March 24, 1931. E. R. STINE ET AL 1,797,557

VACUUM CLEANER

Filed Nov. 23, 1929

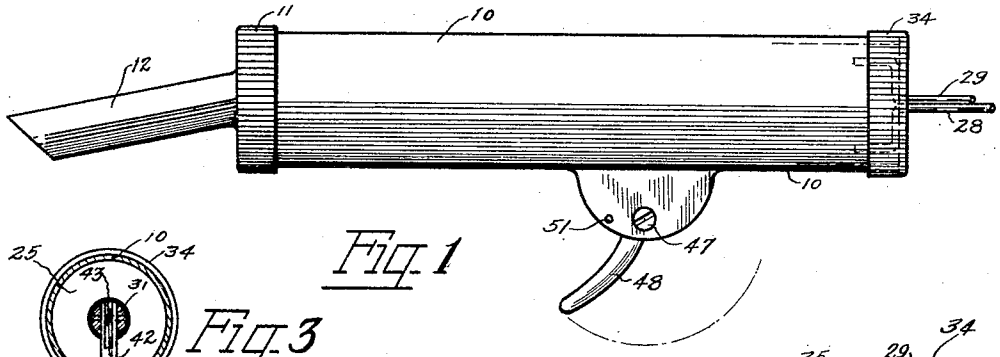


Fig. 1

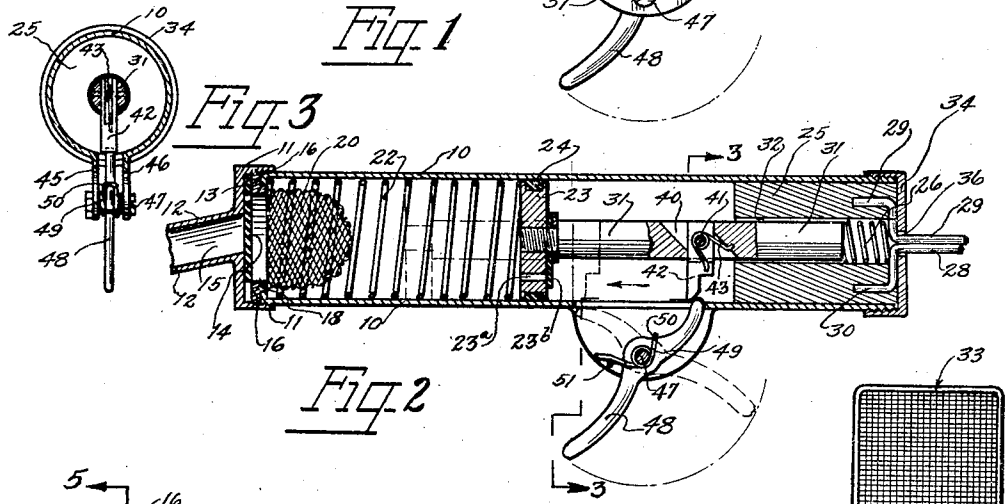


Fig. 2



Fig. 3

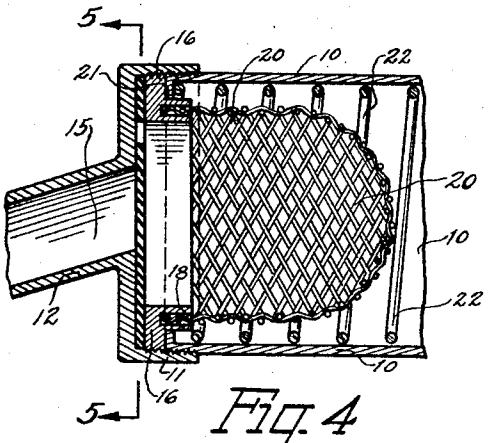


Fig. 4

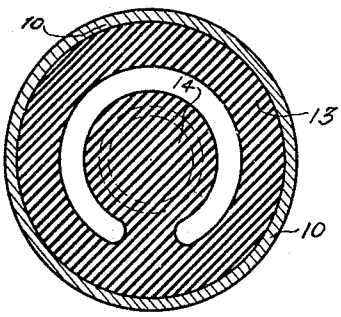


Fig. 5

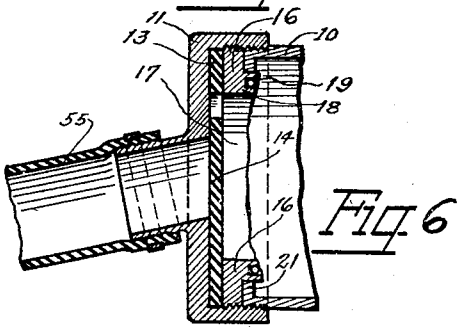


Fig. 6

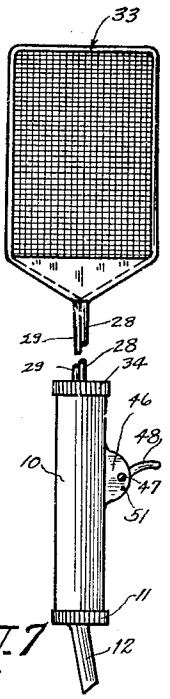


Fig. 7

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# UNITED STATES PATENT OFFICE

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## VACUUM CLEANER

Application filed November 23, 1929. Serial No. 409,320.

This invention relates to a vacuum cleaner and more especially to a vacuum cleaner adapted to be operated by hand, and not requiring any motive power other than hand power to operate the same, and is adapted to be used in places where a conventional motor-driven vacuum cleaner can not reach, and also to be used where a source of power for driving a vacuum cleaner is not available.

An object of our invention is to provide a vacuum cleaner having means for picking up objects and holding them within a container, together with means associated with the vacuum cleaner for rendering such objects available for the picking up operation, such as the combination of a fly swatter secured to the vacuum cleaner so that the flies may be killed or stunned, so that they can be picked up by the vacuum cleaner.

Another object of our invention is to provide a hand operated vacuum cleaner which is adapted to pick up all objects or animals or vermin and confine them within a compartment, and said compartment being removable from the vacuum cleaner, as for instance when flies are picked up they will be imprisoned in a cage and this cage can be removed, and the flies or other living matter can be exterminated and released from imprisonment, and the cage reinstalled into the apparatus ready for a new operation.

Some of the objects of our invention having been stated other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of our device with the fly swatter omitted therefrom;

Figure 2 is a longitudinally cross-sectional view of our vacuum cleaner;

Figure 3 is a cross-sectional view taken along the line 3—3 in Figure 2;

Figure 4 is an enlarged detail view of the left-hand portion of Figure 2;

Figure 5 is a cross-sectional view taken along the line 5—5 in Figure 4;

Figure 6 is a view similar to Figure 4, but showing means whereby a tube of any desired length can be connected to our cleaner;

Figure 7 is a side elevation of my device showing a fly swatter in association therewith.

Referring more particularly to the drawings the numeral 10 indicates the casing which is preferably circular in cross-section, and to one end of this casing is adapted to be threadably secured the cap portion 11 having the tubular portion 12 extending therefrom, and resting in the bottom of this portion 11 is the rubber gasket 13 which has the valve portion 14, which is adapted to close the passageway 15 in the tube 12, and the washer 16 is adapted to be threadably secured in the interior of the cap 11 to hold the gasket member 13 in position, and this washer member has the hole 17 therein. This washer member 16 has the circular projection 18 thereon with the annular cavity 19, in which the screen cage 20 is adapted to be secured, said screen cage 20 and the valve portion 14 serving to imprison any objects which are pulled up into the passageway 15.

The tubular member 10 has the inturned flange portion 21 and the compression spring 22 is adapted to be mounted in the tubular member 10, and to be retained by the inturned flange 21. This compression spring 22 is adapted to press at its other end against the piston 23, which has the packing 24 thereabout, this piston has secured thereto the piston rod 31, and the other end of this piston rod 31 is adapted to be slidably mounted in the longitudinally disposed cavity 32 in the block member 25 which is mounted in the tubular portion 10. A compression spring 26 is mounted in the cavity 32 and is adapted to press against the end of the piston rod 31 and act as a cushion when the compression spring 22 forces the rod backwardly or to the right in Figure 2. The members 28 and 29, which are adapted to support a fly swatter 33 are led inwardly and then outwardly and then longitudinally, and have their end portions embedded in the block 25. The cap 34 is threadably secured over the end of the tubular member 10 to hold the previously described parts in position with the members 28 and 29 extending through the hole 36 in the cap portion 34. Intermediate the ends of the piston rod 31 is the cavity 40 which has

transversely disposed therein the pin 41, on which the pivoted dog 42 is mounted, and also on this pin 41 is the torsion spring 43, which is adapted to press the dog 42 to the left in Figure 2. Integral with the tubular portion 10 are the projecting lugs 45 and 46, in which the pin 47 is mounted, and on this pin the trigger member 48 is pivotally mounted with the torsion spring 49 being mounted therearound with one end 50 being secured to the trigger member 48 and the other end of spring 49 being prevented from turning movement by means of the pin 51 mounted in the projection 45.

If the tube 12 is not long enough the cap 11 may be made with a shorter tubular portion 12 and any suitable tubing of any desired length as shown in Figure 6 and indicated by the reference character 55 may be secured thereto, so that articles may be picked up from any distance desired.

The piston 23 has a hole 23*a* therethrough which is covered by a flexible washer 23*b* which allows air to escape through said hole when the piston is forced to the left in Figure 2, and which closes when the piston 23 is moved to the right rapidly by compression spring 22.

The operation of our device is as follows: With the parts in the position shown in Figure 2 the trigger is pulled to the dotted line position in Figure 2, and this causes the upper portion of the trigger to engage the dog 42 and force the piston 31 and piston 23 to the left in Figure 2 against the compression spring 22, until the upper end of trigger 48 passes out of engagement with the dog 42, and this allows the spring 22 to force the piston and piston rod back very quickly, and the compression spring 26 takes up the shock when the piston rod strikes against it, this quick backward movement of the piston 23 lifts the flap 14, and draws in very quickly a quantity of air through the passageway 15 of the tube 12, and this passes from beneath the flap 14 up into the cage 20 and when this operation is completed the flap 14 will again close, and the articles picked up will be imprisoned within the cage 20, and should these articles be flies which have been killed or stunned by the fly swatter 33 the cap 11 can be removed together with the cage 20 and dipped in boiling water or any other suitable means for killing the flies or other vermin or animals caught therein.

In the drawings and specification we have set forth a preferred embodiment of our invention, and although specific terms are employed they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claim.

We claim:

In a device for exterminating flies and other insects, a tubular casing, a fly swatter mounted in one end of the casing, a spring-pressed piston member mounted in the casing, a valve in said casing, a cage around said valve, a passageway leading from said casing below said valve, a trigger member adapted to press the piston member against the compression of said spring, and to release the piston member to cause said spring to quickly move the piston to open said valve and draw an object through the passageway leading thereto.

In testimony whereof we affix our signatures.

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