March 29, 1955

C. A. CODY

RAIN RESPONSIVE WINDOW OPERATING MECHANISM FOR AUTOMOBILES

2,705,168

Filed July 25, 1951

3 Sheets-Sheet 1

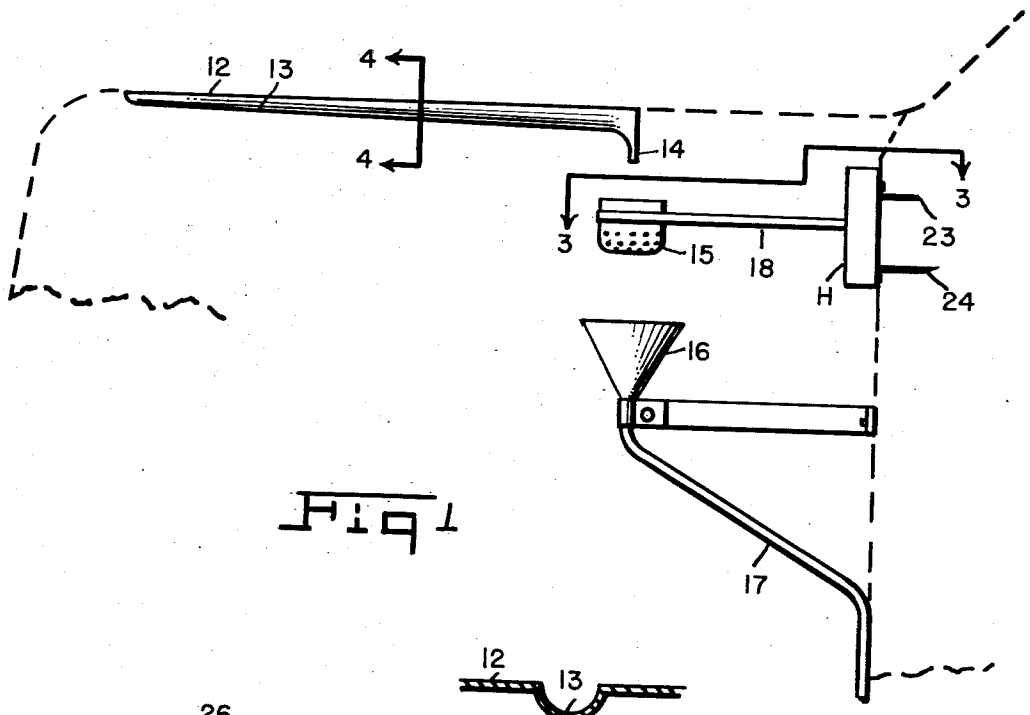


Fig 1

Fig 4

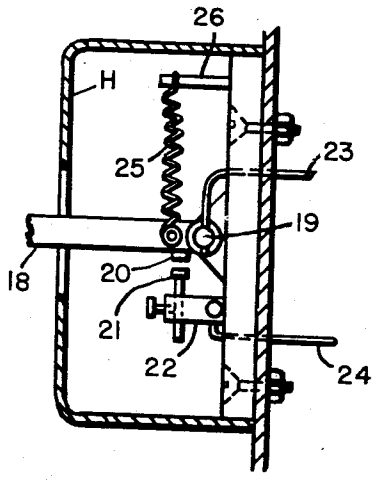


Fig 2

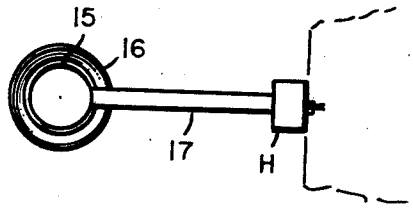


Fig 3

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3 Sheets-Sheet 2

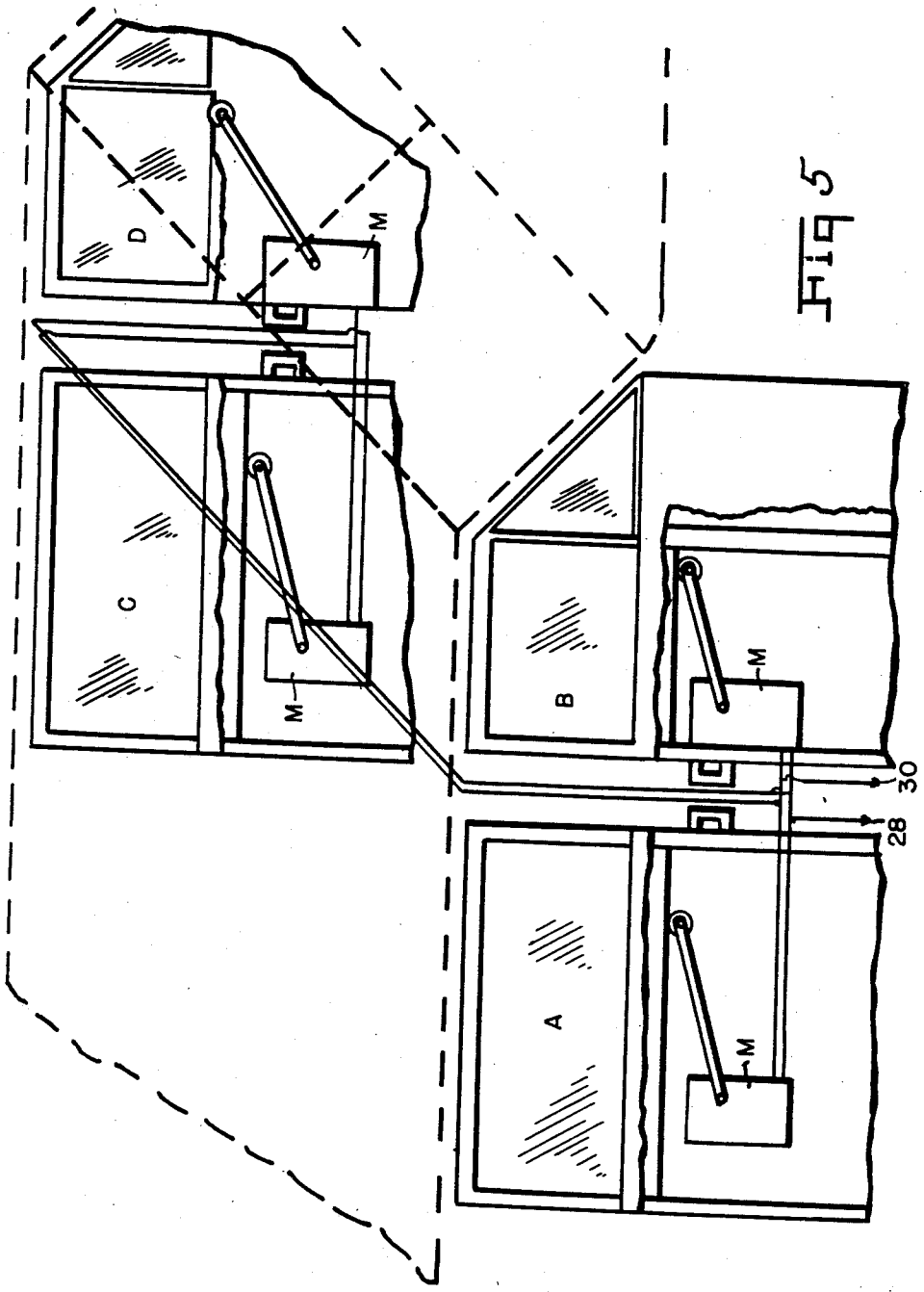


Fig 5

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Fig 6

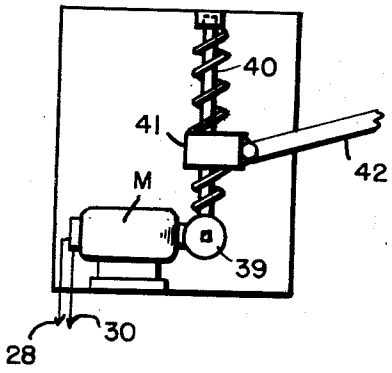
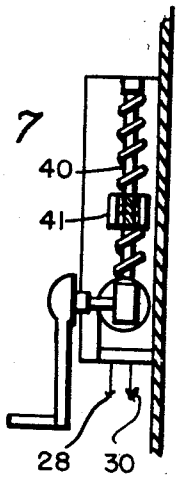


Fig 7



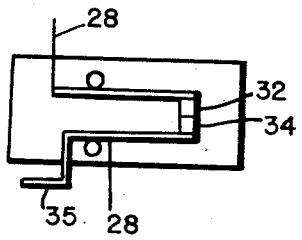


Fig 10

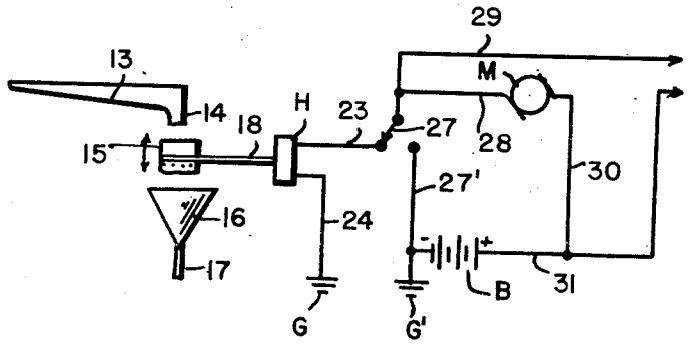


Fig 8

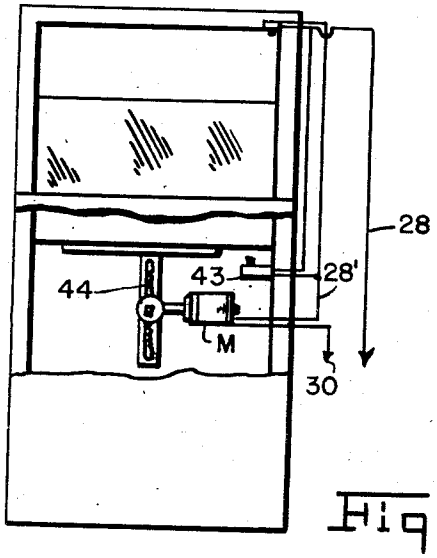


Fig 9

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2,705,168

RAIN RESPONSIVE WINDOW OPERATING MECHANISM FOR AUTOMOBILES

Chester A. Cody, New Orleans, La.

Application July 25, 1951, Serial No. 238,480

1 Claim. (Cl. 296—44)

My invention relates to window operating mechanism for automobiles. It relates specifically to mechanism automatically operated during rain storms.

An object of this invention is to provide mechanism by means of which the windows of an automobile will be closed without manual intervention when it starts to rain in order that the inside of the automobile may not become wet during the absence of any person who might close the windows. Another object is to provide for stopping the operating mechanism when the windows are fully closed. Another object is to provide for automatically opening the windows when a manual switch has been moved into a different position. Another object is to provide for stopping the operating mechanism when the windows have been fully opened. A further object is to provide a device of the character just stated which is comparatively simple and not unduly expensive to manufacture and yet which is extremely efficient in operation.

The said objects I have accomplished by the means now to be described in detail and claimed, it being understood that changes in the precise embodiment of invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

The novel features which I believe to be characteristic of this invention are set forth with particularity in the appended claim. The invention itself, however, both as to organization and operation, together with additional objects and advantages, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawing in which:

Fig. 1 is a side view of a rain collecting arrangement.

Fig. 2 is a detail view showing a switch.

Fig. 3 is taken on the line 3—3 of Fig. 1.

Fig. 4 is a view in section on the line 4—4 of Fig. 1.

Fig. 5 is a diagrammatic view showing four windows of an automobile and wiring in connection therewith.

Fig. 6 is a detail side view of operating mechanism.

Fig. 7 is an end view of what is shown in Fig. 6.

Fig. 8 is a wiring diagram view.

Fig. 9 shows a modified construction.

Fig. 10 is a detail view of a switch.

Referring to the construction shown in the drawing, the numeral **12** designates the hood of an automobile provided with a gutter **13**. The gutter has a downturned delivery end **14** for discharging water into a perforated cup **15** under which is supported a funnel **16** attached to a tube **17** for discharging water underneath the automobile. The cup **15** is secured to the free end of an arm **18** which as shown in Fig. 2 is supported on a pivot **19**. A switch terminal **20** is secured to the arm **18**. The other switch terminal **21** is adjustably carried by a support **22**. The terminal **20** is in connection with an outlet wire **23** while the terminal **21** is in connection with a wire **24**. The two terminals **20** and **21** are enclosed in a housing H. This switch is normally held open by a spring attached to the arm **18** at one end and to a support **26** at the other end. When the cup **15** fills with water, the arm **18** swings on its pivot to close the switch.

As shown in Fig. 8, the wire **24** is grounded at G. The wire **23** and its extension **29** is adapted by means of a manual switch **27** to be connected with and disconnected from a wire **28** which communicates with one side of a motor M the other side of which is in communication with a wire **30** connected to a wire **31** leading from a battery B the negative side of which is connected to a

wire **27'**. This wire at one end is grounded at G' and at the other end is adapted to be connected with the wire **23** through the switch **27** in order to break the circuit and permit manual operation of the windows.

Fig. 5 shows that four motors M are preferably mounted respectively on four doors of the automobile underneath the windows A, B, C, and D. Current from the wire **28** is adapted to pass in series through the four motors for operating the four windows to close them. This occurs when the switch in the housing H is automatically closed by means of weight of water in the cup **15**.

Fig. 10 shows a switch having two terminals **32** and **34** in the circuit of the wire **28**. When a window is raised to the top, it strikes an arm **35** of the switch which acts as a stop to open the switch and stop flow of current. As shown in Figs. 6 and 7, the motor shaft operates gearing in a gear box **39** which rotates a threaded rod **40**. A nut **41** has a connecting bar **42** pivoted at one end thereto, the other end being pivoted to the window frame as shown in Fig. 5 for raising the window when the rod **40** is rotated in the proper direction. This construction is provided for each of the four windows. When the windows reach the top, the motors M are automatically set for reverse so that the windows may be lowered when the manual switch **27** has been moved into engagement with the wire **27'**. As shown in Fig. 9 when the window reaches its lowered position, it strikes a switch **43** and opens it to stop the flow of current. Fig. 9 shows a modified construction of the means operated by the motors for raising the windows. In this form, the motor drives a pinion which cooperates with a rack **44** secured to the window frame.

The operation and advantages of my invention will be apparent in connection with the foregoing description and the accompanying drawings and to a large extent have already been indicated. The use of this invention will close the windows of an automobile by weight of water in the perforated cup **15** as when it rains and will prevent the inside of the automobile from becoming wet. When the cup becomes empty, the windows of the automobile may be opened.

As will be understood from the preceding description, the motors M are of the well known automatic reversing type in which the motors are automatically set in position each time they stop so as to turn in the opposite direction when they again operate. When the manual switch **27** is in the position shown in Fig. 8 in contact with the wire **28**, and the cup **15** fills with water, then current will pass through the wires **28** and **23**, the terminals **20** and **21**, and the wire **24** to the ground G. It will be understood as a matter of course that the motors M at this time are turning in the proper direction to close the windows by operation of the pivotally attached bars **42** shown in Fig. 6 and that the motors are automatically stopped when the windows have been completely closed. When the driver or the other proper person desires to open the windows, he moves the switch **27** into contact with the wire **27'**, the motors M having already been set automatically to turn in the reverse direction. Current will now flow through the wires **30** and **29**, the switch **27**, and the wire **27'** to the ground G' with the result that the bars **42** are reversely operated to open the windows. After they are fully opened, the manual switch **27** is moved back to its original position so that a circuit through the wire **23** will be completed the next time when the cup **15** fills.

I claim:

In a window operating mechanism for automobiles, the combination of an automobile hood provided with a rain cellecting gutter having an opening through the hood, a perforated receptacle under said opening, an electric switch, a pivoted arm to the free end of which said receptacle is secured, a spring associated with said arm for holding said switch open when said receptacle is empty and adapted to permit closing of said switch by weight of water in said receptacle, a wire connecting the outer terminal of said switch with a ground, a manual switch, a wire connecting the inner terminal of the first switch with one terminal of said manual switch, a battery, a wire connecting the other terminal of the manual

switch with the negative end of said battery, automatic reversing electric motors inside the automobile in proximity to windows thereof respectively, a wire connection between the positive end of said battery and said windows respectively, and means for stopping said motors when the windows have been closed by said motors.

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