

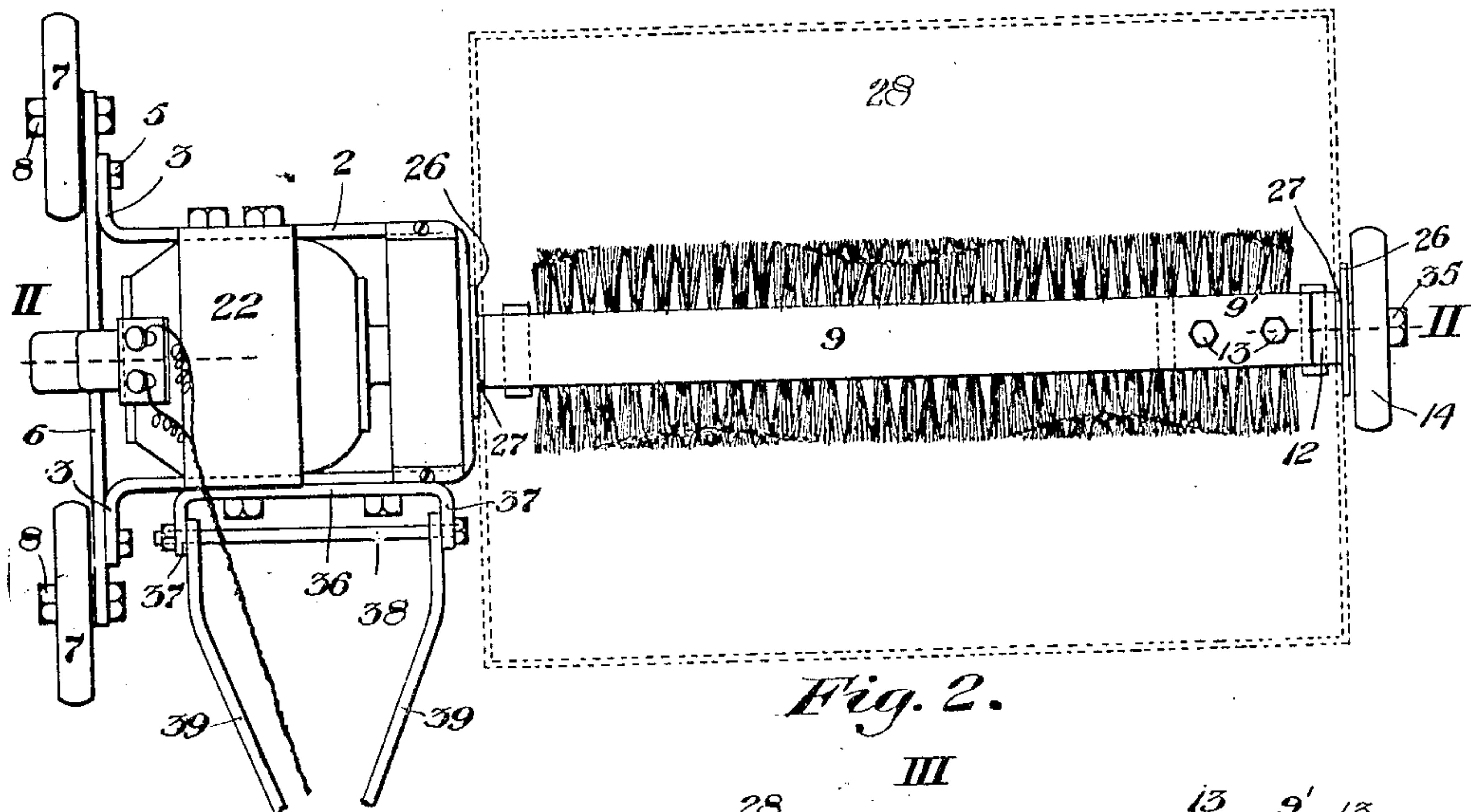
No. 871,937.

PATENTED NOV. 26, 1907.

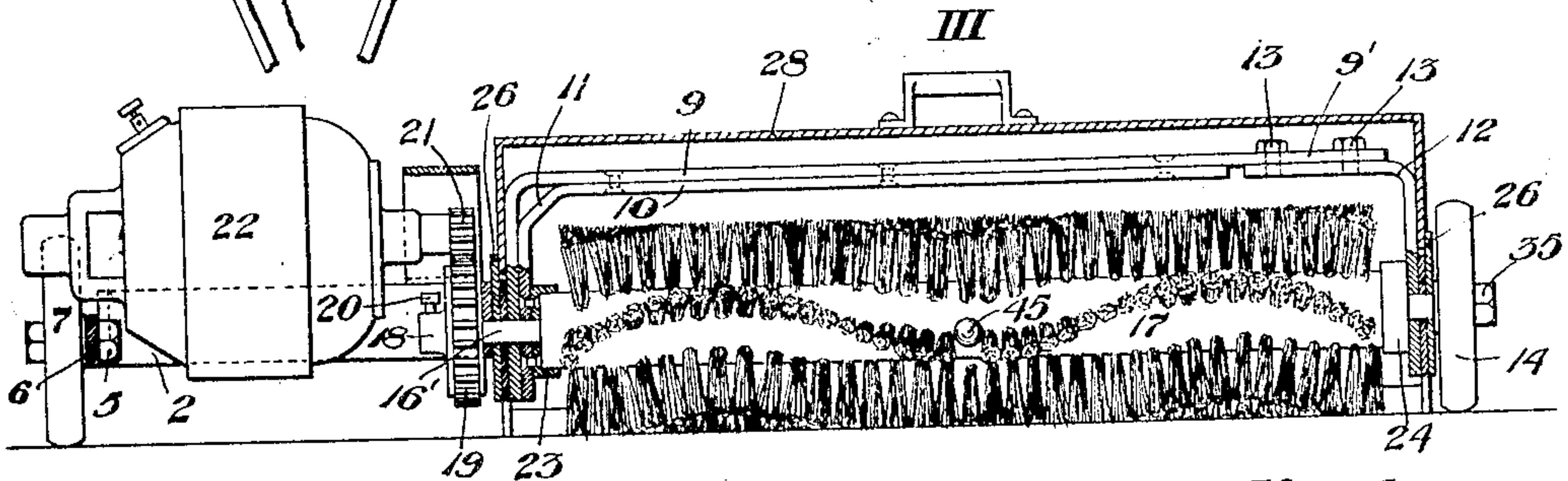
R. B. HUTCHISON.  
SURFACE CLEANING MACHINE.  
APPLICATION FILED DEC. 9, 1906.

2 SHEETS--SHEET 1.

*Fig. 1.*



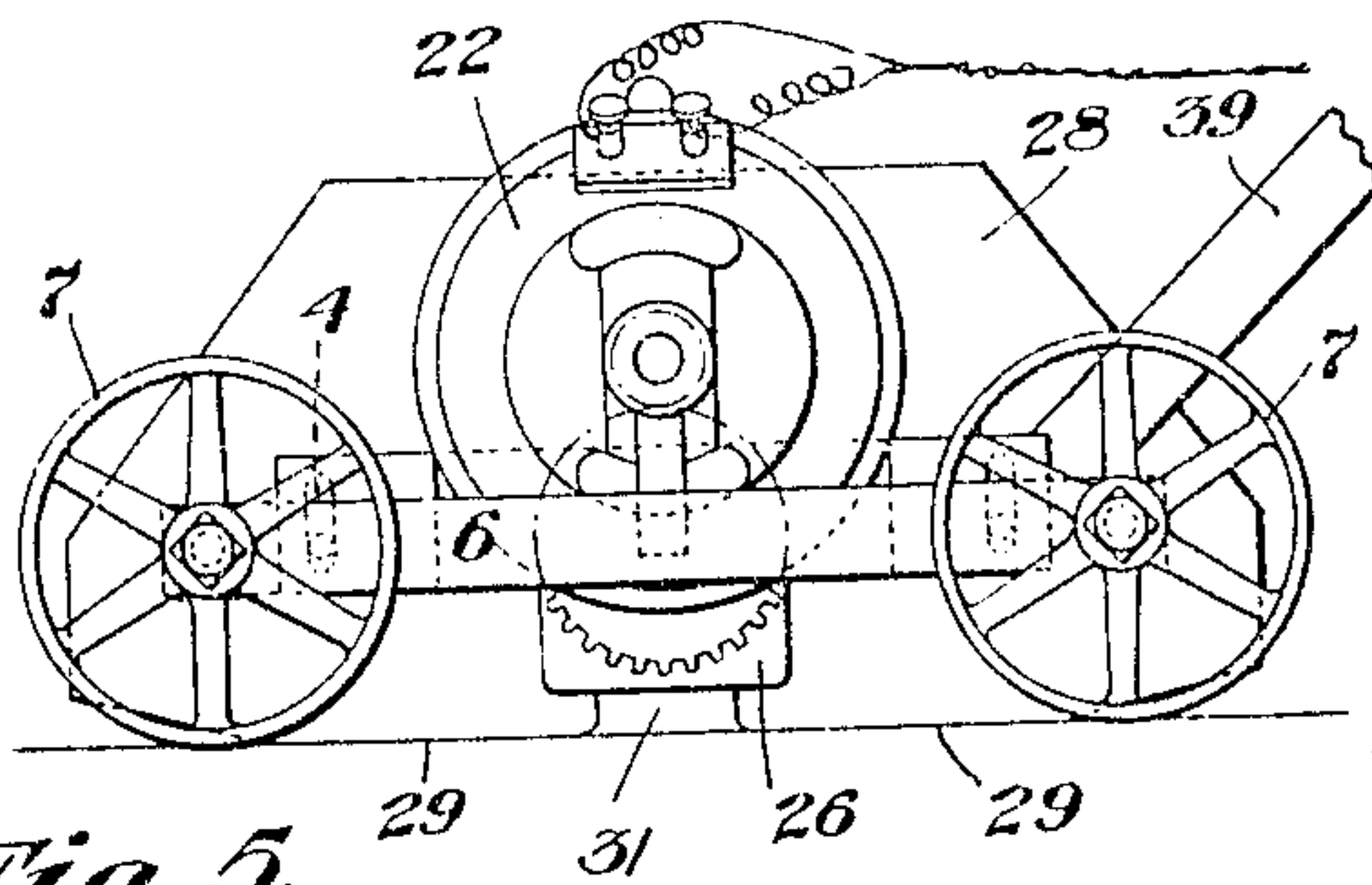
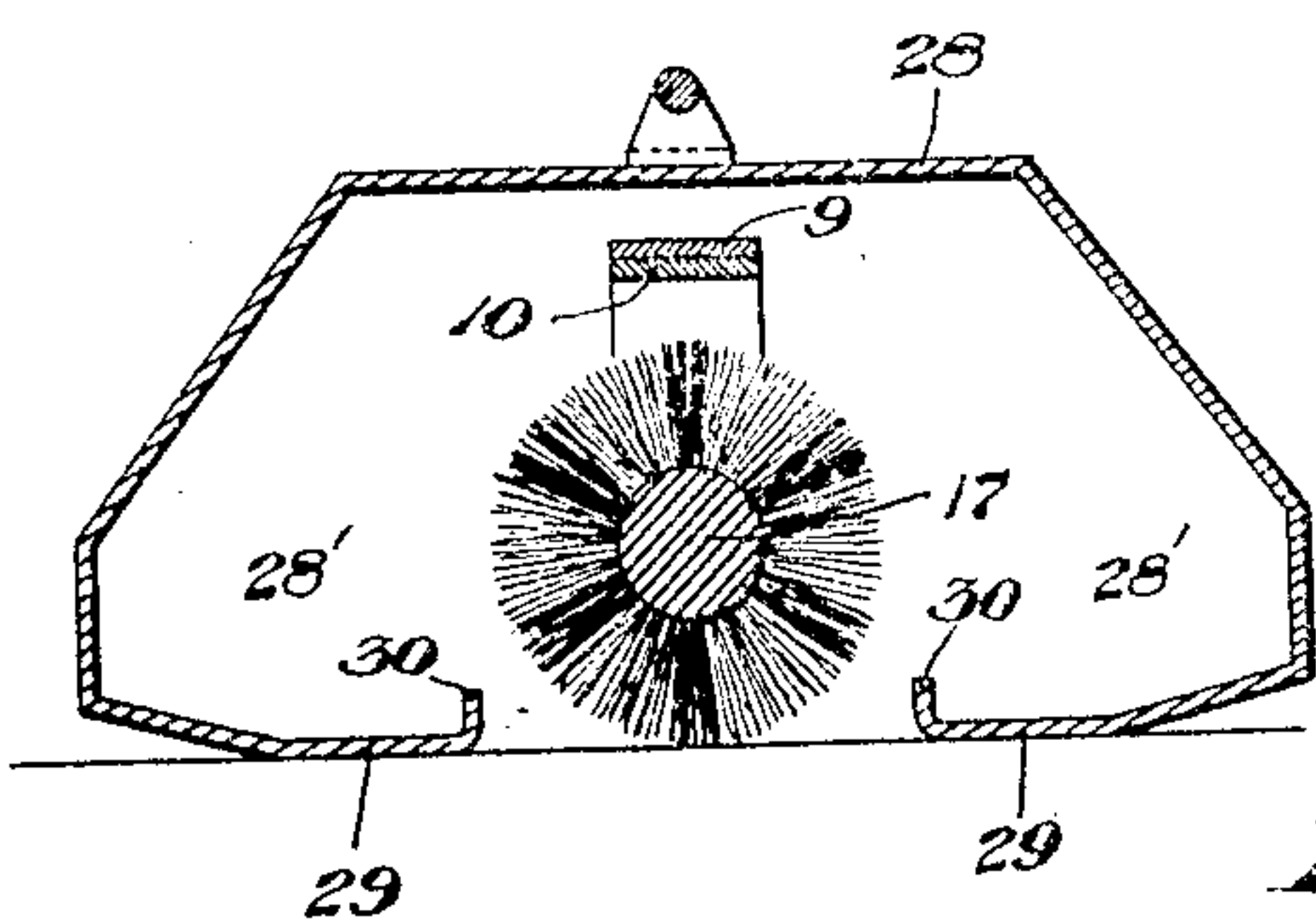
*Fig. 2.*



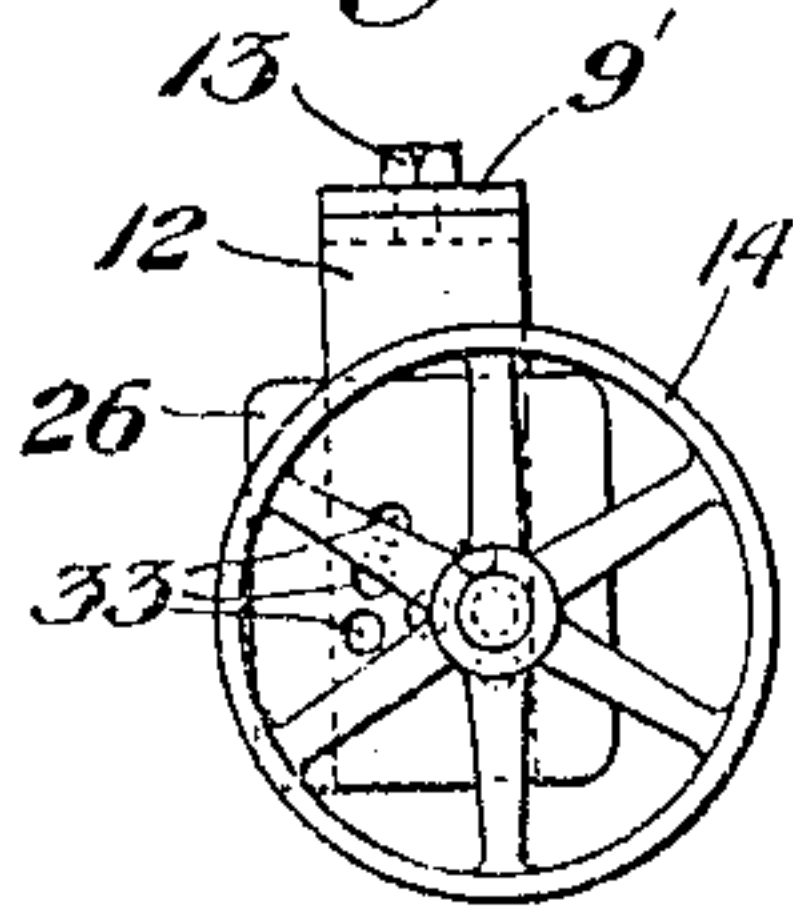
*Fig. 3.*

III

*Fig. 4.*



*Fig. 5.*



*Witnesses:*

E. R. Rodd.

Chas. Sepley

*Inventor:*

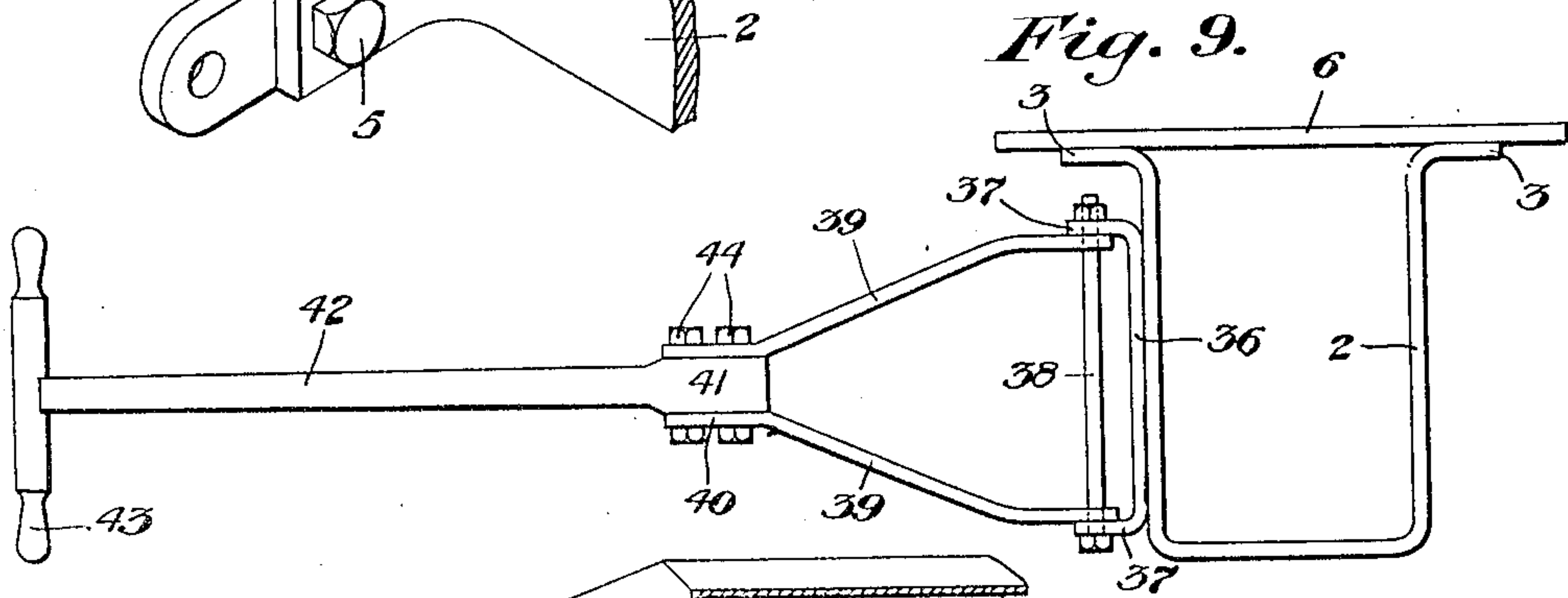
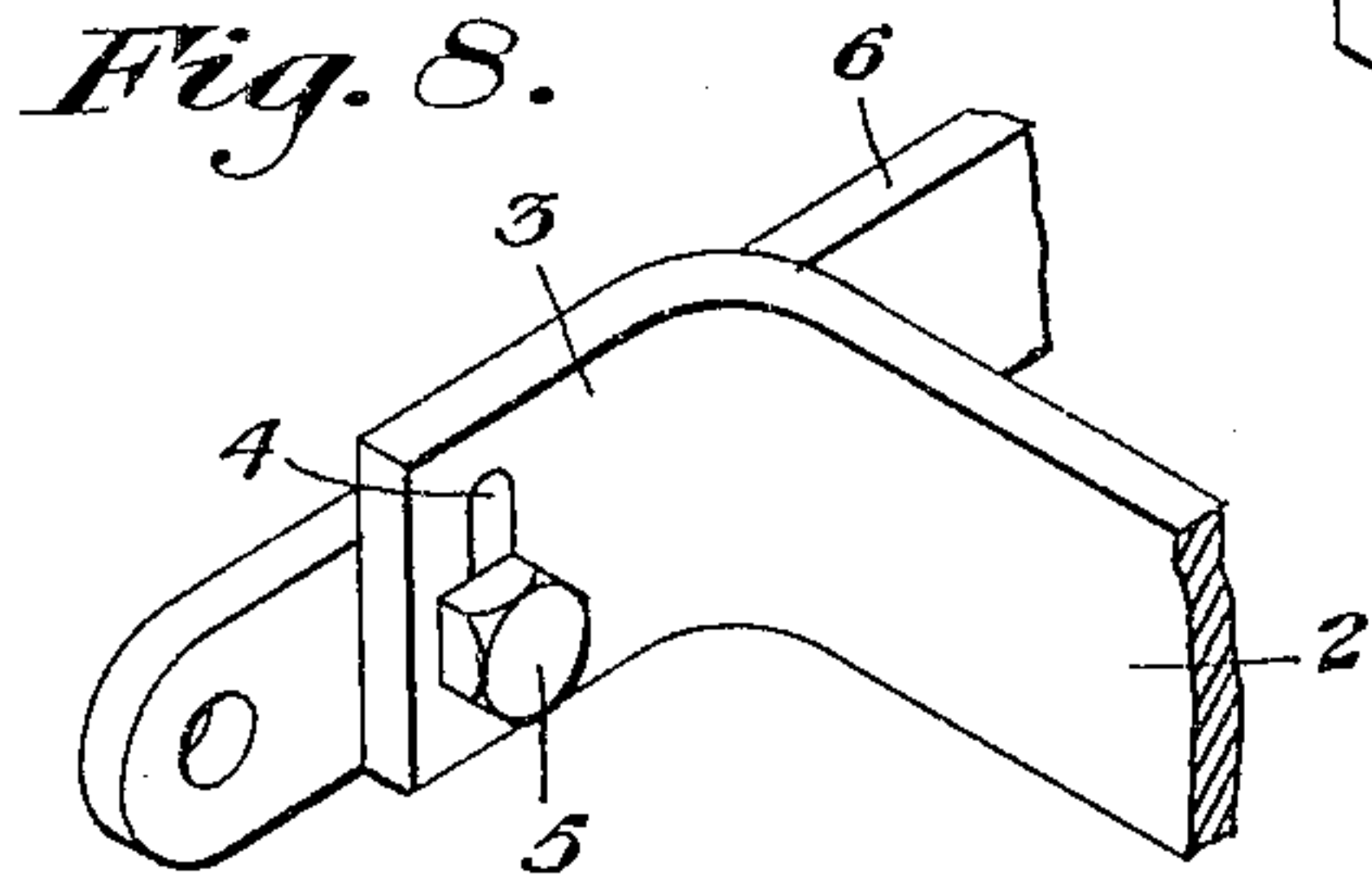
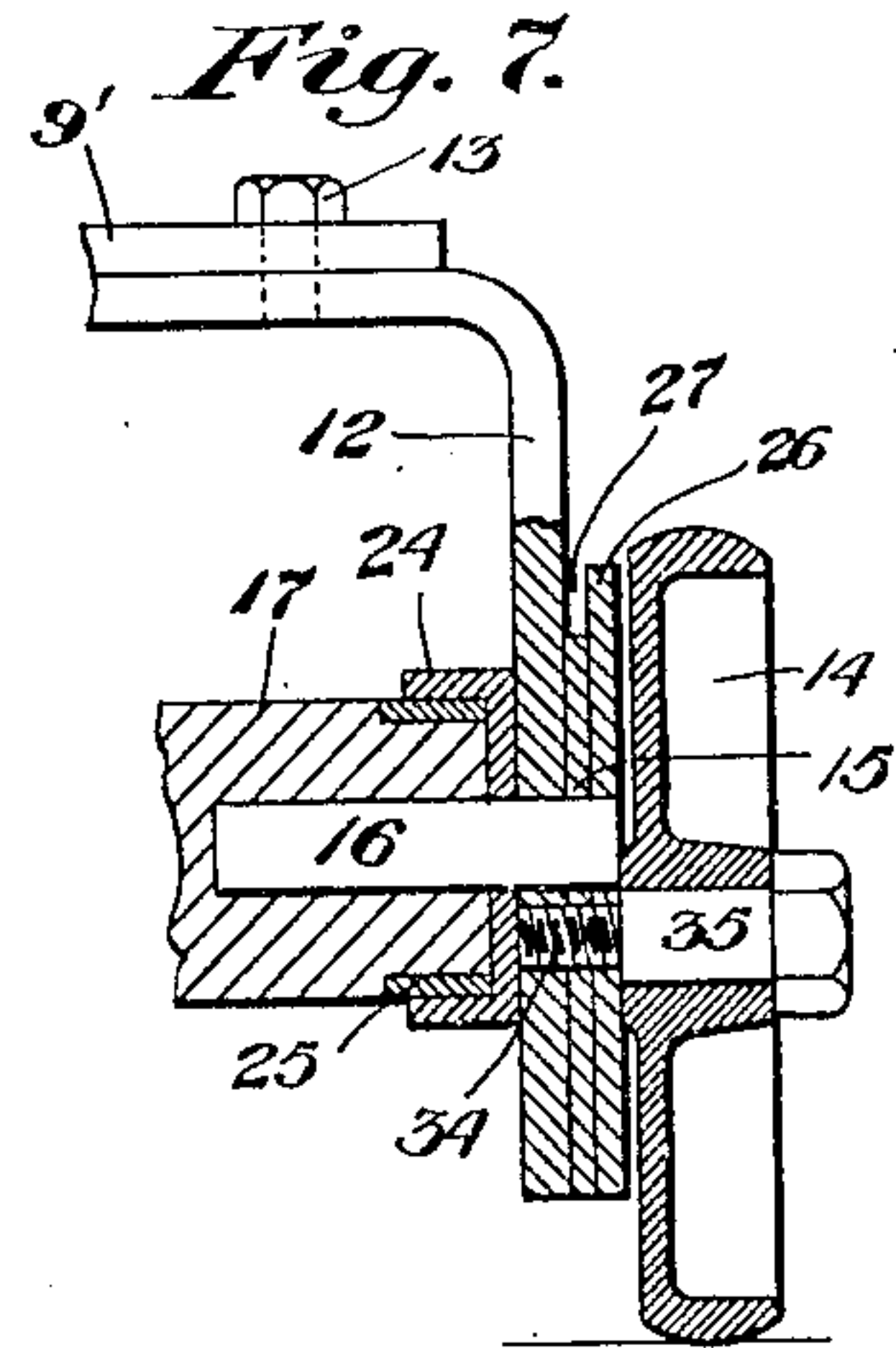
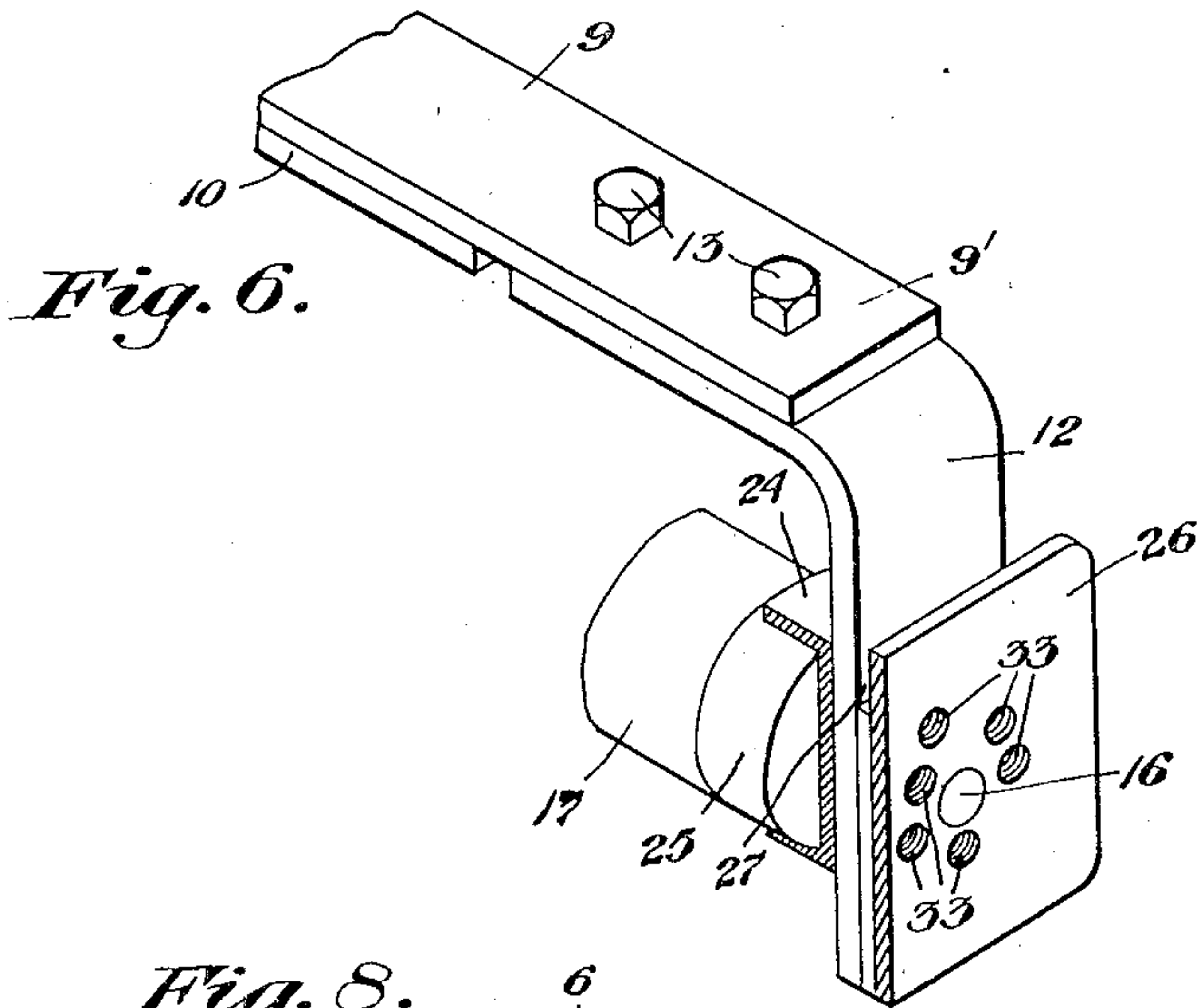
Robert B. Hutchison  
by C. M. Clarke  
his attorney

No. 871,937.

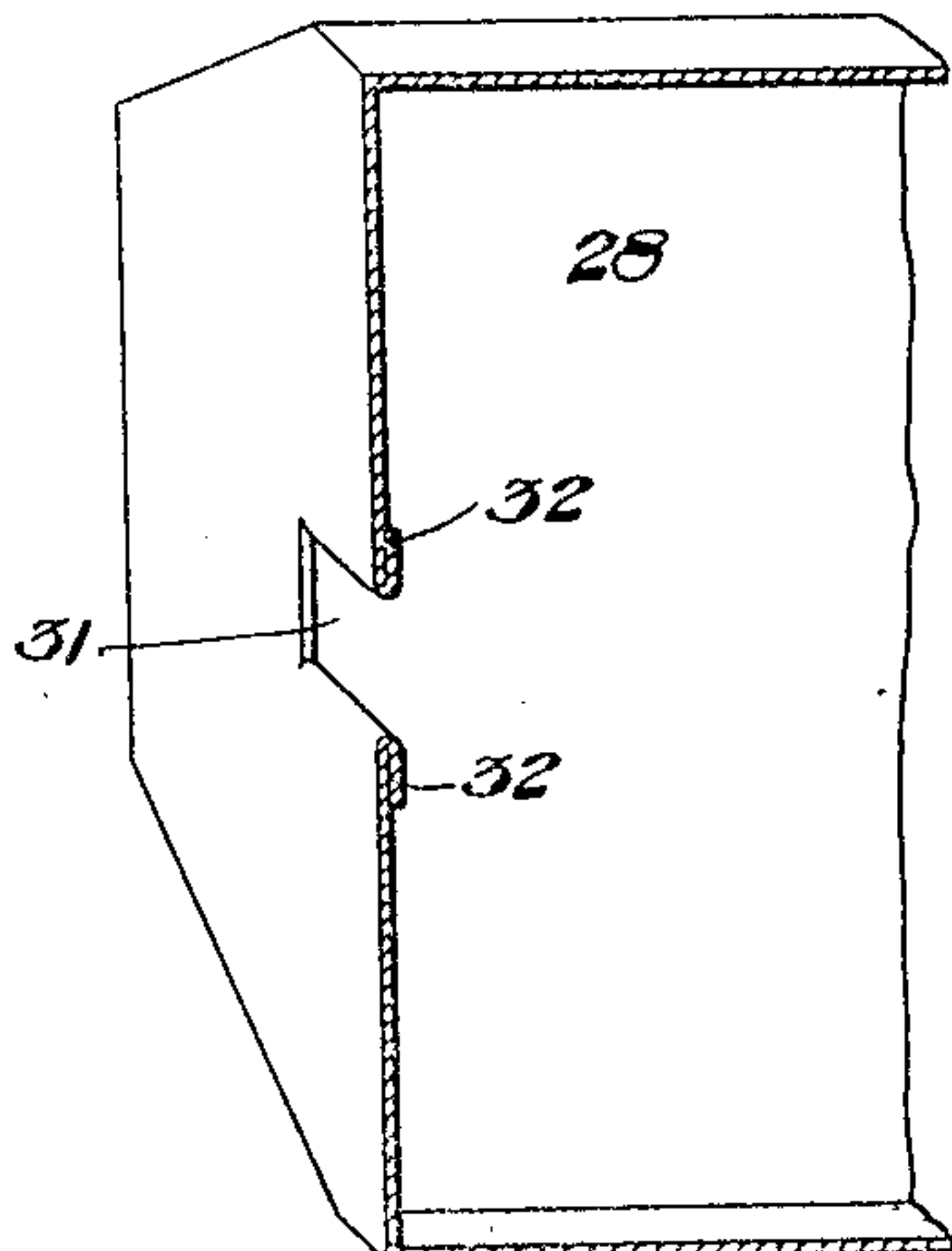
PATENTED NOV. 26, 1907.

R. B. HUTCHISON.  
SURFACE CLEANING MACHINE.  
APPLICATION FILED DEC. 9, 1905.

2 SHEETS—SHEET 2.



*Fig. 10.*



Witnesses:

E. R. Rodd.

Chas. S. Spley

Inventor:

Robert B. Hutchison  
by V. C. M. Clark  
his atty.



# UNITED STATES PATENT OFFICE.

ROBERT B. HUTCHISON, OF PITTSBURG, PENNSYLVANIA.

## SURFACE-CLEANING MACHINE.

No. 871,937.

Specification of Letters Patent.

Patented Nov. 26, 1907.

Application filed December 9, 1905. Serial No. 291,158.

*To all whom it may concern:*

Be it known that I, ROBERT B. HUTCHISON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Surface-Cleaning Machines, of which the following is a specification, reference being had therein to the accompanying drawing, forming part of the specification, in which—

Figure 1. is a plan view of my improved carpet sweeping machine, the cover and a portion of the driving handle having been removed. Fig. 2. is a longitudinal vertical sectional view on the line II. II. of Fig. 1. Fig. 3. is a cross sectional view on the line III. III. of Fig. 2. Fig. 4. is an end view from the left hand side of the operator. Fig. 5. is a similar view from the other end showing the manner of mounting the adjustable supporting wheel. Fig. 6. is a perspective detail view of the frame at the end shown in Fig. 5. Fig. 7. is a vertical sectional detail view of the same part of the machine. Fig. 8. is a detail view showing the framing construction and adjustable mounting of the wheel-supporting bar at the other end. Fig. 9. is a detail view showing the manner of mounting the handle. Fig. 10. is a sectional detail view showing the construction of the pan at its points of engagement with the supporting frame.

My invention refers to improvements in power actuated surface-cleaning machines for the purpose of cleaning carpets, floors, or wherever it is desirable to remove an accumulation of dirt or dust or to renew the original freshness or color of the surface. The apparatus comprising the invention is particularly adapted to cleaning carpets or rugs on the floor without removal and is designed to be moved around the floor by the operator and to be actuated by a motor constituting a portion of the mechanism by which the active elements of the device are driven.

The apparatus consists generally of the supporting frame mounted on rollers or wheels, with a power driven rotary brush or equivalent cleaning device, preferably provided with flexibly connected knockers, a motor which is preferably an electric motor whereby it may be flexibly connected with any suitable current supply, a surrounding

inclosing dust-containing casing, an operating handle, etc. as shall be more fully hereinafter described.

The present invention constitutes an improvement on a similar apparatus for which on July 27th, 1904 I filed an application for Letters Patent bearing the Ser. No. 218,330, which was patented Feb'y 27, 1906, No. 813,557.

The present invention particularly refers to the construction of the main framework; to the manner of mounting the rotating cleaning brush or other element so as to provide for ready removal or insertion; the manner of mounting the supporting wheels so as to provide for adjustment of the brush-carrying frame with relation to the floor; the removable collapsible handle, and other features more fully hereinafter described.

Referring now to the drawings, 2 is a part of the main framework adapted to support the motor and the connected parts made in U shaped form of a single bar set edgewise and provided with oppositely deflected terminals 3, 3, provided with vertical slots 4 through which, by means of tap bolts 5, the wheel bar 6 may be adjustably secured with relation to the main frame 2. The bar 6 is provided at each outer end with supporting wheels 7, 7, carried therein by stud bolts 8 and having rounded peripheries as shown, whereby they will more easily travel over the carpet or other surface and facilitate the turning of the machine.

Extending outwardly at one side midway of the motor-carrying frame 2 is the brush and cover supporting frame which is rigidly attached by bolts or rivets, or in any other suitable manner to the middle portion of the U-shaped bar 2, which frame consists of a double bar construction 9, 10, extending upwardly from the attachment with the frame 2 a sufficient distance to provide space for the brush, then bent at right angles and extending outwardly as shown in Fig. 2, the upper bar 9 being connected to the lower bar 10 by rivets, making a practically integral construction of great strength and rigidity. The inner bar 10 is, as shown, bent diagonally at the right angled corner as shown at 11, thereby providing an angle bracket so as to reinforce the construction at said point, making it very stiff and unyielding, while the upper bar 9 extends outwardly beyond



the lower bar 10 at the outer terminal of the frame as shown. This construction facilitates the connection and detachment of a supplemental terminal portion 12 consisting of a similar bar bent at right angles, attached to the terminal 9' of bar 9 by tap bolts 13, by which the frame is rigidly secured in position. This supplemental frame 12 is shown more fully in detail in Figs. 6 and 7 and constitutes the outer end of the framework by which the outer end of the brush is rotatably supported, while also providing means for attachment of the outer supporting wheel 14. This wheel is similar to wheels 7 and is ordinarily located on the same plane therewith.

Frame 12 extends downwardly and is provided with a journal bearing 15 for the outer stud or pin 16 of brush roller 17, and it will be seen that by removing frame 12 upon loosening bolts 13, the entire outer bearing may be removed, leaving the brush end free and unsupported. At its inner end the brush is provided with a similar bearing stud 16' extending through the corresponding journal bearing at said inner end of the frame and through the hub 18 of driven pinion 19, to which it is removably secured by set screw 20, the mechanism being actuated by the driving pinion 21 of motor 22 as will be readily understood. Upon loosening set screw 20 the entire brush may be withdrawn for cleaning or renewal or for the substitution of a different brush.

For the purpose of preventing the fouling of the journals 16 and 16' by strings, threads, etc. I have provided inclosing caps 23, 24, rigidly secured respectively at the inner sides of the fixed and removable bearings, one of which caps 24 is more clearly shown in detail in Figs. 6 and 7. These caps closely surround the ends of brush shaft 17 which is preferably provided with terminal ferrules or collars 25 making a neat fit within these caps. By the construction just described it will be seen that the frame may be taken apart and the brush removed very quickly and as quickly and easily re-assembled.

26, 26, represent outer supplemental plates rigidly connected with the fixed and adjustable frames respectively, providing between them and the main frames slots 27 for the reception of the sheet metal of the covering pan 28. The construction of this pan is similar generally to the pan shown in my prior patent having dust receiving chambers 28' at each side of the brush, also bearing portions 29, 29, adapted to rest upon the floor with inner upwardly extending flanges 30, 30, adapted to retain the dust. The pan is provided with terminal vertical slots 31 Fig. 10, the metal at each side thereof being reinforced by bending back the metal itself as clearly shown at 32 at each side of the

slot, thus providing rounded edges which play up and down at each side of the vertical solid bearings of the main and removable frames, below the slots 27. These slots 27 are of sufficient depth to engage the upper edge of the pan above the end slots 31, allowing for free play so that at all times the pan will rest upon the floor as the machine is moved around and will rise and fall independently of the frame in case of any unevenness or variation in the floor, the pliability of the carpet fabric, etc.

The outer lower portion of bracket 12 is provided with a series of threaded holes 33 into which is tapped the inner end 34 of a journal stud 35 and having a shouldered enlargement on which is mounted the wheel 14. By this construction it will be seen that the wheel may be set at various distances upon the outer end of the frame with relation to the center of the brush spindle so that the distance of the brush from the floor may be varied to take up the wear of the brush.

Attached to the front of the U shaped frame 2 is a bracket 36 having lugs 37 at each end, to which by a single bolt 38 the terminals 39, 39, of the handle are secured in such a manner that the handle may be raised at different elevations, or entirely removed from the machine. These extremities 39 are brought together at a point about midway of the entire length of the handle as shown at 40, providing closely adjacent terminals. Between these terminals 40 is inserted the end 41 of the operating handle 42 provided with grips 43, the terminal 41 being held by two bolts 44. By this construction the handle when extended as shown in Fig. 9 forms a rigid construction, and by removing one of the bolts 44 it may be folded backwardly upon the terminals 39 into comparatively small compass, thereby greatly facilitating the packing of the machine.

The brush may be of any suitable form or construction as shown in the drawings and is preferably provided with a series of flexibly connected beaters 45 of the type shown and described in my former patent. The entire apparatus is comparatively simple and cheap in construction, very efficient in operation, easily handled and will dislodge and remove the accumulated dust from the carpet in a thorough and effective manner and with a great saving of labor and expense.

What I claim is:

1. In a surface cleaning machine, the combination of a U shaped motor frame having front and back vertically adjustable wheels, a motor mounted on said frame, a supplemental brush frame extending laterally beyond said motor frame and having a downwardly extending detachable terminal, a rotating brush mounted in said supple-



mental frame, and gearing connecting the motor with the brush, substantially as set forth.

2. A surface cleaning machine provided  
5 with a brush-supporting frame and having downwardly extending bearing portions at each end thereof, supplemental end plates mounted upon the outer end of each bearing  
10 portion with intervening slot-like openings, a rotating brush mounted in said frame, supporting wheels for the frame, and a removable sheet metal cover in vertical sliding engagement with said frame between said outer  
15 bearing portions and the supplemental plates, whereby the cover will continually rest upon the floor surface irrespective of the position of the frame, substantially as set forth.

3. In a surface cleaning machine, the  
20 combination of a U shaped motor frame having front and back vertically adjustable wheels, a motor mounted on said frame, a supplemental brush frame extending laterally beyond said motor frame and having a  
25 downwardly extending terminal, a rotating brush mounted in said supplemental frame, gearing connecting the motor and brush, guiding plates located at each end of said supplemental frame providing intervening  
30 slot-like openings, and a removable slotted sheet metal cover in vertical sliding engagement with said frame and guiding plates,

whereby the cover will continually rest upon the floor surface irrespective of the position of the frame, substantially as set forth. 35

4. In a surface cleaning machine, the combination of a brush-supporting frame having downwardly extending bearing portions, a supplemental plate fixed to one of said portions and having a plurality of aper- 40 tures at different heights, a journal stud adapted to be mounted in either of said apertures, and a supporting wheel mounted on said stud, whereby the brush may be vertically adjusted, substantially as set 45 forth.

5. In an apparatus of the class described, the combination of a U-shaped frame provided with a vertically adjustable wheel supporting bar, wheels pivotally mounted at 50 each end of said bar, a supplemental brush carrying frame extending beyond said U-shaped frame and provided with a detachable end section, a rotating brush mounted therein, a driving motor in engagement with 55 said brush, and a vertically adjustable supporting wheel mounted upon said end section, substantially as set forth.

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

ROBERT B. HUTCHISON.

Witnesses:

CHAS. S. LEPLEY,  
E. R. RODD.