

Sept. 29, 1953

P. F. ARNOLD

2,653,694

SHOE POLISHING MACHINE

Filed Aug. 14, 1950

3 Sheets-Sheet 1

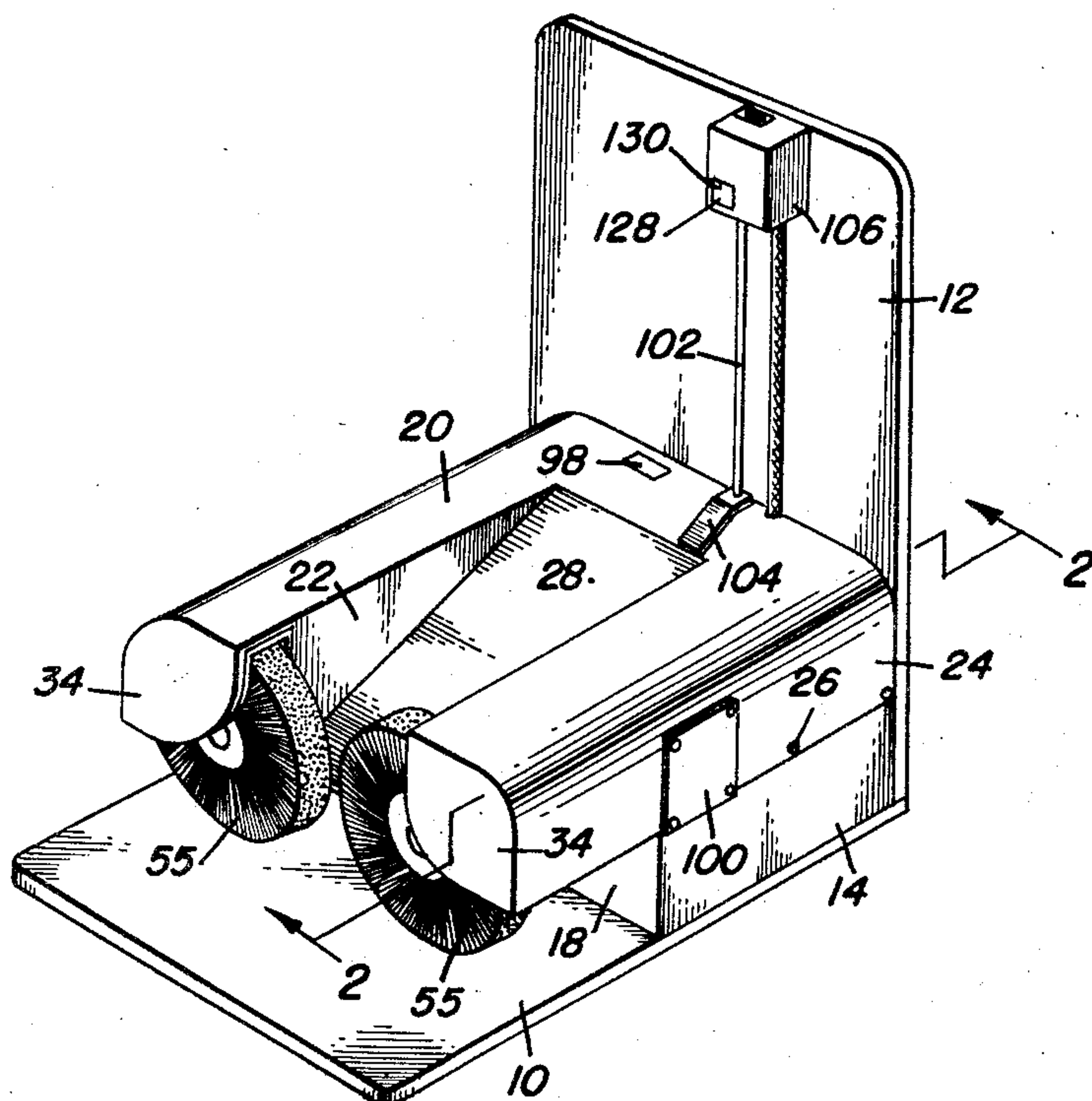


Fig. 1

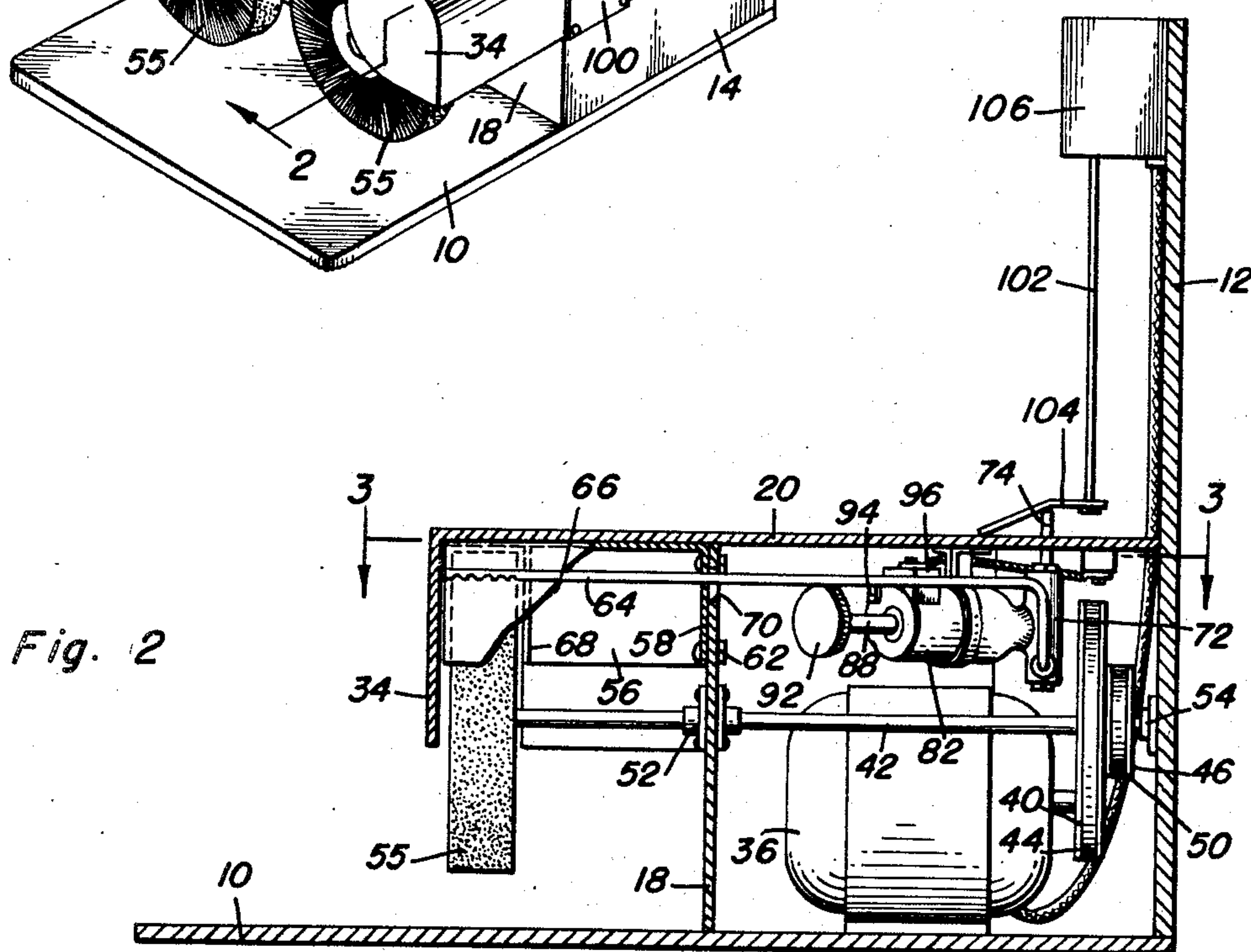


Fig. 2

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Fig. 3

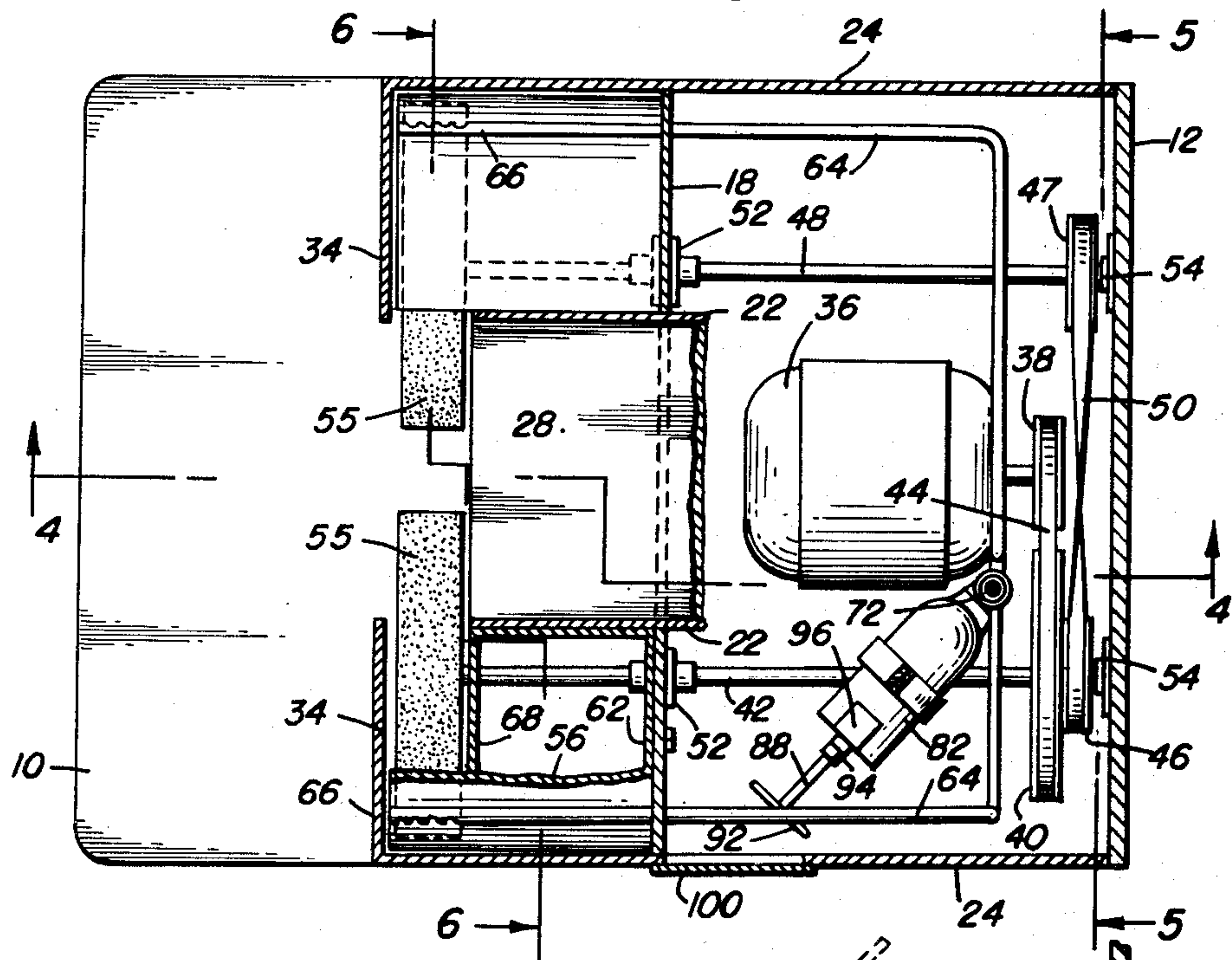


Fig. 4

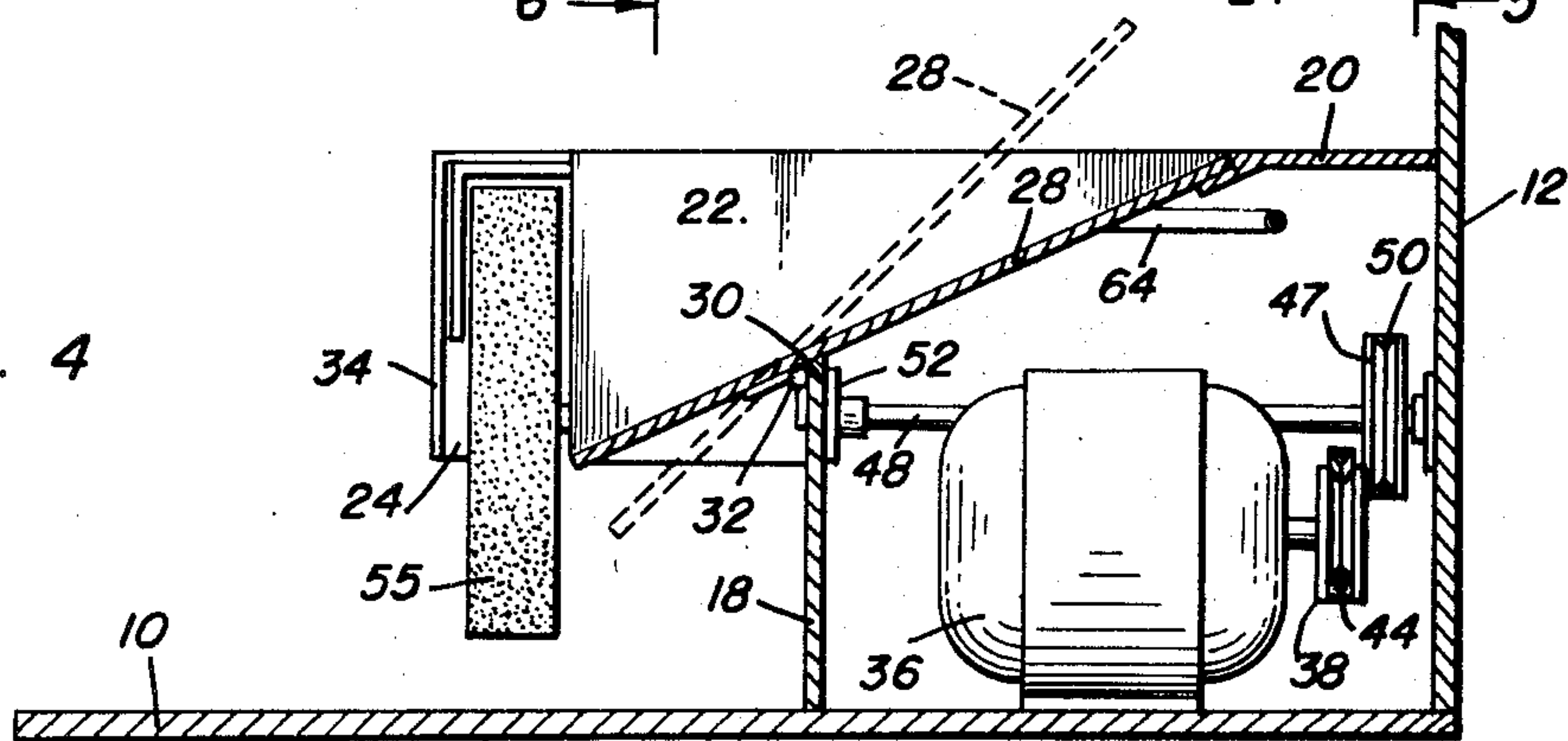
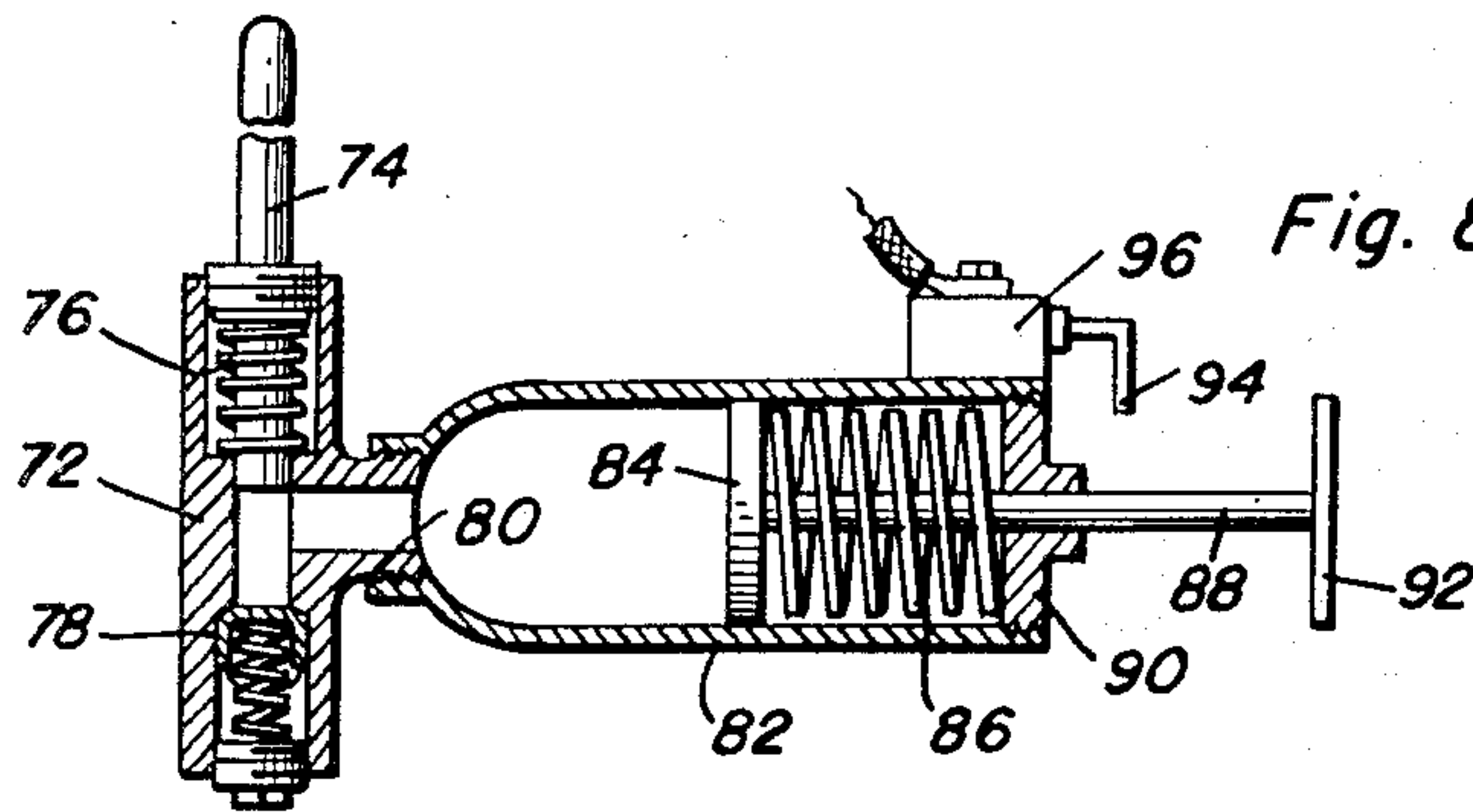


Fig. 8



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Fig. 5

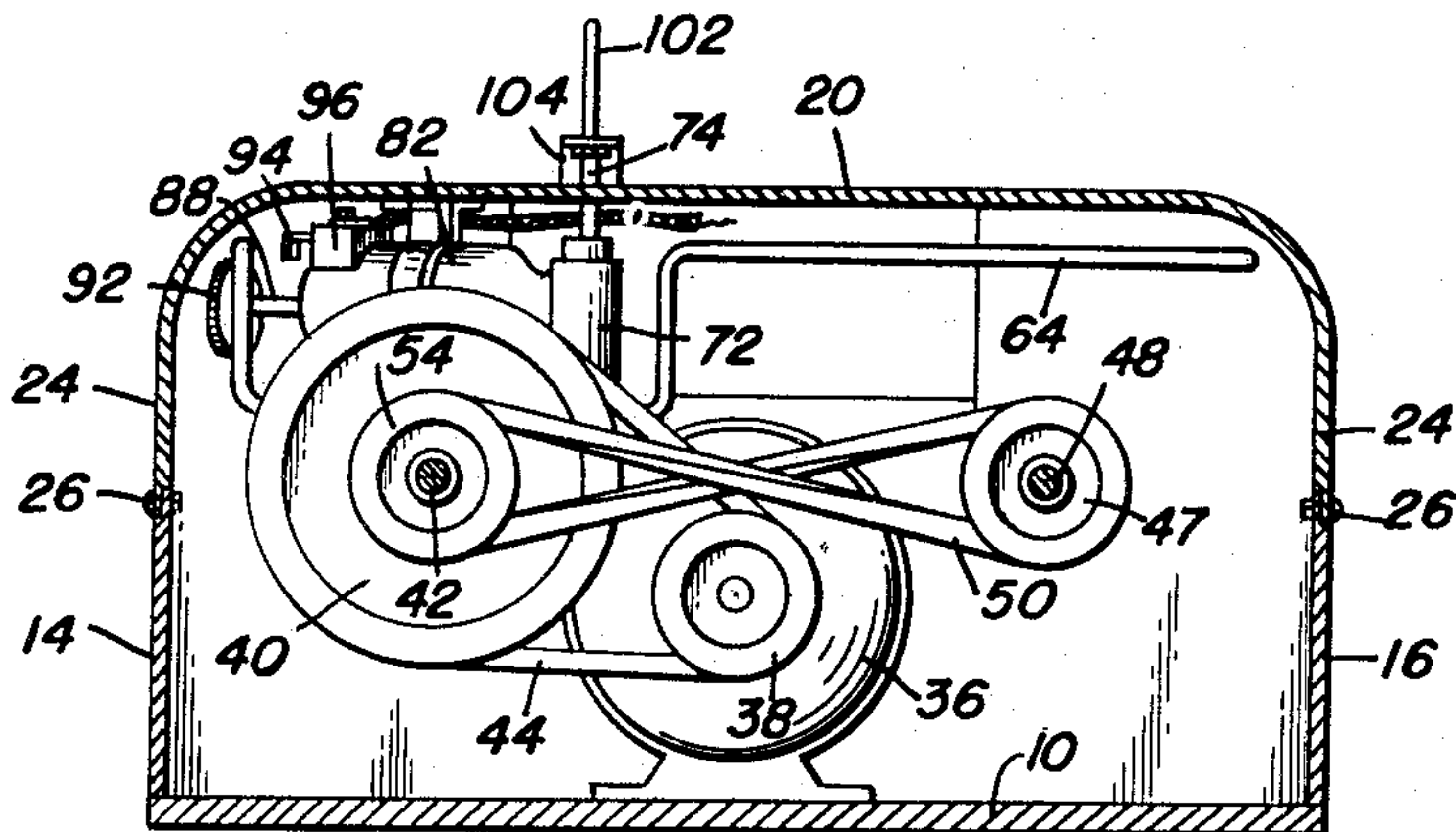


Fig. 6

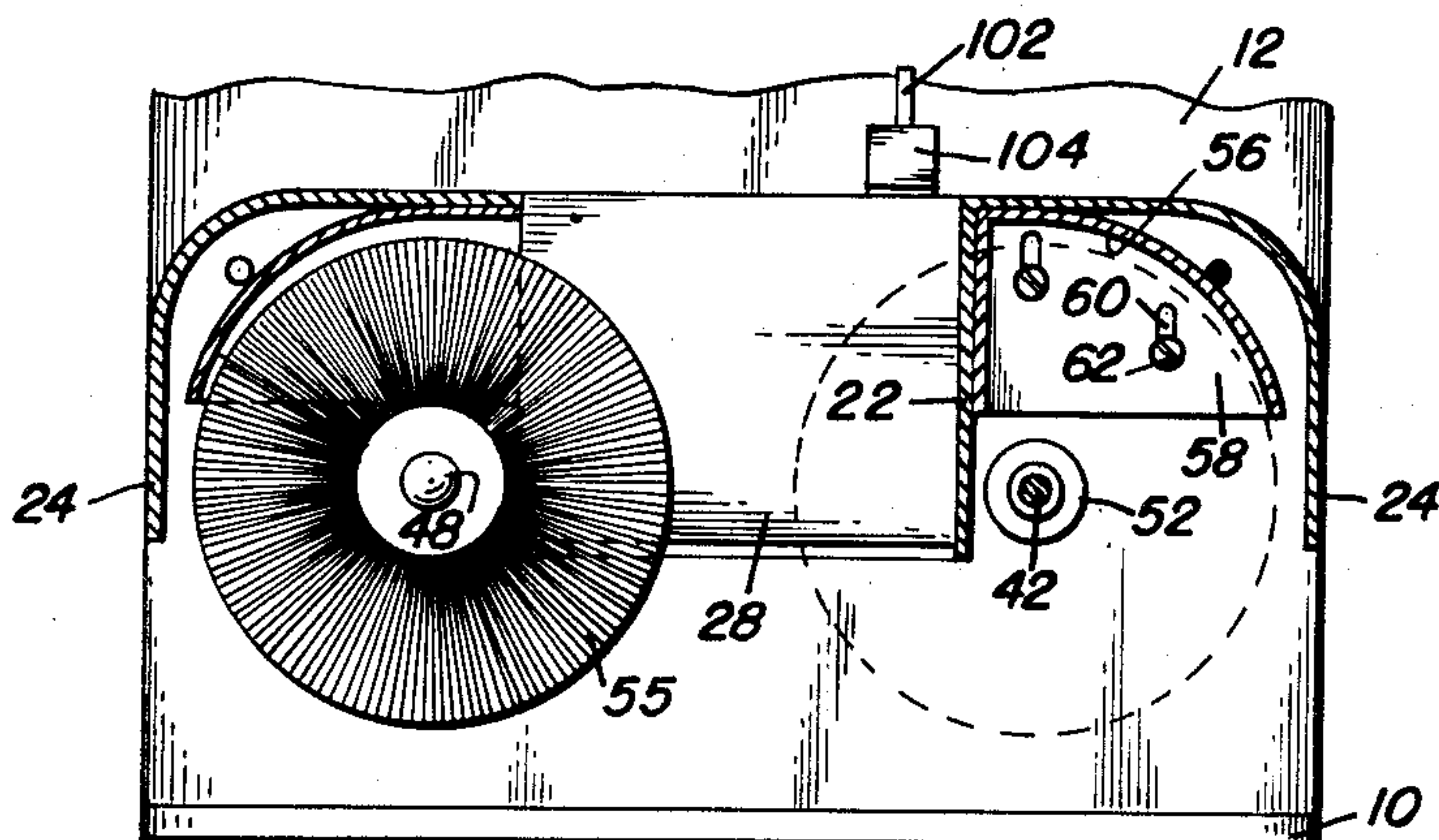


Fig. 7

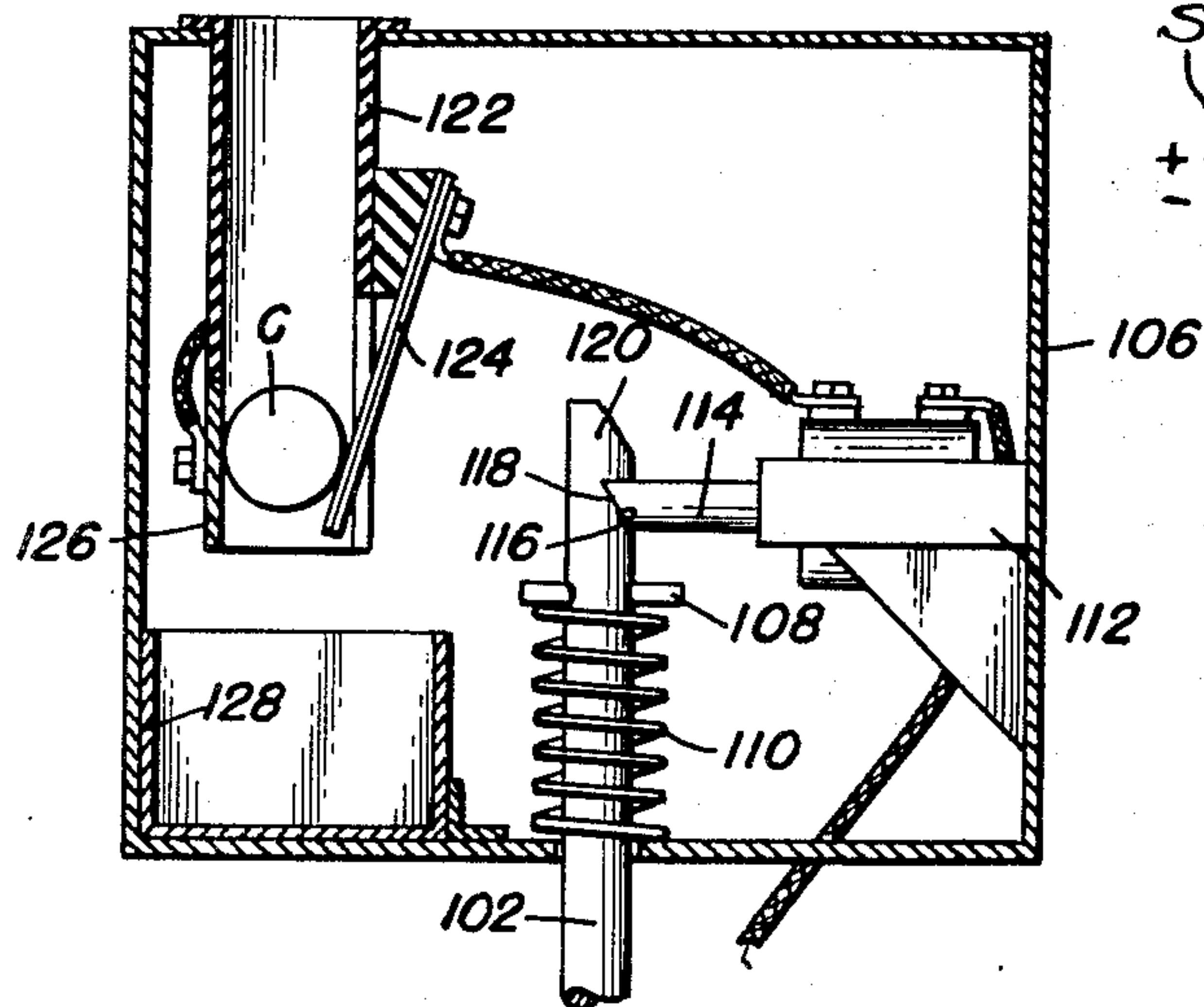
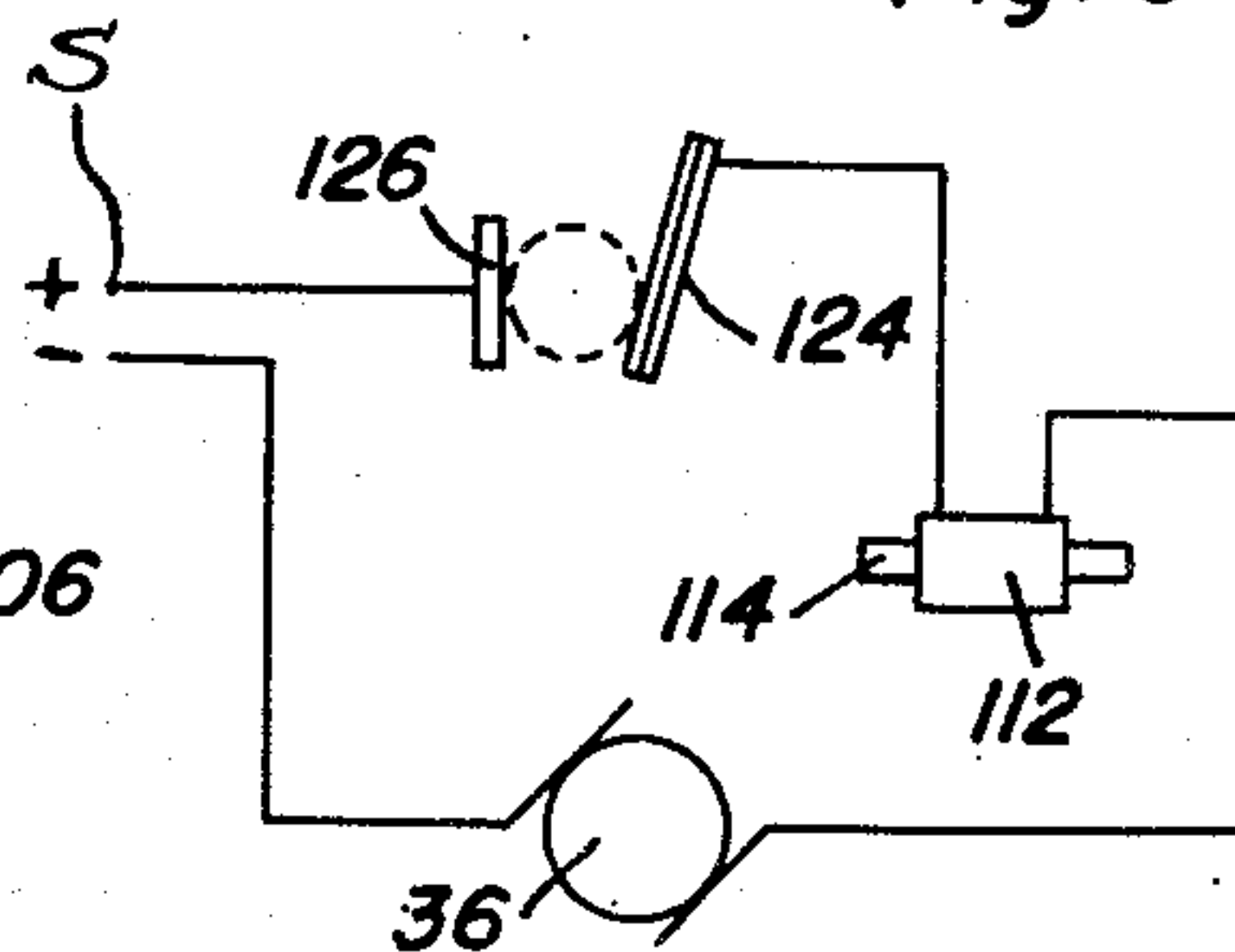


Fig. 9



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UNITED STATES PATENT OFFICE

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SHOE POLISHING MACHINE

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Application August 14, 1950, Serial No. 179,298

10 Claims. (Cl. 194—6)

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This invention relates to new and useful improvements in buffing and polishing machines and the primary object of the present invention is to provide a portable shoe polishing machine that will effectively polish and shine a pair of shoes in a minimum of time.

Another important object of the present invention is to provide a shoe polishing machine that is extremely small and compact in structure and which is coin-operated to eliminate the necessity of having an operator or attendant present to supervise the operation of the machine.

Yet another object of the present invention is to provide a shoe polishing machine including a pair of rotary brushes driven by an electric motor, a dispensing mechanism for supplying a polish to the brushes and a coin-operated time switch electrically connected to a locking mechanism for the dispensing mechanism and to the motor whereby the brushes will rotate and be supplied with polish for only a predetermined period.

A further object of the present invention is to provide a shoe polishing machine including a manually actuated pump for directing a supply of polish to the brushes and a novel and improved locking mechanism for preventing actuation of the pump until a coin is placed into the machine.

A still further aim of the present invention is to provide a coin operated portable shoe shining and polishing machine including a reservoir having a spring urged piston for directing a polish into a conduit and toward the rotating brushes of the machine and an electrical signal actuated by the piston when the supply of polish in the reservoir is exhausted to indicate the empty condition of the reservoir.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a perspective view of the present invention;

Figure 2 is a vertical sectional view taken substantially on the plane of section line 2—2 of Figure 1;

Figure 3 is a horizontal sectional view taken substantially on the plane of section line 3—3 of Figure 2;

Figure 4 is a vertical sectional view taken substantially on the plane of section line 4—4 of Figure 3;

Figure 5 is a vertical sectional view taken sub-

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stantially on the plane of section line 5—5 of Figure 3;

Figure 6 is a vertical sectional view taken substantially on the plane of broken section line 6—6 of Figure 3;

Figure 7 is an enlarged detail sectional view of the coin-operated switch and the locking mechanism used in the invention;

Figure 8 is an enlarged detail sectional view of the pump means and reservoir used in the invention; and

Figure 9 is a schematic view of the circuit diagram used in the invention.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a base plate from which there rises a rear wall 12, a pair of side walls 14 and 16, and a forward wall 18. The upper ends of the walls 14, 16 and 18 support an upper wall 20 having inner and outer pairs of depending vertical flanges 22 and 24.

The outer flanges 24 overlap the side walls 14 and 16, and are secured to the side walls by fasteners 26. The inner flanges 22 are spaced apart sufficiently to accommodate a vertically swingable foot platform or rest 28 that is secured intermediate its ends to the upper edge of a central notch 30 in the front wall 18 by a hinge 32. The inner flanges 22 are preferably struck downwardly from the upper wall to provide an opening through which a user may extend his foot to rest upon the platform 28.

The forward end of the upper wall 20 overhangs the wall 18 and supports a pair of vertical plates 34 that function as shields in a manner later to be described. The rear end of the base plate 10 supports an electric motor 36 having a pulley 38 on its drive shaft that is connected to a pulley 40 on a brush-holding shaft 42 by an endless belt 44. The shaft 42 supports a second pulley 46 that is connected to another pulley 47 on a second brush-holding shaft 48 by a twisted endless belt 50 whereby the shaft 42 rotates counter-clockwise and the shaft 48 rotates clockwise when facing the machine.

The shafts 42 and 48 are spaced parallel to each other and extend horizontally through bearings 52 carried by the front wall 18. The rear ends of the shafts 42 and 48 are journaled in bearings 54 on the rear wall 12 and the forward ends of the shafts 42 and 48 support brushes or cleaning and polishing heads 55 that are positioned behind and shielded by the aforementioned vertical plates 34.

Hollow supports 56 are positioned beneath the

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upper wall 20 and between each of the inner and outer flanges 22 and 24. The rear walls 58 of the supports 56 are formed with vertical slots 60 that receive fasteners 62 which are threaded to the wall 18 for vertical adjustment of the hollow supports. Flexible conduits 64 are supported by the supports 56 and include forward perforated discharge ends 66 that are so located as to apply a polish to the brushes 55. Front walls 68 depend from the supports 56 and are spaced parallel to the walls 34 to confine the brushes between the walls 34 and 68. The wall 18 is provided with vertical slots 70 receiving the conduits 64 to permit vertical adjustment of the conduits 64 with the hollow supports 56.

Means is provided for forcing a polish through the conduits 64 and this means comprises a pump casing 72 that is connected to both conduits 64. The upper end of the casing 72 slidably supports a vertical plunger 74 whose upper end extends upwardly through the upper wall 20 close to the rear wall 12. The plunger 74 is held raised by a spring 76 and a spring raised check valve 78 is located in the lower end of the casing 72 above the ends of the conduits 64 that are attached to the casing 72.

A hollow projection 80 extends laterally and horizontally from the casing 72, intermediate the ends of the casing 72, and supports a tubular reservoir 82 in which there is mounted a piston 84 that is urged toward the casing 72 by a spring 86. The piston rod 88 supporting the piston 84, and slidably carried by the removable end wall 90 of the reservoir 82, also supports a trip member 92 that will actuate the sliding switch arm 94 of a switch 96 that is mounted on the reservoir.

The switch 96 is electrically connected to a source of current and to a lamp bulb underlying a window 98 in the upper wall 20 so that when the supply of polish in the reservoir is exhausted the switch arm 94 will be urged to its circuit closing position to indicate that the reservoir should be refilled. One of the outer flanges 24 is formed with an opening normally closed by a removable access door 100 whereby the end wall 90 and the parts supported thereon may be manually removed for refilling the reservoir 82.

The removable access door 100 not only allows refilling of the reservoir 82, but also permits exchange of the empty reservoir for an extra refilled reservoir. Also, the polish used may be liquid or paste.

A locking mechanism is provided for preventing operation of the pump means. This locking mechanism consists of a vertically sliding rod 102 whose lower end supports a horizontal latch 104 that overlies the upper end of the plunger 74. The upper end of the rod 102 is slidably received in a housing 106 mounted on the upper end of the rear wall 12 (see Figure 7).

The upper end of the rod 102 supports an abutment 108, and a spring 110 embraces the upper end of the rod 102 and is biased between the abutment 108 and the lower wall of the housing 106 to raise the rod 102 and permit depression of the upper end of the plunger 74 by a user's toe pressed upon the latch member 104.

A solenoid 112 is mounted in the housing 106 and includes an operating core 114 having a cam surfaced end 116 that normally enters a notch 118 in the rod 102 to lock the latter in its raised position. In the event the solenoid should be de-energized when the rod 102 is lowered, the upper end of the rod 102 is provided with a sloping

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surface 120 complementary to the cam surface 116 so that the surfaces 116 and 120 will engage during raising of the rod 102 and the core 114 will ride away from the rod 102 until the end 116 can snap into the notch 118.

A coin-operated switch is mounted in the housing 106 and includes a vertical insulated tube 122 whose upper end registers with an opening in the upper wall of the housing 106. A bi-metal arm 124 is supported on the tube 122 and inclines downwardly into the tube to block the passage of a coin C through the tube.

A contact 126 carried by the tube 122 in registry with the arm 124 is connected to a source of current S. The arm 124 is connected to one terminal of the solenoid 112 and the other terminal of the solenoid is connected to one terminal of the motor 36. The remaining terminal of the motor is electrically connected to the current source S.

A sliding coin box 128 is removable from the housing 106 and is held in the housing 106 by a key lock 130.

In practical use of the present invention, the placement of the proper coin C in the tube 122 will bridge the gap between the contact 126 and arm 124 so that the core 114 will be retracted and the circuit to the motor 36 completed.

The user then depresses the latch 104 forcing the plunger 74 downwardly and polish in the conduits 64 will be forced onto the brushes 55 through the discharge ends 66 while the brushes 55 rotate.

After the arm 124 has been heated a predetermined amount, the arm 124 will flex to release the coin C and the motor will stop and the rod 102 will be raised into locking engagement with the core 114.

During rotation of the brushes, the user will place a selected shoe on the platform 28 and will rock the platform to assure contact of the brushes with the surface of his shoe. Obviously, the user may manipulate his shoe so that the toe and heel will be engaged by the brushes. Sufficient time is present for both of the user's shoes to be properly polished and shined.

Obviously, the device is applicable without the coin-operated switch, since a manually operated switch may be employed and the locking mechanism dispensed with.

In view of the foregoing description taken in conjunction with the accompanying drawings it is believed that a clear understanding of the construction, operation and advantages of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though there is herein shown and described a preferred embodiment of the invention the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and the scope of the appended claims.

Having described the invention, what is claimed as new is:

1. A shoe shining machine comprising a pair of spaced parallel shafts, power means connected to and rotating said shafts toward each other, a brush mounted on each shaft, a conduit associated with each brush, said conduits including discharge ends disposed adjacent the brushes for supplying a liquid polish to the brushes, a pump operatively connected to said conduits for directing a liquid polish through the conduits, a vertically swingable platform mounted between said

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shafts, and a foot actuable operator for the pump disposed adjacent the platform and accessible to a user's foot on the platform.

2. A shoe shining machine comprising a pair of spaced parallel shafts, a platform mounted between said shafts, power means connected to and rotating said shafts toward each other, a brush mounted on each shaft, a conduit associated with each brush, said conduits including discharge ends disposed adjacent the brushes for supplying a liquid polish to the brushes, a pump operatively connected to said conduits for directing a liquid polish through said conduits, and a reservoir connected to said conduits and including a spring urged plunger for forcing a liquid polish in the reservoir into the conduits whereby the pump may direct the polish through the conduits, a pump operator being disposed sufficiently close to said platform to permit actuation of said operator by a user's foot positioned on said platform.

3. A shoe shining machine comprising a pair of spaced parallel horizontal shafts, a brush supported on each shaft, an electric motor operatively connected to the shafts for rotating the shafts, a vertically swingable platform located between said shafts, a dispensing mechanism for supplying liquid polish to the brushes, a locking mechanism preventing operation of said dispensing mechanism, and a switch means operatively connected to said locking mechanism and said motor for releasing the locking mechanism, said dispensing mechanism including a foot operated plunger disposed sufficiently close to said platform to permit actuation thereof by a user's foot disposed on the platform.

4. A shoe shining machine comprising a pair of spaced parallel horizontal shafts, a brush supported on each shaft, an electric motor operatively connected to the shafts for rotating the shafts, a dispensing mechanism for supplying liquid polish to the brushes including a foot operated plunger, a locking mechanism preventing operation of the plunger of said dispensing mechanism, and a coin-controlled switch operatively connected to said locking mechanism and said motor for releasing the locking mechanism.

5. A shoe shining machine comprising a pair of spaced parallel horizontal shafts, a brush supported on each shaft, an electric motor operatively connected to the shafts for rotating the shafts, a foot operated dispensing mechanism for supplying liquid polish to the brushes, a locking mechanism preventing operation of said dispensing mechanism, said locking mechanism including a solenoid, and a coin-operated switch electrically connected to the solenoid and to the motor, said locking mechanism being released when the solenoid is energized.

6. A portable shoe shine machine comprising a pair of spaced parallel horizontal shafts, a brush mounted on each shaft, a power means operatively connected to said shafts for rotating the shafts, a wall supporting the shafts, a pair of supports adjustably secured to said wall, a conduit carried by each support, said conduits including discharge ends disposed adjacent the brushes for supplying a liquid polish to said brushes, a pump operatively connected to said conduits for directing a polish through said conduits and including a foot operated plunger, a vertically swingable foot platform carried by said wall and positioned between said shafts and relatively close to said plunger, a locking means preventing actuation of said plunger, and a switch

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operatively connected to said locking means and said power means for releasing said locking mechanism.

7. A portable shoe shine machine comprising a pair of spaced parallel horizontal shafts, a brush mounted on each shaft, a power means operatively connected to said shafts for rotating the shafts, a wall supporting the shafts, a pair of supports adjustably secured to said wall, a conduit carried by each support, said conduits including discharge ends disposed adjacent the brushes for supplying a liquid polish to said brushes, a pump operatively connected to said conduits for directing a polish through said conduits, a vertically swingable foot platform carried by said wall and positioned between said shafts, said pump including a foot operated plunger disposed relatively close to said platform to permit actuation of said plunger by a user's foot positioned on said platform, a sliding bar paralleling said plunger, a latch carried by said bar overlying the plunger and depressed to move the plunger to a polish ejecting position, a solenoid including an operating core for engaging the bar to prevent sliding of the bar, and a switch electrically connected to the solenoid and the power means, said switch being moved to its circuit closing position to energize the solenoid whereupon said core releases said bar.

8. A portable shoe shine machine comprising a pair of spaced parallel horizontal shafts, a brush mounted on each shaft, a power means operatively connected to said shafts for rotating the shafts, a wall supporting the shafts, a pair of supports adjustably secured to said wall, a conduit carried by each support, said conduits including discharge ends disposed adjacent the brushes for supplying a liquid polish to said brushes, a pump operatively connected to said conduits for directing a polish through said conduits, a vertically swingable foot platform carried by said wall and positioned between said shafts, said pump including a casing having a laterally projecting hollow sleeve portion, a reservoir mounted on said sleeve portion, and a spring urged piston in said reservoir for urging a polish in the reservoir into the casing, said pump including a foot operated plunger located sufficiently close to said platform to permit actuation of said plunger by a user's foot positioned on the platform.

9. In a shoeshine device including power operated brushes and a dispensing mechanism including conduits for supplying polish to the brushes and a plunger for directing polish through the conduits and toward the brushes, a latch means for preventing actuation of said plunger, said latch means comprising a latch member extending over the plunger, a slidable shaft supporting said member and movable toward and away from said plunger, a locking means engageable with said shaft to prevent movement of the shaft and latch member toward the plunger, and means for releasing said locking means.

10. In a shoeshine device including a base having a hollow rear portion, a power operated brush supported by the base and a dispensing mechanism for supplying polish to the brush, said dispensing mechanism being supported within said hollow rear portion and including a vertically slidable plunger extending through and upwardly from said hollow rear portion, a vertically slidable rod supported over said rear portion, a combined latch and pedal member secured to and

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projecting laterally from the lower end of said rod and extending over the plunger, said member being manually pressed downwardly to depress the plunger and actuate the dispensing mechanism, locking means engaging the rod to hold the latter against downward sliding movement and the member spaced above the plunger, and means for releasing said locking means.

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