

1,026,697.

4 SHEETS-SHEET 1.

Fig.1.

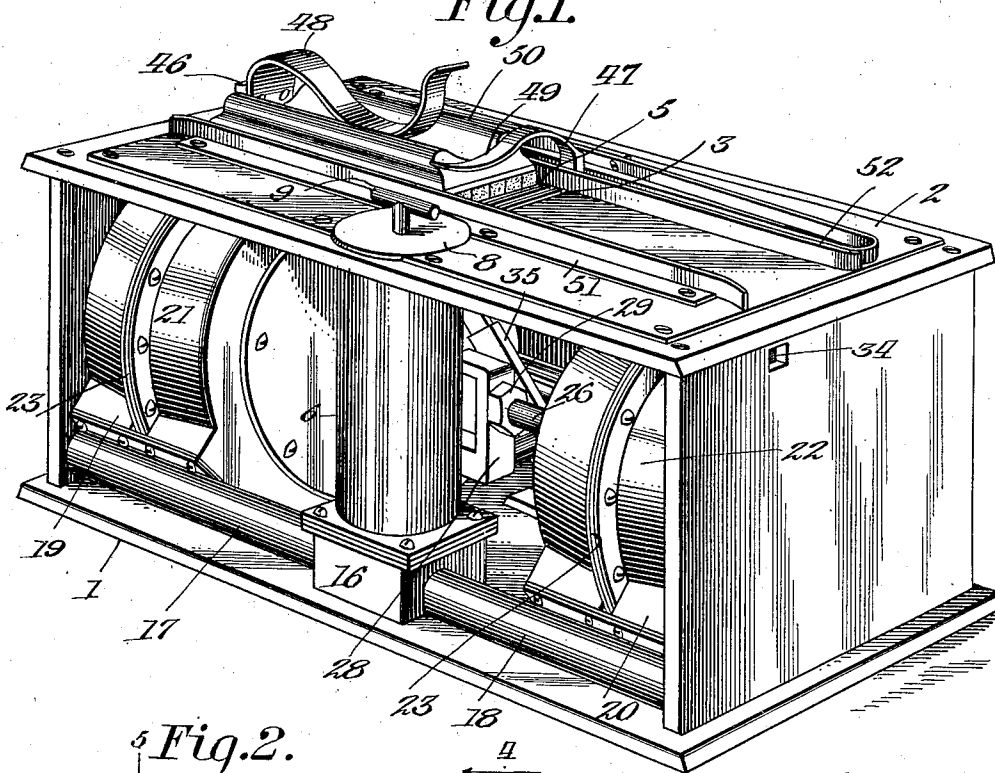
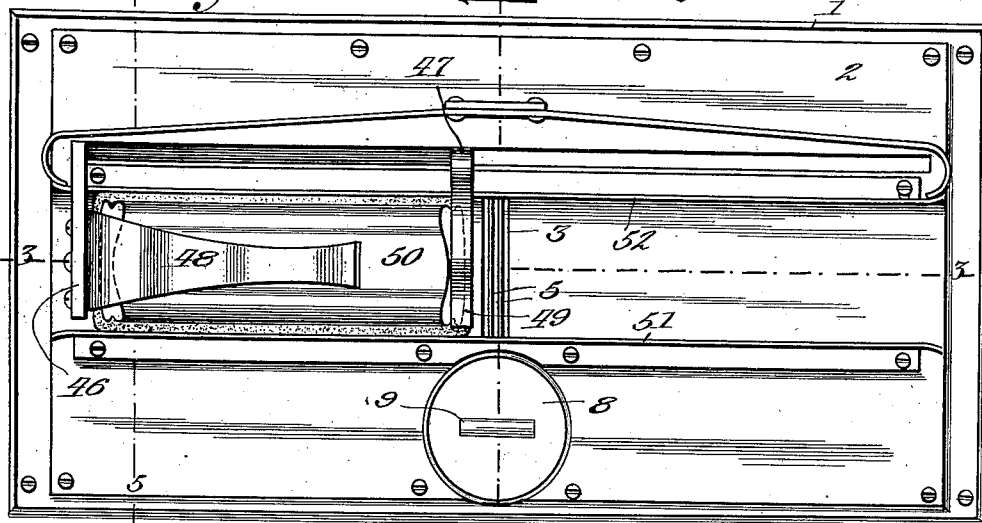


Fig. 2.



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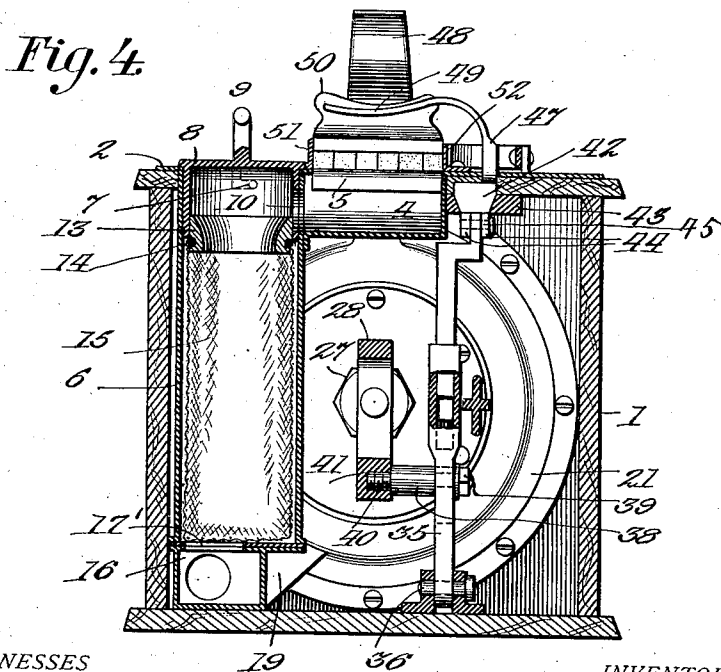
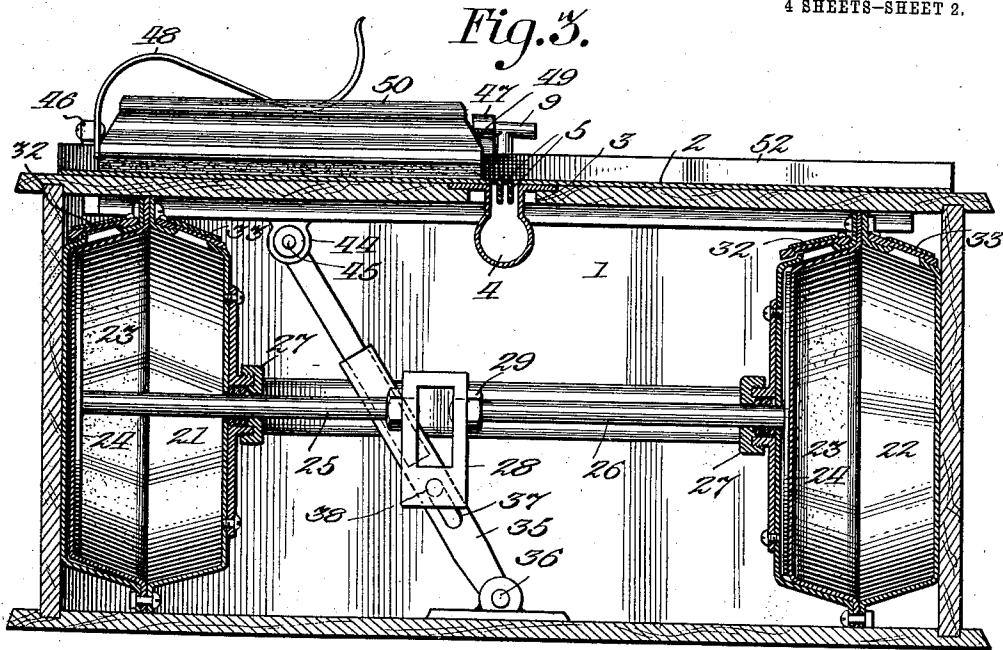
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VACUUM ERASER CLEANER.
APPLICATION FILED JAN. 30, 1911.

1,026,697.

Patented May 21, 1912.

4 SHEETS—SHEET 2.



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4 SHEETS—SHEET 3.

Fig. 5.

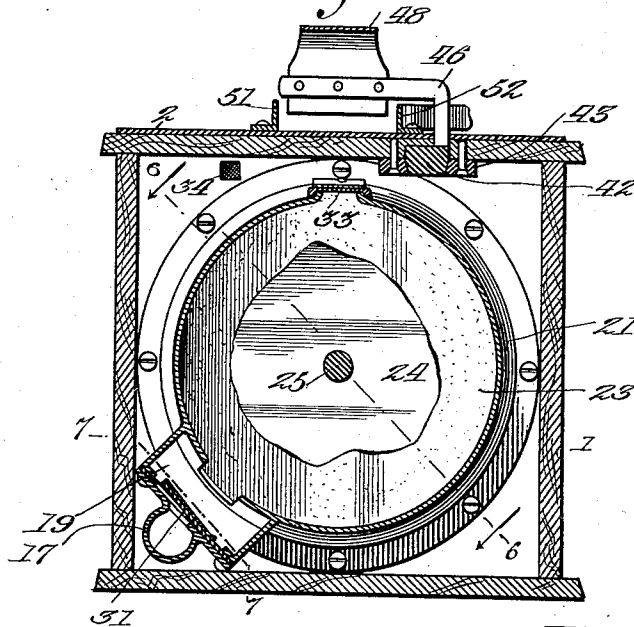


Fig. 7.

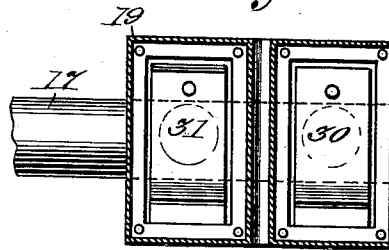


Fig. 6.

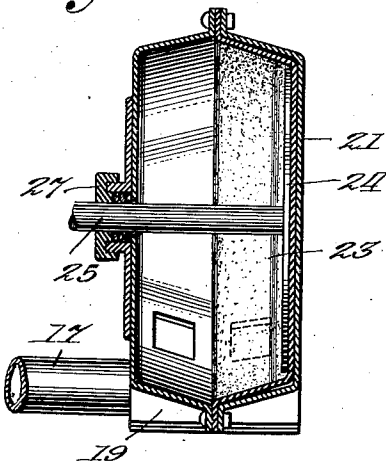
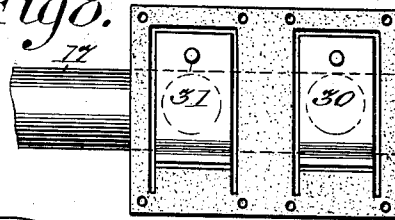
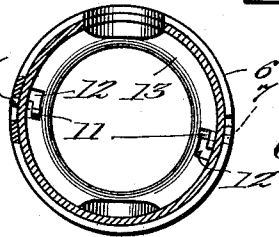


Fig. 8.



WITNESSES Fig. 9.

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4 SHEETS-SHEET 4.

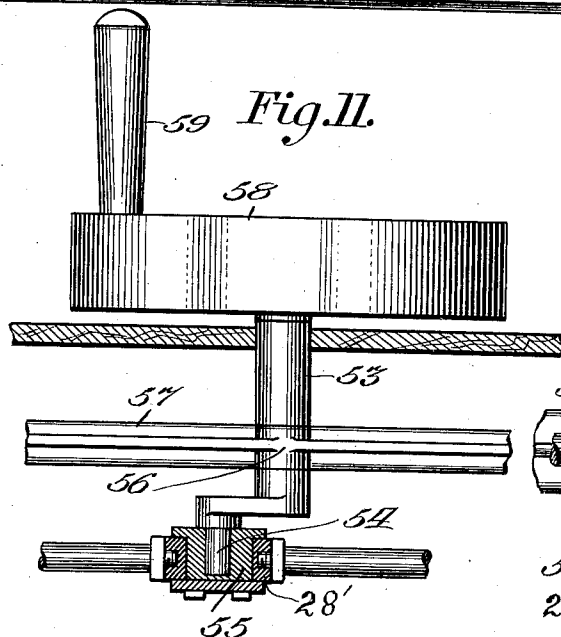
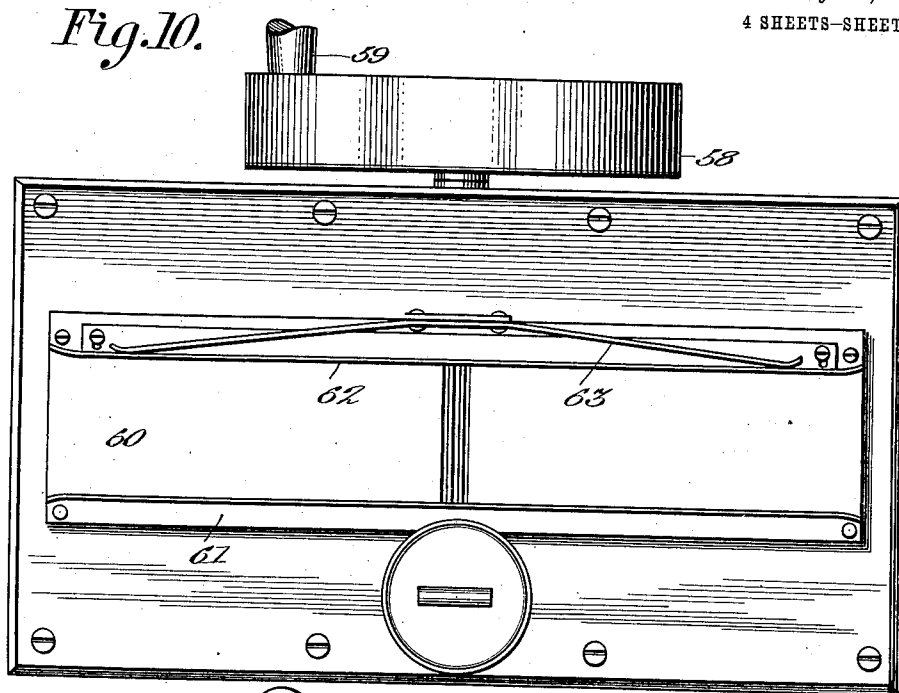
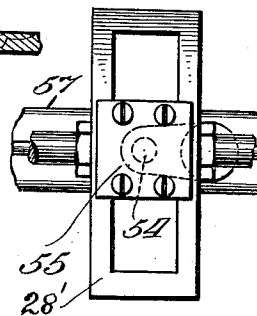


Fig. 12.



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UNITED STATES PATENT OFFICE.

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VACUUM ERASER-CLEANER.

1,026,697.

Specification of Letters Patent.

Patented May 21, 1912.

Application filed January 30, 1911. Serial No. 605,580.

To all whom it may concern:

Be it known that I, CLARENCE W. POLLEY, a citizen of the United States, residing at Skaneateles, county of Onondaga, State of New York, have invented certain new and useful Improvements in Vacuum Eraser-Cleaners, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a vacuum eraser cleaner and is especially adapted to be used for cleaning black board erasers, the object being to provide a sanitary device whereby the chalk dust can be removed from the eraser without scattering any dust.

Another object of the invention is to provide a cleaner in which the suction in the nozzle is created by a pair of suction pumps which are operated by the movement of the eraser over said nozzle through the medium of a lever.

Another object of the invention is to provide a cleaner which is exceedingly simple and cheaply constructed and one in which the chalk dust from the eraser is drawn into a dust bag which is detachably mounted whereby the same can be readily removed in order to clean the same.

Another object of the invention is to provide a guide for the eraser formed of a fixed and a spring section whereby the spring section will yield so as to accommodate erasers of different sizes.

In the drawings—Figure 1 is a perspective view of my improved cleaner, one of the sides being removed so as to show the interior of the machine; Fig. 2 is a top plan view; Fig. 3 is a longitudinal vertical section; Fig. 4 is a transverse vertical section taken on line 4—4 of Fig. 2; Fig. 5 is a similar view taken on line 5—5 of Fig. 2; Fig. 6 is a detail section through one of the pumps taken on line 6—6 of Fig. 5; Fig. 7 is a section through the valve casing taken on line 7—7 of Fig. 5; Fig. 8 is a plan view of the inlet valves; Fig. 9 is a horizontal section through the dust bag supporting member; Fig. 10 is a plan view of a modification showing a crank arranged to drive the pumps; Fig. 11 is a detail horizontal section partly in plan view showing

the manner of connecting the crank to the cross-head; and Fig. 12 is an elevation of the cross-head with the pistons broken away.

Like numerals of reference refer to like parts in the several figures of the drawings.

Referring to the drawings, 1 indicates a housing which is formed of any material and shape desired and has arranged on its top a plate 2 provided with an opening 3 which communicates with a suction nozzle 4 secured within an opening in the top of the housing to form a suction head, as clearly shown in Fig. 3, said suction head being provided with transverse scraping members 5 for agitating the felt of the erasers in order to loosen the dust as will be later described. The suction nozzle 4 communicates with a dust chamber 6 the upper end of which is provided with bayonet slots in which oppositely disposed pins 7 of a cap 8 are adapted to fit, said cap being provided with a handle 9 for removing the same therefrom and to oscillate the same to force the pins into a locked position within the bayonet slots. An opening is formed in the cap, as shown at 10, for allowing air to pass from the suction nozzle into the same and said cap is provided with oppositely disposed internal pins 11 adapted to extend into the bayonet slots 12 of a bag supporting ring 13 which has an annular groove 14 in which the upper edge of a bag 15 is secured by a ring, as clearly shown in Fig. 4.

The dust receptacle 6 is mounted upon a connection box 16 which is provided with an opening 17 communicating with an opening formed in the bottom of the receptacle as clearly shown in Fig. 4 and extending outwardly in opposite directions from said box 16, are pipes 17 and 18 which are connected to the respective valve casings 19 and 20 of suction pumps 21 and 22. The suction pumps 21 and 22 are formed exactly in the same manner and a description of one will be sufficient for both. Each pump comprises a sectional cylinder formed of two sections having annular flanges between which is secured the outer edge of flexible diaphragms 23. The diaphragms 23 are car-

ried by disks 24 secured on the ends of piston rods 25 and 26 which extend through stuffing boxes 27 formed on the ends of the respective cylinders. The ends of the piston rods 25 and 26 are adjustably mounted in a cross-head 28 by nuts 29 whereby said diaphragms will be operated in opposite directions when the head is reciprocated. The valve casings 19 and 20 are provided with inlet valves 30 and 31 adapted to open and close alternately and the cylinders are provided with exhaust valves 32 and 33 to allow the air, drawn within the cylinders, to escape into the housing. For allowing the air to escape from the housing, I provide the ends of the housing with outlets 34 which are preferably covered by a suitable piece of cloth in order to prevent the dust from escaping.

For reciprocating the cross-head, I provide a pivoted lever 35 which is mounted at 36 and is formed of two telescopic sections, the lower section being provided with a slot 37 in which is mounted a pin 38 by a nut 39 and said pin is provided with a reduced threaded end 40 which is seated in a threaded bore 41 formed in the cross-head 28 whereby the pin is allowed to slide within the slot of the lever as the lever is rocked. For rocking this lever, I provide a sliding bar 42 mounted in a suitable guide way 43 arranged under the top of the housing and said bar is provided with a depending apertured lug 44 to which the upper apertured end of the upper section of the lever 35 is pivotally connected by a pivot pin 45.

The plate 2, arranged on the top of the housing, is provided with a longitudinal slot through which extend eraser engaging members 46 and 47 fixed on the bar 42, the member 46 being adapted to be engaged by the end of the eraser and carrying a spring member 48 which bears upon the top of the eraser 50 when arranged thereon. The member 47 is provided with a spring end portion 49 for engaging the opposite end of the eraser 50 as shown in Fig. 1.

By the above construction, the eraser can be easily and quickly inserted or removed and when in the position as shown, will be locked between the members so that when the eraser is reciprocated, the members will be carried with the same in order to reciprocate the bar 42 which will rock the lever and operate the piston rods of the suction pumps. In order to guide the eraser upon the suction head, I provide the plate with a fixed guide member 51 and a spring guide member 52 which will yield in order to accommodate erasers of different sizes.

In the modification shown in Figs. 10, 11 and 12, I provide a crank shaft 53 for operating the cross-head and said crank shaft is provided with a wrist pin 54 which extends into a socket formed in the sliding

block 55 mounted within the cross-head 28 whereby said cross-head will be reciprocated as the shaft 53 is rotated, thereby operating the piston rods of the suction pumps. The crank shaft 53 is mounted in a suitable bearing 56 formed on a supporting bar 57 arranged within the housing and the outlet end of said shaft extends through an opening formed in the side of the housing and carries a drive pulley 58 from which a drive belt is adapted to pass when the machine is being operated by power, said pulley being provided with a handle 59 for manually operating the same. In this form, it will be seen that the suction head 60 is reduced in width as the slot is dispensed with. The fixed guide 61 is arranged along one edge of the suction head 60 and along the other edge is a slidably mounted guide 62 against which the free ends of a bowed spring 63 bear for normally holding the guide extended so that when the eraser is forced between the guides, it will be held therein and all danger of the same slipping out is prevented. In this construction, it is necessary to reciprocate the eraser over the suction head and at the same time operate the crank shaft so as to create suction in the nozzle in order to draw the chalk dust, which has been loosened by the scraping bars, into the dust bag.

In the operation of this invention, it will be seen that as the eraser is reciprocated over the scraping bars, the dust within the eraser is loosened and at the same time suction is created within the suction nozzle by the suction pumps, being operated by the rock lever through the medium of the slide and eraser engaging members, and from the suction nozzle the air and dust will be drawn into the dust bag, the air passing through the bag into the collection box and out of the same through the pipes which communicate with the respective inlet valves of the pump cylinders and is exhausted therefrom through the exhaust valves and pass out through the openings 34 of the housing.

Having described my invention and set forth its merits, what I claim and desire to secure by Letters Patent is—

1. A vacuum cleaner having mechanism for creating a vacuum and provided with a stationary suction head, a movable holder adapted to traverse said suction head, and a connection between said holder and vacuum creating mechanism for operating said mechanism by the movement of said holder.

2. In a vacuum eraser cleaner, the combination with a suction head, guides for the eraser arranged on said head, of scrapers arranged on said head, and mechanism for creating suction through said head.

3. In a vacuum eraser cleaner, the combination with a suction head having scraping members, of means for creating suction

through said head, an eraser holder and means actuated by the movement of the eraser holder for actuating said suction creating mechanism.

5 4. In a vacuum cleaner, the combination with a fixed suction head, of a movable eraser holder and suction creating means operated by said movable holder for creating suction through said head.

10 5. In a vacuum cleaner, the combination with a housing, of a suction head arranged on said housing, scraper bars carried by said suction head, a fixed and a movable guide arranged on said head, suction pumps for
15 creating suction through said head, and means for actuating said pumps.

6. In a vacuum cleaner, the combination with a suction head, of suction pumps for creating suction through said head, an
20 eraser holder movably mounted over said suction head, and mechanism actuated by the movement of the holder for operating said pumps.

7. In a vacuum eraser cleaner, the combination with a suction head having scraping
25 members, of an eraser holder, suction pumps connected to said head, a dust collecting bag disposed between said pumps and head, and means actuated by the movement of the eraser holder for operating said
30 pumps.

8. In a vacuum eraser cleaner, the combination with a housing, of a suction head arranged on said housing, an eraser holder,
35 guides arranged on said suction head, and pumping mechanism operated by the movement of the holder passing between said guides for creating suction through said head.

9. In a vacuum eraser cleaner, the combination with a housing, of a suction head arranged on said housing, guide members arranged on said housing to each side of
40 said suction head, an eraser holder movably mounted between said guide members, a pump, a tubular connection between the suction head and pump, and means actuated by the movement of said holder for operating
45 said pump.

10. In a vacuum cleaner, the combination with a housing having a suction head, of a reciprocating eraser holder arranged over
50 said head, suction pumps connected to said head, and means operated by the movement of said holder for actuating said pumps to create suction through said head.
55

11. In an eraser cleaner, the combination with a suction head having scraper members, of guides arranged on said head, an eraser
60 holding member mounted between said guides, pumps having a connection with said head, and mechanism operated by the movement of said holder for actuating said pumps to create suction through said head.

12. In a vacuum cleaner, the combination 65 with a suction head, of a movable eraser gripping member adapted to travel over said head, suction pumps connected to said head, and means for actuating said pumps to create suction through said head. 70

13. In an eraser cleaner, the combination with a housing, of a suction head arranged on said housing, suction pumps arranged within said housing, pipes connected to said suction pumps, a connecting member for said
75 pipes, a dust receptacle arranged on said connecting member, a detachable bag support arranged in said dust receptacle, said head being connected to said dust receptacle, and means for operating said pumps. 80

14. In a vacuum eraser cleaner, the combination with a housing, of a suction head arranged on said housing provided with a longitudinal slot, a guide way arranged under said slot within said housing, a bar
85 mounted in said guide way, eraser engaging members carried by said bar and extending through said slot, and mechanism operated by the movement of said bar for creating suction through said head. 90

15. In a vacuum cleaner, the combination with a housing, of a suction head mounted upon said housing, scraping bars extending above the top of said suction head, a fixed
95 and a removable guide arranged on said suction head, and means for creating a partial vacuum in said head. 100

16. In an eraser cleaner, the combination with a housing, of a suction head mounted on said housing, a movable eraser holding
105 member mounted in said housing and extending above said suction head, spaced suction pumps arranged in said housing, a cross-head connecting the piston rods of said pumps, a rock lever connected to said cross-head and to said eraser holding member, and a dust receptacle disposed between said suction head and suction pumps. 110

17. The combination with a suction head, of suction pumps creating suction through
115 said head, a rock lever for operating said pumps, a slide bar connected to said rock lever, and eraser holding members carried by said slide bar working over said head.

18. In an eraser cleaner, the combination 115 with a housing, of a suction head mounted upon said housing, suction pumps for creating suction through said head, a sectional rocking lever for operating said pumps, a slide bar connected to one of the sections of
120 said lever, and eraser engaging members carried by said slide bar working over said head.

19. In a vacuum eraser cleaner, the combination with a housing, of a suction head
125 mounted upon said housing provided with eraser guide members, an eraser holder, scraping bars carried by said suction head,

suction pumps arranged in said housing for
creating suction through said head, a dust
receiving bag disposed between said head
and pumps, a rock lever for operating said
5 pumps, and means operated by the move-
ment of the eraser holder between said guide
members for rocking said lever.

In testimony whereof I affix my signature
in presence of two witnesses.

CLARENCE W. POLLEY.

Witnesses:

FRED. JAY HUMPHRIES,
FRANK PAUL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."