

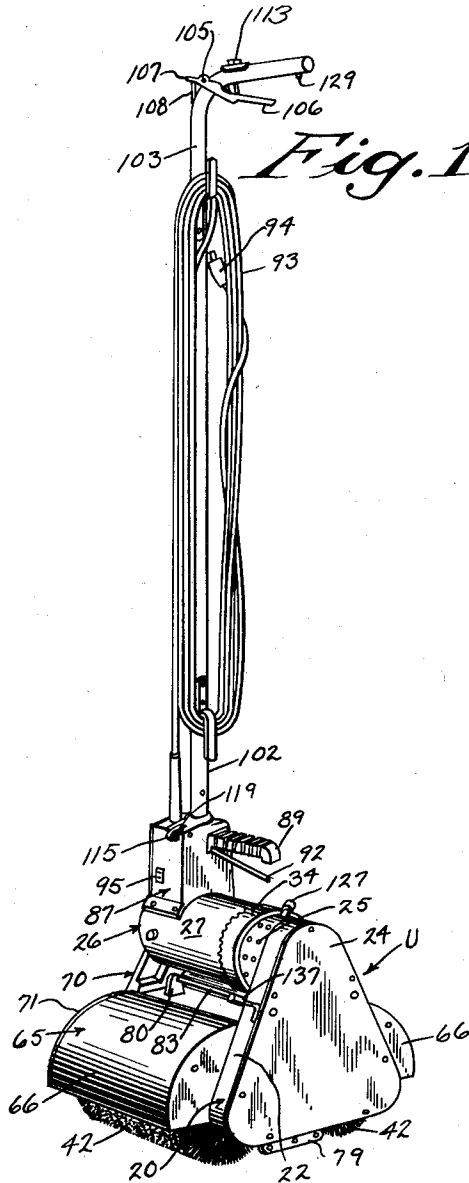
July 15, 1958

H. D. RENCH ET AL  
CARPET SCRUBBING MACHINE

2,842,788

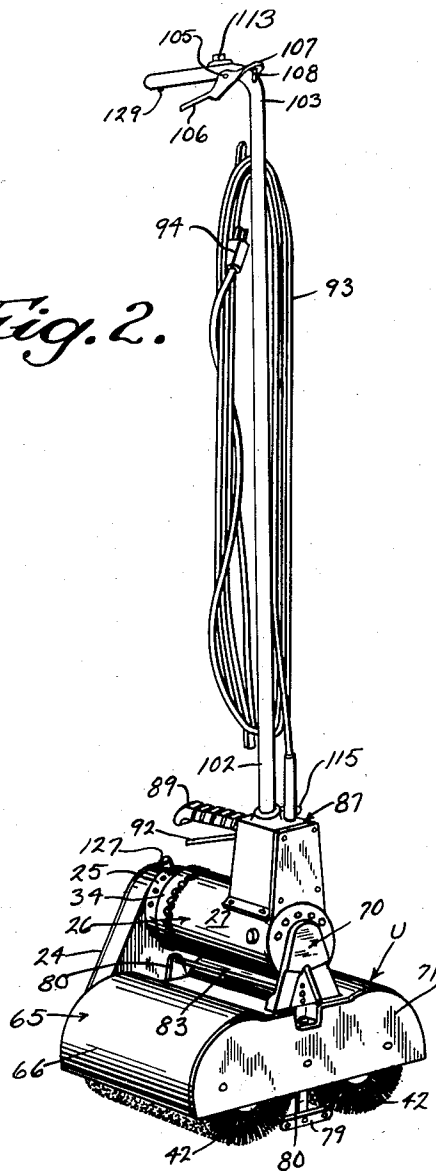
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*Fig. 1.*

*Fig. 2.*



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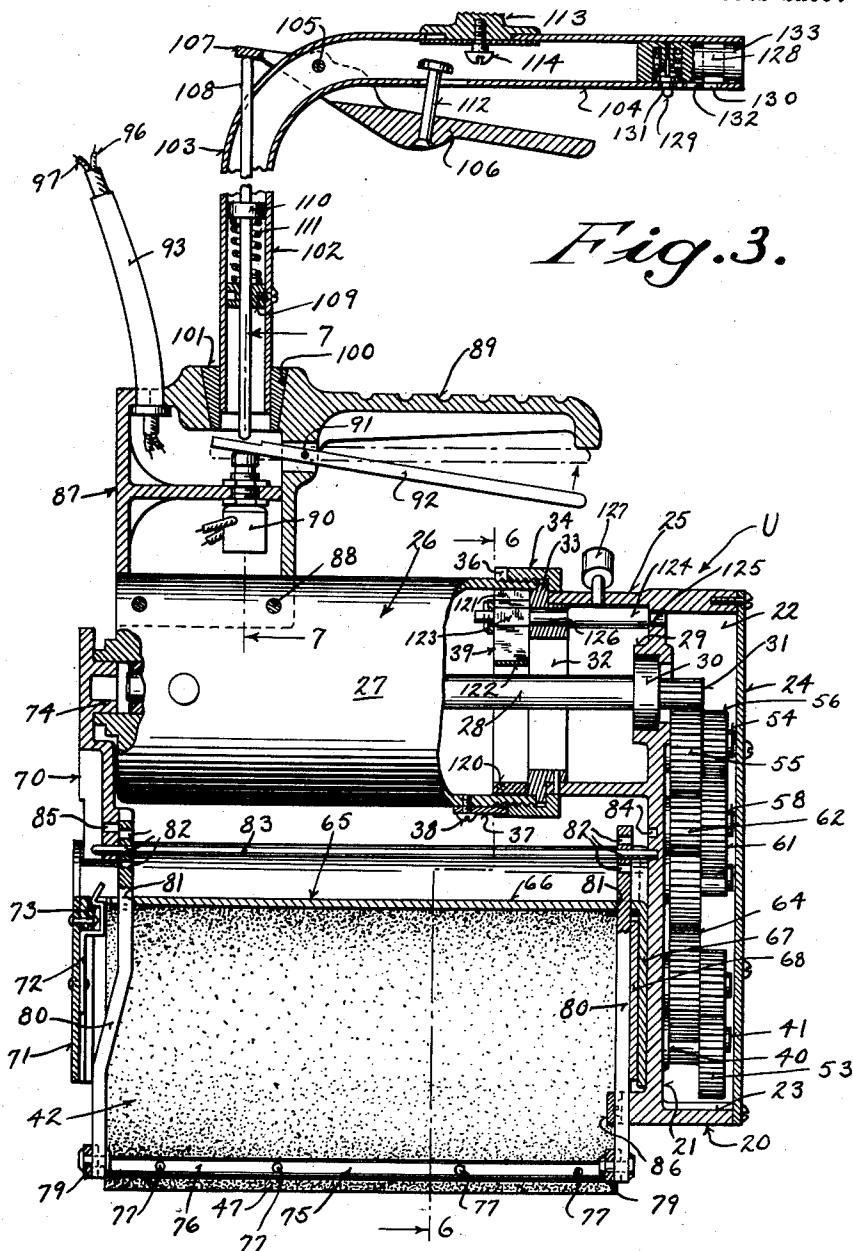


Fig. 3.

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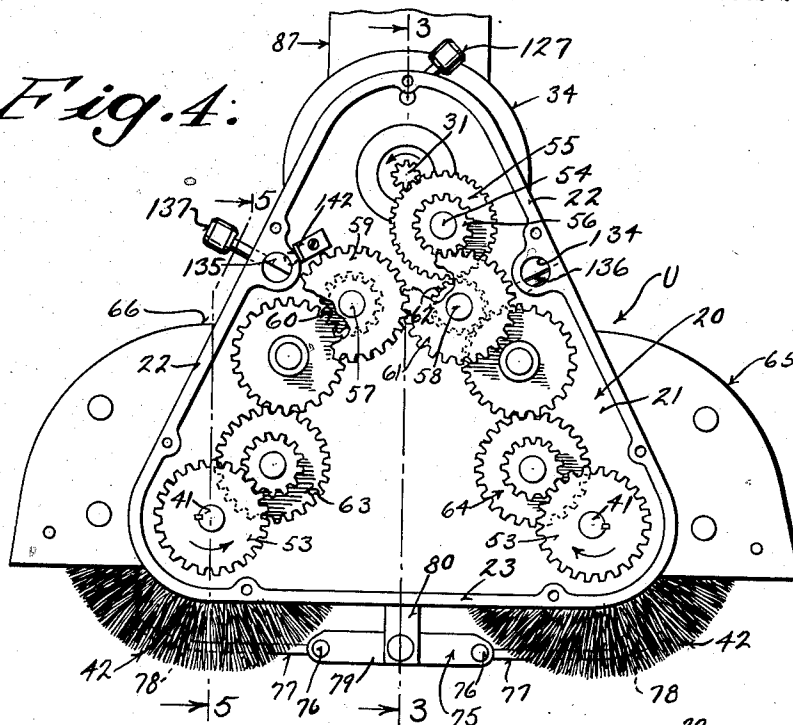
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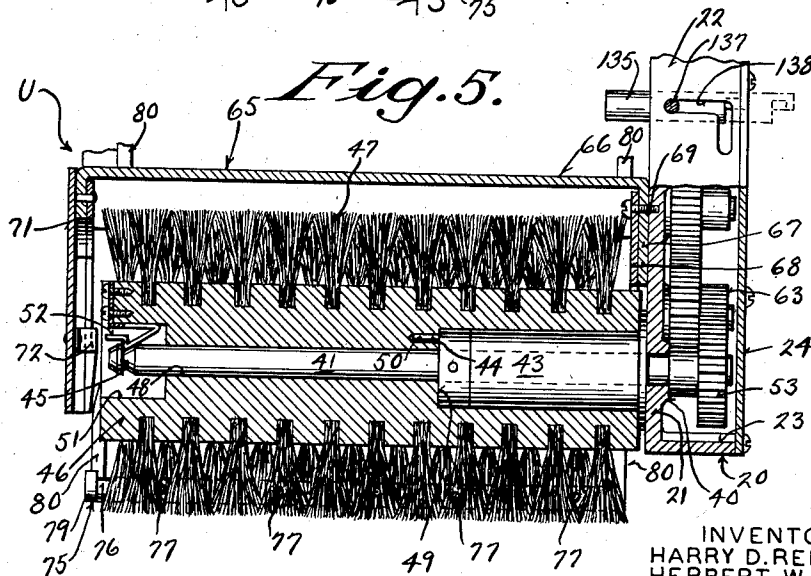
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*Fig. 4.*



*Fig. 5.*



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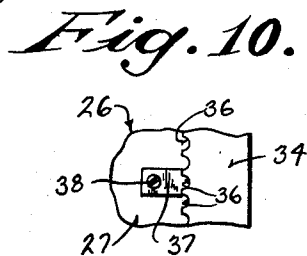
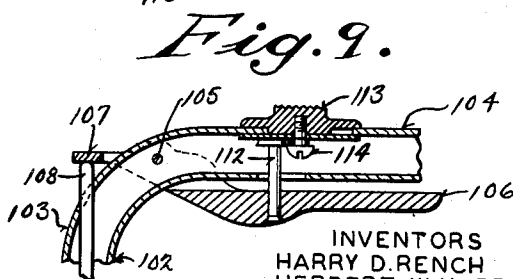
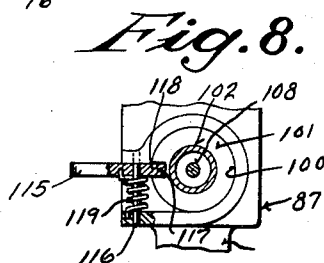
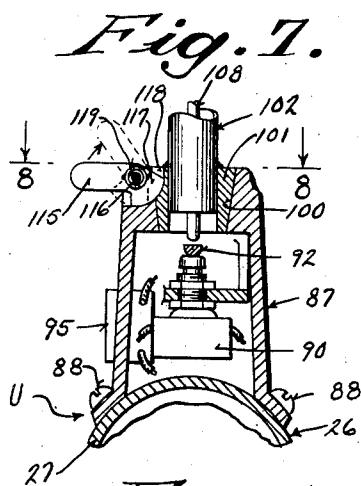
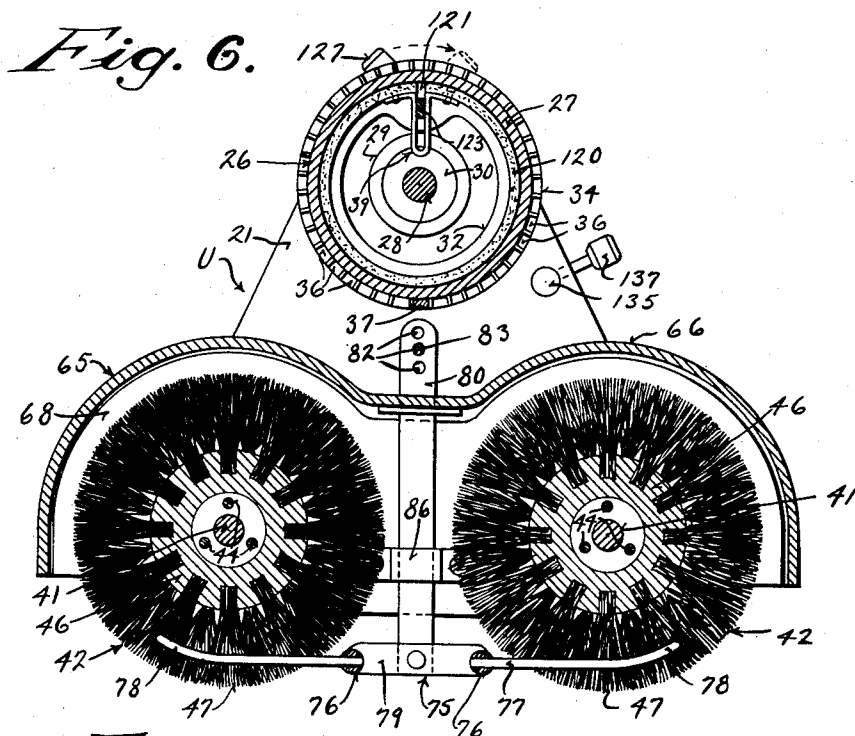
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5 Sheets-Sheet 4



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CARPET SCRUBBING MACHINE

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5 Sheets-Sheet 5

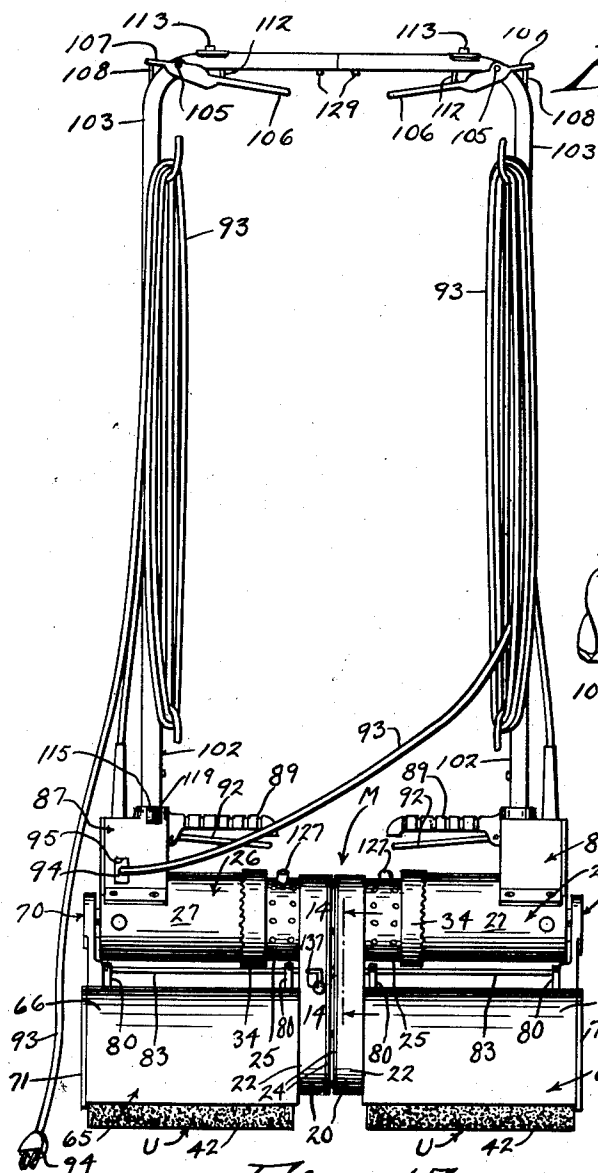


Fig. 11.

Fig. 12.

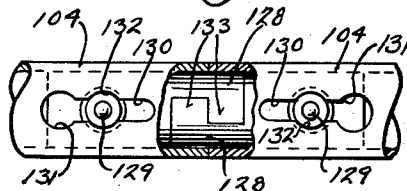


Fig. 13.

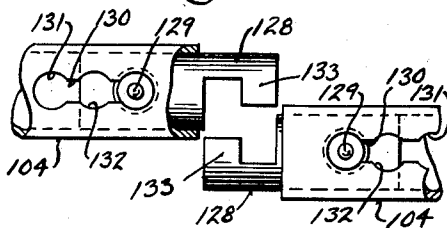


Fig. 14.

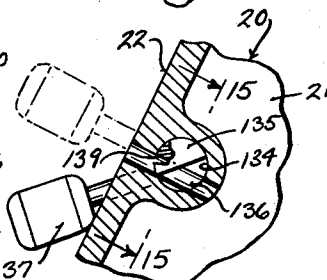
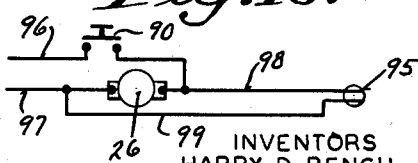
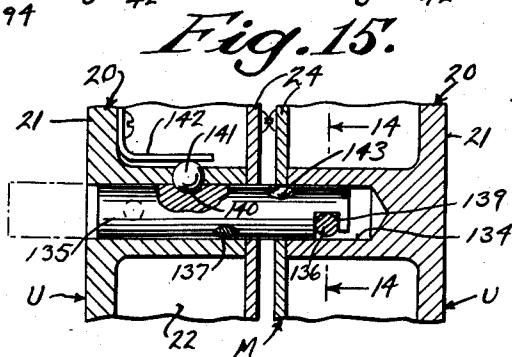


Fig. 16.



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## CARPET SCRUBBING MACHINE

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Application January 27, 1956, Serial No. 561,756

11 Claims. (Cl. 15—48)

This invention appertains to the scrubbing of carpets directly on the floor and one of the primary objects of the invention is to provide a new and novel means to bring about the cleaning of carpets by the use of a portable machine embodying power driven brushes for effectively working dry cleaning powder back and forth through the nap, pile or twist of modern carpets.

With the increasing use of tacked down wall-to-wall carpeting in homes of all sizes, a problem has arisen both among professional cleaners and "Do It Yourself" householders, in the economical maintenance of such carpeting in a clean, bright condition. Wet scrubbing machines have been proposed for cleaning the carpets directly on the floor, but to our knowledge none of these machines successfully scrubs the carpet right up to the baseboard; resulting in much tedious and time consuming hand work, and such machines are clumsy and heavy to handle and the cost thereof is extremely high.

It is one of the primary objects of this invention to provide a light, portable dry carpet scrubbing machine unit which is so-designed and constructed that the same can be manipulated in corners and right up to the baseboards and thus bring about correct cleaning of a carpet over the entire area of a room, hallway, etc.

Another salient object of the invention is the provision of a carpet scrubbing machine unit embodying a pair of horizontally disposed rotatable brushes with an electric motor arranged in a horizontal plane parallel with and between the brushes but above the brushes and speed reducing gear trains located at one end only of the machine for driving the brushes in opposite directions from the motor, the arrangement being such as to provide a compact, light, portable, balanced machine, in which one end thereof can be placed in direct engagement with the baseboard for bringing the brushes up to the quarter round or the like utilized for holding down the carpet.

A further important object of the invention is the provision of a novel guard comb arranged between the brushes and for engaging the bristles of the brushes to prevent the picking up of foreign objects by the brushes, such as the extension cord of the machine, should the brushes be manipulated over the cord, the teeth of the comb being arranged in such a manner as to not ride on the carpet whereby injury to the carpet will be prevented, means being also provided to permit adjustment of the comb as wear takes place on the brushes.

Another important object of the invention is the provision of a manipulating handle movable on an axis coincident with the axis of the motor, whereby the handle can be instantly swung from one side of the machine to the other, so that the machine can be reversed and advantageously manipulated to bring about the correct positioning of the machine in corners and alongside walls, etc.

Another salient object of the invention is the provision of a twin brush carpet scrubbing machine unit in which the weight and balance are correct so that the machine

2

can be supported directly by the brushes on the carpet and whereby all supporting wheels, casters and the like are dispensed with and whereby the brushes will engage the carpet with the desired pressures.

A further object of the invention is to drive the horizontally disposed brushes in opposite directions and toward one another, whereby to work the cleaning material effectively back and forth through the pile of the carpet and to prevent the undue throwing out of the cleaning powder etc. and to prevent the "walking away" of the machine from the operator during manipulation thereof.

A further important object of the invention is the provision of means whereby the brushes can be quickly removed and inter-changed so as to prevent uneven wear thereon and to prevent the bristles of the brushes from taking an undesirable set from constant rotation in one direction.

Another further object of the invention is the provision of a carpet scrubbing machine unit embodying an elongated manipulating handle and a hand grip positioned adjacent to the base of the machine unit with interconnected controls for the motor carried by the handle and the hand grip, the elongated handle and its control being freely removable whereby the machine unit can be expeditiously manipulated from the hand grip for cleaning stairway carpets etc.

A still further object of the invention is the provision of means for holding the hand grip (and handle when used) against undesirable swinging movement, particularly during the use of the machine unit for scrubbing stair carpeting.

A still further important object of the invention is the provision of like carpet scrubbing twin brush units with means for coupling the units together to form a single machine, whereby to facilitate the quick cleaning of large areas and whereby the units can be quickly separated from each other for independent use for easy manipulation in confined areas.

A still further important object of the invention is the provision of a novel handle arrangement for the units, whereby when the units are connected together a single effective manipulating handle is provided.

Another further important object of the invention is the provision of means whereby when the units are coupled as one machine, only one extension cord from one unit is utilized from an outlet box for supplying current to the motor of each unit and whereby only the manipulation of one switch of one unit is necessary to control the motors of both units.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed and illustrated in the accompanying drawings in which drawings,

Figure 1 is a perspective view of the novel carpet scrubbing machine unit;

Figure 2 is a similar view, but showing the opposite end of the unit;

Figure 3 is an enlarged central vertical sectional view through the unit taken on the line 3—3 of Figure 4, looking in the direction of the arrows;

Figure 4 is a fragmentary end elevational view of one machine unit with the cover plate for the transmission and speed reducing gearing removed;

Figure 5 is a detail vertical sectional view taken on the line 5—5 of Figure 4, looking in the direction of the arrows and showing more particularly the detachable mounting of one of the inter-changeable brushes on its spindle or shaft, the view also showing the base lock for connecting a pair of duplicate units together;

Figure 6 is a fragmentary central vertical sectional view through one of the machine units taken at right

angles to Figure 3 and on the line 6—6 of Figure 3, looking in the direction of the arrows, the view illustrating the adjustability of the guard for the twin brushes and the lock for the handle;

Figure 7 is a detail vertical sectional view taken on the line 7—7 of Figure 3, looking in the direction of the arrows illustrating the switch actuating mechanism for controlling the motor and the means for detachably locking the manipulating handle on the machine.

Figure 8 is a detail horizontal sectional view taken on the line 8—8 of Figure 7, looking in the direction of the arrows and illustrating the lock or latch for detachably holding the handle in position;

Figure 9 is a detail vertical sectional view through the handle bar of the handle showing the switch operating means in its locked position for holding the circuit closed through the operating motor;

Figure 10 is a fragmentary detail bottom plan view of the motor casing showing the means employed for securing the holding collar for the motor casing in an adjusted position;

Figure 11 is a front elevational view showing a pair of the units coupled together to form a complete machine for scrubbing a wide area, the view also showing the extension cord for one unit electrically coupled with the control of the other unit;

Figure 12 is a fragmentary bottom plan view showing the handle bars of the two units in alignment and locked together, parts of the view being shown broken away and in section to illustrate the inter-locking bolts;

Figure 13 is a view similar to Figure 12, but showing the bolts in their extended released positions with the handle bars swung apart.

Figure 14 is a detail fragmentary vertical sectional view taken on the line 14—14 of Figure 11, illustrating the coupling means in its projected locked position for uniting the bases of the units together;

Figure 15 is a fragmentary detail longitudinal sectional view taken on the line 15—15 of Figure 14, looking in the direction of the arrows and illustrating the bolt in its projected locked position for coupling the bases of the units together, and

Figure 16 is a diagrammatic view illustrating the wiring for a unit of the machine.

Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter M generally indicates my improved scrubbing machine (see Figure 11), embodying a pair of identical machine units U. As the units U are of identical construction only one of such units will be described in detail and it is to be understood that the complete machine M is utilized for scrubbing wide areas of the carpet and that independent units U are utilized for cleaning small areas, and particularly for stair carpets and in confined places, such as the corners and against wall baseboards where ease of manipulation is essential and desirable.

Each unit U comprises a frame 20 which can be in the nature of a casting disposed at one side of the machine and this casting also constitutes a housing for the drive and reduction gearing, as will later appear. The frame 20 includes a substantially triangular shaped inner plate 21 having marginal side and bottom walls 22 and 23. A cover plate 24 is detachably secured to the marginal side and end walls 22 and 23 and completes the housing for the gearing. The inner plate 21 has formed thereon at its upper end an inwardly directed cylindrical sleeve 25 which constitutes the support for the electric drive motor 26.

The electric motor 26 will not be described in minute detail, but as clearly shown the same is arranged in a horizontal plane and includes a substantially cylindrical motor casing 27 and the armature drive shaft 28. The armature drive shaft 28 extends through a bearing boss 29 formed on the inner wall 21 of the frame and is

rotatably mounted in suitable bearings 30 disposed in said boss and the armature shaft terminates within the housing and in a drive pinion 31 which can be secured to the shaft or formed directly thereon. The position of the motor forms an important part of this invention, as brought out in the objects of the specification and as will be hereinafter more fully described and the casing 27 is rotatable on the sleeve 25, for a purpose which will also later appear. In order to support the casing 27 for turning movement a supporting ring 32 is secured to the inner end of the sleeve 25 and this ring is provided with an outwardly extending annular flange 33 which abuts up against the edge of the sleeve 25. Rotatably mounted on the sleeve 25 for turning movement is a flanged collar 34 and this collar is internally threaded for receiving the threaded inner end of the motor casing 26. By rotating the collar in the correct direction, the collar can be turned up on the casing so as to bring the flange of the collar tight against the flange 33 on the ring 32 on one side and the inner edge of the motor casing against the annular flange on the other side. To hold the collar 34 and the motor casing 26 against accidental turning movement relative to one another after adjustment of the collar, the forward edge of the collar is provided with a series of indentations 36. A holding latch plate 37 secured to the motor casing by a screw 38 or the like, can be placed in a selected indentation. From the description so far, it can be seen that the motor casing 27 and the collar can be turned as a unit on the sleeve 25 and the ring 32. At desired times, the motor casing 27 and the collar 34 can be held against rotation on the sleeve 25 by a holding means 39. This holding means 39 will be later described.

Disposed at the lower corners of the triangular shaped inner plate 21 are bearing bosses 40 which rotatably support outwardly extending spaced parallel spindles 41 for supporting the scrubbing brushes 42. The spindles are also arranged in parallel relation to the armature shaft 28 of the motor 26 and on each side of the motor, but in a plane below the motor. The spindles extend into the transmission housing as best shown in Figure 5, and these spindles have formed thereon or secured thereto beyond the frame plate 21 cylindrical barrels 43 having drive pins 44. The extreme outer ends of the spindles are provided with annular keeper grooves 45.

Each of the brushes 42 includes a solid hub 46 having embedded therein the brush tufts 47. This hub 46 is provided with an axial bore 48 which is enlarged at its inner end to receive the barrel 43 and to define a stop shoulder 49 for abutting engagement with the barrel. The shoulder is provided with openings 50 for receiving the driving pins 44 whereby upon turning movement of the spindles 41 the brushes 42 will be rotated therewith. The outer ends of the bores 48 are provided with enlargements to define chambers 51 which receive the terminals of the spindles and these chambers have secured therein latch springs 52 which are adapted to snap in the annular keeper grooves 45, whereby to retain the brushes on the spindles. By depressing the spring latches the same can be moved out of the grooves and the brushes can be readily pulled off of their spindles. At this point, it is to be noted that the brushes are driven in opposite directions and toward one another by means to be later described, and in order to compensate for wear on the brushes and to prevent the brushes from taking an undesirable set from being rotated always in the same direction the brushes can be inter-changed from one spindle to the other. The ends of the spindles 41 which extend into the gear housing have secured thereto gears 53. Novel means is provided for rotating the brushes in opposite directions and toward one another from the armature shaft 28 and the pinion 31 on the armature shaft and the gears 53 constitute a part of this drive. An important feature of the invention is the proper balancing of the machine, so that the brushes can come into direct con-

5

tact with the carpet or rug being cleaned and whereby the machine is supported solely by the brushes and the relationship of the motor 26 and the brushes 42 bring about this balance. Likewise, the drive and speed reducing mechanism is also arranged to bring about and to continue this proper balance. Secured to or formed on the frame wall 21 is a stub shaft 54 on which is rotatably mounted a gear set including a gear 55 and a pinion 56. The gear 55 meshes with the drive pinion 31. It is to be noted that the stub shaft 54 is at one side of and below the armature shaft and arranged below the stub shaft 54 are stub shafts 57 and 58. These stub shafts are disposed in the same horizontal plane and at equal distance on each side of the vertical axis of the unit. The stub shaft 57 has rotatably mounted thereon a gear set including a gear 59 and a pinion 60. The stub shaft 58 has rotatably mounted thereon a similar gear set including a gear 61 and a pinion 62. The gears 59 and 61 are inter-meshed and the gear 61 is driven from the pinion 56. By this arrangement, it can be seen that the gears 58 and 61 are driven in opposite directions. The pinions 60 and 62 drive a diverging train of gears 63 and 64 and the gears 53 for the brushes 42 constitute a part of these trains. All of the gears are of the nylon type and hence the operation of the device is silent and lubrication of the gears is unnecessary. The motor is air cooled and the armature shaft 28 can be provided with a fan, not shown, and the motor casing with suitable inlet and outlet vents.

A cover and protecting plate 65 is provided for the brushes and the same is preferably but not necessarily, formed from thermoplastic material and the same includes a top wall 66 and an inner end wall 67. The top wall is shaped to present an attractive appearance and to conform somewhat to the configuration of the brushes. The inner wall 67 can be reinforced by a metal plate 68 and screws 69 can be utilized for connecting the plate to the wall 67 and the cover to the frame 20. At the end of the unit opposite from the frame 20 is a depending inverted V-shaped bracket 70, and the diverging depending legs of this bracket are secured by rivets or the like to an end flange of the top wall 66 of the cover 65. An end plate 71 is detachably secured to the cover plate for quick removal when it is desired to interchange the brushes 42. As illustrated, see Figure 3, the end plate 71 can carry spring latches 72 which are adapted to snap over a reinforcing plate 73 carried by the end flange of the top wall 66. The upper end of the V-shaped brackets 70 has formed thereon an annular boss 74 which is fitted within an opening in the end wall of the motor casing 27, and obviously, this bracket forms a support for one end of the cover plate 65.

It is preferred to provide a guard 75 for the brushes 42 and this guard includes a pair of spaced parallel comb bars 76 carrying outwardly extending comb teeth 77. The outer ends of the comb teeth are curved upwardly, as at 78, and extend into the tufts of the brushes 42. The comb teeth prevent the entrance of large particles into the brushes and form means for preventing injury to the electric cord of the machine (as will later appear), should the machine be driven over the cord. The comb bars 76 are connected at their ends by cross-bars 79 and these bars in turn carry upwardly extending supporting arms 80. The arms 80 slidably extend through openings 81 formed in the cover plate and the upper ends of the arms 80 are provided with a series of openings 82. A supporting rod 83 is placed through desired openings and is suspended from the inner wall 21 of the housing 20 and the bracket 70. As illustrated, the inner wall or plate 21 is provided with sockets 84 for receiving one end of the rod 83 and in openings 85 in the bracket 70. By placing the rod 83 at different points, the guard 75 can be raised and lowered to compensate for wear on the brushes 42. If desired, a U-shaped guide 86 can be formed on or carried by the wall 21 for receiving one

6

of the arms 80 so that swinging of the guard will be prevented relative to the brushes and the casing.

Rigidly secured to one end of the motor casing 27 at a point remote from the supporting sleeve 25 is a housing 87 which forms a support for various parts of the unit, as will now be set forth. The lower edge of the housing is shaped to conform to the cylindrical configuration of the motor casing and can be riveted to the motor casing or secured thereto by screws 88. Formed on this housing is a laterally projecting hand grip 89 and this hand grip extends over the motor casing and in spaced relation thereto toward the supporting sleeve 25. This hand grip 89 forms means for handling and manipulating a unit on stairways and the like. Arranged within the housing 87 is a spring pressed normally open switch 90 for controlling the flow of current to the electric motor 26. Rockably mounted on the housing, as at 91, below the hand grip 89 is a switch handle lever 92 and this lever extends into the housing and engages the button of the switch 90. The switch lever handle 92 extends under the hand grip 89 and by pressing up on the switch handle 92 the button of the switch 90 can be depressed to close the circuit through the motor. Extending into the housing 87 is the extension or electric conduit cord 93 and this cord terminates in a plug 94 for connection with the outlet box of a house wiring circuit. Also carried by the housing 87 is an outlet socket 95, for a purpose, which will later appear. By referring to Figure 16 it can be seen that the feed and return wires 96 and 97 of the electric cord 93 are electrically connected to the terminals of the socket 95 by branch wires 98 and 99 so that when the switch 90 is closed a plug can be inserted into the socket 95, as will later appear.

The upper end of the housing 87 is provided with a tapered opening 100 in which is detachably fitted a tapered plug 101 rigidly secured to the lower end of the main manipulating handle 102. The opening 100 is directly above the button of the switch 90 and the inner end of the switch handle lever 92. The manipulating handle 102 is of an elongated form whereby the unit can be manipulated over a carpet from a standing position, by the operator. As best shown in Figure 3, the main handle 102 is of a hollow construction and is preferably formed from a section of hollow tubing shaped to form the elongated handle portion 103 and the laterally extending handle bar 104. At this time, it is to be noted that the handle bar portion 104 extends inwardly over the motor and in spaced parallel relation to the hand grip 89. The inwardly directed hand grip portion 104 forms an important feature of this invention, as will later appear.

As just brought out, the switch 90 is controlled from the switch lever handle 92 and means is provided for also controlling the switch from the handle bar 104. Hence, the handle bar 104 has rockably mounted thereon, by means of a pivot pin 105 a handle 106. This handle can be of an arcuate shape for straddling the handle bar 104 and the main part of the handle extends under the handle bar 104 for ease of operation by the manipulator of the machine. The forward end of the handle terminates in a finger 107 for engagement with a push rod 108. This push rod slidably extends through the handle portion 103 and this rod is guided in the sliding movement by guide plugs 109 secured in said handle portion. Fastened to the push rod 108 is a washer 110. Confined between a guide plug 109 and the washer 110 is an expansion spring 111 which is coiled about the push rod and normally holds the push rod in a raised elevated position.

The lower end of the push rod terminates directly above the button of the switch 90 and the inner end of the switch lever handle 92. By pressing up on the body portion of the handle 106 the rod 108 can be depressed against the tension of its spring 111 for actuating the switch 90.

In many instances, it is desirable to hold the circuit closed through the motor without exerting continuous

pressure on the handle 106 and means is provided for locking the handle 106 in its raised position against the hand grip portion 104 with the rod 103 depressed. This means includes a headed pin 112 which extends into the handle bar 104 and a button 113 slidably mounted on said handle bar 104. The button 113 carries a headed keeper screw 114 which is adapted to engage and hold the head of the pin 112 when the handle 106 is raised and when the thumb button 113 is slid to the left (see Figure 9).

Under normal working conditions a machine unit U is manipulated from the main handle 102 and the unit is worked over the carpet and can be easily guided close to the baseboard of a room and in corners and the like. As the housing 87 is carried by the motor casing 27 and as this housing forms a support for the handle, the handle can be swung easily with the motor from one side of a machine unit to the other and this facilitates the ease of use of a machine unit in corners and other close quarters. As previously brought out, the brushes 42 terminate close to one end of the machine unit and to the removable plate 71 and as this plate has a smooth outer face, the same can be placed directly up against a baseboard.

When a unit U is utilized for cleaning stair carpets, the main operating handle 102 can be removed from the opening 100 and the unit then can be manipulated solely from the hand grip 89 which is close to the motor.

In order to prevent accidental removal of the main operating handle 102 from the housing 87 and the opening 100 therein, a latch 115 is provided (see Figs. 7 and 8). This latch is rockably mounted on a pivot pin 116 carried by the housing 87 and includes an inner cam shaped latching lug 117. The collar or plug 101 which is securely fastened to the handle 102 is provided with a keeper groove 118 and when the latch cam lug 117 is seated in this groove upward and outward movement of the handle from the housing is prevented. By depressing the handle portion of the latch 115 the cam lug part can be moved out of the groove 118. A spring 119 is employed for normally holding the latch in its locked position.

During the operation of the unit from the hand grip 89, it is desirable in many instances to hold the motor against turning movement and means is provided, as heretofore mentioned for holding the motor casing 27 and consequently the hand grip 89 against free swinging movement. This means includes an annular brake band 120 arranged to bear on the inner surface of the motor casing 27 adjacent to the collar 34 and the supporting sleeve 25. This band is split transversely, as at 121, and is normally kept in its contracted non-holding position by a U-shaped leaf spring, 122. This spring has its terminals riveted or otherwise fastened to the brake band 120 on the opposite sides of the slot 121. Received between the legs of the U-shaped spring 122 is the flattened end 123 of a rock shaft 124. This rock shaft 124 is mounted for turning movement in aligned bearing openings 125 and 126 formed respectively in the end wall or plate 21 and the supporting ring 32. The rock shaft has connected therewith a manipulating fingerpiece 127 which extends through a slot formed in the sleeve 25 and by turning the rock shaft 124 through the fingerpiece 127 the flattened end of the rock shaft can be positioned to spread the legs of the U-shaped spring 122 and thus bring about the expansion of the brake band 120 into gripping contact with the motor casing.

As brought out, the units U are adapted to be placed together to form a complete machine for scrubbing large areas of carpets. The units are so-designed and constructed that the same can be placed end to end and locked solidly together with the twin brushes of one unit in longitudinal alignment with the twin brushes of the other unit, so as to form in effect continuous brushes. Likewise great importance is attached to the formation

of the handles 102 of the units and particularly the handle bars 104 thereof. These handle bars project laterally over the bases of the units and when the units are placed end to end, the handle bars abut forming a continuous U-shaped manipulating handle, see Figure 11. Means is provided for inter-locking the handle bars 104 of the two units U together to form the solid U-shaped handle for the machine and this means will now be described. Particular reference is invited to Figures 12 and 13. At this time, however, it is to be noted that when the machine units U are placed end to end and in abutting relation that the frames 20 of the machines are placed together so as to leave the smooth clean ends of the units exposed for manipulation close to baseboards.

Now referring to the inter-locking means for the handles, each handle bar 104 has slidably mounted therein a locking bolt 128. The inner end of each bolt carries a spring pressed headed thumb piece 129 and this thumb piece normally projects through a longitudinal slot 130 formed in the handle bar. The slot 130 is in the nature of a keyhole slot and hence the same is provided at spaced points with circular enlargements 131 and 132 which constitute keeper portions for the spring pressed thumb piece 129 for the two positions of the bolt. Upon the depressing of the headed thumb piece 129 inwardly, the head thereof is moved inwardly beyond the keeper enlargements 132 so that the bolt can be slid back and forth and when the thumb piece is released the head thereof seats in a selected keeper opening 131 or 132 to hold the bolt against sliding movement. The outer end of each bolt is provided with a hook shaped extension or knuckle 133 and when the bolt, of each handle bar 104, is projected the bolts can be inter-locked by said knuckles or hooks through lateral movement of the handle bars toward one another, see Figure 13. When the bolts are interlocked and are in longitudinal alignment, both bolts are then retracted into their handle bars by manipulation of the headed spring pressed fingerpiece 129 and when the fingerpieces reach the circular enlargements 132, the thumb or fingerpieces are released and the bolts are hid within the handle bars and the handle bars will be firmly united for synchronous movement. When it is desired to release the handle bars from one another, the bolts are again projected and the handles are moved laterally away from one another. When a single unit U is utilized then the bolt of its handle bar is slid all the way in until the head of the thumb piece 129 reaches the circular enlargement 131. At this time, the thumb piece can be released and the bolt is held entirely within the handle bar (see Figure 3). In this instance the bolt then forms a closure for the hollow handle bar 104.

It is also extremely desirable to lock the bases of the two units solidly together and novel means is provided for this purpose. This locking means is best shown in Figures 4, 5, 14 and 15.

Each unit U is provided on one side of the frame 20 with a keeper socket 134 and on the other side with a sliding retractable locking bolt 135. The keeper socket 134 has extending through the same, transversely, a rigid keeper pin 136, the purpose of which will now appear.

The bolt 135 carries a radially extending manipulating handle 137 which slidably extends through a bayonet slot 138 formed in one side wall 22 of the frame. The outer end of the bolt 135 is provided with a knuckle or hook 139, which is adapted to engage the keeper pin 136.

Considering that the units U are placed in abutting relation, as shown in Figure 3, with the bolt 135 of each unit in its retracted position, then the bolts of both machines are slid outwardly and into the sockets 134 of the units. At this moment, the hooks or knuckles 139 slide past the keeper pins 136 and when the bolts are slid outward to their fullest extent, the same are turned so as to move the hooks or knuckles 139 over the keeper pins and this turning movement is permitted in view of the formation of the bayonet slots 138. In order to main-

tain the bolts in their projected position, each bolt is provided with a keeper depression 140 which is brought into registration, upon the turning of the bolt with a spring pressed keeper ball 141. A leaf spring 142 is employed for normally holding the ball toward the bolt and the tension of the spring is such that the ball will spring out of the keeper recess 140 upon the forcible turning of the bolt. When the bolt is turned to permit the retraction thereof and the same is slid inwardly, a second keeper recess 143 is then brought into registration with the ball 141 and the ball then functions to hold the bolt against outward sliding movement. By this arrangement, it can be seen that the bases of the machines are firmly locked together on each side and when the bases are so locked and the handles 102 are inter-locked then the machine M can be freely manipulated.

When the machine units U are coupled together as a single working unit, the electric plug 94 of one unit is plugged into the electric socket 95 of the other unit (see Figure 11). Thus only one electric extension cord need be connected to the house circuit and both units can be controlled from one operating handle 106 of one machine.

From the foregoing description, it can be seen that twin brush units have been provided in which all parts are so-arranged that a balanced device is had and one in which all supporting rollers, casters and the like are eliminated and whereby the brushes can rest directly upon the carpet to be scrubbed.

The twin brushes rotating in opposite directions throw the cleaning powder back and forth between the same and effectively work the cleaning powder through the pile or nap of the carpet.

By forming the machine M in two units, not only is ease of operation had in confined places, by using a single unit, but the machine can be conveniently carried into and out of a home by separating the units and grasping the hand grips 89 one in each hand.

Various changes in details may be made without departing from the spirit or the scope of this invention, but what we claim as new is:

1. A carpet scrubbing machine unit comprising a frame, a pair of horizontally disposed scrubbing brushes rotatably mounted on the frame, a horizontally disposed electric motor on the frame, means located at one end of the frame only for operatively connecting the motor with the brushes for rotating said brushes, said brushes extending substantially the full width of the unit and to the extreme end of the unit remote from the means for rotating said brushes, whereby said end remote from the driving means can be placed directly against a wall for cleaning a carpet close up to said wall, a supporting member rotatable around the motor on an axis coincident with the axis of the motor, an elongated manipulating handle detachably mounted in the support, and a hand grip on the support arranged in close proximity to the motor.

2. A carpet scrubbing machine unit as defined in claim 1, and means for holding the support in a selected position.

3. A carpet scrubbing machine comprising a pair of identical units, each of said units including a frame, a pair of horizontally disposed scrubbing brushes rotatably mounted on the frame for direct engagement with the carpet being scrubbed and for supporting the machine on the carpet, an electric motor on the frame, means for simultaneously rotating the brushes, from the motor, an elongated handle mounted on the frame movable from one side of the unit toward the other with the upper end of the handle terminating in a laterally projecting handle bar, said units having plain end faces adapted to be placed in abutting relation, and means detachably locking the units together with the handle bars in alignment and abutting to form a continuous grip whereby the units

can be manipulated together as a single machine or as independent units.

4. A carpet scrubbing machine including a pair of identical units as defined in claim 3, and said locking means including means for detachably locking the frame of the units together and means detachably locking the handle bars together.

5. A carpet scrubbing machine including a pair of like identical units as defined in claim 4, and said handle bars being of a hollow construction and said locking means for the handles including bolts slidable in the hollow handles and projecting into the handle bars of each other when the handle bars are in alignment.

6. A carpet scrubbing machine unit comprising a frame, a pair of horizontally disposed scrubbing brushes rotatably mounted on the frame, a supporting sleeve on the frame projecting over and between the brushes, an electric motor for driving said brushes including a motor casing rotatably carried by the sleeve, a hand grip carried by the motor casing and located in close proximity thereto, and an elongated manipulating handle carried by the motor casing, the hand grip and the handle being movable with the motor casing on the sleeve, and means for holding the motor casing against turning movement and in a selected locked position.

7. A carpet scrubbing machine unit as defined in claim 6, and said last named means including a brake band arranged within the motor casing having a transverse slit, a U-shaped spring connecting the ends of the brake band on opposite sides of the slit and holding the band in a contracted position from out of engagement with the casing, and a rotatable shaft carried by the sleeve having a flattened terminal disposed between the legs of the U-shaped spring for spreading said legs when the shaft is in one position for expanding the brake band against the motor casing.

8. A carpet scrubbing unit comprising a frame, a pair of horizontally disposed scrubbing brushes rotatably mounted on the frame for direct engagement with the carpet to be cleaned and for supporting the unit on the carpet solely, a horizontally disposed electric motor on the frame, the brushes and motor being arranged in parallel relation, means for simultaneously rotating the brushes in opposite directions toward one another from the motor, said motor being disposed centrally of the brushes and above the peripheries of the brushes, whereby said brushes are disposed in close proximity to one another for working cleaning material back and forth between the same and through the pile of the carpet being cleaned, and a supporting member rotatable around the motor on an axis coincident with the axis of the motor, and a manipulating handle carried by the supporting member and movable therewith.

9. A carpet scrubbing machine unit comprising a frame, a pair of horizontally disposed scrubbing brushes rotatably mounted on the frame for direct engagement with the carpet to be cleaned and for supporting the unit on the carpet solely, an electric motor on the frame, means for simultaneously rotating the brushes from the motor, a mounting disposed between and above the lower faces of the brushes and carried by the frame, and outwardly projecting oppositely extending comb teeth carried by the mounting terminating in upwardly extending ends projecting into the bristles of the brushes adjacent to but spaced from the lower faces of the brushes, whereby to prevent the gathering of the carpet and foreign objects into the brushes.

10. A carpet scrubbing machine unit as defined in claim 9, and means for adjusting the mounting and the comb teeth in a horizontal plane relative to the carpet and the peripheries of the brushes to compensate for wear on the brushes.

11. A carpet scrubbing machine comprising a pair of identical units, each of said units including a frame, a pair of horizontally disposed scrubbing brushes rotat-

## 11

ably mounted on the frame for direct engagement with the carpet being scrubbed, an electric motor on the frame, means for simultaneously rotating the brushes from the motor, an elongated manipulating handle on the frame, said units being positioned side by side with the brushes of one unit in parallel relation to the brushes of the other unit, and means locking the units together for simultaneous operation, and said locking means including means for connecting the frames together and the handles together.

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