

Aug. 27, 1963

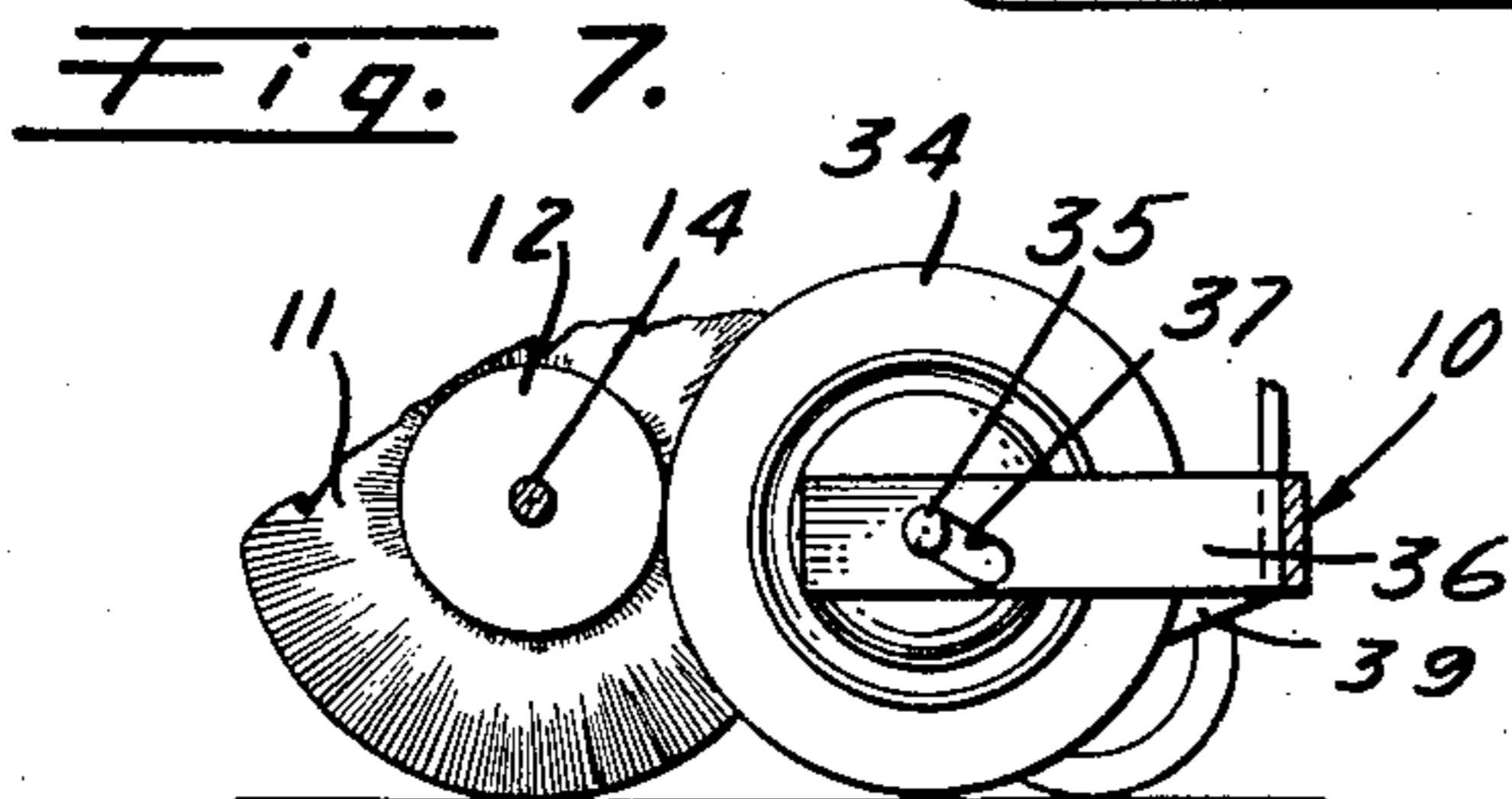
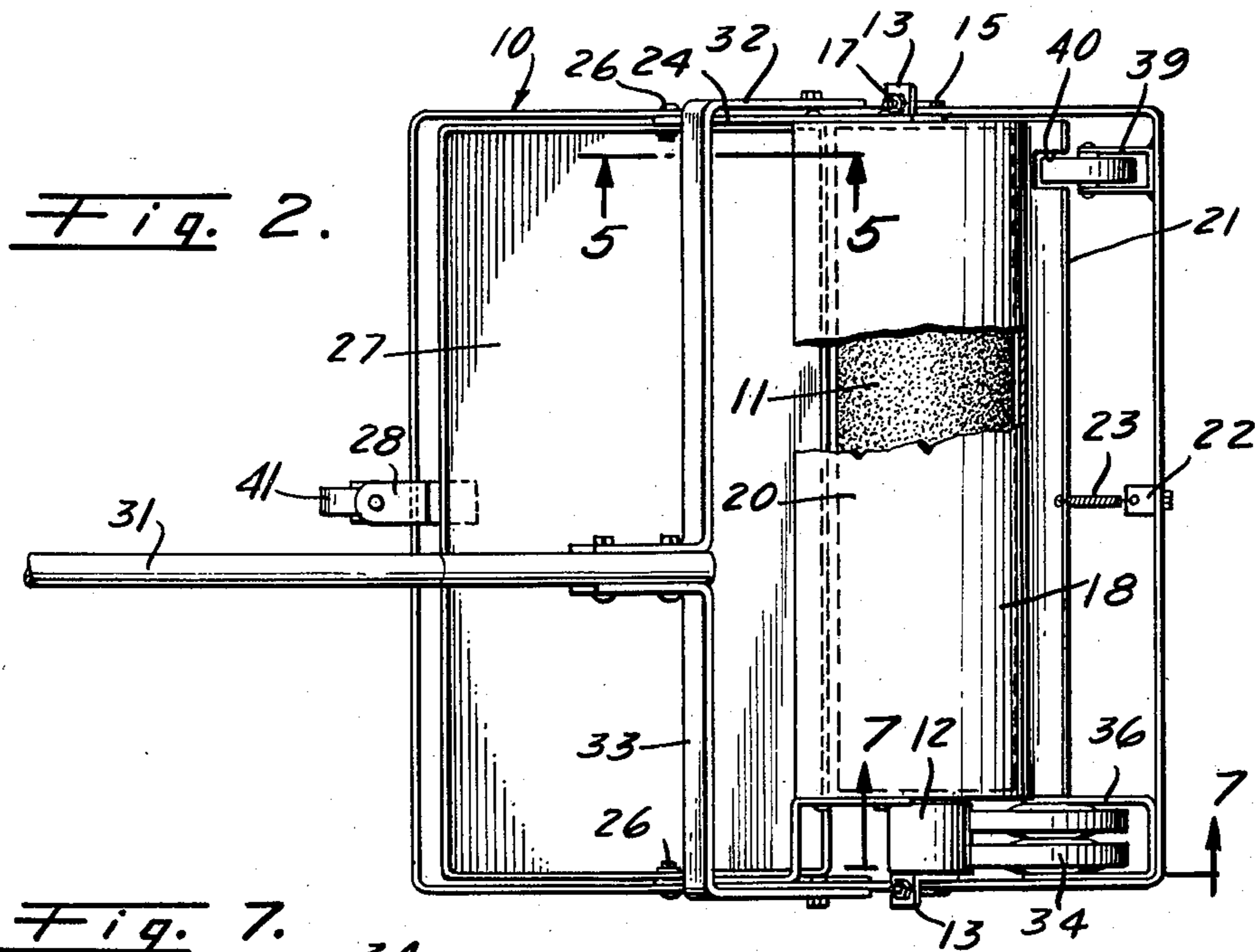
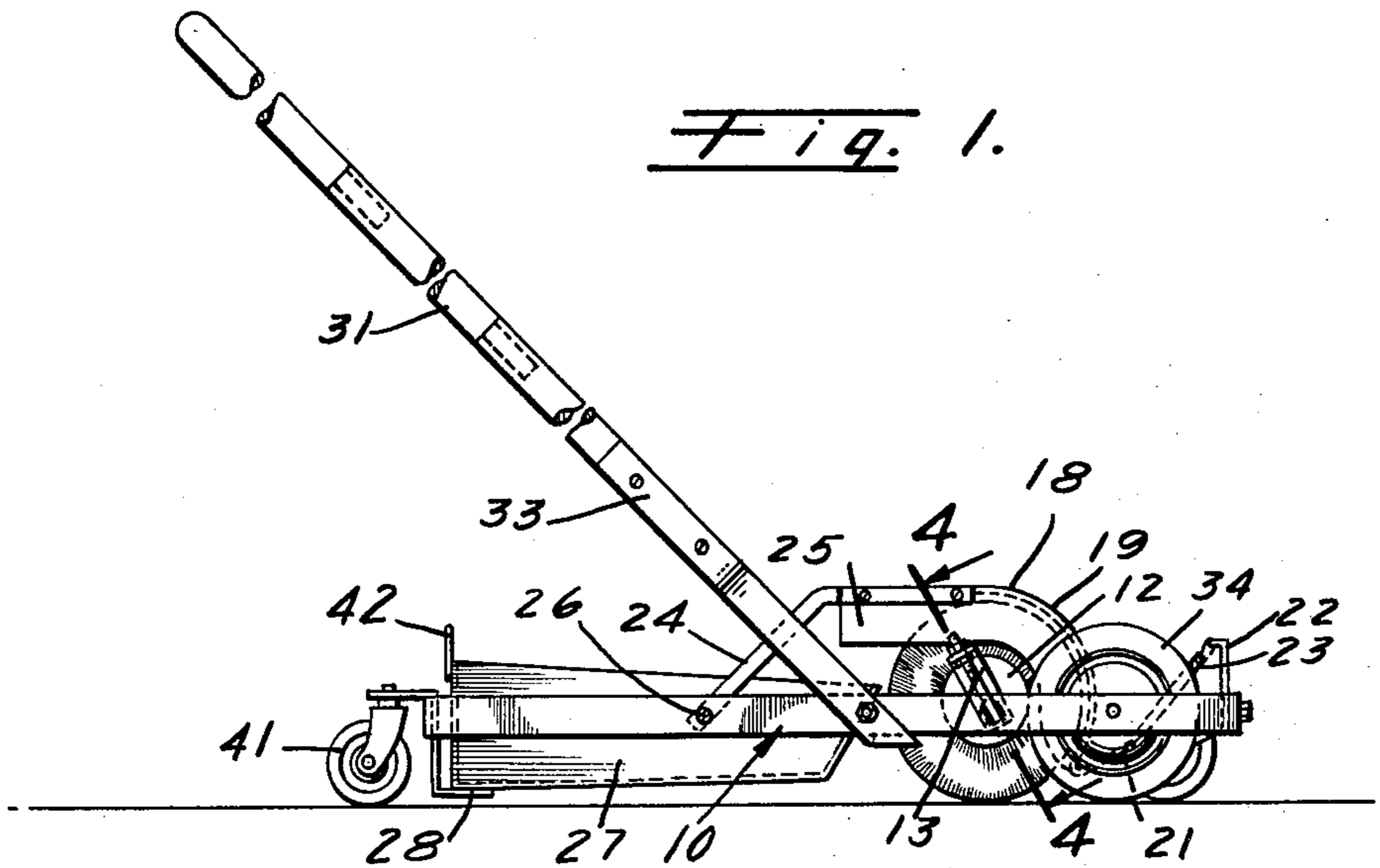
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3,101,498

SWEeper

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2 Sheets-Sheet 1



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SWEEPER

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2 Sheets-Sheet 2

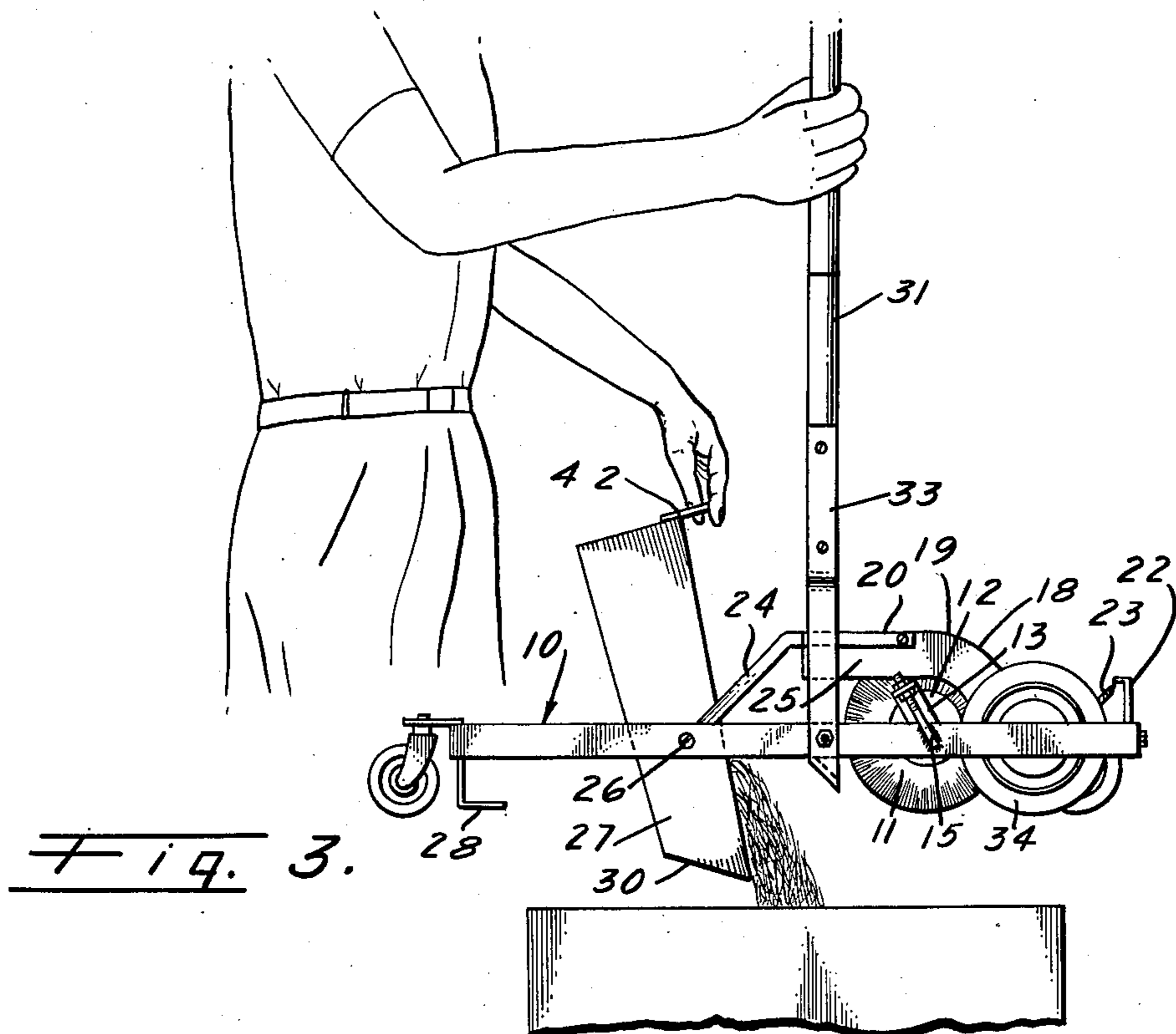


Fig. 4.

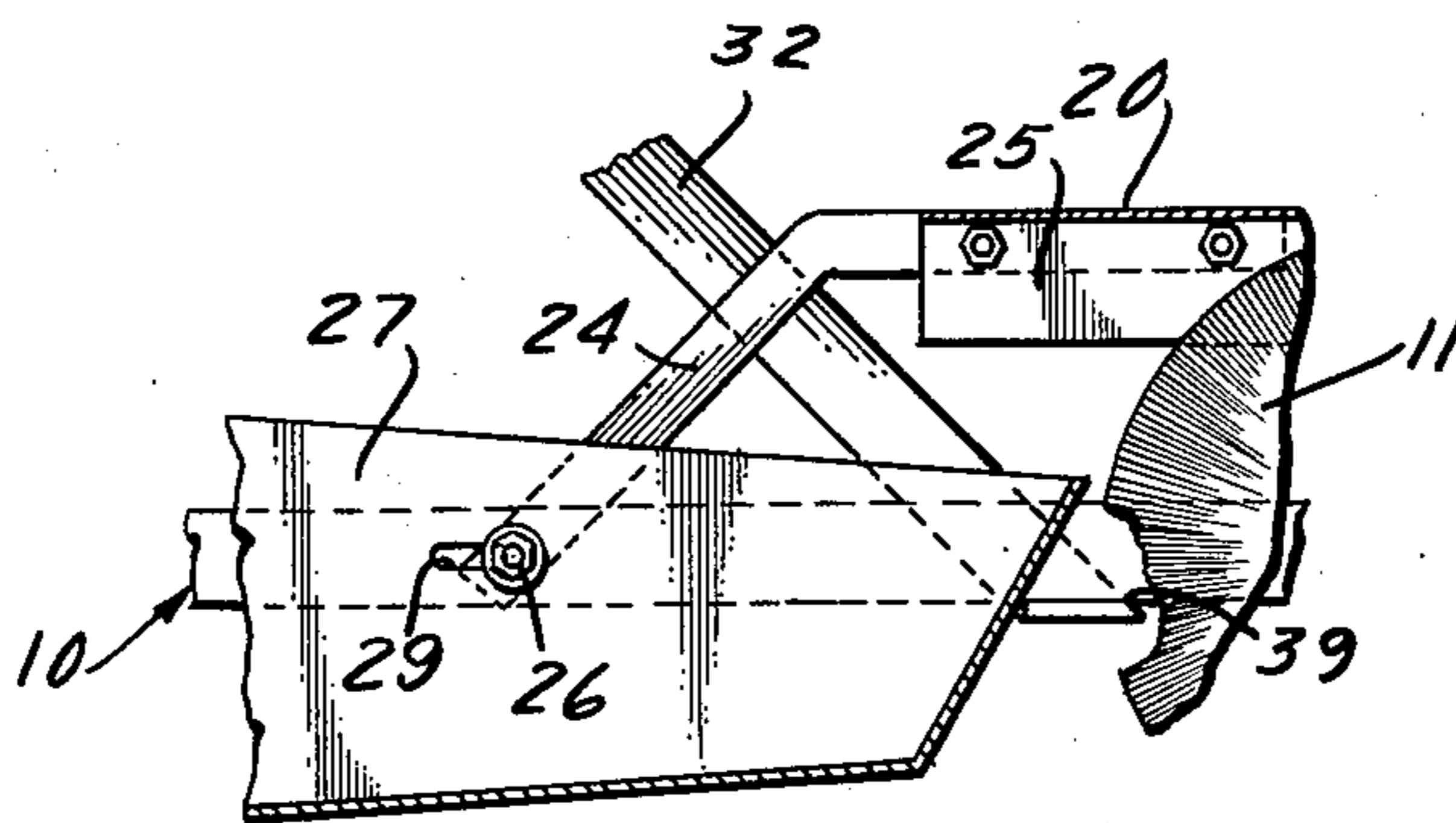
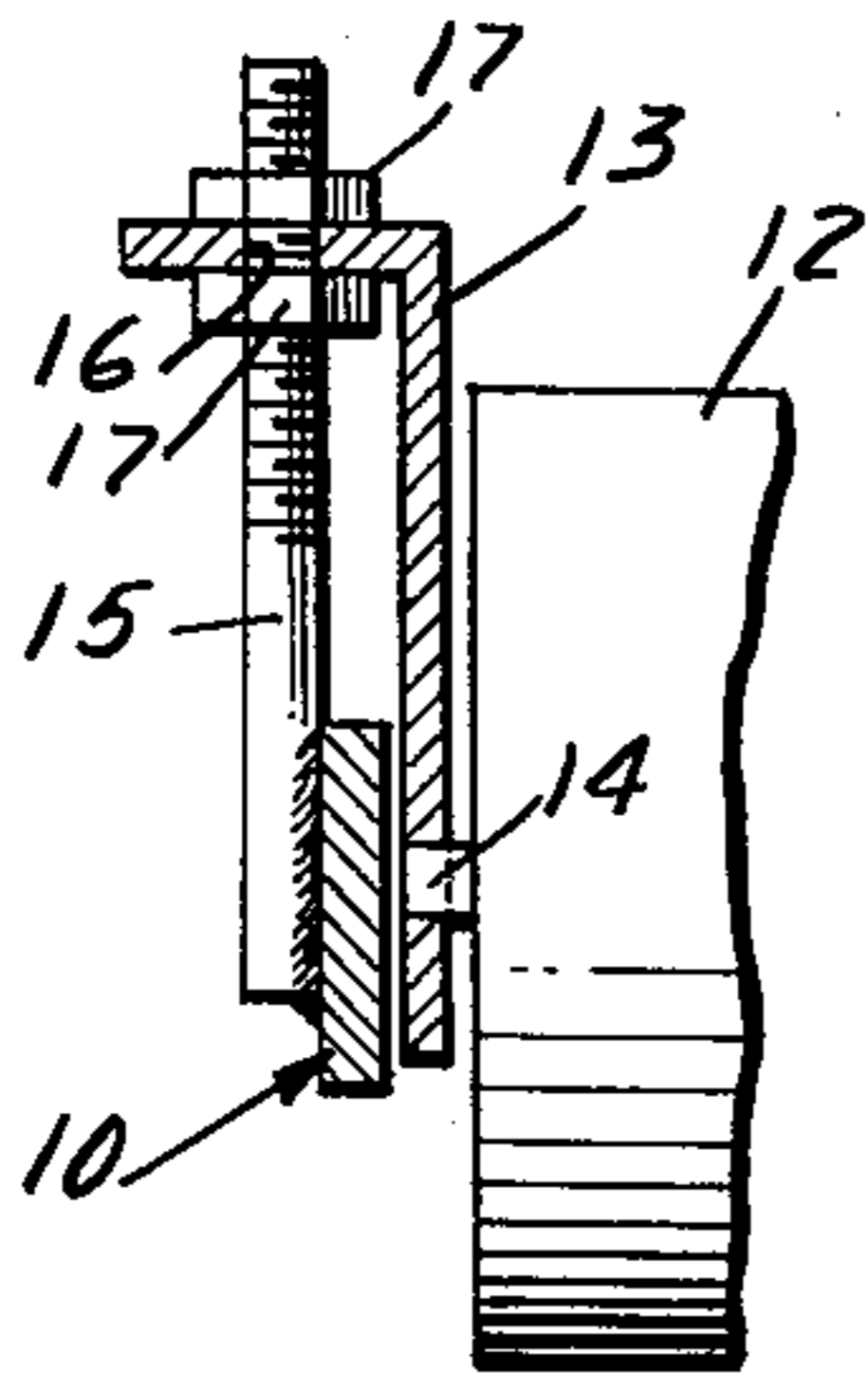
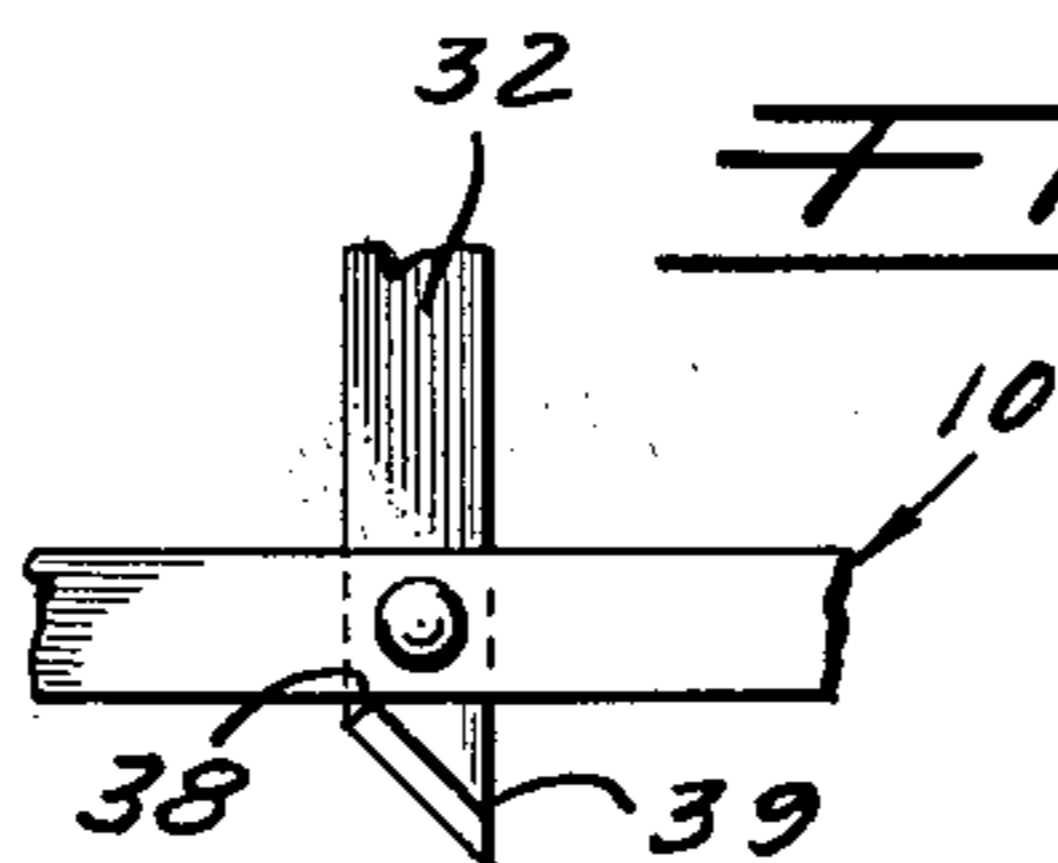


Fig. 5.



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SWEEPER

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6 Claims. (Cl. 15-79)

The invention disclosed in this application relates to sweeping devices and is illustrated by a side walk sweeper.

One of the objects of my invention is the provision of a sweeper for sweeping to the very edge of the area being cleaned.

A further object of my invention is the provision of a floating brush hood which may be displaced by larger objects being collected.

A further object of my invention is the provision which allows the drive wheel to be disengaged when the sweeper is pulled backwards.

A further object of my invention is the provision of a brush adjustment which maintains the brush and hood in proper operational relationship at all times during the life of the brush.

A further object of my invention is the provision of a sweeper such as described wherein the dirt collector unit is pivotally connected to the sweeper to facilitate easy removal of sweepings.

Further objects and advantages of the invention may become apparent in the following part of the specification wherein the preferred embodiment of the invention is described for the purpose of making a complete disclosure without intending however to limit the scope of the invention defined by the appended claims.

FIG. 1 is a side elevation of a sweeper constructed in accordance with my invention and shown in its normal operating position.

FIG. 2 is a top plan view of a sweeper with portions broken away to show more clearly the relationship of the floating hood and sweeper brush.

FIG. 3 is a side elevational view of a sweeper shown in FIG. 1 with the dirt collector tilted to a position for removal of collected debris.

FIG. 4 is a fragmentary view in front elevation of the brush adjusting mechanism.

FIG. 5 is a fragmentary view in vertical section taken on line 5-5 of FIG. 2 showing relationship of brush and dirt collector lip.

FIG. 6 is fragmentary view of a portion of FIG. 3 showing the handle positioning stops.

FIG. 7 is a fragmentary section view of a portion of FIG. 2 showing the brush rotating mechanism.

Referring especially to FIG. 1, it may be seen that I have shown a sweeper comprising a frame generally designated 10, said frame 10 comprising a rectangular hoop as better illustrated in FIG. 2. A rotating brush is supported between the side members of the frame and consists of a plurality of bristles arranged radially around a shaft 14 on which a cylindrical drum 12 is secured at one end and adjacent to the bristles. The shaft 14 extends a short distance from the drum 12 and is rotatably supported by an L-shaped bracket 13 at each end of the brush 11 as better illustrated in FIG. 4. In FIG. 4 the bracket 13 provides a bearing for support of shaft 14. A threaded member 15 is mounted on the frame 10 and extends through an opening 16 in bracket 13. The nuts 17 provide adjustment to move the brush up and down. The opposite end of the drum is similarly supported.

The threaded member 15 is mounted on the frame 10 at an acute angle to the horizontal plane of the frame. Adjustment is provided at an angle so that the brush may be adjusted downwardly and forwardly so as to maintain

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the relationship between the brush 11 and hood 18 for pickup efficiency.

A hood 18 serves as a dirt and debris receiving section of the sweeper and is formed of a cylindrical portion 19 and a flat horizontal portion 20 extending rearwardly. The cylindrical portion 19 extends forwardly and downwardly to an angularly upturned portion 21. The hood 18 is rotatably supported by support arms 24 each side of the hood end covers 25. The arms 24 extend rearwardly and are attached to the frame 10 by fastening means 26. The forward end of the hood 18 is resiliently supported by a spring 23. The upper end of the spring is supported by a bracket 22 which is adjustably attached to frame 10 to vary the tension on the spring 23. The other end of the spring 23 is attached to the portion 21 of the hood 18.

A debris collector 27 is provided as shown in FIG. 1 and FIG. 2 the debris collector 27 is substantially a five sided open top box having its forward side 30 sloping upwardly and forwardly to a position adjacent the brush at a horizontal plane through the centerline of the brush. The rearward end of the collector is supported by the bracket 28 attached midpoint to the member of the frame 10. A horizontal slot 29 is provided in each side wall portion of the collector. This slot 29 is located forward of the midpoint of the longitudinal length of the collector (see FIG. 5). The hood fastening means 26 also supports the collector at the slots 29. As the brush 11 is reduced to a smaller diameter by wear the collector is adjusted forwardly to maintain the forward side 30 in close proximity to the brush periphery. When the collector 27 is filled the sweeper is lifted by the handle 31 to a position to allow the collected debris to fall in the receptacle as illustrated in FIG. 3. A handle 42 is provided on the collector 27 for this purpose.

A handle 31 is provided for manually propelling the sweeper. The handle is attached to sweeper by supports 32 and 33. Since the brush is rotated at one end thereof the handle is positioned off center toward the drive end to balance the propelling force with the drag of the sweeper and the resistance of rotating the brush.

The handle supports 32 and 33 are pivotally attached to the frame 10 at a point on the frame forward of the center of gravity of the sweeper. The end of supports 32 and 33 are formed inwardly under the frame 10 to form handle positioning stops. With the sweeper held in position for debris removal as shown in FIG. 3 and FIG. 6 and stop 38 will engage the underside of the frame 10 at a point rearward of the handle pivot means thus maintaining the sweeper in a horizontal attitude. With the sweeper in operating position the stop 39 will engage the underside of the frame 10 forward of the handle pivot means as shown in FIG. 5 to maintain the handle in operating position.

Means to rotate the sweeper brush is provided by drive wheels as illustrated in FIG. 2. The drive wheels 34 have a common shaft 35 which extends outwardly on both sides thereof. The ends of shaft 35 are rotated in slots 37 formed in a U-shaped bracket 36, as shown in FIG. 7. The slots 37 are inclined downwardly and forwardly at an acute angle to the horizontal plane of the frame. The U-shaped bracket 36 is supported by the frame 10 in a generally horizontal position.

A supplementary support wheel is provided on the forward side of the frame 10. A U-shaped wheel support bracket 39 is attached to the frame by welding or other suitable means. For compactness a clearance slot 40 is provided in the hood portion 21. Rear supplementary support is provided by a caster type wheel 41. The wheel 41 is supported by an extension of the bracket 28 which supports the rearward portion of the collector 27.

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In operation the brush 11 is adjusted up or down with threaded member 15 until the brush just touches the surface to be swept. The hood 18 is then adjusted with the bracket 22 and the spring 23 until the cylindrical portion 19 of the hood 18 nearly touches the brush 11. The inclined portion 21 of the hood 18 will be positioned to clear the surface being swept. The collector 27 is adjusted forward or backwards by adjusting means 26 and slots 29 so that the forward edge of the collector 30 just clears the brush periphery.

The sweeper is propelled by grasping the handle 31 and moving forwardly on the surface to be swept. In the forward direction the drive wheels 34 will rotate in a clockwise direction and impart a counter clockwise direction to the brush 11. The brush 11 will direct the sweepings upwardly and forwardly against the hood 18. The hood 18 provides a guide for discharging the debris backward over the brush 11 and into the collector 27. It is important to note that in guiding the sweeper to the edge of the surface being swept, entire areas can be completely cleaned without the need of finishing the sweeping job with a broom and dust pan.

When maneuvering the sweeper in small areas necessitating reversal of the sweeper the drive wheels 34 will disengage from the brush drum 12. This provision is extremely important. If the brush remained engaged on reversing, the rotation of the brush would be reversed and rotate in a clockwise direction. Then when the sweeper direction is changed to the forward direction the debris moved by the brush rotating in a clockwise direction would remain under the sweeper and could not be collected. When large objects are encountered on the surface being swept, they first engage the inclined portion 21 of the hood. Being resiliently supported the hood is deflected upwardly allowing the brush to engage the object and sweep it into the collector 27. In addition to this important feature the floating hood has another distinct advantage. When large amounts of debris are encountered they will be carried against the hood by the brush. The hood will be deflected upwardly to accommodate the increased quantity of sweepings. If the hood was solidly mounted some of the sweepings would be embedded in the brush and be carried by the brush thus reducing the efficiency of the sweeper.

I claim:

1. A sweeper, comprising: a frame; ground engaging support wheels operatively supporting said frame; a cylindrical rotatable brush supported by said frame; means at one end of said brush for engaging one of said support wheels for rotating said brush; a yieldingly mounted hood including a curved portion normally positioned in close proximity to the brush periphery and movable away from the periphery of said brush when excess material gets between said brush and said hood; and a debris collector pivotally supported by said frame.

2. A sweeper, comprising: a frame; said frame having ground engaging support wheels; a cylindrical rotatable brush at one end of said frame, said brush having flexible sweeping elements thereon; said brush being rotated by one of said wheels a resiliently mounted hood positioned in close proximity to the brush periphery; a debris collector pivotally supported by said frame, said collector having a forward end and a rearward end, means to adjust said forward end of said collector toward and away from the periphery of said brush and said rearward end being supported by said frame; and a handle supported by said frame.

3. A sweeper, comprising: a frame; said frame having ground support wheels; a cylindrical rotatable brush having resilient sweeping elements thereon; support means on said frame to carry said brush; means at one end of said brush for rotating same, said means including one

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of said wheels; a resiliently mounted hood positioned in close proximity to the periphery of said brush; said support means being adjustable to maintain said brush in close proximity to said hood; a debris collector pivotally supported by said frame; and a handle supported by said frame.

4. A sweeper, comprising: a frame; said frame having ground support wheels; a cylindrical rotatable bristle brush; support means on said frame to support said brush; means for rotating said brush at one end thereof, said means for rotating said brush including a ground engaging drive wheel supported by said frame and a drum carried by said brush at one end thereof for driving engagement with one said wheels; a resiliently mounted hood supported by said frame and normally positioned in close proximity to a portion of the periphery of said brush, said support means being adjustable to maintain said brush in close proximity to said hood; a debris collector pivotally supported by said frame; and a handle pivotally supported by said frame.

5. A sweeper, comprising: a frame; said frame having ground support wheels; a cylindrical rotatable brush carrying bristles; support means on said frame to support said brush; means for rotating said brush at one end of said frame, said means for rotating said brush including a ground engaging drive wheel supported by said frame and a drum carried by said brush at one end thereof for driving engagement with one of said wheels; a yieldingly mounted hood supported by said frame and having a portion normally positioned in close proximity to a peripheral portion of said brush, said hood portion being movable away from the brush, said support means being adjustable to maintain said brush in close proximity to said hood and in sweeping contact with the ground; a debris collector pivotally supported by said frame; and a handle for manipulating the sweeper, said handle having pivotal support means attached to said frame, said support means being provided with limiting stops to maintain the handle in operational attitude.

6. A sweeper comprising: a frame; said frame having ground support wheels and a drive wheel; a cylindrical rotatable brush having flexible sweeping means thereon; adjustable support means on said frame to support said brush; means at one end of said brush for rotating same, said means for rotating said brush, including said drive wheel, and a drum carried by said brush at one end thereof for driving engagement with said drive wheel; said drive wheel having a shaft extending laterally from each side thereof; support means for said drive wheel shaft on said frame having bearing slots to rotatably guide said drive wheel into driving engagement with said drum; an arcuate hood supported by said frame and having an arcuate portion normally positioned in close proximity to a peripheral portion of said brush, said hood having hinged rearward support means carried by said frame and vertically adjustable forward support means carried by said frame; a debris collector pivotally supported by said frame; and a handle for manipulating the sweeper, said handle having pivotal support means attached to said frame, said support means being provided with limiting stops to maintain the handle in operational attitude.

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