

Nov. 13, 1956

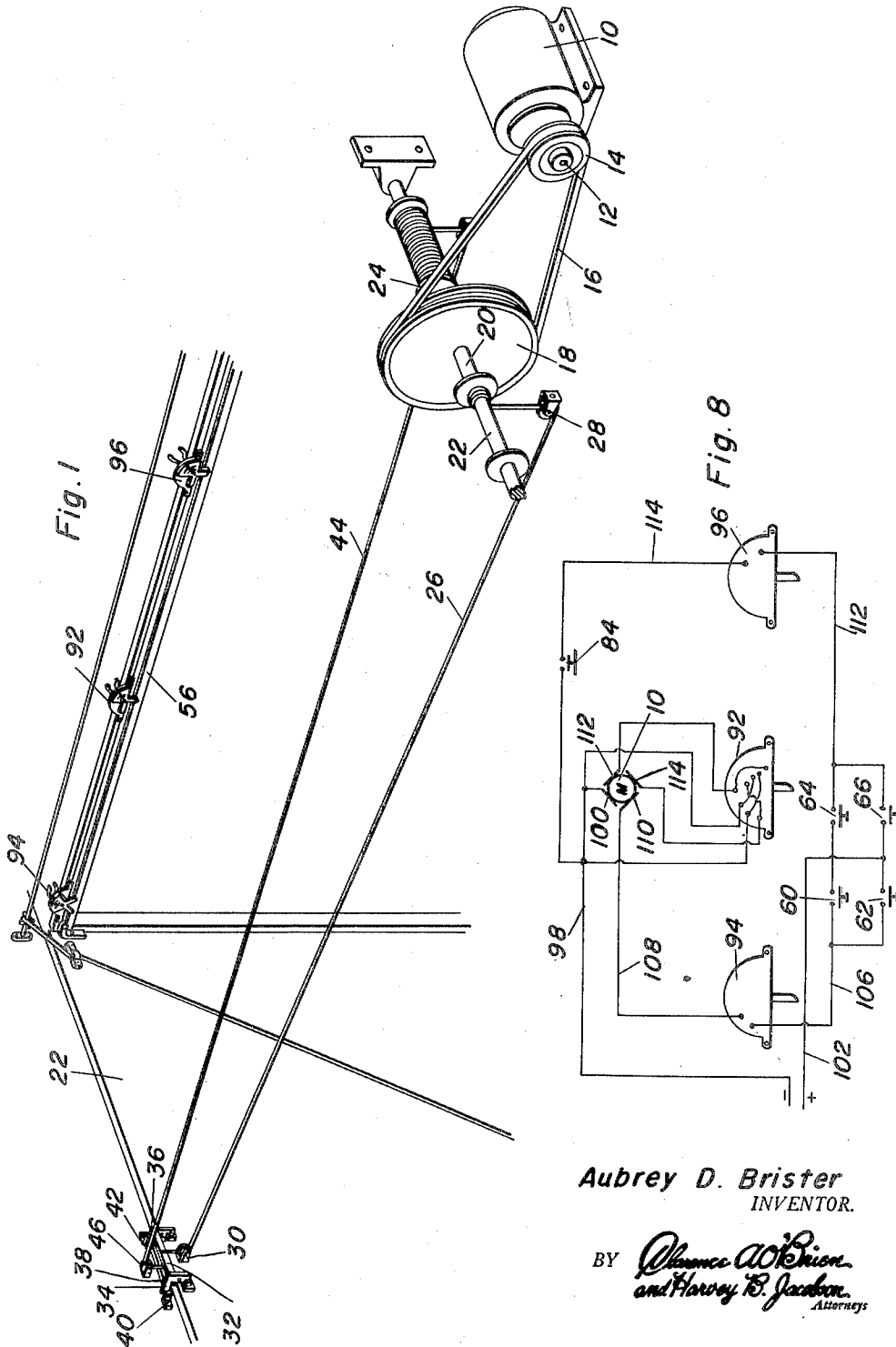
A. D. BRISTER

2,770,455

AUTOMATIC CONTROL FOR GARAGE DOORS

Filed May 31, 1955

3 Sheets-Sheet 1



Aubrey D. Brister  
INVENTOR.

BY *Almonce A. Brison*  
*and Harvey B. Jacobson*  
Attorneys

Nov. 13, 1956

A. D. BRISTER

2,770,455

AUTOMATIC CONTROL FOR GARAGE DOORS

Filed May 31, 1955

3 Sheets—Sheet 2

Fig. 2

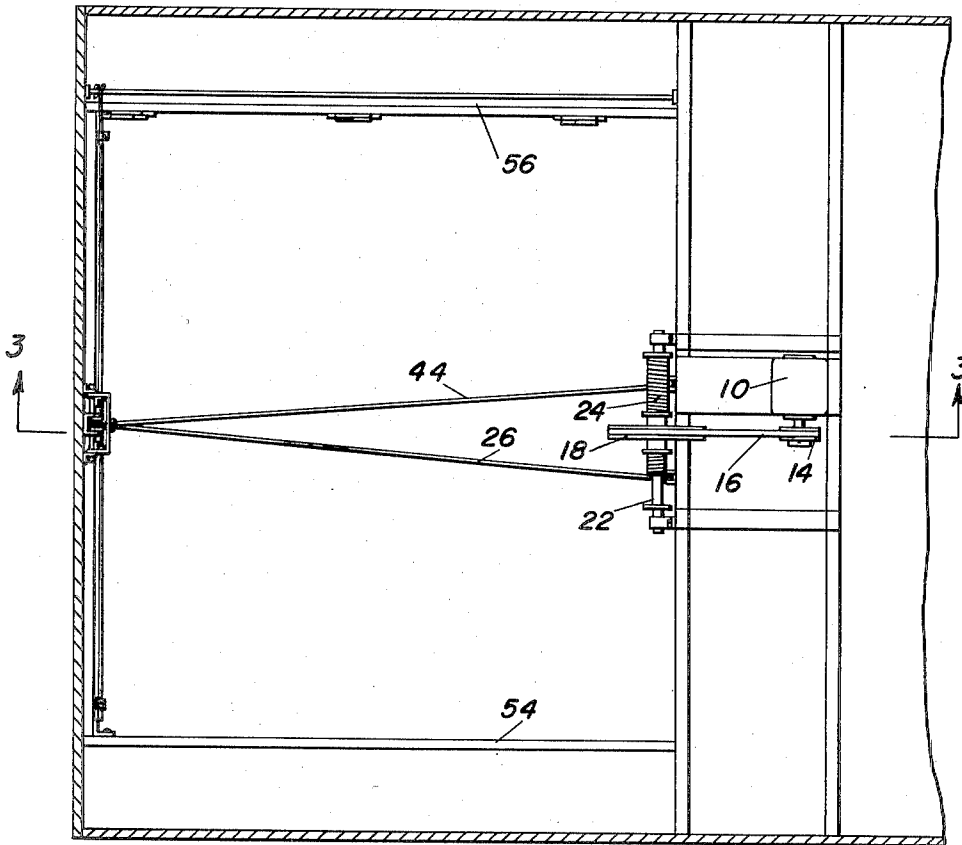


Fig. 4

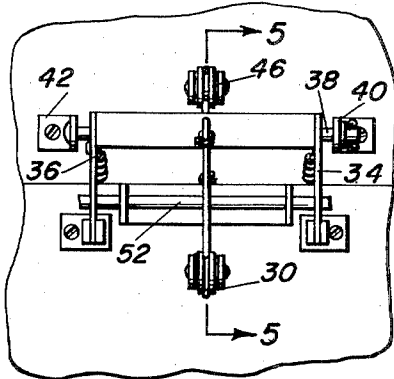
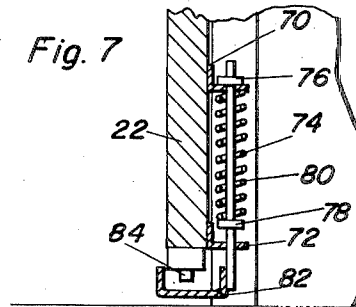


Fig. 7



Auprey D. Brister  
INVENTOR.

BY *Alvanice W. Dixon*  
*and Harvey B. Jackson*  
Attorneys

Nov. 13, 1956

A. D. BRISTER

2,770,455

AUTOMATIC CONTROL FOR GARAGE DOORS

Filed May 31, 1955.

3 Sheets-Sheet 3

Fig. 3

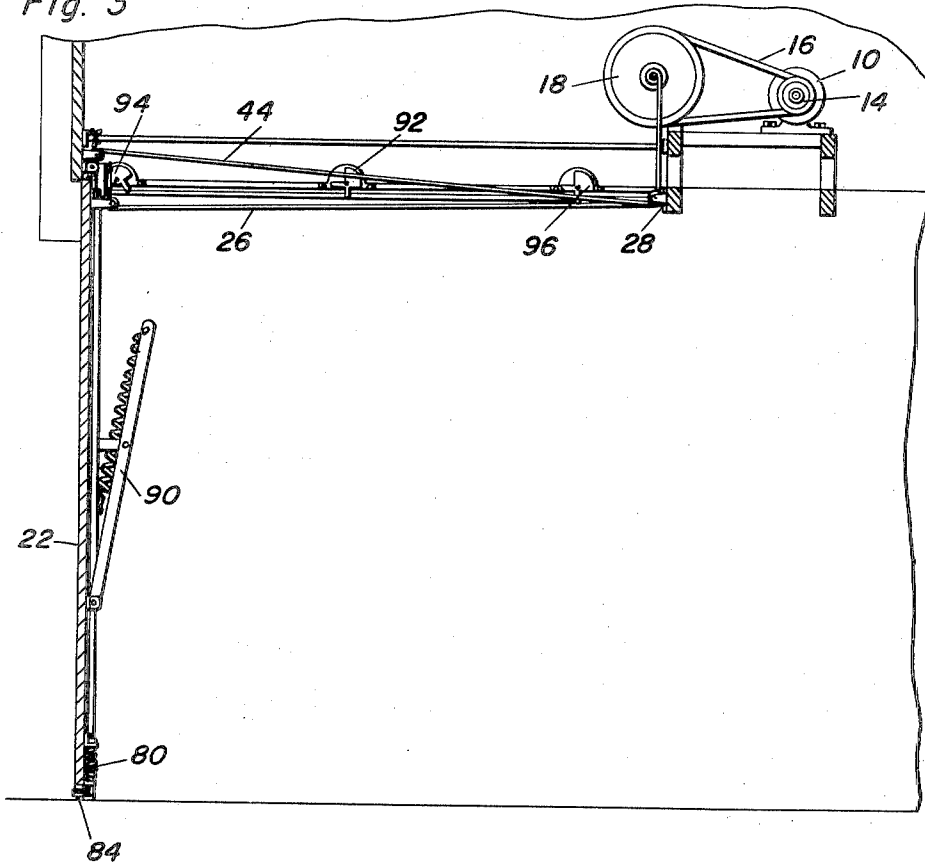
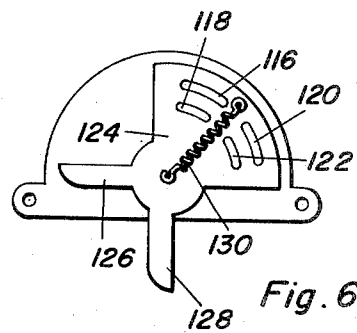
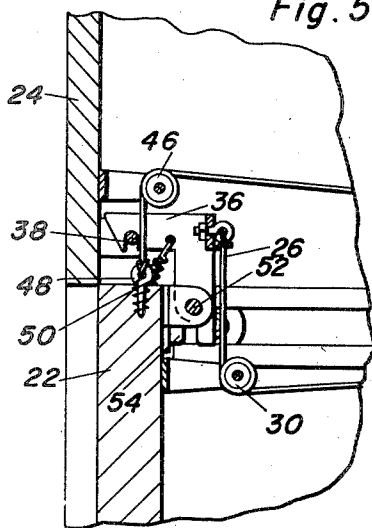


Fig. 5



Aubrey D. Brister  
INVENTOR.

BY *Alvanice A. Brison*  
and *Harvey B. Jackson*  
Attorneys

1

2,770,455

## AUTOMATIC CONTROL FOR GARAGE DOORS

Aubrey D. Brister, Orange, Tex.

Application May 31, 1955, Serial No. 512,187

4 Claims. (Cl. 268—59)

This invention relates to an automatically controlled garage door, and more particularly to means for opening and closing an overhead garage door by the use of electrical power.

The primary object of the present invention resides in the provision of a control mechanism for an overhead garage door whereby the garage door may be opened and closed by an operator of a vehicle without requiring that the operator of the vehicle leave the vehicle.

A further object of the invention resides in the provision of an automatically controlled garage door which will automatically lock itself when in a closed position and in which the control thereof may be easily locked in a waterproof box to prevent tampering therewith by unauthorized persons.

Another object of the invention resides in the provision of an automatically controlled overhead garage door which has means associated therewith to prevent damage should the garage door strike an object during its descent.

Still further objects and advantages of this invention reside in the provision of an automatic control for an overhead garage door that is simple in construction, easily installed on various existing types of overhead garage doors, and which is substantially foolproof in use while being inexpensive to install, thereby permitting wide distribution and utilization.

These, together with the various ancillary objects and features which will become apparent as the following description proceeds, are attained by this automatic control for a garage door, a preferred embodiment of which has been illustrated in the accompanying drawings, by way of example only, wherein:

Figure 1 is a partial perspective view of the major portions of the invention;

Figure 2 is a plan view of an installation of this automatic control for a garage door;

Figure 3 is a vertical sectional view as taken along the plane of line 3—3 in Figure 2;

Figure 4 is an elevational view illustrating in particular the latching mechanism and associated elements;

Figure 5 is a vertical sectional view as taken along the plane of line 5—5 in Figure 4;

Figure 6 is an enlarged elevational view of one of the switches utilized in the present invention;

Figure 7 is an enlarged sectional detail view of the safety switch incorporated on the bottom portion of the door; and

Figure 8 is a wiring diagram of the various component elements of the invention.

With continuing reference to the accompanying drawings wherein like reference numerals designate similar parts throughout the various views, reference numeral 10 generally designates an electric motor having a drive shaft 12 on which a pulley 14 is mounted. The pulley 14 is connected by means of an endless belt 16 to a larger pulley 18 mounted on a shaft 20 in any suitable position within the garage closed by the garage door 22 which is

2

associated with a suitable garage door frame 24 to form a closure for the garage.

Driven by the shaft 20 are a pair of drums 22 and 24. Entrained around the drum 22 is a cable 26 which passes around a pulley 28 and thence about a pulley 30 mounted on the door 22 from whence it is connected to a bar 32 connecting the latch elements 34 and 36 which are engageable with a latch bar 38 carried by brackets 40 and 42 mounted on the door frame 24.

Entrained about the drum 24 is a cable 44 which is entrained about a pulley 46 mounted on the door frame 24 and thence connected to an eye 48 secured in the door 22. Hence, upon rotation of the shaft 20 in one direction, the cable 26 will be wound upon the drum 22. Winding of the cable about the drum 22 will first cause the latch elements 34 and 36 to be lifted from engagement with the latching rod 38 since the springs 50 will be overcome and the latching elements 34 and 36 pivoted about their mounting shaft 52 until they engage stops 54. At this point, continued rotation of the shaft 20 will cause the garage door 22 to be pulled upward along its tracks 54 and 56.

However, rotation of the shaft 20 in the opposite direction will cause the cable 44 to wind on the drum 24, which, in turn, will cause the door 22 to be pulled downwardly since the cable must first pass over the pulley 46. It is noted that the motor 10 is a reversible type motor and its operation is controlled through the judicious application of the push-button switches 60, 62, 64 and 66 in a manner to be henceforth explained.

Mounted on the garage door 22 are a pair of brackets 70 and 72 through which a rod 74 extends. Mounted on the rod 74 are a pair of collars 76 and 78 and concentrically disposed with respect to the rod 74 is a coil spring 80 which yieldingly engages the collar 78 and the undersurface of the bracket 70. Carried by the rod 74 is a channel-shaped member 82 which is engageable with a switch 84 depending from the bottom surface of the door 22 and which, when engaged by the channel member 82, will close, thereby cutting off all current to the motor 10. The switch 84 therefore serves as a safety switch which automatically stops the motor when the door hits an obstruction.

It is noted that the door 22, as is shown in Figure 3, is provided with a conventional spring balancing mechanism 90.

As can be best seen in Figure 1, mounted in the track 56 is a reversing switch 92 as well as two other door actuated switches 94 and 96. In Figure 8, there is shown a wiring diagram including the switches 92, 94 and 96 which are door actuated and cooperate with the push-button switches 60, 62, 64 and 66 to control the motor 10. Push-button switches 60 and 62 control the motor for up movement, while switches 64 and 66 control it for downward movement.

As can be seen best in Figure 8, the negative line 98 of the supply to the motor 10 is connected to post 100 of the motor 10 while the positive conductor 102 is connected to one terminal of each of the push-button switches. Interconnection through the push-button switches conductor 106 leads through the switch 94 and conductor 108 to post 110 of the motor 10. Likewise, conductor 112 leads through the switch 96 and conductor 114 and through switch 84 to the reversing switch 92 and the sets of contacts thereon. By pressing one of the switches 60 and 62, a circuit to the motor 10 is completed. This will cause the motor 10 to pull the door upwardly until the door trips switch 94, breaking off the current thereto between the switches 60 and 62 and the motor 10. The down push-buttons 64 and 66 effectively operate in a similar manner as the up push-button switches 60 and 62. Since the conductor 114

3

is also connected to the post 100 on the motor 10, the actuation of the push-buttons 64 and 66 will serve in a similar manner. The motor will then pull the door down until the door trips switch 96, breaking the circuit between the source of the electrical power and the motor. Posts 112 and 114 on the motor are contacts to the starting points in the motor. Switch 92 is a reverse switch that controls the starting points of the motor by four lines leading direct from the motor to the reverse switch. Reverse switch 92 reverses current through points making forward and reverse motion. Figure 6 in the drawing illustrates in particular the arrangement of parts of the reversing switch in which sets of contacts 116, 118, 120 and 122 are provided on a sector member 124 which has fingers 126 and 128 engageable by the door and which is spring pressed by means of a spring 130. The electrical connections are such as to assure the desired operation of the invention.

After the door has tripped the switch 96 back to an on position, it trips reverse switch 92 to reverse position and continues up until it trips switch 94 for breaking the circuit to the motor. When pressing one of the down buttons with switch 96 in an on position, the door comes back down, tripping switch 94 back on and trips reverse switch 92 back to a forward position and trips switch 96 off breaking power to the motor between the down push-buttons 64 and 66 in the motor.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. In combination with an overhead garage door movable in tracks and cooperating with a door frame to form a closure, an automatic control comprising a reversible motor driving a pair of drums, first cable means entrained about one of said pair of drums and connected to said door for raising said door, second cable means entrained about the other of said pair of drums and secured to said door for lowering said door, and switch means for actuating said motor, latch means for holding said door closed, said first cable means being secured to and actuating said latch means.

2. In combination with an overhead garage door movable in tracks and cooperating with a door frame to form a closure, an automatic control comprising a reversible motor driving a pair of drums, first cable means entrained about one of said pair of drums and connected to said door for raising said door, second cable means entrained about the other of said pair of drums and entrained about a pulley on said door frame and secured to said door for lowering said door, and switch means

4

for actuating said motor, said switch means including a plurality of manually controlled switches, and a plurality of door controlled switches having actuating levers extending into said tracks for actuation by said door, said door controlled switches being electrically connected with their respectively associated switches to said motor and a source of electrical power, latch means for holding said door closed, said first cable means being secured to and actuating said latch means.

3. In combination with an overhead garage door movable in tracks and cooperating with a door frame to form a closure, an automatic control comprising a reversible motor driving a pair of drums, first cable means entrained about one of said pair of drums and connected to said door for raising said door, second cable means entrained about the other of said pair of drums and entrained about a pulley on said door frame and secured to said door for lowering said door, and switch means for actuating said motor, latch means for holding said door closed, said first cable means being secured to and actuating said latch means, and a spring pressed safety switch at the bottom of said door.

4. In combination with an overhead garage door movable in tracks and cooperating with a door frame to form a closure, an automatic control comprising a reversible motor driving a pair of drums, first cable means entrained about one of said pair of drums and connected to said door for raising said door, second cable means entrained about the other of said pair of drums and entrained about a pulley on said door frame and secured to said door for lowering said door, and switch means for actuating said motor, said switch means including a plurality of manually controlled switches, and a plurality of door controlled switches having actuating levers extending into said tracks for actuation by said door, said door controlled switches being electrically connected with their respectively associated switches to said motor and a source of electrical power, latch means for holding said door closed, said first cable means being secured to and actuating said latch means, and a spring pressed safety switch at the bottom of said door.

#### References Cited in the file of this patent

##### UNITED STATES PATENTS

1,897,391	Kelly	Feb. 14, 1933
1,957,509	Vallen	May 8, 1934
2,000,515	Gross	May 7, 1935
2,048,514	Peelle	July 21, 1936
2,221,216	Greeger et al.	Nov. 12, 1940
2,277,932	Mowers et al.	Mar. 31, 1942
2,309,984	Rogers	Feb. 2, 1943
2,335,336	Zoller	Nov. 30, 1943
2,572,196	Raque	Oct. 23, 1951
2,605,100	Matchett	July 29, 1952
2,612,371	Hall	Sept. 30, 1952