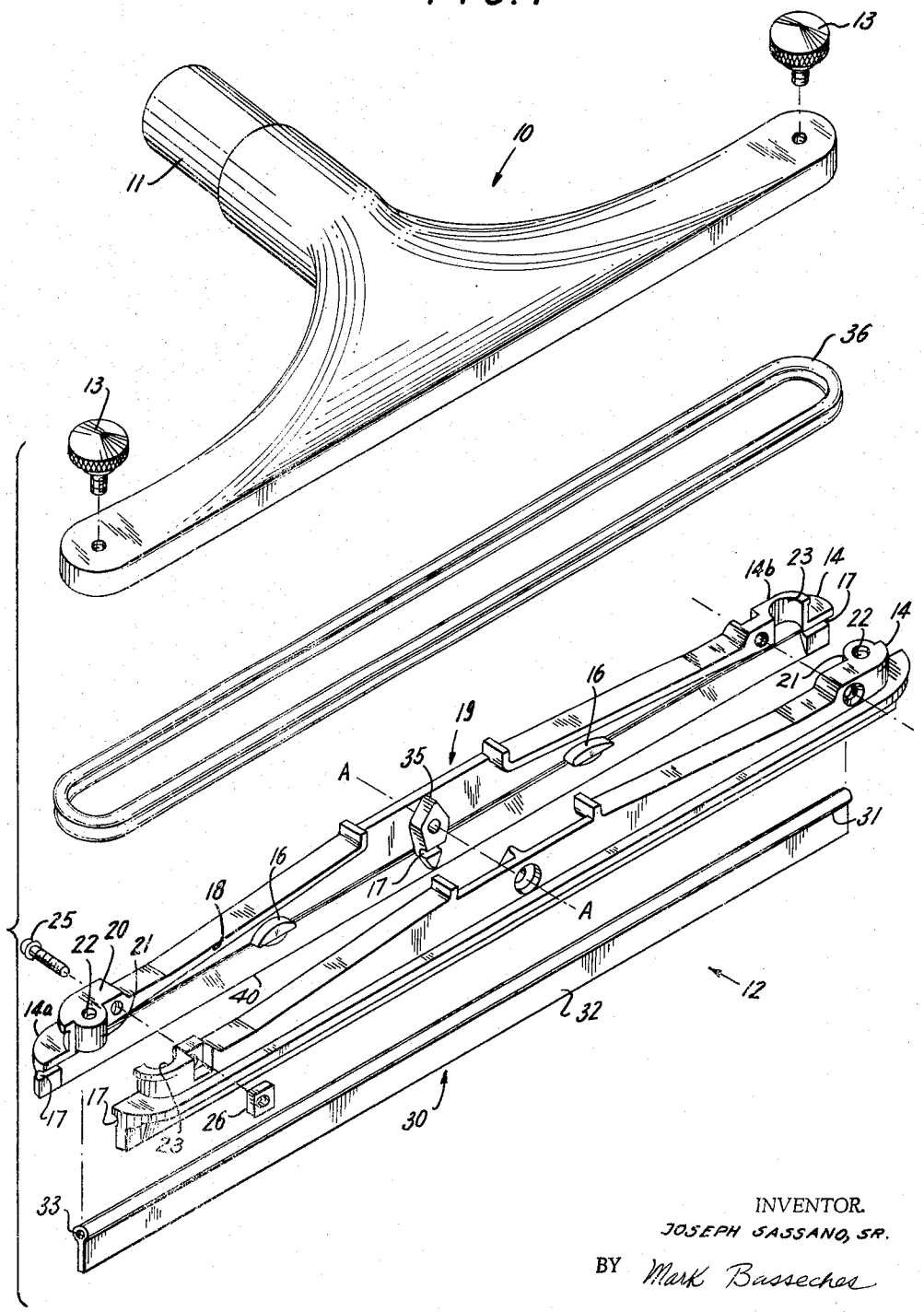
Oct. 12, 1965 J. SASSANO, SR 3,210,792

VACUUM MOPPING DEVICE

Filed Jan. 17, 1964 2 Sheets-Sheet 1

FIG. 1




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VACUUM MOPPING DEVICE

Filed Jan. 17, 1964 2 Sheets-Sheet 2

FIG. 2

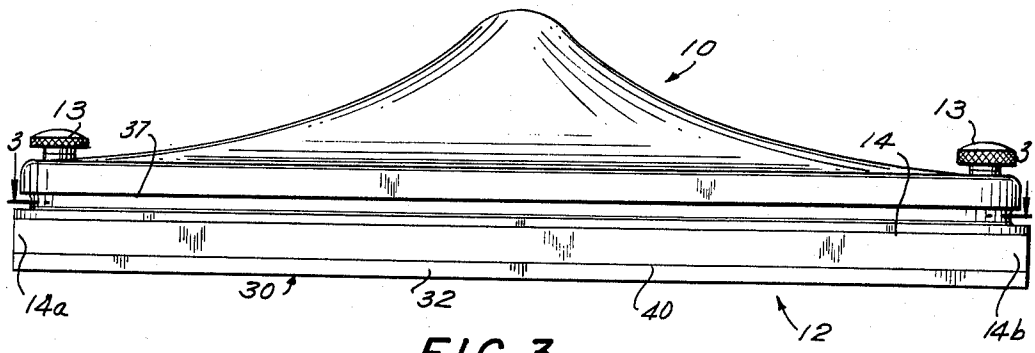



FIG. 3

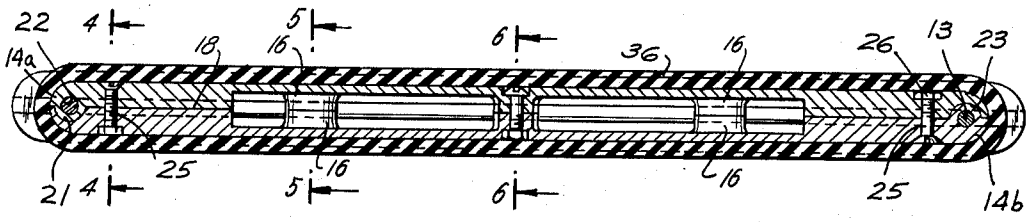



FIG. 4

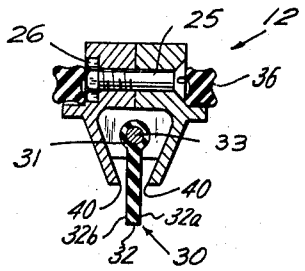



FIG. 5

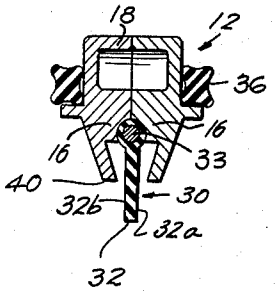



FIG. 6

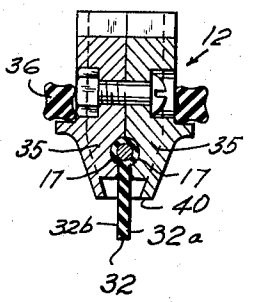
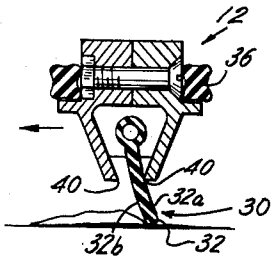



FIG. 7




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United States Patent Office 3,210,792 Patented Oct. 12, 1965



3,210,792

# VACUUM MOPPING DEVICE

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Filed Jan. 17, 1964, Ser. No. 338,426
1 Claim. (Cl. 15—401)

This invention relates to a mopping device, and more particularly to a water pick up attachment for a vacuum cleaner device.

Still more particularly, this invention relates to a water pick-up head for a vacuum cleaner device of the type provided with a water reservoir for the receipt of water which is lifted by the vacuum device.

It is known to employ a vacuum cleaner having a reservoir attachment interposed between the pick up head and the vacuum forming apparatus as the means for lifting dirty water, for instance, from a freshly washed floor. The present invention relates to an improved pack up head for a vacuum cleaner of the type described, featuring improved mopping action.

Further, the invention relates to and it is an object of the invention to provide a mopping head of the type described wherein the main housing is comprised of a pair of identical castings, which castings, when secured in mating position, support therebetween a wiper blade.

It is a further object of the invention to provide a vacuum mopping head wherein the removal and replacement of the squeegee or wiper blade, when the latter becomes worn, is an easily effected operation.

Still a further object of this invention is to provide a vacuuming attachment wherein the prime water lifting force is applied in a highly effective manner and is automatically centered at the area where there is likely to be the greatest collection of water to be picked up.

To attain these objects and such further objects as may appear herein or be hereinafter pointed out, I make reference to the accompanying drawing, forming a part hereof, in which:

FIGURE 1 is an exploded perspective view of a vacuum pick up head in accordance with the invention, showing the position of the parts prior to assembly;

FIGURE 2 is a front elevation of the assembled pick up head;

FIGURE 3 is a section taken on the line 3—3 of FIGURE 2;

FIGURE 4 is a section taken on the line 4—4 of FIGURE 3;

FIGURE 5 is a section taken on the line 5—5 of FIGURE 3;

FIGURE 6 is a section taken on the line 6—6 of FIGURE 3;

FIGURE 7 is a diagrammatic cross-sectional view showing a typical positioning of the parts during a mopping operation.

In accordance with the invention, **10** represents an attachment holder forming the lower terminal portion of the usual wand **11**, which wand, in turn, leads to a standard vacuum forming apparatus. As will be readily understood, a plurality of attachments may be selectively secured within the holder **10**, i.e. brushes, rug cleaners, etc.

In accordance with the present invention there is provided a vacuum mopping attachment **12** adapted to be secured by knurled bolts **13, 13** within the holder **10**. The main body or housing of the mopping attachment **12** is comprised of a pair of identical shell elements **14**, which preferably comprise die cast metal but which may, if desired, be made of tough plastic or the like. It is an important feature of the invention that the portions **14**



be identical, whereby only a single casting need be provided, thereby effecting considerable economies.

The shell elements **14** are provided with a plurality of internal blade support projections **16, 16**, said support projections being preferably equally spaced apart from the longitudinal center line A—A of the castings or shells **14**. As best seen in FIGURE 5, the downwardly directed surfaces of projections **16, 16** form, in the mating position of the shells, a generally semi-circular configuration, the said configuration being open at its lower portion. Adjacent the ends of the shells **14** there are disposed arcuate recesses **17, 17**, which recesses, in the mating position of the shells, provide a parti-circular conformation.

The inner upper edges **18** of the shells **14** are, except for the central recessed air flow through portions **19**, planar, i.e. disposed in a common single plane. The shells **14**, adjacent one end **14***a*, are provided with a boss **20**, said boss including a portion **21** which projects outwardly beyond the vertical plane defined by the edge **18**. The boss **20** is internally threaded, as at **22**, said internal thread providing the means for anchoring the head **12** to the holder **10**. Adjacent the opposite end **14***b* of the shells **14** there is provided a recess **23** of an internal outline which mates with the external outline of the projecting portion **21** of the boss **20**.

As will be best appreciated from FIGURES 1 and 3, the projecting portion **21** and the recess **23** are equally spaced from the longitudinal center line A—A in such manner that when one shell **14** is rotated 180° with respect to the second shell and the edges **18, 18** of the two shells are brought into alignment, the outer surface of the boss will nest intimately within the recess **23** of the opposite shell.

It will be readily recognized from the foregoing that in the mating position aforesaid, the projecting portion **21** of one shell will lie within the recess of the other shell at one end, whereas the projecting boss of the last mentioned shell will lie within the recess of the first mentioned shell. In such mating position, the edges **18, 18** will be mutually engaged and will present a substantially air-tight upper surface, it being understood that the flow of air from a point beneath the mopping attachment to a point in the holder **10** will occur substantially entirely through the area **19**.

The shells **14** are held together by a series of fasteners, such as bolts **25** and mating nuts **26**, there being provided transversely extending and registering apertures in both shells. Before the shells **14** are bolted together, there is disposed therebetween a flexible wiper blade or squeegee **30**, preferably fabricated of an elastomeric material having a high coefficient of friction, rubber being a preferred example.

The wiper blade includes an upper, generally cylindrical rib **31** and a depending flexible wiper element **32**. Optionally but preferably, the rib **31** is provided with a longitudinally extending cylindrical bore, within which is disposed a reinforcing rod **33** of metal or a like stiffening material.

As previously noted, the unit is assembled by passing fastener bolts **25** through the spaced transverse apertures provided in the shells **14**. In advance of final tightening of the bolts **25** and the nuts **26**, the wiper blade **30** is affixed within the attachment **12** by disposing the rib portion **31** within the opposed recesses **17, 17** adjacent the ends of the attachment and similar recesses **17** formed in central opposed projections **35** formed in the shells—see FIGURES 1 and 6.

It will be observed that when the shells are clamped together, the rib **31** of the wiper blade, in addition to being supported in the recesses **17**, will have its upper edge bearing against the under surface of the reinforcing

projections **16**—see FIGURES 1 and 5. It will be observed that by thus supporting the wiper blade at a plurality of spaced points, minimum resistance to air flow in an upward direction is provided, while at the same time undesirable bowing of the blade under floor engaging pressures is prevented. After assembly of the attachment **12**, a surrounding gasket **36** is disposed about the upper periphery of the attachment to provide a tight air seal with the lower edge **37** of the holder **10**.

It will be noted that the threaded apertures **22** which form the anchoring point for knurled bolts **13** have their axes disposed on the transverse center line of the attachment **12**. This factor is of importance since by thus locating the apertures it will be apparent that the orientation of the attachment will not be critical. Either end of the attachment may be mated within either end of the head or holder **10**.

The lowermost surfaces of the shells **14** are defined by converging lip portions **40**, the lowermost edges of which are coplanar substantially throughout their entire length. It will be seen that the wiper element **32**, when properly positioned, extends between the lips **40**, the opposed side edges **32***a*, **32***b* of the blade being spaced apart from the inner surface of the lips **40** a small distance, thereby to define a slot to each side of the wiper element **32**.

In use, as best seen in FIGURE 7, the wiper blade **32** will tend to flex as the latter is drawn across a floor so that either side **32***a* or **32***b* will engage against one of the adjacent lips **40**, depending upon the direction of movement. Thus it will be evident that the entire downwardly directed opening of the attachment will be defined between the side of the wiper blade out of engagement with a lip portion and the opposite lip portion. In use, the attachment is drawn forwardly and rearwardly across a floor and it will be evident, in view of the high coefficient of friction of the material of which the wiper blade is made, that one edge and then the other edge of the wiper blade will be pressed into engagement alternately with one and then the other lip of the attachment **12**. This effect is best shown in FIGURE 7 wherein the side edge **32***a* is pressed into engagement with lip **40**, the attachment being moved from right to left in the direction of the arrow, as shown in said figure. The trailing edge **32***a* of the wiper portion, as it is being moved across the floor, acts as a valve to assure that substantially the entire downward opening is defined between the leading edge **32***b* of the wiper blade and the leading lip. This arrangement is highly desirable since it will be evident that movement of the wiper blade across a wet floor will cause the liquid to be pushed ahead of the wiper blade, i.e. will cause the liquid to be retained beneath the opening formed in the lower edge of the attachment.

Replacement of a wiper blade may be easily effected by removing the attachment **12** from the head **10** and by loosening bolts **25**. The bolts may be loosened to a degree which will permit removal of the wiper blade without requiring entire disassembly of the shell halves.

The provision of a generally cylindrical top rib **31** and a central reinforcing rod greatly increases the water pick



up efficiency of the device by assuring a maximum amount of flexibility in the wiper portion of the blade while still permitting a wide range of transverse movement of the blade.

The mounting of the blade in the manner aforesaid and particularly the valving relationship of the blade to the planar lip portions forming the lowermost edges of the downwardly directed mouth of the attachment assures maximum water pick up by providing maximum air flow at the point or area where there is likely to be the greatest water concentration, i.e. at the leading edge of the wiper blade.

Having thus described the invention and illustrated its use, what is claimed as new and is desired to be secured by Letters Patent is:

A vacuum mopping attachment comprising a hollow suction head, first and second identical half shell elements, connector means for removably securing said shells to said head each said shell including inner and outer surfaces, the upper edges of said inner surfaces being disposed substantially in a single plane, fastener means for holding said shell members in mating position, with said inner edges in engagement, said shells, in said mated position, defining an upper edge sealed along a substantial portion of its length and a downwardly directed open mouth portion, said mouth portion including longitudinally extended, spaced apart lip members, said mated shells additionally defining an upwardly open suction passage extending through said upper edge to said mouth portion, longitudinally extending gripper portions defined on the inner surfaces of said half shell members, said gripper portions being aligned with respect to each other and with respect to the longitudinal axis of said shell members, and a wiper member supported in said gripper portions, said wiper including an enlarged rib portion clamped between said gripper portions of said opposed shell members and a depending blade portion extending outwardly through and beyond said mouth portion, said blade being shiftable transversely of said attachment into engagement with one or the other of said lips, said wiper member being supported between said shell members by the clamping action of said fastener means on said shell members.


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