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A. E. ROSS

2,278,382

SUCTION NOZZLE

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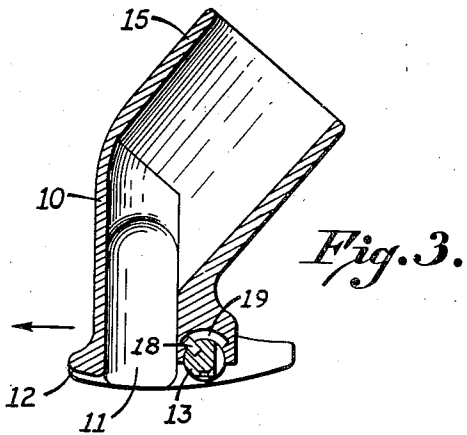
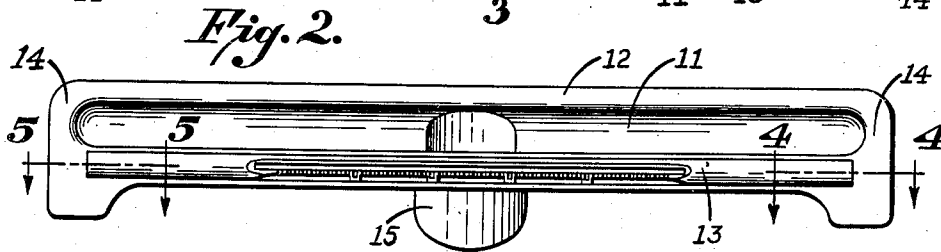
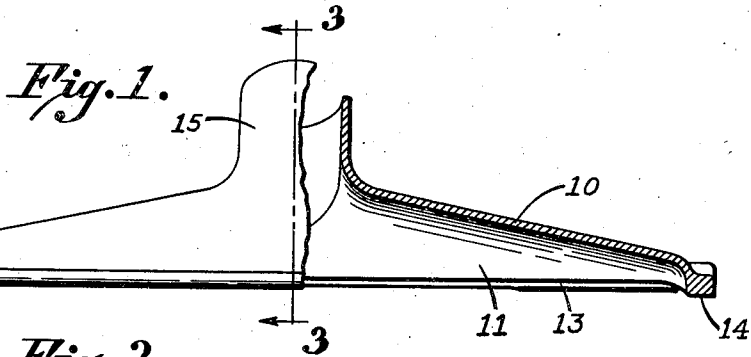


Fig. 4.

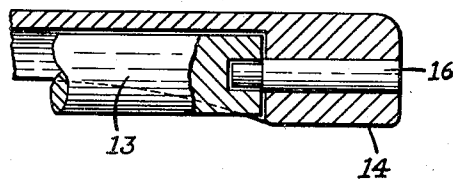


Fig. 5.

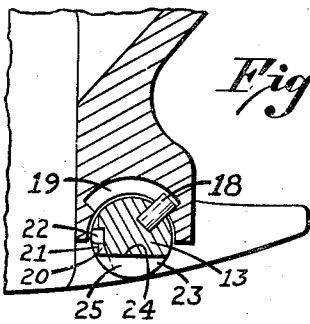
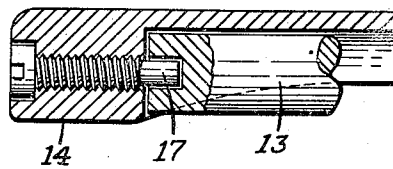
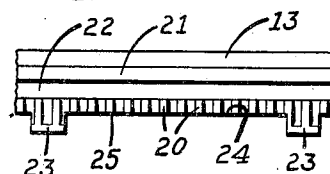


Fig. 7.



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SUCTION NOZZLE

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5 Claims. (Cl. 15-157)

My invention relates to suction nozzles and more particularly to a suction nozzle of the type having a lip agitator.

An object of the invention is to provide an improved nozzle of the above type which will more efficiently remove surface litter from a rug.

What I consider to be novel and my invention may be better understood by reference to the following specification and appended claims when considered in connection with the accompanying drawing, in which

Fig. 1 is a front view of the nozzle partly in section;

Fig. 2 is a bottom view of the nozzle;

Fig. 3 is a sectional view taken along the line 3-3 of Fig. 1;

Fig. 4 is an enlarged detail view of the securing means at one end of the agitator;

Fig. 5 is a similar view of the securing means at the other end of the agitator;

Fig. 6 is an enlarged detail view of the stop means for the agitator; and

Fig. 7 is an enlarged detail view of the agitator.

Referring to the drawing, 10 indicates the body of the suction nozzle. Body 10 has an elongated suction slot 11 with a smooth forward lip 12 and an agitator 13 in the rear lip. Two arched gliding surfaces 14 are provided at each end of suction slot 11. Body 10 is provided with a tubular extension 15 communicating with the interior and adapted to receive a hose connection, not shown, for communication with a source of suction such as a vacuum cleaner. Agitator 13 is rotatably secured to body 10 by a fixed pivot pin 16 at one end (Fig. 4) and a threaded pivot pin 17 at the other end (Fig. 5). Agitator 13 carries a stop pin 18 which extends into a recess 19 in body 10. Transversely extending teeth 20 depend from the central portion of a flat face 21 of agitator 13 adjacent a longitudinal slot 22. Arcuate projections 23 depend from another flat face 24 of agitator 13 spaced circumferentially 90° from face 21. Projections 23 are spaced apart longitudinally along agitator 13 a sufficient distance to provide relatively large grooves 25 communicating with suction slot 11.

In normal operation, the suction nozzle is reciprocated back and forth over a rug with lip 12 and agitator 13 in contact with the rug surface. As the nozzle moves forwardly in the direction indicated by the arrow in Fig. 3, the teeth 20 in face 21 comb the surface of the rug loosening and moving forward any surface litter on the rug. Upon forward movement of the nozzle, 55

stop pin 18 engages the left end of recess 19 as shown in Fig. 3. When the forward movement stops and the rearward movement begins, agitator 13 is rotated on pivot pins 16 and 17 by the friction between the rug surface and agitator 13 to the position indicated in Fig. 6 with stop pin 18 engaging the right end of recess 19. In this position, face 24 is presented to the rug surface with depending projections 23 holding the rug pile spaced from the major portion of agitator 13. As the agitator 13 rotates to this position, surface litter pinioned on teeth 20 is removed therefrom by the inrush of air in enlarged spaces provided by grooves 25. Also any surface litter remaining on the rug surface that has been pushed ahead of agitator 13 by teeth 20 is quickly carried into body 10 by this inrushing air. It has been found that this inrush of air at the commencement of rearward stroke will remove surface litter collected by the agitator teeth 20 which may remain on the rug surface for several strokes of the nozzle if the agitator is fixed in position. On a succeeding forward stroke the agitator 13 is again rotated to the position of Fig. 3 presenting teeth 20 to the rug surface.

It is to be understood that while a preferred form of the invention is illustrated, the invention is not limited to the details of construction as shown but the scope of invention as pointed out in the appended claims.

What I claim is:

1. A suction nozzle including a body member having an elongated suction slot, a tubular extension on said body member communicating with the interior of said body member and the suction slot, a smooth lip extending along one edge of the suction slot, an agitator rotatably mounted at the opposite edge of the suction slot in contact with a surface to be cleaned, whereby movement of the nozzle over said surface tends to cause rotation of the agitator, transversely disposed teeth depending from one face of the agitator, spaced arcuate projections depending from a second face of said agitator spaced circumferentially from said first-mentioned face, and stop means for limiting rotation of said agitator so as to present said teeth to said surface upon movement of the nozzle in one direction and to present said projections to said surface upon movement of the nozzle in the opposite direction.

2. A suction nozzle including a body member having an elongated slot, a tubular extension on said body member communicating with the interior of said body member and the suction slot,

a smooth lip extending along the forward edge of the suction slot, a rod rotatably mounted at the rear edge of the suction slot in contact with a surface to be cleaned, whereby movement of the nozzle over said surface tends to cause rotation of said rod, an agitator surface formed in one face of said rod, grooves formed in another face of said rod spaced circumferentially ninety degrees from said first-mentioned face, and stop means for limiting rotation of said rod to 90° so as to present said agitator to said surface upon movement of the nozzle in one direction and to present said second-mentioned face to said surface upon movement of the nozzle in the opposite direction.

3. A suction nozzle including a body member having an elongated suction slot, a smooth lip extending along one edge of the suction slot, a rod pivotally mounted at the opposite edge of the suction slot turnable from one position to another depending upon the direction of movement of the nozzle, a toothed agitator surface formed on one face of said rod presented to the surface being cleaned upon movement of the nozzle in one direction, and a second face having a grooved surface to permit relative free flow of air over the surface being cleaned and presented to the surface being cleaned upon movement of the nozzle in the opposite direction.

4. A suction nozzle including a body member

having an elongated suction slot, a smooth lip extending along the forward edge of the suction slot, a rod pivotally mounted in the rear edge of the suction slot reciprocable from a first position upon forward movement of the nozzle to a second position upon rearward movement of the nozzle, one face of said rod having depending teeth presented to the surface being cleaned upon forward movement of the nozzle, and a second face having spaced depending projections between elongated grooves presented to the surface being cleaned upon rearward movement of the nozzle.

5. A suction nozzle including a body member having an elongated suction slot, a smooth lip extending along the forward edge of the slot, a rod pivotally mounted at the rear edge of the slot reciprocable by frictional engagement with a surface being cleaned from one position upon movement of the nozzle in one direction to a second position upon movement of the nozzle in the reverse direction, one face of said rod being formed with depending teeth presented to the surface being cleaned upon movement of the nozzle in one direction, and a second face of said rod having depending projections between elongated grooves presented to the surface being cleaned by the movement of the nozzle in the reverse direction.

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