June 19, 1934. T. C. CURTISS 1,963,653

VACUUM CLEANING MACHINE

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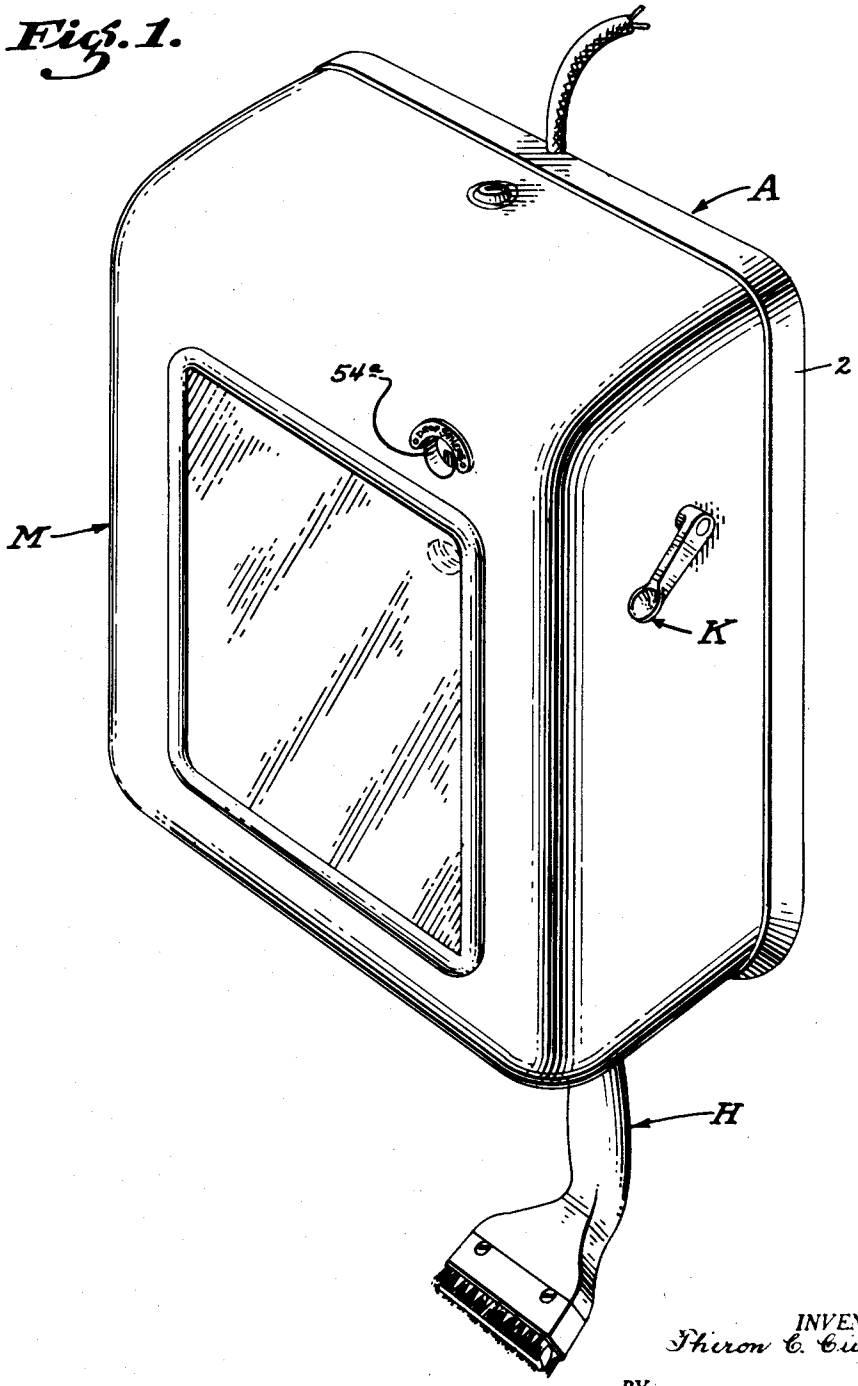
Fig. 1.



INVENTOR.
Theron C. Curtiss.

BY
Townsend, Loftus & Abbett
ATTORNEYS.

June 19, 1934. T. C. CURTISS 1,963,653

VACUUM CLEANING MACHINE

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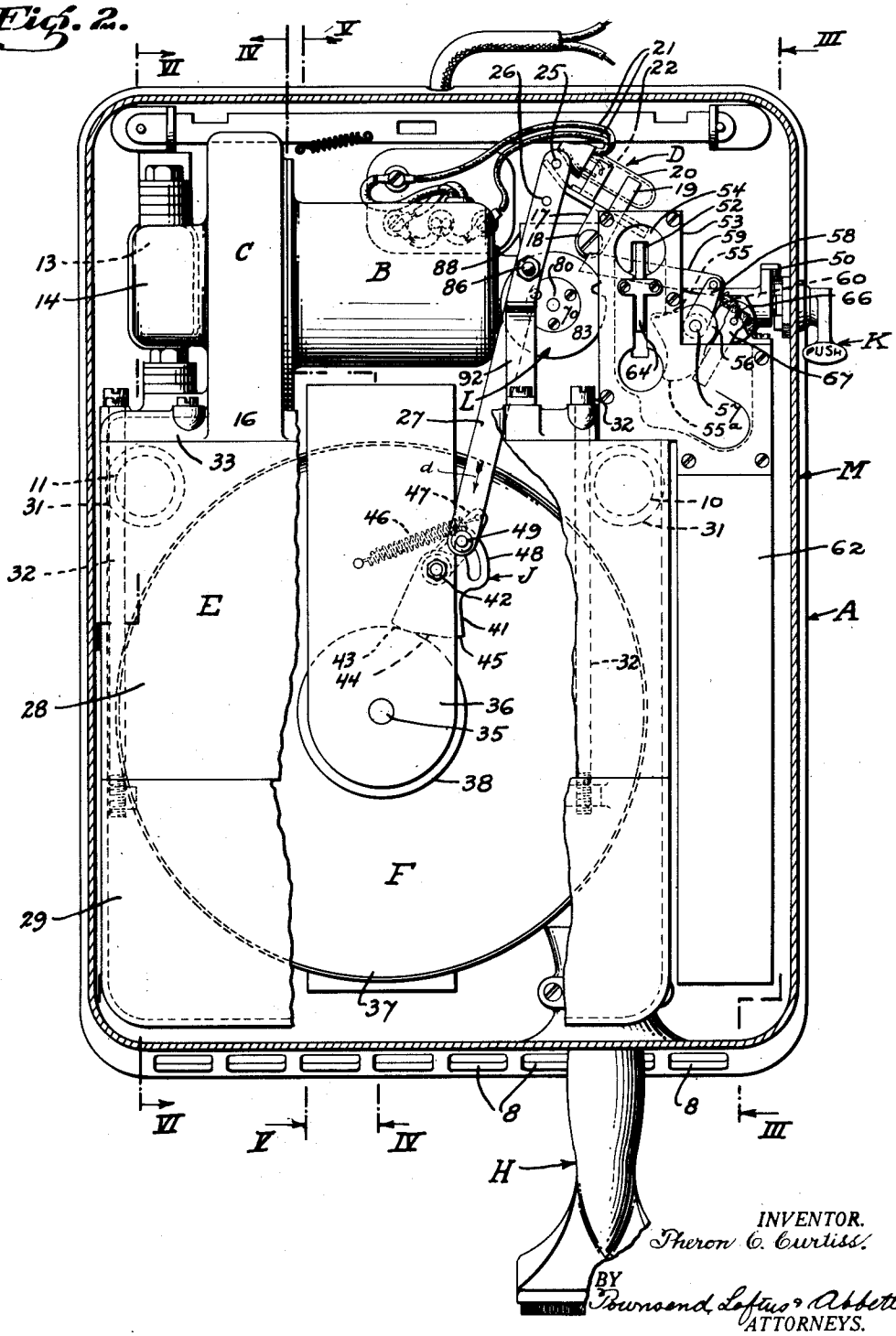
Fig. 2.



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ATTORNEYS.

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VACUUM CLEANING MACHINE

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Fig. 3.

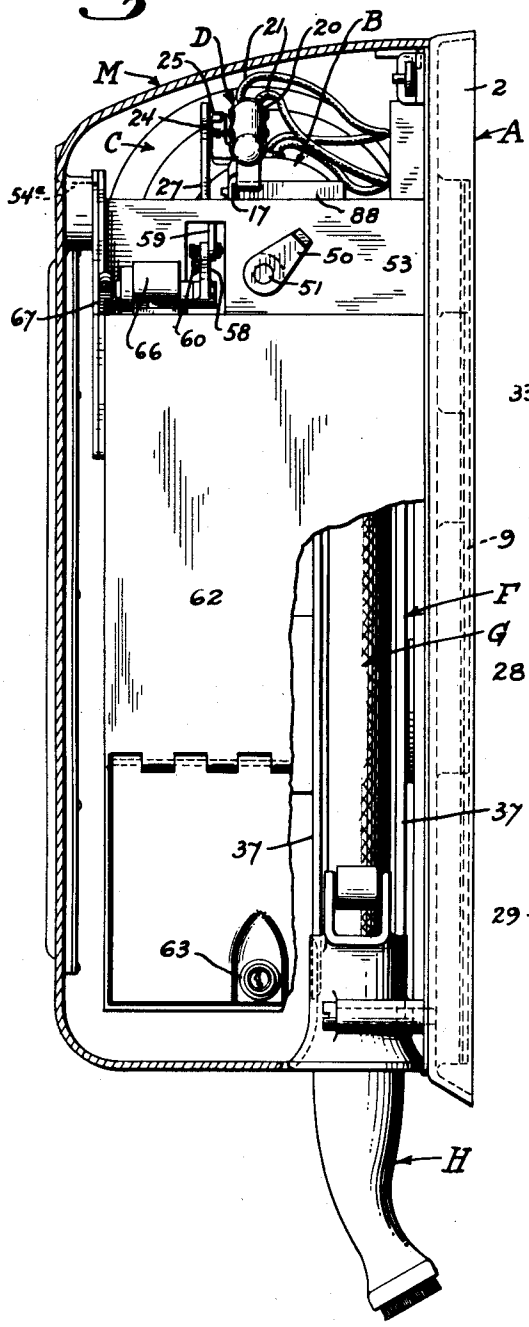
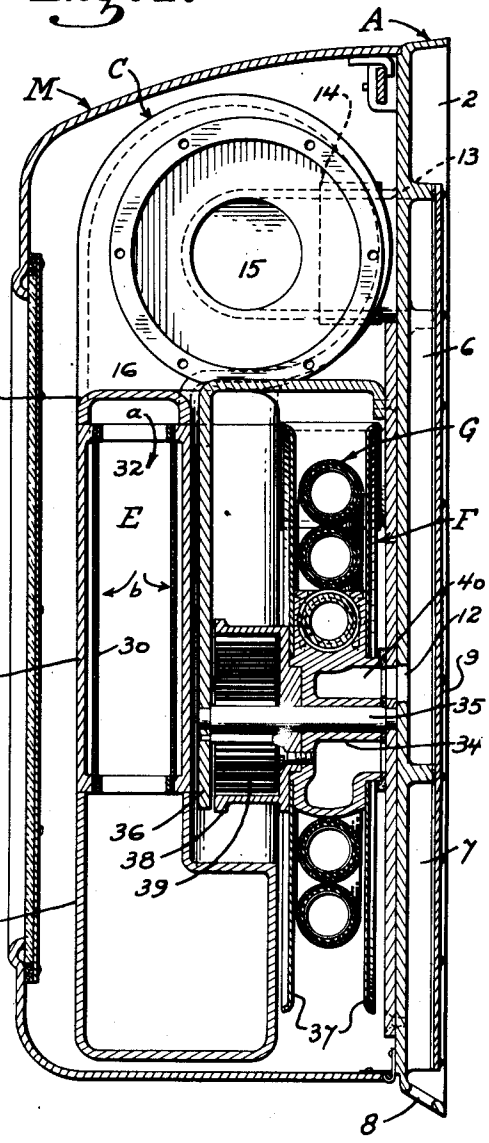


Fig. 4.



INVENTOR.
Theron C. Curtiss.

BY
Townsend, Lofton & Abbett.
ATTORNEYS.

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VACUUM CLEANING MACHINE

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Fig. 5.

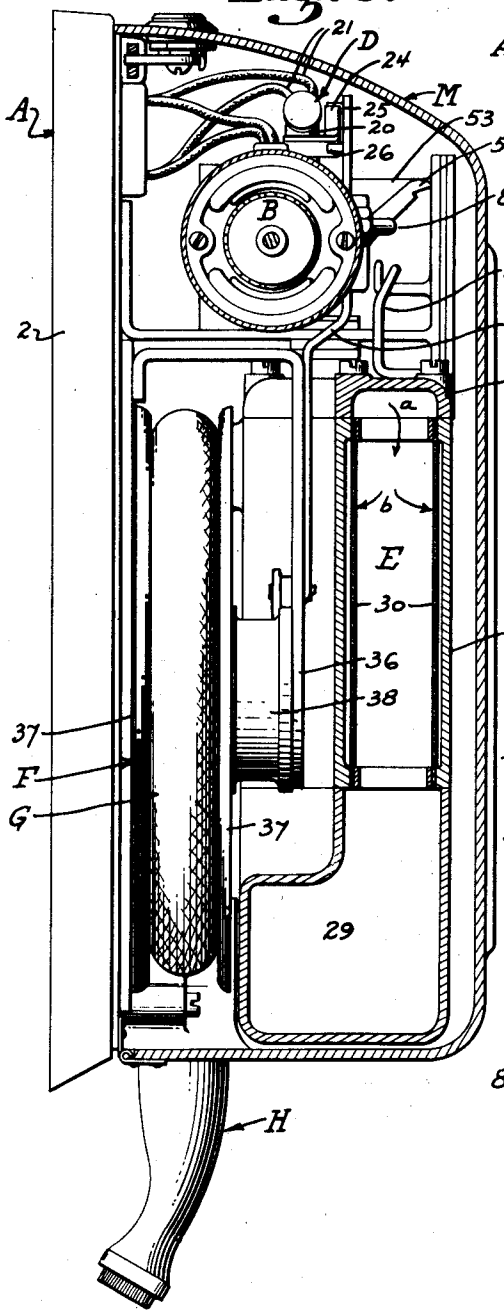
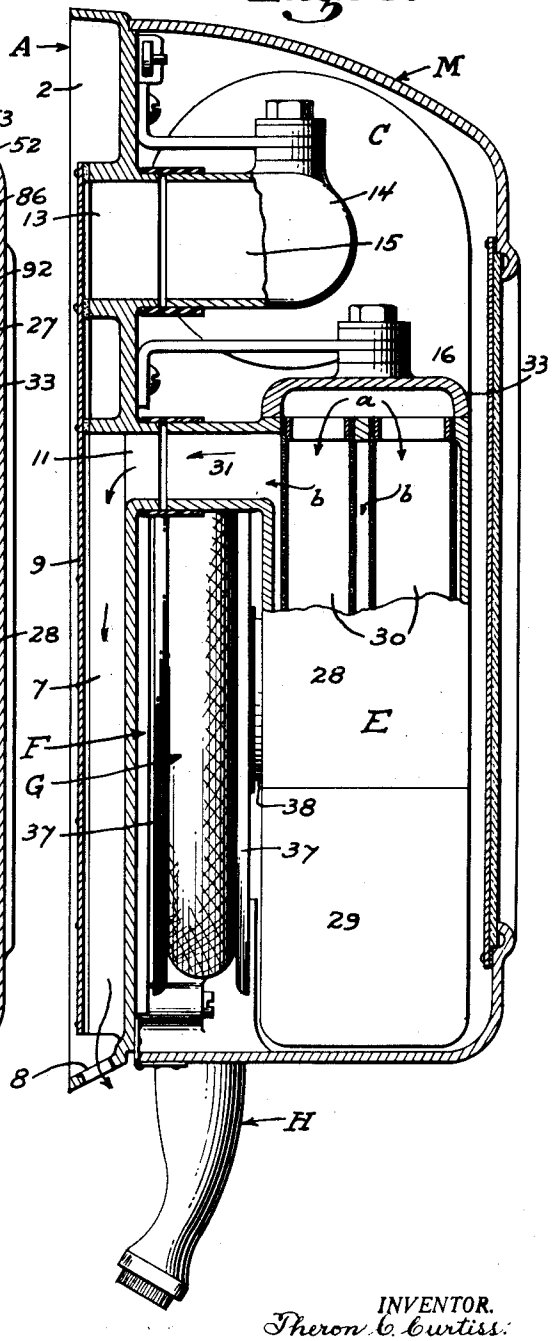


Fig. 6.



INVENTOR.
Theron C. Curtiss.

BY
Townsend, Loftus & Abbett
ATTORNEYS.

June 19, 1934. T. C. CURTISS 1,963,653

VACUUM CLEANING MACHINE

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Fig. 7.

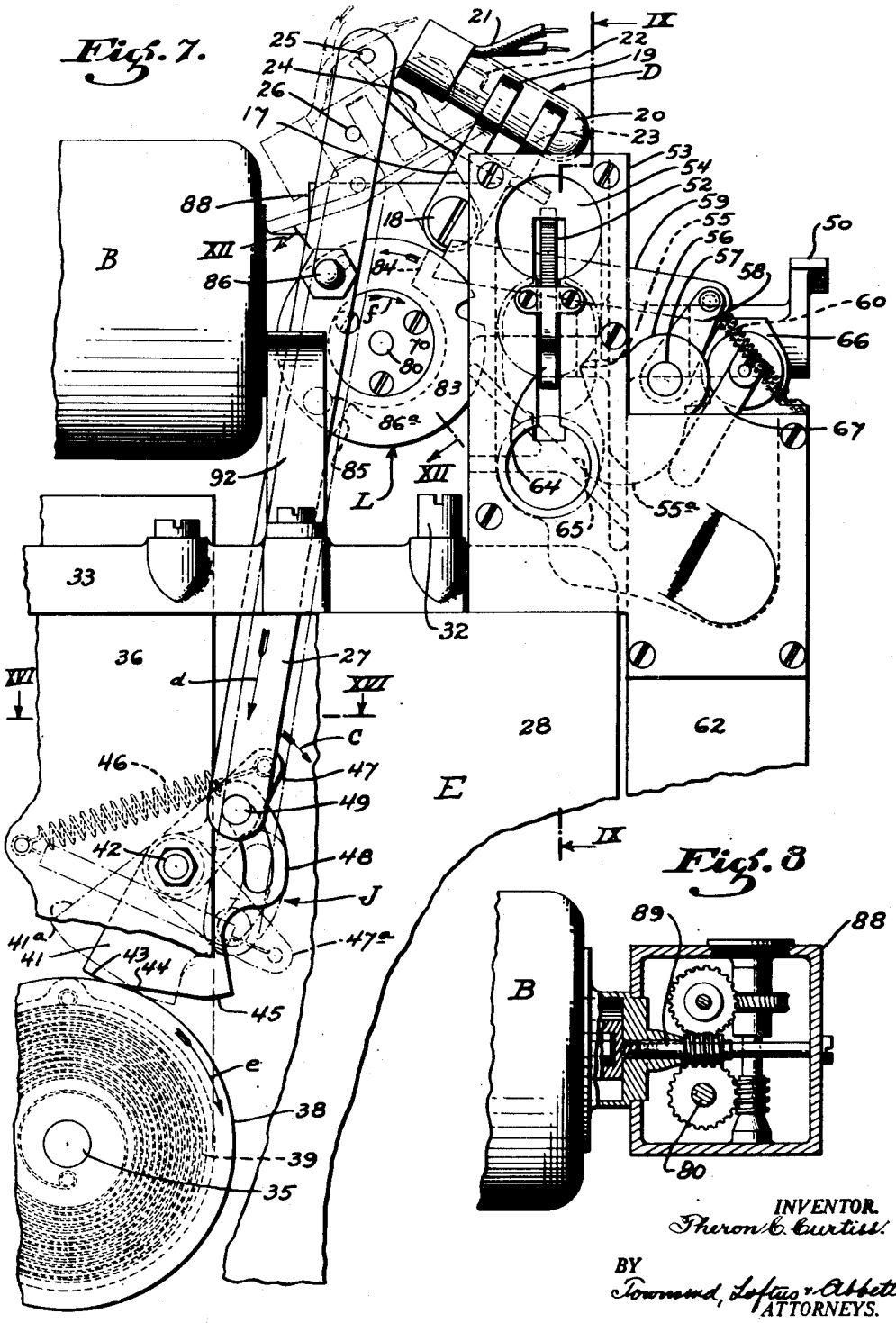

Fig. 8

INVENTOR.
Theron C. Curtiss.

BY
Townsend, Lofton & Abbett
ATTORNEYS.

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VACUUM CLEANING MACHINE

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Fig. 9.

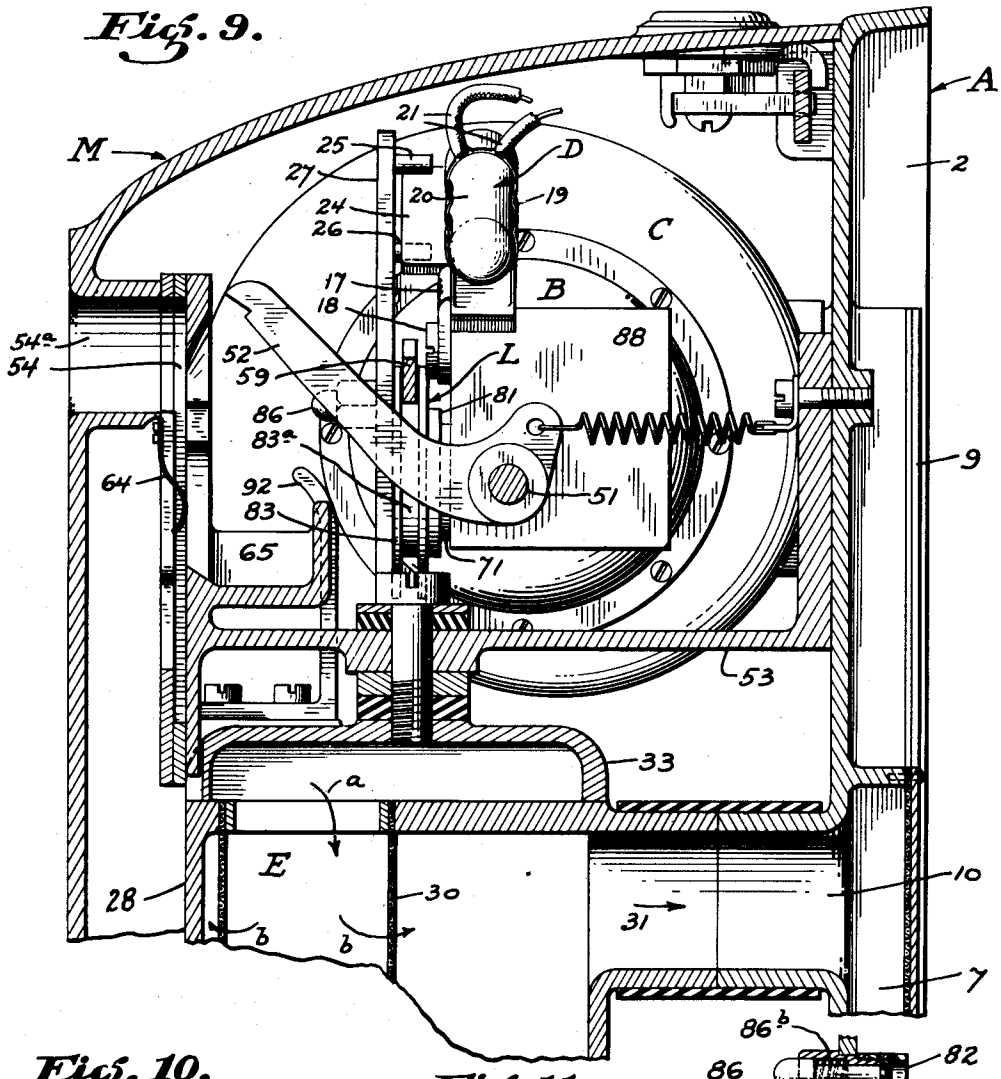


Fig. 10.

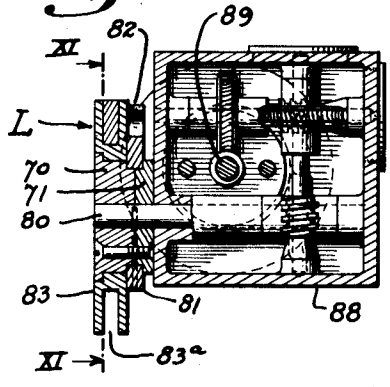


Fig. 11

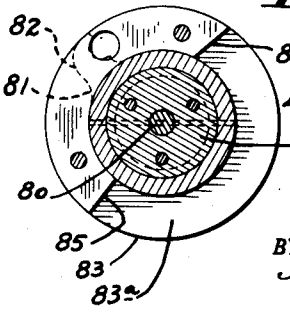
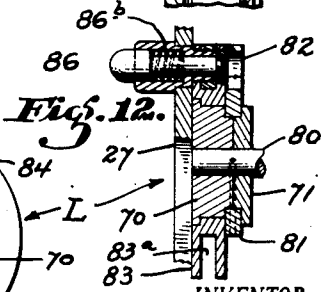


Fig. 12.



INVENTOR.
Theron C. Curtiss.

BY
Townsend, Lofgus & Abbett.
ATTORNEYS.

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VACUUM CLEANING MACHINE

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Fig. 13.

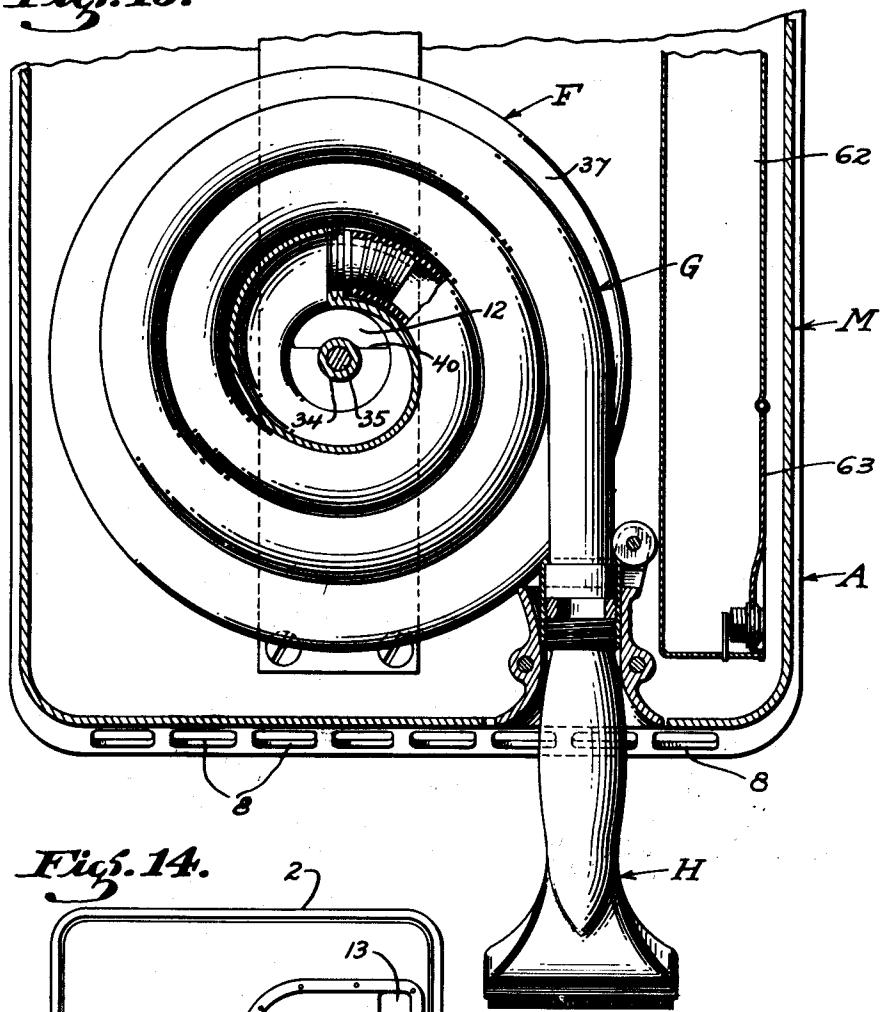
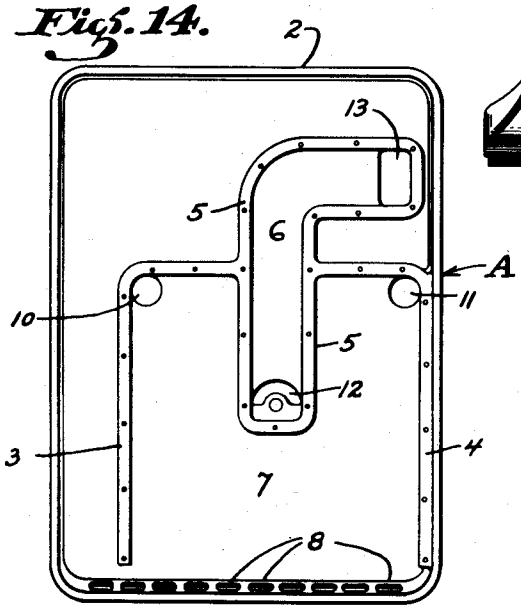


Fig. 14.



INVENTOR.
Theron C. Curtiss.

BY
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VACUUM CLEANING MACHINE

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Fig. 15.

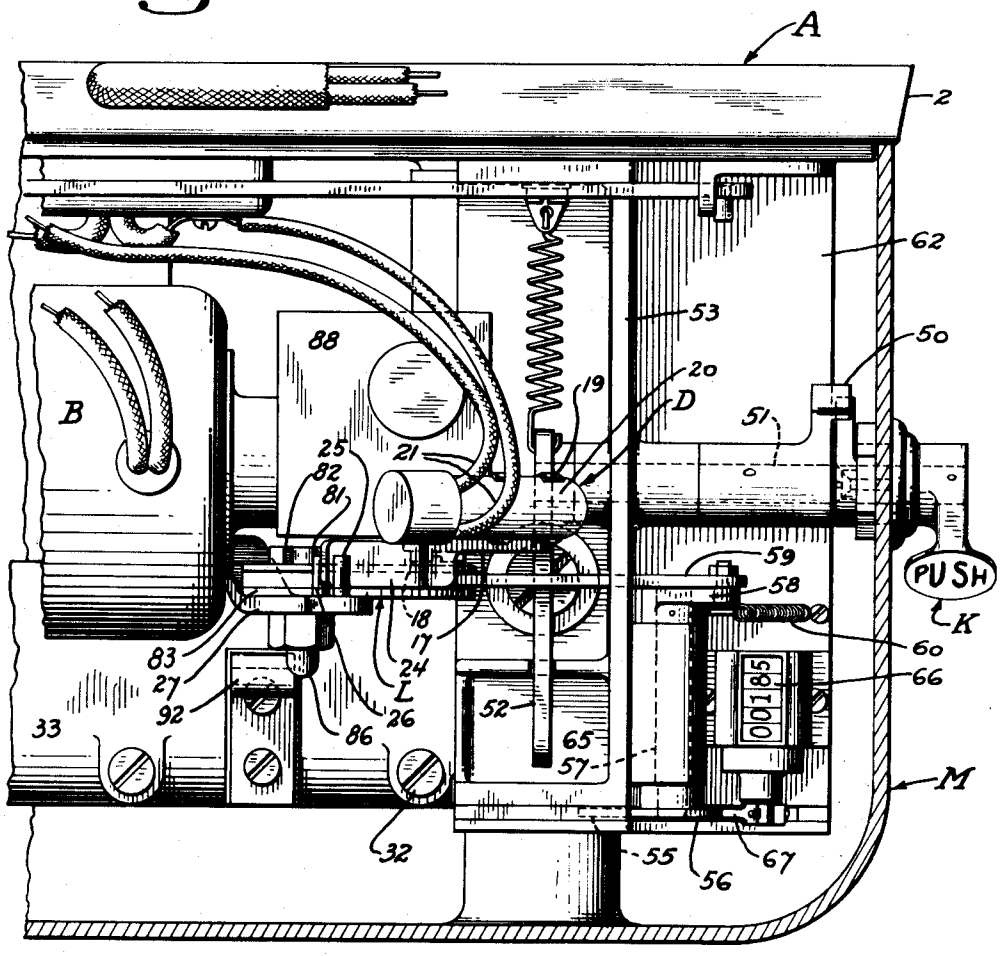
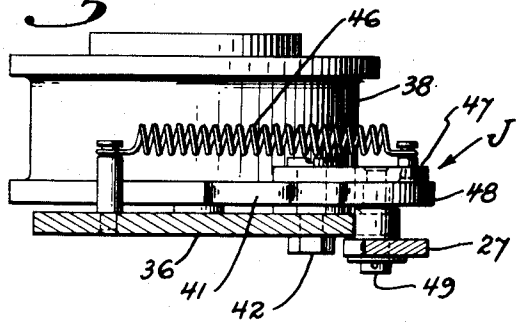


Fig. 16.



INVENTOR.
Theron C. Curtiss.

BY
Townsend, Loftus & Abbett.
ATTORNEYS.

Patented June 19, 1934 1,963,653

UNITED STATES PATENT OFFICE

1,963,653

VACUUM CLEANING MACHINE

Theron C. Curtiss, San Francisco, Calif.

Application March 29, 1932, Serial No. 601,860

6 Claims. (Cl. 15—7)

This invention relates to a coin-controlled vacuum cleaning machine particularly intended for installation in railroad stations, bus stations, restaurants, clubs, and the like, for instance, in the washroom or toilet where it may be conveniently used to brush a person's clothing or hat, etc.

The object of the present invention is to generally improve and simplify the construction and operation of machines of the character described; to provide a compact simple machine adapted to be secured to a wall or other suitable support where it forms no obstruction and yet is always handy and convenient for immediate use; to provide a machine which operates a vacuum cleaning brush, whereby dust, lint and like matter adhering to a person's hat and clothing can be quickly removed; and, further, to provide a machine which is coin-actuated, which starts operating, and releases the brush the moment a coin is inserted, and with continues to operate for two minutes or more, as desired, and then retracts the brush and retains it until another coin is inserted.

The invention is shown by way of illustration in the accompanying drawings, in which—

Fig. 1 is a perspective view of the machine.

Fig. 2 is a front view of the machine, showing the cover member in section and part of the dust separator and collector broken away.

Fig. 3 is a vertical cross section, taken on line III—III of Fig. 2.

Fig. 4 is a similar section, taken on line IV—IV of Fig. 2.

Fig. 5 is a similar section, taken on line V—V of Fig. 2.

Fig. 6 is a similar section, taken on line VI—VI of Fig. 2.

Fig. 7 is an enlarged front view of the electric switch, the reel locking, the timing device, and the mechanism whereby they are actuated.

Fig. 8 is a plan view, in section, of the gear reduction box.

Fig. 9 is a cross section of the mechanism shown in Fig. 7, taken on line IX—IX.

Fig. 10 is a vertical section of the gear reduction box and the timing device driven thereby.

Fig. 11 is a cross section of the timing device, taken on line XI—XI of Fig. 10.

Fig. 12 is a longitudinal section of the timing device, said section being taken on line XII—XII of Fig. 7.

Fig. 13 is a partial sectional view of the hose reel, the housing enclosing the same, and the coin receptacle.

Fig. 14 is a rear view of the base plate.

Fig. 15 is a plan view of the mechanism shown in Fig. 7, with the cover member in section.

Fig. 16 is a section, taken on the line XVI—XVI of Fig. 7.

The mechanism employed in the machine will, for purposes of description, be divided into the following groups:

First, a base plate, indicated at A, which forms a support for all of the mechanism;

Second, an electric motor B and a suction blower C;

Third, an electric switch D whereby an electric circuit through the motor is made or broken;

Fourth, a dust separator and collector E;

Fifth, a reel F supporting a hose G and a suction actuated brush H;

Sixth, a locking means J for locking or releasing the hose reel;

Seventh, a coin-controlled, manually actuated lever K for closing the switch D and for releasing the reel;

Eighth, a motor driven timing device L for automatically opening the switch and for locking the reel; and

Ninth, a cover M carried by the base and adapted to enclose the entire mechanism.

A detailed description of the several groups of mechanism will now be given. Commencing with the base plate A and referring to Figs. 4 and 14, it will be noted that the plate is substantially rectangular in shape and provided with an annular base flange 2 which separates the plate from a wall or any other suitable support.

Formed on the rear face of the base plate are connected ribs 3, 4 and 5, the ribs 5 refining a suction passage 6 and the ribs 3 and 4 an air exhausting or discharging chamber 7 from which air escapes to the atmosphere through openings 8 formed in the base flange 2. A plate 9 is secured to the ribs 3, 4 and 5 by screws or similar means and forms the inner side wall of the passage 6 and chamber 7 while the plate A forms the outer side wall and the ribs 3, 4 and 5 form the end walls. Openings, such as indicated at 10, 11, 12 and 13 are also formed in the base plate. The openings 10 and 11 are exhaust passages while the openings 12 and 13 are suction passages; the passage 13 connecting with the suction side of the suction blower while the opening 12 communicates with the hub of the hose reel as will hereinafter be described.

The motor and suction blower are best illustrated in Figs. 2 and 4. Any suitable type of high speed electric motor may be employed. One end of the same is bolted or otherwise secured to a suction blower housing indicated at C. The motor shaft extends into this housing and carries a suitable form of suction fan. The function of the motor is two fold, first, that of driving the fan; and, second, that of driving the timing device as will hereinafter be described. The housing C of the suction blower has a right angle extension, such as shown at 14, and this is connected with the opening 13 formed in the base plate.

The suction side of the blower is indicated at 15 while the discharge side is indicated at 16. The discharge connects with the air separator and collector, generally indicated at E. It has been previously stated that one end of the motor shaft extended into the blower housing C and carried the suction fan. The other end of the shaft extends through the opposite end of the motor and it is connected with a gear reduction drive, generally shown in Figs. 8 and 10, the function of which will hereinafter be described.

The switch whereby the circuit through the motor B is opened and closed is best illustrated in Fig. 7. It consists of an arm 17 pivotally supported as at 18. The upper end of the arm is fork-shaped, as shown at 19, to receive a tube 20. Both ends of the tube are sealed and a pair of flexible wires are connected therewith, as shown at 21, the wires disclosed being the feed wires of the motor. These wires connect with electrodes, indicated at 22, and a globule of mercury 23 is disposed within the tube. The switch employed is of the ordinary mercury tube type. When the tube or switch arm 17 assumes the full line position shown in Fig. 7, the mercury collects at one end of the tube and when it is tipped to assume the dotted line position shown the mercury runs to the opposite end and closes a circuit through the contacts and the motor. The arm 17 also carries a plate 24 which is adapted to be engaged by one or another of a pair of pins, indicated at 25 and 26. These pins are carried by a link 27 which has two functions; first, that of tipping the switch to assume either an off or on position; and, second, that of actuating the hose reel lock, as will hereinafter be described.

The dust separator and collector is best illustrated in Figs. 2, 5 and 6. It consists of an upper housing section 28 and a lower housing section 29. The upper housing section carries a plurality of dust separating tubes, generally indicated at 30, while the lower housing merely forms a receptacle for the dust removed by the tubes 30. The air to be cleaned discharges from the discharge side 16 of the suction blower C and enters the upper part of the housing 28. The air then enters the tubes 30, see Fig. 6, in the direction of arrows *a* and passes through the walls of the tube in the direction of arrows *b* into the housing 28 proper. It then passes out through a pair of discharge connections 31 which communicate with the openings 10 and 11, respectively, (see Fig. 14) and enters the discharging or exhausting chamber 7 formed in the base plate and finally reaches the atmosphere through the openings 8 formed in the base flange 2 of the base plate, the flow of air being clearly indicated by the arrows in Fig. 6. The air in passing through the tubes 30 deposits the dust on the inner surfaces, and as the tubes are maintained in a continuous vibration, first, by the operation of the motor and the blower, and, secondly, due to the air flowing through the tubes, the dust collected on the inner surfaces will gradually shake off and will fall by gravity into the dust collector, indicated at 29. This is secured to the housing section 28 by a pair of screw bolts. such as shown at 32 (see Fig. 2). Hence when the cover is removed it is only necesary to release the bolts 32, thus permitting the receptacle to be removed and the contents to be dumped out. The operation of cleaning the machine is accordingly quickly and simply accomplished.

The housing 28, forming the dust separator, has a width substantially the same as that of the base plate of the machine as a whole and the tubes 30 are uniformly spaced from end to end thereof so as to insure as large a separating area as possible. In order that the air may be fairly uniformly distributed to all of the tubes 30, a foot extension 33 is formed on the discharge connection 16 of the blower housing so that the air discharging through 16 enters the foot extension 33. The air is here distributed over the entire upper end of the housing 28 and it then passes downwardly into the tubes 30 through the walls of the same and then out through the passages 31, as previously described. Clean air is thus returned to the room and the dust and lint removed is collected in the receptacle 29.

The reel F and the hose G carried thereby are best illustrated in Figs. 2, 4 and 13. The reel consists of a hub member 34 which is freely rotatable on a shaft 35, secured between the base plate A and a supporting bracket 36 (see Fig. 4). A pair of circular plates 37 form the side walls of the reel, while a hub 38 forms an extension of the reel. Mounted within said extension is a clock spring 39, one end of the spring being secured to the interior surface of the hub 38 and the other end to the stationary shaft 35. The spring is wound and placed under tension when the hose is unreeled, as will hereinafter be described, and forms a means for retracting it when the brush H is released.

By referring to Figs. 4 and 13, it will be noted that the inner hub 34 of the reel is shaped somewhat similar to the volute casing of a pump and that the inner end of the hose G is secured to the volute. The center portion of the hub is provided with an opening 40 and this communicates with the opening 12 formed in the base plate. This opening in turn communicates with the passage 6, and the opening 13 in turn communicates with the suction side of the blower. Hence when the blower is in operation a suction is produced in these passages and air will accordingly be drawn through the brush and the hose into the volute-shaped hub of the reel. It will then pass through the openings 14 and 12, the passage 6, and the opening 13 which connects with the suction side of the blower. The air will then discharge through the discharge side of the blower and is directed into the dust separating tubes from where it is finally discharged, as previously described.

The reel lock is best illustrated in Figs. 7 and 16. It serves the function of releasing the reel when the brush is to be employed and the hose is to be extended or unreeled; and its second function is that of locking the reel to prevent unreeling of the hose or removal of the brush when the machine is not in use. The locking mechanism consists of a cam, generally indicated at 41, which is pivotally supported at the point indicated at 42. The cam is provided with three faces, indicated at 43, 44 and 45; the faces 43 and 45 forming locking faces while the face 44 functions as a releasing face. The faces 43 and 44 are adapted to engage the exterior surface of the hub member 38. This is preferably knurled or roughened so that a good gripping or locking engagement will be insured. When the surface 43 of the cam engages the exterior surface of the reel hub the reel is locked so that the hose cannot be unreeled. This is the normal position assumed by the locking cam when the machine is not in use. The cam surface 45 engages the outer surface of the reel hub 38 when the hose has been unreeled and locks the reel in this position. When the machine is in operation, at the end of the opera-

tion the cam releases the reel and thus permits the spring 39, within the hub of the reel, to reverse the rotation of the reel and thereby reel up the hose and retract the brush so that it will assume the position shown in Fig. 13. The cam is actuated by means of the link 27 and also by means of a spring, indicated at 46.

This spring 46 is connected to the supporting bracket 36 at one end and the opposite end is connected to the outer end of a crank arm 47 (see Figs. 7 and 16). A slotted segment 48 is formed on the cam 41 and a pin 49, carried by the crank arm 47, extends through the slotted segment and is also pivotally connected to the lower end of the link 27. The link 27 is manually operated to be moved in the direction of arrow *d*, that is, in a downward direction, and it is automatically actuated to be lifted in a direction opposite to arrow *d* by the timing mechanism hereinafter to be described. Suffice it to say, that when the link 27 is moved in a downward direction it first of all swings the link 27 in the direction of arrow *d*. Then as the pin 49 reaches the end of the slot it imparts movement of the cam in the same direction; the crank arm 47 finally assuming the lower dotted line position, indicated at 47ª, and the cam the dotted line position, indicated at 41ª. In this position the hose can be freely unreeled as the reel turns in the direction of arrow *e*, or, in other words, away from the locking surface, indicated at 45, but it cannot be re-reeled in this position as the locking surface 45 will immediately grip the surface of the hub 38, if the reel is rotated in the opposite direction.

The locking cam and link 27 assume the position just described until the machine has completed its operation. At that time the link 27 is automatically raised or pulled in an upward direction. In so doing the pin 49 rides to the opposite or upper end of the slotted segment and returns the cam to the full line position. The spring 46 will, during this upward movement, pass beyond a center line formed between the two positions of the crank arm indicated at 47 and 47ª, and when it passes beyond the center line it exerts a pull on the crank arm 47 thus raising it to its upper limit or the full line position shown at 47. The upward movement is automatically accomplished through means of the timing device and the spring 46, and the downward movement is accomplished by manual means hereinafter to be described.

At this point it might be well to state that link 27 does not only actuate the reel-locking mechanism but it also actuates the electric switch. The pins 25 and 26 carried by the link perform the latter function during downward movement of the link pin 25 and engage the plate 24 of the switch, causing the switch to tilt from the full line position to assume the dotted line position. During upward movement of the link 27 the pin 26 engages the underside of the plate 24, thereby again tilting the switch or raising it from the dotted line position to the opposite or full line position, thus automatically making and breaking the circuit through the switch and the motor.

The coin-controlled, manually actuated lever K for closing the switch D and for releasing the reel is best illustrated in Figs. 7 and 15. It comprises the lever K, which is shown as pivotally supported in one side of the cover member. The inner end of the lever is provided with a lug which is adapted to engage a crank arm 50. This crank arm is secured on a shaft 51. On the inner end of the shaft is secured a lever 52, and disposed in front of the lever 52 is a housing, generally indicated at 53. In this housing is formed a coin chute, and in the upper end is an opening 54 in which a coin is inserted, for instance, a five-cent piece. A similar opening 54ª is formed in the cover member so that when a five-cent piece is introduced in the opening 54ª in the cover it enters the opening 54 of the housing 53 and drops into the coin chute. It falls by gravity downwardly through the chute and its further progress is arrested by means of a lug 55 formed on a lever 56.

This lever 56 is secured on a shaft 57 disposed at right angles to the shaft 51, and the shaft 57 also carries a crank arm 58, to which is connected a link 59. The arm 56, carrying the lug 55, also carries a second lug, indicated at 55ª, these lugs, together with the crank arm 58 and the link 59, normally assuming the position shown in Fig. 7 and being retained in this position by means of a spring 60. When a coin is deposited in the chute and its progress is arrested by the lug 55 it is only necessary to depress the main operating lever K, shown in Figs. 1 and 2. When this is depressed the lug on the inner end thereof engages the crank arm 50 and imparts a partial rotary motion to the shaft 51, and as the lever 52 is secured to this shaft it will swing downwardly towards the coin chute or housing 53 and it will engage the upper edge of the coin whose progress has been arrested by the lug 55. But when pressure is exerted on the upper edge of the coin by the lever 52 it will be pushed downwardly and exert sufficient pressure on the lug 55 to impart a rocking movement to the arm 56, of which the lug forms a part.

The shaft 57 is accordingly rocked and as the crank arm 58 is secured to the shaft rocking movement is imparted to the crank arm and this, in turn, forces the link 59 in an inward direction. During downward movement of the lever 52 the coin will finally clear the lug 55 and when it does so it enters the lower part of the coin chute which is connected with the box, indicated at 62, where one coin after another will be collected; the coins being removed from this box at the lower end through means of a key-actuated door 63, or any other suitable means (see Fig. 3).

The mechanism just described is only operable when the proper coin, for instance a five-cent piece, is inserted, and it is not operable under any other conditions. For instance, if the coin inserted is too small, a spring, such as shown at 64 (see Fig. 9) will eject the coin from the slot and it will be deposited on an inclined plate 65, which is also connected with the coin box. If no coin is inserted the lever 52 swings freely as no engagement is made with a coin. It swings clear of the lug 55 and as such is the case no movement is transmitted to the lever 56, crank arm 58 and link 59. The coin, in other words, forms an operative connection between the lever 52 and the lug 55, but if this operative connection is missing no action is obtained.

A suitable form of counting mechanism is disposed at one side of the shaft 57, as indicated at 66. The counter is provided with a crank arm 67 and this is actuated by the lug 55ª. Hence whenever a coin is inserted and the operating lever is depressed, rocking movement is imparted to the lever 56, through the lug 55, and when the lever 56 is rocked the lug 55ª engages the lever 67 and the counting mechanism is actuated. Therefore each coin deposited is counted and a check on the money received is insured.

The coin mechanism is, of course, only employed when a revenue from the machine is de-

sired, but if no revenue is desired, for instance, where the machine is placed in a private club or the like, the depression of the main operating lever K may be directly transmitted to rock the shaft 57 and the link 59, as it is the link 59 which performs the final actuation, as will hereinafter be described. The coin-controlled actuating mechanism just described performs only one function, to-wit, that of transmitting a downward movement to the link 27. The link, however, during such movement performs two functions, to-wit, that of actuating the motor switch and also that of unlocking the reel.

The motor driven timing device L for automatically opening the switch and for locking the reel is best illustrated in Figs. 7, 8, 10, 11 and 12. It consists of a pair of disks 70 and 71 (see Fig. 10) secured on a shaft 80 and adapted to be rotated thereby. Clamped by the disks 70 and 71 so as to rotate in unison with the same is a ring-shaped member 81, on the peripheral edge of which is formed a hook 82, the function of which will hereinafter be described. Also supported by the disks 70 and 71, but free to rotate independently thereof, is a disk 83. This disk is provided with a groove 83[a] forming a pair of shoulders 84 and 85. The disk 83 also carries a spring-actuated latching pin 86 (see Fig. 12) to which the link 27 is pivotally connected. The latching pin performs two functions; first, that of imparting up and down movement to the link 27; and, second, that of intermittently engaging the hook 82. Shaft 80, upon which the several disks just described are mounted, forms a part of a gear reduction drive, generally indicated at 88 (see Figs. 8 and 10).

One end of the motor shaft, indicated at 89, enters the gear reduction box. A suitable set of reduction gears is mounted in this box and power is transmitted through the reduction gears to the shaft 80. The gear reduction may vary, but it should be such that shaft 80, together with the disks carried thereby, will only make one revolution during a given time period, for instance, two minutes. During this time period the machine is in operation and a person is brushing his or her clothes. At the end of that period the shaft 80 and the disks carried thereby will have made one revolution and the operation of the machine will then be stopped. This is accomplished as follows: When a coin of the proper size is introduced through the opening 54[a] and it enters the coin slot, its further progress is arrested, as previously stated, by the lug 55. It is then only necessary for the person desiring to use the machine to depress the main operating lever K. In so doing, movement is transmitted through the crank arm 50 to rock the shaft 51 and the lever 56. The lever 52 engages the coin and presses it downwardly through the slot and when the coin is so moved it, in turn, engages the lug 55 and imparts a rocking movement to the lever 56. This, in turn, imparts a rocking movement to the shaft 57 and the crank arm 58 and this, in turn, moves the link 59 in an inward direction.

During such movement the inner end of the link engages the shoulder 84 of the disk 82 and as this is freely rotatable independent of the disks 70 and 71 it will be rotated approximately a quarter of a revolution. As the disk 82 carries the spring actuated latch pin 86 and the link 27 is pivotally connected thereto, movement will be transmitted during the partial rotation of the disk 82 to lower the link 27 from the full line position shown in Fig. 7 to the dotted line position. During this movement of the link the reel-locking cam is swung to released position and the switch controlling the circuit through the motor B is swung through means of the pin 25 to the dotted line position shown in Fig. 7 where the circuit is instantly closed.

The moment the circuit is closed the motor starts operating and a suction is maintained through the brush H. The hose reel has been unlocked and the person operating the machine merely pulls on the brush and the hose is thus unreeled and the spring 39 will not re-reel the reel as it will be locked by the cam surface 45. A person can thus conveniently and readily brush his hat and clothing and at the end of the two-minute period the circuit through the motor will be opened and the reel will re-reel the hose the moment it is released by the person using the brush.

This is accomplished as follows: The deposit of the coin and the operation of the main lever K is nothing more or less than that of closing the motor circuit and releasing the reel, but the moment the motor is started the timing device comes into operation. It was previously stated that one end of the motor shaft extended into a gear reduction box shown in Figs. 8 and 10 and that the gear reduction was such that the shaft 80 would make one revolution in approximately two minutes. Disks 70 and 71 and the ring 81 are, as previously stated, secured to the shaft and will rotate in unison with the same. Hence as the hook, formed on ring 81, rotates it will finally assume a position where it will engage the inner end of the latch pin 86. This latch pin, by the way, normally assumes a retracted position, such as shown in Fig. 12; that is, sufficiently retracted so as not to be engaged by the hook 82. But when the latch pin has been lowered to the dotted line position indicated at 86[a] (see Fig. 7) it is extended so as to lie in the path of the hook-shaped member. This extension is automatically accomplished by a cam member, indicated at 92, (see Figs. 7 and 5). That is, when the disk 83 was rotated a quarter of a revolution, through means of the link 59, latch pin 85 was moved from the full line position shown in Fig. 7 to the dotted line position indicated at 86[a].

During this movement the latch pin engages the cam 92 and is forced inwardly against the tension of the spring, indicated at 86[b]. The inner end of the latch pin is thus projected and assumes a position where it will be engaged by the hook 82. Hence during the one revolution of the hook 82 it finally assumes a position where it engages the latch pin 86; the point of engagement being that indicated at 86[a] in Fig. 7, and when engagement is made the disk 83 will be slowly rotated in the direction of the arrow *f* (see Fig. 7). During this movement the latch pin 86 moves out of engagement with the cam 92 and the spring 46, connected to the lever 47, will at the same time ride over center and the link 27 will be quickly raised the remaining portion of its travel. Thus the latch pin is moved away from the hook-shaped member and it is at the same time retracted by the spring 86[b]. In other words, the first portion of the upward movement of the link 27 is accomplished by the timing device and the remaining upward movement is accomplished by means of the spring 46.

During the final upward movement the electric switch is tilted and the circuit through the motor is broken, at the same time the locking cam is swung into engagement with the reel; that is, the surface 43 is swung into engagement but the

hose is unreeled. At this time the surface 43 does not lock the reel against re-reeling but merely against unreeling. Hence when the person brushing his or her clothes hears that the machine is stopped and if it is desired to continue brushing the clothes the person may do so, but if the user releases the brush the hose will be retracted, due to the tension of the spring 39, and once the hose is retracted the brush cannot be extracted or the hose unreeled except on the deposit of a coin.

While certain features of the present invention are more or less specifically described, I wish it understood that various changes may be resorted to within the scope of the appended claims; and similarly, that the materials and finish of the several parts employed may be such as the manufacturer may decide or varying conditions or uses may demand.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. In a machine of the character described, a housing, a reel journaled in the housing, said reel having a hollow hub, a hose adapted to be wound on the reel, a connection between one end of the hose and the hollow hub, a brush attached to the other end of the hose, a motor driven suction apparatus connected with the hollow hub of the reel and with the hose and brush to cause a suction action between the bristles of the brush, means normally locking the reel against rotation to prevent unwinding of the hose and extension of the brush for use, manually actuated means for rendering the suction apparatus operative and for releasing the locking means to permit unwinding of the hose and extension of the brush for use, and automatically actuated means operable after a predetermined time interval for rewinding the hose to retract the brush, said means also rendering the suction apparatus inoperative when the hose and brush are retracted.

2. In a machine of the character described, the combination with a motor and a reel, of a switch for making or breaking a circuit through the motor, a locking device to prevent rotation of the reel, a link connecting the locking device to the switch, a rotatable disk, a connection between the disk and the link whereby rotation of the disk is transmitted to impart longitudinal movement to the link, manually actuated means for rotating the disk in one direction to impart longitudinal movement to the link to close the switch and release the locking means, and means driven by the motor and operable after a predetermined time interval to rotate the disk in an opposite direction so as to reverse the movement of the link and thereby lock the locking member and open the switch.

3. In a machine of the character described, a housing, a reel journaled in the housing, said reel having a hollow hub, a hose adapted to be wound on the reel, a connection between one end of the hose and the hollow hub, a brush attached to the other end of the hose, a motor driven suction apparatus having a suction and a discharge connection, a connection between the suction connection of the suction apparatus and the hollow hub of the reel, a dust separator connected with the discharge connection of the suction apparatus, means normally locking the reel against rotation to prevent unwinding of the hose and extension of the brush for use, manually actuated means for rendering the suction apparatus operative and for releasing the locking means to permit unwinding of the hose and extension of the brush for use, and automatically actuated means operable after a predetermined time interval for re-winding the hose to retract the brush, said means also rendering the suction apparatus inoperative.

4. In a machine of the character described, a housing, a reel journaled in the housing, said reel having a hollow hub, a hose adapted to be wound on the reel, a connection between one end of the hose and the hollow hub, a brush attached to the other end of the hose, a motor driven suction apparatus having a suction and a discharge connection, a connection between the suction connection of the suction apparatus and the hollow hub of the reel, means normally locking the reel against rotation to prevent unwinding of the hose and extension of the brush for use, manually actuated means for closing a circuit through the motor to drive the suction apparatus, means actuated by the motor for releasing the reel locking means to permit unwinding of the hose and extension of the brush for use, and automatically actuated means operable after a predetermined time interval for rewinding the hose to retract the brush, said means also rendering the suction apparatus inoperative.

5. In a machine of the character described, a housing, a reel journaled in the housing, said reel having a hollow hub, a hose adapted to be wound on the reel, a connection between one end of the hose and the hollow hub, a brush attached to the other end of the hose, a motor driven suction apparatus having a suction and a discharge connection, a connection between the suction connection of the suction apparatus and the hollow hub of the reel, means normally locking the reel against rotation to prevent unwinding of the hose and extension of the brush for use, manually actuated means for closing a circuit through the motor to drive the suction apparatus, means actuated by the motor for releasing the reel locking means to permit unwinding of the hose and extension of the brush for use, and means driven by the motor and operable after a predetermined time interval for rewinding the hose to retract the brush, said means also breaking the circuit through the motor to render such apparatus inoperative.

6. In a machine of the character described, a housing, a reel journaled in the housing, said reel having a hollow hub, a hose adapted to be wound on the reel, a connection between one end of the hose and the hollow hub, a brush attached to the other end of the hose, a motor driven suction apparatus having a suction and a discharge connection, a connection between the suction connection of the suction apparatus and the hollow hub of the reel, means normally locking the reel against rotation to prevent unwinding of the hose and extension of the brush for use, manually actuated means for closing a circuit through the motor to drive the suction apparatus, means actuated by the motor for releasing the reel locking means to permit unwinding of the hose and extension of the brush for use, means for automatically locking the reel when the hose is unwound, means driven by the motor and operable after a predetermined time interval for releasing the reel locking means and for breaking the circuit through the motor to render the suction apparatus inoperative, and a spring for transmitting a rewinding movement to the reel to re-reel the hose and retract the brush when the reel locking means has been released.

THERON C. CURTISS.