June 17, 1930. H. B. WHITE 1,764,666

SUCTION SWEEPER

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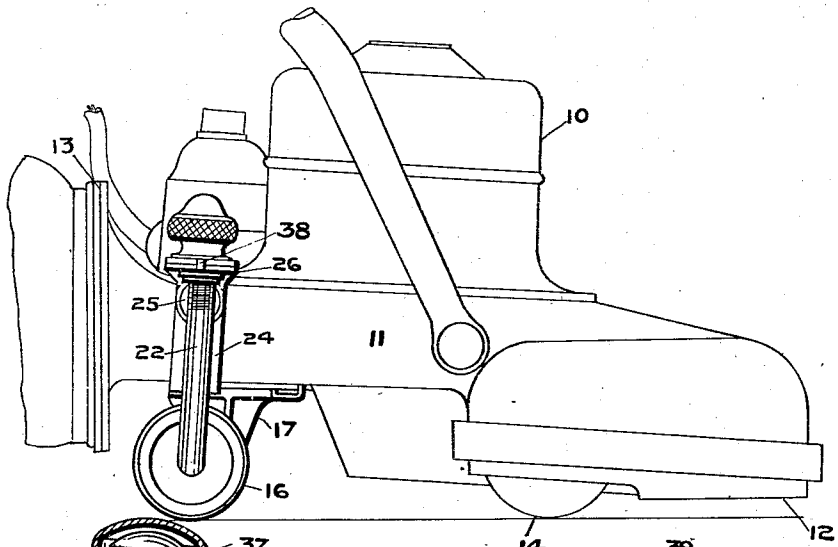


Fig. 1.

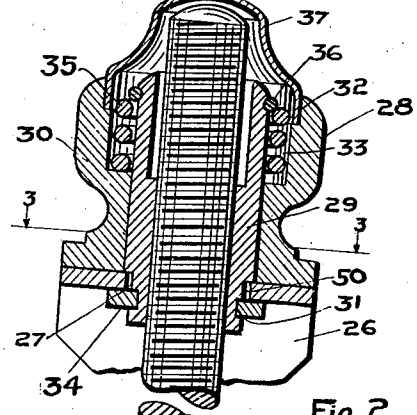


Fig. 2

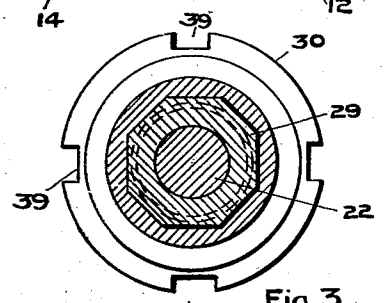


Fig. 3

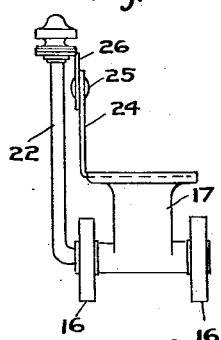
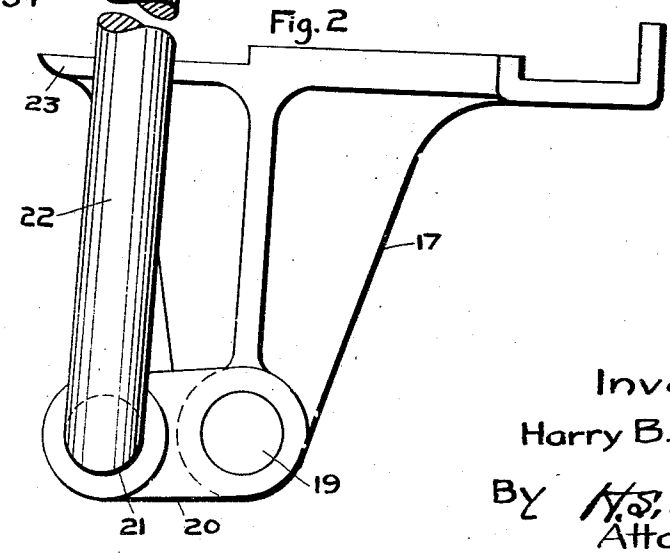


Fig. 4



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SUCTION SWEEPER

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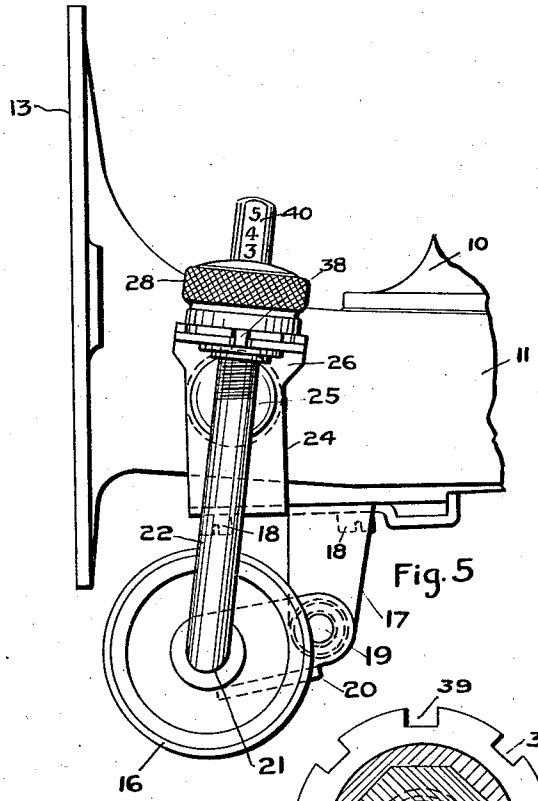


Fig. 5

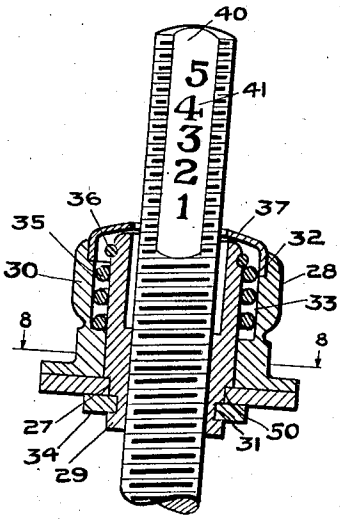


Fig. 6

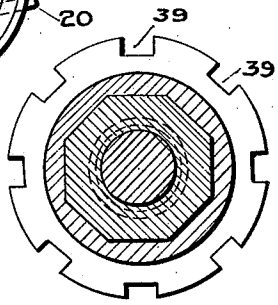


Fig. 8

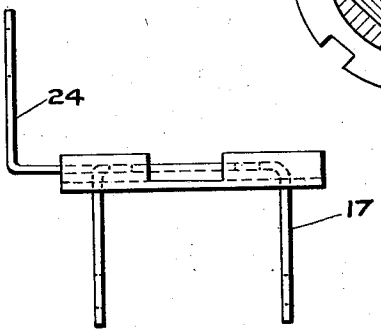


Fig. 7.

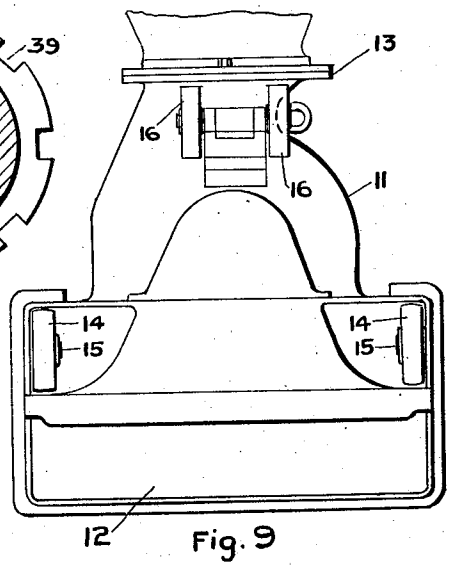


Fig. 9

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Patented June 17, 1930 1,764,666

UNITED STATES PATENT OFFICE

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SUCTION SWEEPER

Application filed December 21, 1925. Serial No. 76,659.

This invention relates particularly to an improved means for adjusting the nozzle of a suction sweeper by raising or lowering the same with relation to the surface to be operated upon.

It is common practice in the manufacture of sweepers to provide at the front part of the machine a pair of axially arranged supporting rollers or wheels adjacent the nozzle and to provide one or more supporting wheels positioned toward the rear of the machine. To raise or lower the nozzle with relation to the carpet or object to be cleaned, means are provided to raise or lower the axis of either the front or rear wheels.

An object of this invention is to provide means of improved construction for adjusting the axis of one of the supports of the device and which shall be positive in its operation and simple in its construction.

A further object of this invention is the provision of a nozzle adjustment for suction sweepers wherein the mechanical construction of the adjustment is of an improved form; more particularly wherein the construction presents a nozzle adjustment means which may be manufactured as a unit and applied to a sweeper as a complete unit, a construction which will greatly facilitate assembly of complete machines.

Other objects are to make the adjusting device quickly and easily operable to secure the desired adjustment, and to so construct the same that it will be very securely held in adjusted position to maintain the nozzle in any position for which it is set in relation to the surface to be cleaned.

The above and other objects will become apparent from the following description taken in connection with the accompanying drawings, in the different figures of which the same reference numerals indicate like parts.

In the drawings:

Figure 1 is a side elevation of a suction sweeper showing the application of the invention;

Fig. 2 is an enlarged sectional view through the adjusting mechanism proper partially in elevation;

Fig. 3 is a section through Fig. 2 on line 3—3;

Fig. 4 is a rear elevation of the adjustment;

Fig. 5 is a side elevation of a suction sweeper showing the application of a further form of the invention;

Fig. 6 is an enlarged sectional view of the upper end of the adjusting mechanism shown in Fig. 5;

Fig. 7 is a detailed view of the bracket employed in connection with the structure shown in Fig. 5;

Fig. 8 is a section through Fig. 6 on line 8—8; and

Fig. 9 is a bottom plan view of the machine shown in Fig. 1.

Designating the parts by reference characters, 10 indicates a motor housing, 11 a fan chamber, 12 an intake nozzle, 13 a discharge nozzle. The above elements are essential parts of practically all suction sweepers manufactured. The fan chamber 11, intake nozzle 12, and discharge 13 are usually cast as an integral unit or so connected together as to form a rigid frame which is supported adjacent the intake nozzle by axially separated wheels 14 suitably connected to the cleaner frame through studs 15 shown in Fig. 9.

Rearwardly of the wheels 14 and preferably positioned between the paths of the wheels 14, are a pair of axially separated wheels 16. To raise and lower the intake nozzle with relation to the surface to be operated upon, means are provided for vertically adjusting the axis of the rear wheels 16 with respect to the cleaner frame, the wheels 14 accordingly serving as a fulcrum.

My invention is concerned with a novel mechanism for raising and lowering the rear portion of the frame of the cleaner and with means for securing the adjusting mechanism securely in adjusted position.

The preferred form of structure for accomplishing the object of my invention will now be described.

The rear portion of the frame of the cleaner is supported on wheels 16 which are secured beneath the discharge 13 by means of a bracket 17, which is secured to the un-

der side of the discharge by screws 18 (Fig. 5). The lower end of bracket 17 carries a pivot 19 on which is mounted link 20 having at its other end means comprising a bearing 21 in which is mounted the L-shaped member 22 constituting the combined rear wheel mounting and adjusting member. The upper end of L-shaped member 22 is threaded to serve a purpose later described. A portion of the top surface of bracket 17 at the rearward portion as at 23 is milled out to provide a place for mounting an L-shaped standard 24, this being made of flat material as distinguished from the former member indicated by numeral 22 which is a member circular in cross section. Secured to the upper end of L-shaped standard 24 by means of a rivet 25 and, forming in effect a continuation thereof, is a third L-shaped member 26, the rivets not being driven up tight so that member 26 may rotate on rivet 25. The upper horizontal portion of member 26 is formed with an opening 27 in which is mounted the adjusting nut indicated generally at 28, which co-operates with the upper threaded end of the L-shaped member 22.

Adjusting nut 28 comprises two major portions 29 and 30 respectively; 29 being the inner threaded portion which co-operates with the threaded end of member 22, while the portion 30 provides a convenient means for rotating member 29 and also performs the function of a lock. As is clearly shown in Fig. 3, member 29 is externally octagonal in shape and is near its lower end rounded to a diameter slightly smaller than the external dimensions of the octagon and is provided with a groove, the turned portion being indicated at 50 and the groove at 31.

The upper portion of member 30 is counterbored as at 32 and 33, counterbore 33 providing space for inserting a spring in the assembly and counterbore 32 providing means for the placing of a closure cap.

In assembling the adjusting nut on member 26, the lower reduced end of octagonal member 29 is inserted through the opening 27, and a spring lock washer 34 is snapped into the groove 31. Member 29 is thus held in member 26 by the co-operation of the shoulder formed at the upper part of turned portion 50 resting on the upper side of 26, while spring washer 34 on the under side holds the member in position. The locking nut 30 is then slipped down over the upper portion of nut 29 and a spring 35 is inserted in the counterbore 33 between the outer surface of nut 29 and the inner surface of the counterbore 33. A spring ring 36 is then snapped into a groove formed in the upper portion of nut 29 where it is held by its own resiliency and thus the two parts 29 and 30 are locked together by the spring 35 which acts upon the ring 36 and the bottom of counterbore 33 with a possible relatively longitudinal range of motion. A closure cap 37 may be inserted in counterbore 32 for closing the upper portion so that dirt may not enter.

In the structure so far described, upon turning member 30 the inner member 29 will be rotated due to the co-operating octagonal faces of the two members and rotation of member 29 will, because of its threaded engagement with the upper end of member 22, cause the rear wheels 16 mounted thereon to be moved upward or downward with respect to the cleaner frame, depending upon the direction of rotation of member 30.

On the outer edge of the horizontal portion of member 26, there is provided a struck-up portion such as 38 which, in co-operation with notches 39 in member 30 will positively lock the nut in adjusted position. By the provision of the spring connection between members 29 and 30, it is only necessary to slightly raise member 30 so that the struck-up portion 38 disengages the notches 39 and then member 30 may be freely rotated.

The construction shown in Figs. 5 to 8 inclusive is substantially similar to that just previously described, excepting that bracket 17 and link 20 are each made of a stamping, the bracket 17 having formed as an integral part thereof the member 24, which in the previous instance was formed as a separate part. There is a further difference in the two constructions in that the adjusting member 22 extends through and above the adjusting nut and has a flat 40 formed thereon on which are placed indicating numerals 41 to indicate the adjustment under any particular circumstances.

It will be seen that with either of the structures described and illustrated, the entire adjusting mechanism may be assembled as a unit and as such applied to a sweeper so that the application of the adjustment entails only the attachment of the bracket to the sweeper frame, that is, in this instance there are four screws to be entered through the bracket member and screwed into appropriately positioned threaded openings formed in the sweeper frame.

What I claim is:

1. An adjustment device comprising a bracket which forms a base element, an adjusting nut rotatably mounted relative to said base element comprising an inner and an outer portion in non-rotatable but slidable relation to each other, a latching device arranged to lock said outer portion in fixed relation with respect to said base element, supporting means for said base element movably connected thereto, a connecting member between said supporting means and said adjusting nut in screw threaded relation with said nut, and yielding means interposed between said inner and said outer portion of said adjusting nut arranged to react against relative lengthwise

movement therebetween and accordingly hold said latching device in engagement.

2. In a castor-adjusting device, the combination with a frame structure, of a bracket fixed to said frame structure, a supporting element for said bracket and frame structure, means pivotally connecting said supporting element to said bracket, a standard fixed to said bracket and frame structure, a connecting member between said supporting element and said standard, an adjusting nut on said connecting member for longitudinal adjustment thereof comprising an inner portion in screw threaded relation with said connecting member and an outer portion with a notch in the rim thereof non-rotatably and slidably mounted on said inner portion, a projection on said standard arranged to engage said outer portion of said adjusting nut in said notch, and a spring functioning to maintain the engagement of said projection in said notch.

Signed at North Canton, in the county of Stark, and State of Ohio, this 15 day of December, A. D. 1925.

HARRY B. WHITE. [L. S.]