of a removable dusting sheet

or layer for use in connection with my improved mop.

The mop shown in Figs. 3–5 is of rectangular shape but the shape of the mop may be varied as desired. The mop includes a base **10** which may be made of metal or other relatively rigid material and is mainly flat, but the shape of the base may be varied to correspond to the surface to be dusted. The base may be provided with upwardly extending lugs or ears **11** which may be apertured for securing to a mop handle (not shown) in any usual or suitable manner.

My improved mop also includes a pad **14** of flexible, resilient material which is secured to the face of the base **10** opposite to the lugs **11**. This pad is preferably considerably longer and wider than the base **10** and is secured to the base only at parts thereof spaced from the edges of the base. Any suitable means for securing the pad to the base may be employed and in the construction illustrated I have shown a pair of staples or wire members **15** which have straight portions which are embedded or recessed in the outer face of the pad **10**. These staples terminate in end portions **16** which extend through the pad and through suitable holes in the base **10**. The ends **16** of these staples, after having been passed through the holes in the base, are bent over to secure the pad to the base. Preferably the pad is made of a resilient material so that parts of the staples may be recessed within the pad to a sufficient extent so that when the mop is used the staples will not touch the surface which is being cleaned and thus will not mar or scratch the same. If desired, the pad may be secured to the face of the base **10** by a suitable adhesive or cement with or without the use of staples as shown.

The pad may be made of any suitable elastic material. Preferably, this material is also of a porous nature and has sufficient resilience so that the surface of the pad adjacent to the base will tend to lie in a position in close proximity to or in contact with the base **10**.

By making this pad of a porous, spongy material, the mop may be used with water in the usual manner for wet mopping and by securing only the middle portion of the pad to the base, the side and end portions of the pad can be readily flexed away from the base and toward each other, whereupon the pad can be squeezed by hand to remove excess water therefrom. By having the pad extend beyond the edge portions of the base, the pad will prevent the edges of the base from coming in contact with and scratching or marring parts of walls or furniture which extend outwardly from the surface which is being cleaned.

When the pad is dry and the mop is to be used for dusting, a layer or sheet **20** of fibrous batting made of natural or synthetic fibers, is applied to that face of the pad which is remote from the base and to the edges thereof. These dusting sheets **20**, when made for example, of cotton batting, have large numbers of fibers extending outwardly, to which dust particles adhere and also larger particles or granules which will ordinarily not be retained by the usual dust cloths will become lodged between the fibers so as to be held by the same. While cotton batting is very satisfactory for use in connection with my improved mop, partly because of its relatively low cost and partly because of the excellent adhesion of dust and other dirt to its fibers, yet it will be understood that batting made of any other natural fibers or synthetic fibers may be employed.

The dusting layers or sheets **20** can be readily applied to the pad by folding the ends and edges thereof over the corresponding ends and edges of the pad and inserting these edge portions into the space between the pad and the base. Since the pad is resilient and is urged by its resilience toward the base **10**, this pad will consequently pinch the edges of the layer or sheet of fibrous batting

into the space between the pad and the base so that the fibrous batting layer will be held in its operative position on the pad. When the pad is made of a porous or spongy material, I have found that the fibers of the layer or sheet apparently attach themselves to a limited extent to the surfaces of the pad, which further helps to hold the fibrous batting layer on the mop. Fig. 6 shows the layer or sheet **20** before it is applied to a pad, and the broken lines in Fig. 6 indicate where this layer is folded so that the edges of the same extend into the space between the pad and the base. Not only are the edges of the fibrous batting held in place by the resilience of the pad pressing the same against the base, but when the mop is in use the base will be pressed against the pad, thus further pinching the edges of the batting between the base and the pad.

Sheets of various types of fibrous batting are inexpensive to produce and consequently, after the layer of batting has become soiled by use, it can be very easily removed from the mop by merely pulling out the edges which were pinched between the pad and the base and discarding the batting layer. If desired, the layer of fibrous batting may be reversed by turning the soiled face against the pad. Any dirt or dust deposited on the pad can be easily removed therefrom by washing. After a soiled layer is removed from the mop, a new layer can be very easily applied thereto.

In supplying sheets or layers of batting to consumers, I preferably provide between the layers **20**, thin sheets **21** of tissue or other paper, as shown in Fig. 2, which facilitate the removal of each layer of batting from the other, since the fibers of different layers of batting have a tendency to interlock or intermesh so that it is somewhat difficult to separate these layers unless they are separated from each other by the sheets **21**.

In Fig. 1, I have illustrated diagrammatically the manner in which the fibrous batting may be prepared for use on my improved dust mop. In this figure, **25** represents a mass of tightly compacted or compressed cotton or other fibers as they come from a bale. These fibers are subjected to the action of an opening or picking machine having one or more rotary pickers **27**. This material, when discharged from the picking or opening machine in a layer **28** is somewhat fluffier than when in a bale, but not open or fluffy enough for use on my dust mop. It is then fed to a garnetting or carding machine **30** in which it is combed to produce a layer **31** of batting, in which the fibers are more separated from each other, thus increasing their ability to pick up and retain dust. The combed material, while in this condiiton, has very little resistance to tearing or pulling apart, since most of the fibers have been arranged by the combing to lie substantially parallel to each other, and while useable in this condition on my mop, I prefer to subject this material to another treatment to increase its strength. Consequently, the fibrous web or layer **31** as it leaves the combing machine is passed between two or more calender rolls **32** and **33**. These rolls have smooth surfaces and preferably do not rotate on exactly parallel axes, so that they not only compact the batting to some extent, but also subject the sheet of batting to an action which results in the kneading or pressing of the fibers together, or in pulling or working the same so that they curl around each other or become interlocked. This materially increases the strength of the batting layer so that it is easier to handle and less apt to tear while in use. These layers are then cut to the desired size for use in connection with my improved mop. The fact that the fibers tend to adhere to some extent to the porous or spongy pad also greatly reduces the tendency of the batting layer to tear when applied to the mop, as shown in Figs. 3–5.

It is also possible of course to strengthen the layer of fibrous batting by applying a thin coating of a suitable adhesive in liquid, to one face thereof. Layers of cotton batting with adhesive applied to one or both faces thereof have heretofore been commonly used for different purposes, and for use in connection with my dust mop adhesive is applied to only one face of the cotton batting and that face is then placed adjacent to the pad **14** so that the fibers on the opposite face will more readily pick up dust and loose dirt. However, I prefer to use fibrous batting without having any adhesive applied thereto, but which has been passed between calender rolls, since this type of dusting material has the necessary strength and can also be reversed when one face is soiled, since both faces pick up dust and dirt equally well, whereas a face of a batting coated with an adhesive does not pick up dust as well as the other face.

Fibrous batting has been used in connection with dust mops in which it was necessary to attach the batting to a reinforcing sheet of paper, crinoline or the like, but with my improved dust mop, this is not necessary since by using a porous or spongy pad **14**, the batting becomes attached to the mop without necessitating the use of any reinforcing sheets. I have found that while the pad may be of any suitable spongy material such as sponge rubber or any of the spongy, plastic and resilient materials, excellent results have been obtained by using porous elastic polyurethane. This material has sufficient resilience so that it does not readily become set in a position in which it is spaced away from the base, and thus continues to hold the batting after long use of the pad. The use of a rigid base in combination with a pad as described has the advantages that the fibrous batting layer is firmly held in place during the use of the mop and can be very easily removed and replaced; the yielding pad enables the face of the mop to adapt itself to irregularities of the surface to be dusted, and the pad may be used without the batting for wet mopping. The replaceable dusting batting is merely cut from large pieces as they leave the calender rolls and are then ready for packaging, and since they require no further operation or treatment, they are relatively inexpensive to produce.

It will be understood that various changes in the details, materials and arrangements of parts which have been herein described and illustrated in order to explain the nature of the invention, may be made by those skilled in the art within the principle and scope of the invention as expressed in the appended claims.

I claim:

1. A dust mop comprising a base in the form of a relatively rigid plate, a pad of resilient material attached to said base at portions thereof spaced inwardly from the edges of said base, and unattached to said base adjacent to the edge portions thereof, said resilient pad extending beyond the edges of said base and having the edge portions thereof urged due to the resilience of the pad to extend into contact with said edge portions of said base and being movable manually against said resilience away from said base, and a sheet of fibrous dusting material larger in area than said resilient pad and having all of the edge portions thereof folded over the edges of said resilient pad and into a part of the space formed between said edge portions of said resilient pad and said base when said edges are flexed away from said base, said pad because of its resilience constituting the sole means for holding the edges of said dusting material pinched between said pad and said edge portions of said base.

2. A dust mop according to claim 1 in which said dusting material is of cotton batting.

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