

Sept. 8, 1925.

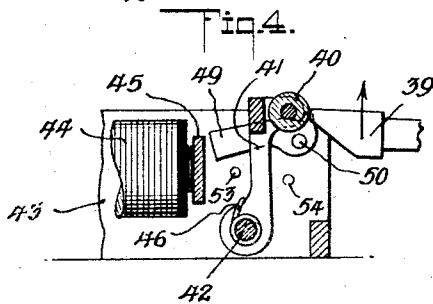
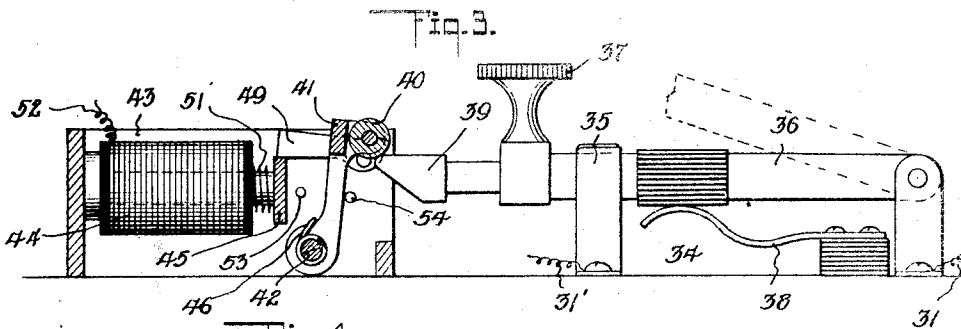
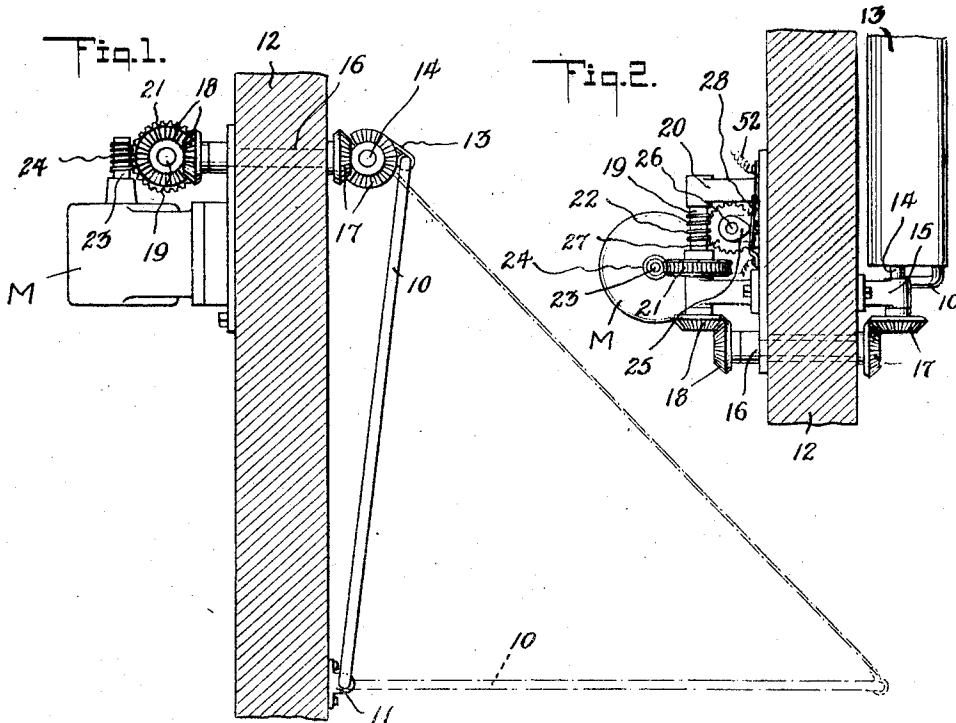
1,552,687

H. FENSTER

ELECTRICALLY OPERATED AWNING

Filed Dec. 24, 1921

2 Sheets-Sheet 1



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BY
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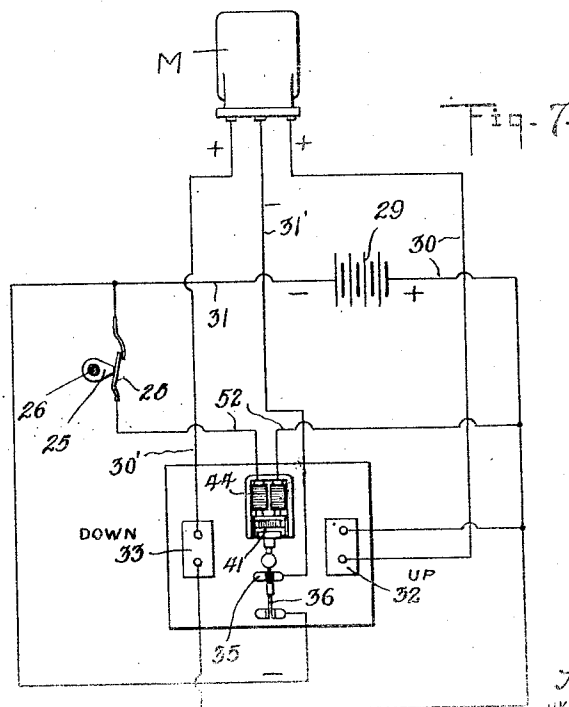
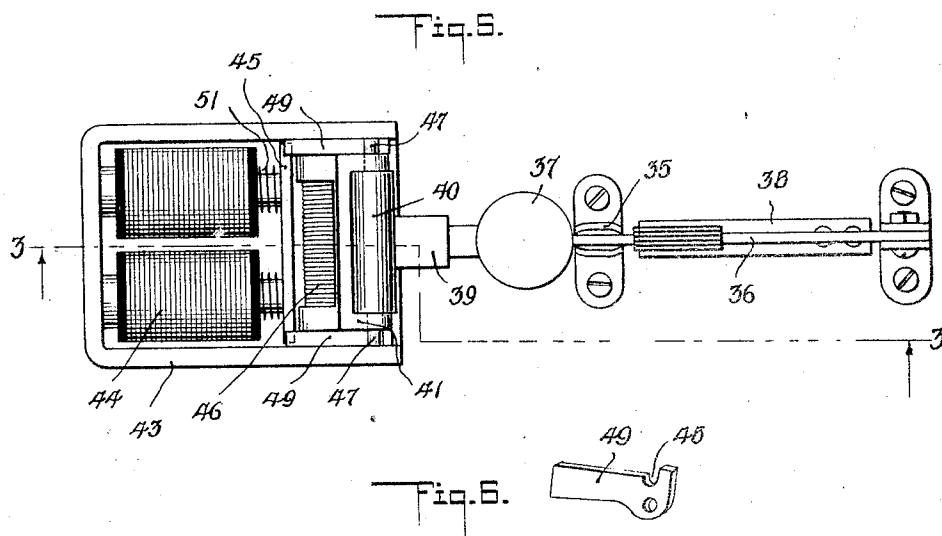
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UNITED STATES PATENT OFFICE.

HENRY FENSTER, OF BROOKLYN, NEW YORK.

ELECTRICALLY-OPERATED AWNING.

Application filed December 24, 1921. Serial No. 524,655.

To all whom it may concern:

Be it known that I, HENRY FENSTER, a citizen of Serbia, but having declared my intention to become a citizen of the United States, residing at New York city, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Electrically-Operated Awnings, of which the following is a specification.

This invention relates to awnings such as are commonly used on store fronts or the like, and it has particular reference to power means for operating such devices practically automatically, thus saving much time and labor otherwise spent by the storekeeper or porter. It will of course be understood that the device is well adapted for use in connection with private residences and the awnings of other buildings as well as the fronts of business buildings along city streets.

Among the objects of the invention is to provide a suitable motor such as an electric motor of the reversible type, for operating the winding shaft of an awning in either direction and to provide an automatic switch to stop the motor when the awning is rolled either up to its limit or unrolled to its open position, thus relieving the operator from any attention to the device beyond the mere act of starting the motor and initiating the rolling or unrolling of the awning, a matter of but a moment or two and all done within the building. It is therefore unnecessary for the operator to expose himself to the weather for manipulating the awning at any time and especially is this desirable when the weather is inclement and when the awnings must frequently be adjusted because of the weather conditions.

With the foregoing and other objects in view the invention consists in the arrangement and combination of parts hereinafter described and claimed, and while the invention is not restricted to the exact details of construction disclosed or suggested herein, still for the purpose of illustrating a practical embodiment thereof reference is had to the accompanying drawings, in which like reference characters designate the same parts in the several views, and in which—

Figure 1 is a vertical sectional view of a building wall, associated with which is my improvement including an awning frame,

shown up in full lines and down in dot and dash lines.

Fig. 2 is a plan view of the mechanism shown in Fig. 1.

Fig. 3 is a longitudinal section of the master switch on the line 3—3 of Fig. 5.

Fig. 4 is a fragmentary view of the same indicating the release of the switch blade.

Fig. 5 is a plan or face view of the master switch.

Fig. 6 is a detail view of one of the dogs used in connection with the trigger mechanism of the master switch.

Fig. 7 is a diagram of the electric wiring.

Referring now more specifically to the drawings, 10 indicates an awning frame of any suitable construction supported in bearings 11 on the outside of the building wall 12 and to which is secured the outer or lower end portion of the awning 13 whose other end is secured to and rolled upon the winding shaft 14 journaled in bearings 15, all of which awning parts so far described are or may be of conventional nature. While ordinarily the shaft is rotated by hand through means of a crank and rod and gear connections on the outside of the building, in this instance I provide a short shaft 16 extending horizontally through the wall and having mitre gears 17 connecting the outer end of the same with the shaft 14, while the inner end of the short shaft is connected through mitre gears 18 with a worm shaft 19 journaled in bearings 20 fixed to the inner wall surface. This shaft carries a worm gear 21 and also a worm 22. M is a reversible motor fixed adjacent to the shaft last described and is indicated as having a vertical shaft 23 with a worm 24 thereon meshing with the worm gear 21.

25 indicates a cam or its equivalent fixed to a cam shaft 26 to which is fixed a worm gear 27 meshing with the worm 22. The gearing parts thus far described are so designed that the cam shaft 26 will make one full turn while rolling the awning up to its full distance or lowering it to its lowermost position. When the cam 25 thus reaches the limit of its movement in its rotation with the shaft 26 the point of the cam bears against the movable contact or blade 28 of automatic or emergency switch. This switch during the operation of the motor is normally open.

The diagram of Fig. 7 indicates a suitable source of energy 29 from which lead positive and negative wires 30 and 31 respectively. The wire 30 leads to and beyond a manual switch 32 which may be described as being employed for starting the motor for winding up the awning. This switch includes two buttons one for closing the circuit at the switch and the other for breaking the circuit at the switch in case the awning is desired to be stopped when only partially rolled up.

33 indicates a switch similar to the switch 32 but included in an auxiliary line 30' respecting the reversal of the motor for rolling the awning down. The negative wire 31 leading from the battery is common to both of the circuits 30 and 30', and this line includes what may be termed a master switch 34 shown in detail in Figs. 3 to 6. This switch includes a fixed terminal 35 to which the wire 31' is attached, and a movable blade or member 36, associated with which is the wire 31. This blade is adapted to be moved by the operator's hand applied to the knob 37, against the force of a spring 38, for closing the switch. The blade furthermore has a rigidly attached nose or catch 39 adapted to be snapped past and held beneath the anti-friction roller 40 journaled on a U-shaped keeper 41 pivoted at 42 so as to move toward or from the switch blade or catch. This keeper is mounted within a casing 43 in which is located an electromagnet 44 having an armature 45 whose normal position is toward the switch blade as in Fig. 3 when the magnet is dead. The keeper 41 is urged away from the magnet armature by means of a spring 46 causing the roller 40 to take over the point of the catch 39. When the keeper is moved in this direction the ends 47 of the axle on which the roller is mounted engage in notches 48 of a pair of dogs 49 pivoted at 50 within the casing on opposite sides of the keeper, thus causing the dogs to be lifted so that their longer ends extend over the armature whereby the armature holds the dogs from swinging downward and the keeper from releasing the switch blade under the force of the spring 38. The springs 51 tending to hold the armature extended are lighter than the springs 46 so that if the magnet should become dead when the switch is closed the keeper will nevertheless move to the position of Fig. 3 lifting the dogs. In this position the roller 40 extends far enough over the point of the catch 39 to hold the switch blade in connection with the fixed terminal 35.

The magnet 44 is in a shunt circuit 52 from any suitable source of energy such as the battery 29, and in this shunt circuit is located the safety switch above referred to and of which the movable blade 28 is a

part. The keeper 41 is limited in its swinging movements by any suitable stop lugs 53 and 54 located on opposite sides thereof.

Having thus set forth a preferred mechanical construction, the method of operation of the device may be briefly stated as follows assuming that the awning is down and is to be raised: The switch 33 probably being found to be closed, the operator's first act is to open the switch 33 so as to prevent any possibility of the motor being started in the opposite direction. The master switch at this time will be open, having been so thrown automatically to stop the motor at the end of the downward run, and likewise the switch 32 will be found open. The operator closes the switch 32 and then closes and holds the master switch closed momentarily, causing the motor to operate and wind up the awning. The safety switch at 28 at the beginning of this operation necessarily is closed, having been so actuated by the cam 25 at the end of the motor's last run. Hence it is necessary that the operator hold the master switch long enough for the motor to start its work and move the cam away from the movable blade 28 and allow the safety switch to open. The operator will hear the click of the armature when the magnet de-energizes and so he will know that he is free to leave the mechanism perform its own work in its own time. When the awning is rolled up to its limit and the cam 25 again comes around to its position as shown in Fig. 2 to close the shunt circuit, the closing of this circuit will energize the magnet withdrawing the armature from beneath the dogs 49, and thus allowing the main spring 38 to throw open the master switch and stop the motor. To roll the awning down the operator will first break the up circuit at 32 and close the down circuit at 33, and thus with the closing by hand of the circuit at the master switch the motor will operate in the opposite direction until stopped by the cam mechanism as above described. It will thus be seen that the operator on the inside of the building will have complete control of the mechanism for rolling the awning either up or down or for stopping the rolling at any desired mid position, the stopping as last stated being effected by breaking the active circuit at 32 or 33 as may be desired. Ordinarily however the awning will be rolled completely in one way or the other, so that after the motor is started the operator need give no further attention until the awning is to be operated the next time.

I claim:

An automatic control system of the character set forth comprising a motor, a master switch in circuit therewith to control the same, a solenoid to control the master

switch, said solenoid being connected in a circuit independent of the motor circuit, a normally open switch in the solenoid circuit, and cam means for closing said switch
5 operative by said motor so as to energize the solenoid to open the master switch and stop the motor, said master switch being closed manually to start the motor and retained closed manually until the motor has moved said cam means to open the solenoid circuit thus permitting the master switch to remain closed until the end of the run of the motor as aforesaid. 10

In testimony whereof I affix my signature.

HENRY FENSTER.