Feb. 3, 1931. G. E. GUDMUNDSON 1,791,202

COMBINED VACUUM CLEANER NOZZLE AND BEATER

Filed June 5, 1928 2 Sheets-Sheet 1

Fig. 1.

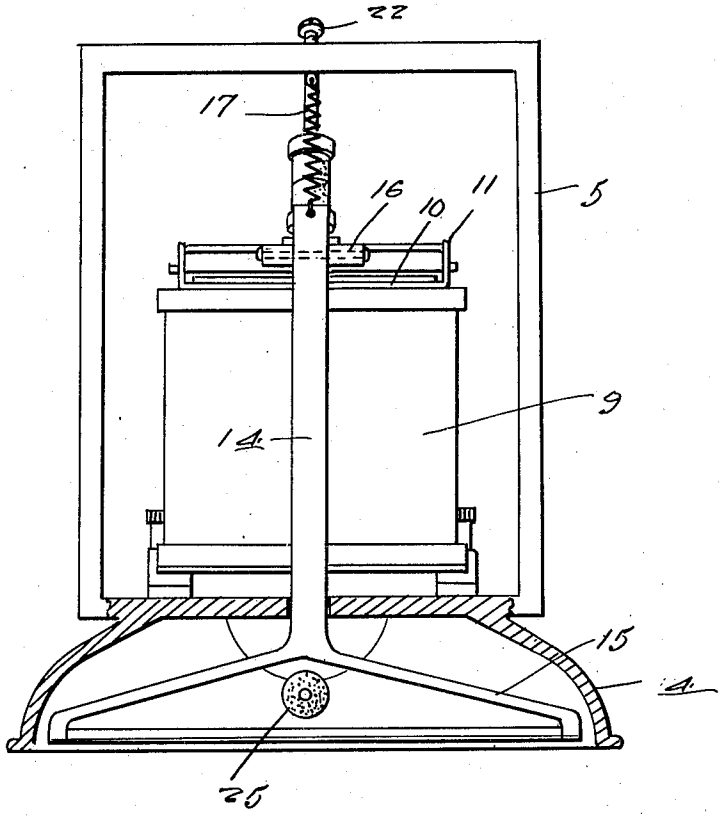
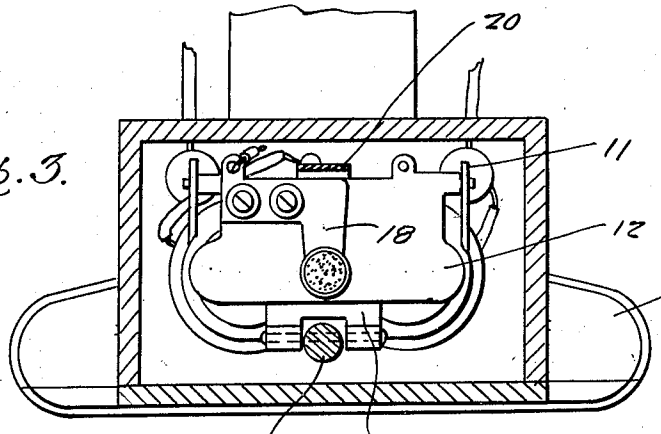


Fig. 3.



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Filed June 5, 1928 2 Sheets-Sheet 2

Fig. 2.

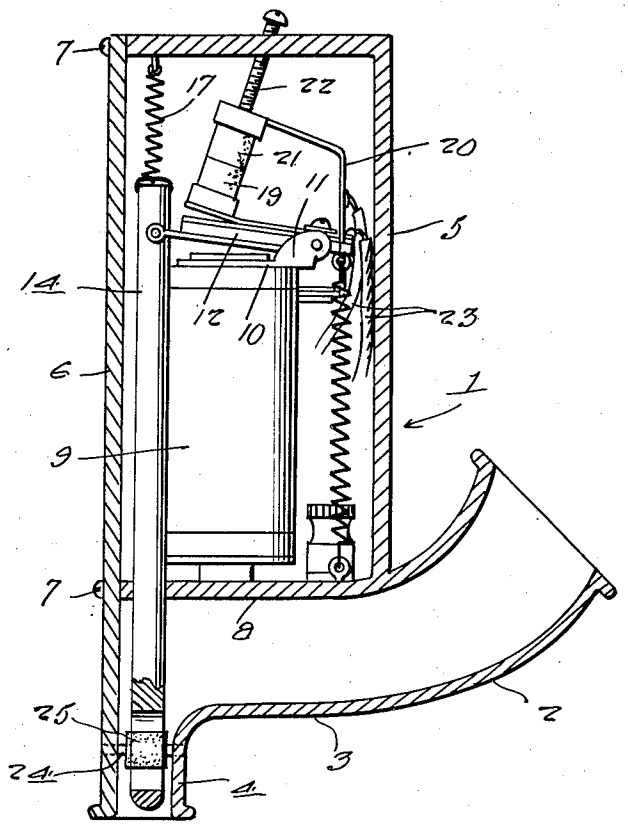
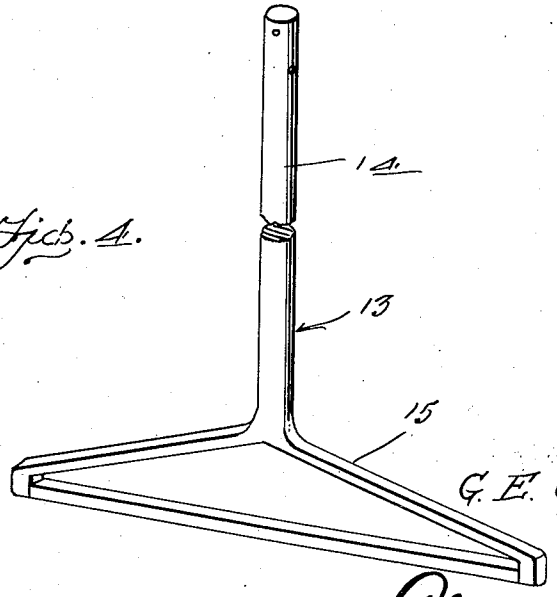


Fig. 4.



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UNITED STATES PATENT OFFICE

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COMBINED VACUUM-CLEANER NOZZLE AND BEATER

Application filed June 5, 1928. Serial No. 282,940.

The present invention pertains to improvements in combined vacuum cleaner nozzles, and beaters, and aims to provide a combined structure of this character, wherein the operable parts are more positive acting and more quiet acting than the devices of this character, heretofore devised.

The invention contemplates the provision of an electro-magnetically operable feature unit in combination with a vacuum cleaner nozzle, wherein the vibratory action of the magnet will be silenced by the novel cushioning means presented.

Another object of importance of the invention is to provide such a device in which the working elements thereof are readily accessible in the event of replacement or repair becoming necessary.

Another object resides in providing a beating unit for vacuum cleaners, wherein the beater will rapidly engage the material being cleaned, in short successive impacts, so as to loosen the dirt therein without any possible damage thereto.

Numerous other objects and advantages of the invention will be realized after a consideration of the following specification and claims.

In the drawing:—

Figure 1 represents a front elevation of the novel construction in partial sectional view, and disclosing the same with the front cover plate removed.

Fig. 2 represents a vertical sectional view of the housing, and nozzle construction, the same disclosing the various details in retracted position.

Fig. 3 represents a horizontal sectional view through the housing containing the electro-magnet, and discloses a top view of the same.

Fig. 4 discloses a perspective view of the beater element.

Now for a more specific description of this invention, reference is made to the drawing, wherein like numerals designate like parts. The construction comprises a casting generally referred to by the numeral 1, and consists of a curved pipe section 2 flared at its forward portion 3, and bent downwardly at its forward end to provide an elongated transversely extending nozzle 4.

Constructed above the flared portion 3 of the pipe 2, is a substantially rectangular vertically disposed housing 5. The front side of the nozzle 4, as well as the front side of the housing 5, is open and is adapted to be closed by an elongated cover plate 6, secured to the housing and nozzle portions of the casing 1, by suitable screws 7.

The top portion of the pipe 2, forms a flooring 8 for the housing 5, and upon which an electrical magnetic unit or relay 9 is mounted in vertical disposition. This unit is of the two-coil type, and has arranged upon its top end, an elongated plate 10. At the ends of the inner longitudinal edge of the plate 10, an upstanding gear 11, is formed for pivotally supporting an armature member 12, in proper magnetic relation to the cores of the coils.

In Fig. 4 of the drawing, there is disclosed a beater member 13, consisting of an elongated bar 14, provided with a triangular shaped frame 15, secured by its apex, to the lower end of said bar. The triangular frame portion 15 is operable within the nozzle portion 4 of the pipe 2, while the elongated bar 14 is slidable within the housing 5, through an opening in the flooring 8. As is disclosed in Fig. 2 of the drawing, the armature 12 is provided with a bifurcated plate extension 16, between the furcations of which, the upper end portion of the bar 14 is pivotally connected. A coiled spring 17 connects the top end of the bar 14, to the top wall of the housing 5, for tensionally supporting the bar.

Secured transversely upon the top side of the armature 12, is a spring strip 18, disposed obliquely upwardly, at its free end portion. This free end portion is provided at its top side with suitable means for supporting a carbon contact 19. An upstanding arm 20 rigidly secured to the plate 10 at its lower end, is bent outwardly at its upper end and provided with suitable means for supporting a depending carbon contact 21, in opposed respect to the contact 19.

A set screw 22, threaded through the top of

the housing 5, is adapted to engage the end portion of the arm 20, for adjusting the upper contact 21.

The arm 20 and the armature 12, are properly insulated from each other, while suitable conductors 23, supply current to the coils.

In operation, a suitable switch may be employed for cutting on the current to the magnetic device, which will result in the vibrating of the armature 12, and the intermittent opening and closing of the coil circuit, by the contacts 19 and 21. The upward and downward movement of the armature 12, transmits a reciprocatory movement to the bar 14. The pin member 24 is supported by the nozzle 4, and the cover plate 6, and has arranged thereon, a cushion member 25.

This cushioning member is disposed within the triangular frame 15, of the beater member, so that the downward movement of the same will be cushioned by the engagement of the cushion member with the bight portion of the triangular frame, whereas the upward movement thereof, will likewise be cushioned by the engagement of the cushion member with the base section of the frame.

The rapid vibrations of the armature will transmit rapid impact movements to the triangular frame 15 obviously loosening dirt and foreign matter on the material, such as the carpet, automobile seats, or the like being cleaned.

Having thus described my invention, what I claim as new is:—

1. In a cleaner of the character described comprising a suction nozzle, a vibratory unit carried by said nozzle, a beater within said nozzle, a shank extending vertically from the beater, a connection between the shank and said vibratory unit, said beater being provided with an opening, and a shock absorbing member connecting with the nozzle and disposed within the opening to limit the movement of said beater.

2. A cleaner of the character described comprising a suction nozzle, a beater mounted within the nozzle, said beater comprising an inverted Y-shaped member, a bar connecting the diverged leg portions thereof at their ends, said nozzle being provided with an opening in the upper portion thereof through which the upstanding portion of the Y-shaped member can protrude and a vibratory unit mounted on the nozzle and connected with the upstanding portion of the Y-shaped member for vibrating the said member to intermittently engage the said bar with the surface to be cleaned.

In testimony whereof I affix my signature.

GEORGE E. GUDMUNDSON.