

Jan. 15, 1924.

1,480,906

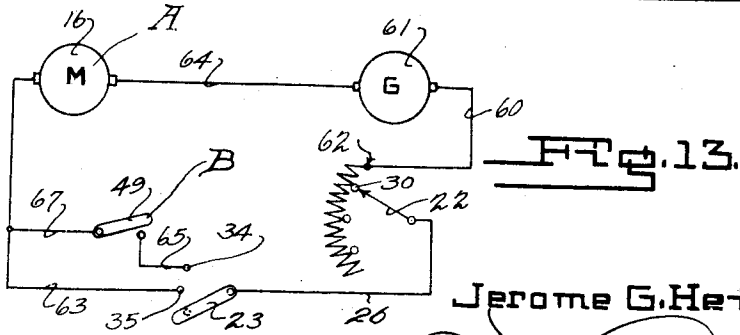
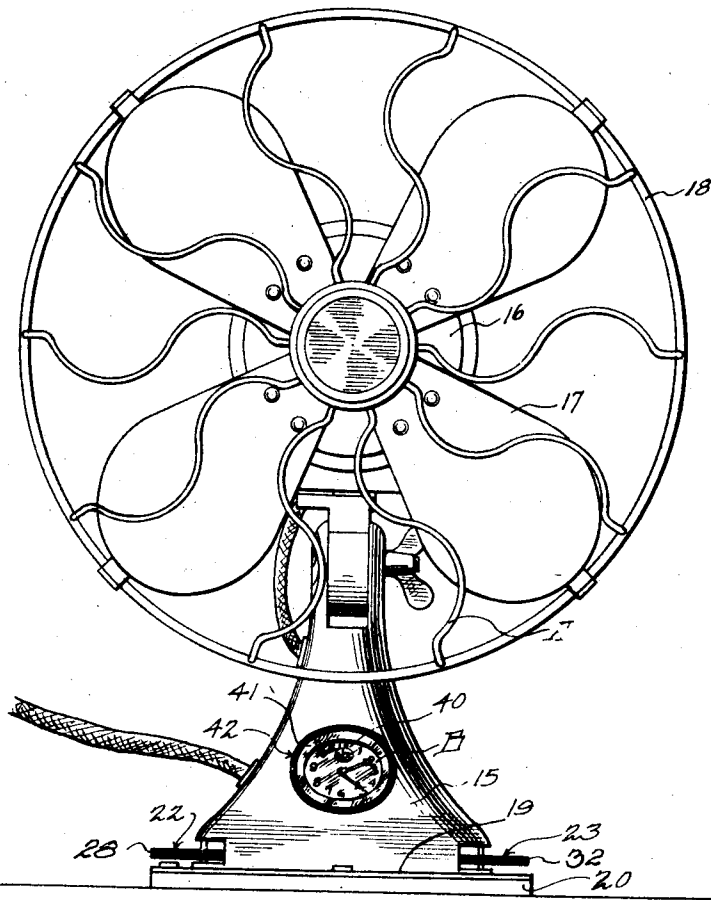
J. G. HEITZMAN

SELECTIVE AUTOMATIC ELECTRIC FAN CONTROL

Filed Aug. 14, 1922

3 Sheets-Sheet 1

Fig. 1.



Inventor
Jerome G. Heitzman

Lawrence A. Allison
Attorney

Jan. 15, 1924.

1,480,906

J. G. HEITZMAN

SELECTIVE AUTOMATIC ELECTRIC FAN CONTROL

Filed Aug. 14, 1922

3 Sheets-Sheet 2

Fig. 2.

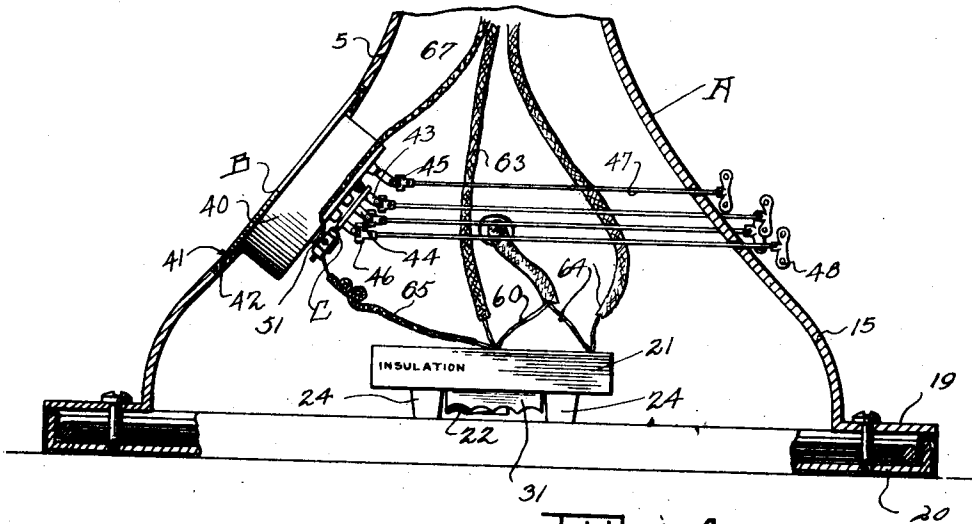


Fig. 4.

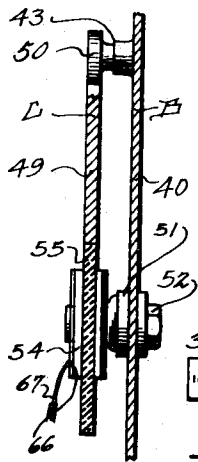


Fig. 5.

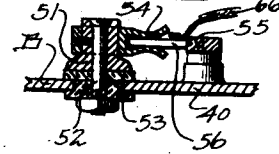


Fig. 11.

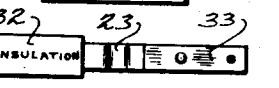


Fig. 12.



Fig. 3.

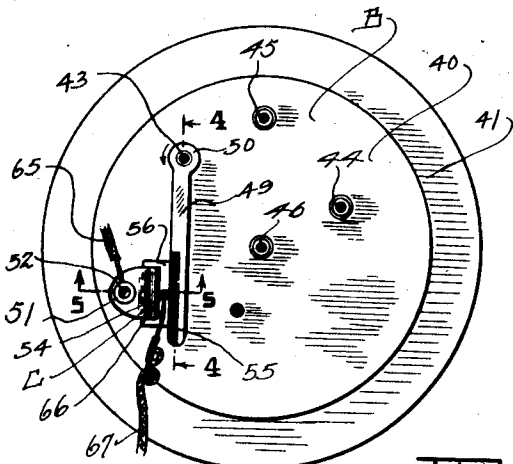
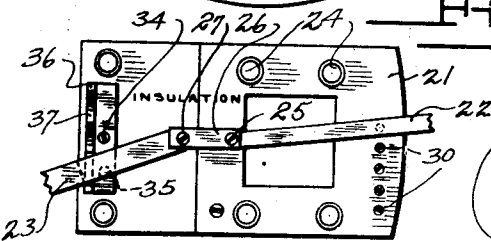


Fig. 10.



Inventor Jerome G. Heitzman

By *Lawrence and Alvin*

Attorneys

Jan. 15, 1924.

1,480,906

J. G. HEITZMAN

SELECTIVE AUTOMATIC ELECTRIC FAN CONTROL

Filed Aug. 14, 1922

3 Sheets-Sheet 3

Fig. 6.

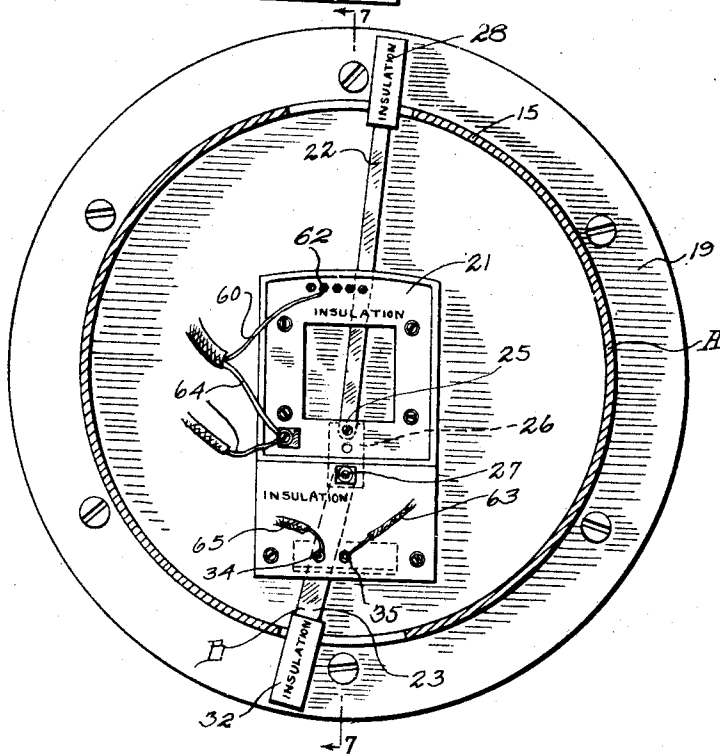


Fig. 7.

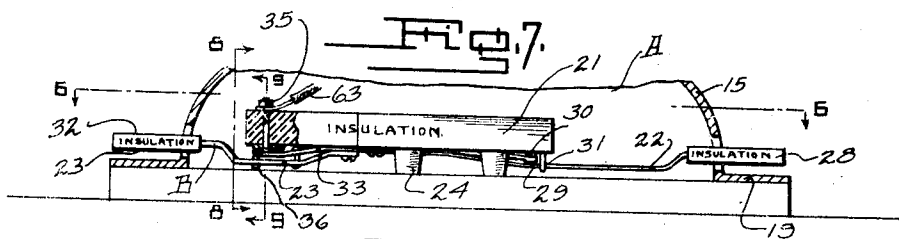


Fig. 8.

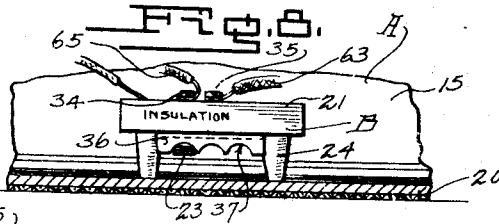
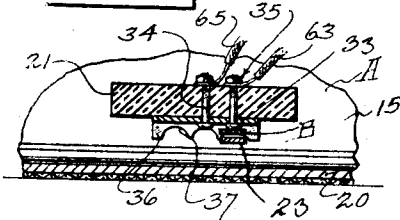


Fig. 9.



Inventor
Jerome G. Heitzman

By *Amster & Allison*
Attorneys

Attorneys

UNITED STATES PATENT OFFICE.

JEROME G. HEITZMAN, OF FORT MADISON, IOWA.

SELECTIVE AUTOMATIC ELECTRIC-FAN CONTROL.

Application filed August 14, 1922. Serial No. 581,809.

To all whom it may concern:

Be it known that I, JEROME G. HEITZMAN, a citizen of the United States, residing at Fort Madison, in the county of Lee and State of Iowa, have invented certain new and useful Improvements in Selective Automatic Electric-Fan Controls, of which the following is a specification.

This invention relates to electric fans, and the primary object of the invention is to provide a novel means for automatically controlling the operation of the fan so that the fan can be automatically stopped at any predetermined time.

A further object of the invention is to provide novel means for incorporating a clock mechanism, in the base of an ordinary standard electric house fan, having means for opening the circuit to the fan motor at any predetermined time, thus stopping the operation of the fan, and thereby permit the user of the fan to retire for the night and leave the fan still running.

A further object of the invention is to provide a novel electric fan having means for permitting the manual control thereof, as in the usual fan construction, and novel means for permitting the automatic controlling thereof by a clock mechanism.

A further object of the invention is to provide a novel means for incorporating the control clock mechanism in the fan circuit in such a manner that the ordinary selective switch or rheostat control can be used in connection therewith, thereby permitting different speeds of the fan to be had when the automatic clock control is being used.

A further object of the invention is to provide a novel electric fan having a clock incorporated therewith which is utilized both for automatically opening the circuit to the fan motor at any desired or predetermined time and for also telling the time of the day, the base of the electric fan forming a support for the clock.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described, claimed and illustrated in the accompanying drawings, forming a part of this specification, in which drawings:

Figure 1 is a front elevation of the electric fan showing the improved control mechanism incorporated therewith.

Figure 2 is a vertical central section

through the base of the electric fan, showing the improved control mechanism incorporated therewith.

Figure 3 is an enlarged rear elevation of the clock mechanism used in the automatic control, showing the means of incorporating the control switch lever therewith, the various winding and setting stems for the clock being shown in section.

Figure 4 is an enlarged section taken through the control switch lever of the clock and the rear back plate of the clock.

Figure 5 is an enlarged section taken on the line 5—5 of Figure 3 illustrating the control switch.

Figure 6 is a horizontal section taken on the line 6—6 of Figure 7.

Figure 7 is a diametric section through the base of the fan taken on the line 7—7 of Figure 6.

Figure 8 is a detail vertical section through the base of the fan taken on the line 8—8 of Figure 7.

Figure 9 is a similar view, taken on the line 9—9 of Figure 7.

Figure 10 is a detail bottom plan view of the insulated base support utilized for carrying the ordinary control rheostat lever and the pivoted hand lever for bringing the clock mechanism into and out of circuit with the fan motor.

Figure 11 is a detail plan view of the hand switch for bringing the clock controlled mechanism into and out of circuit.

Figure 12 is a longitudinal section through the same, and

Figure 13 is a diagrammatic view of the wiring for the improved fan. Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter A generally indicates an electric fan; and B, the improved automatic control therefor.

The electric fan A includes the ordinary hollow base 15, to which is connected in any preferred manner the fan motor 16. The fan motor 16 has secured to the armature shaft thereof the fan 17, which can be provided with the ordinary or any preferred type of guard 18. The hollow base 15 gradually flares downwardly toward the lower end thereof and can be provided with an outstanding attaching flange 19 to which can be removably bolted the base plate 20. This base plate 20 has secured thereto in any pre-

ferred manner a bed plate of insulation 21. This bed plate of insulation 21 is formed relatively larger than in the usual construction in order to receive both the ordinary rheostat control switch 22 and the control hand switch 23 for permitting the clock mechanism B to be thrown into or out of the fan motor circuit. The switch 23 of course, forms an important part of the novel control mechanism B. This bed plate of insulation is held in a raised position above the base plate 20 by suitable legs 24. The rheostat switch lever 22 is pivoted as at 25 to the bed plate of insulation 21 and to a strip of electric conducting material 26, to which the hand switch 23 is also pivoted by means of a pivot pin 27. The rheostat switch lever 22 extends outwardly of the base 15, and is provided with an insulated operating handle 28. This switch 22 is provided with a resilient electric conducting tongue 29 which is adapted to engage any one of the rheostat contact points 30. The forward end of the bed plate 21 is provided with a depending ledge 31 which is provided with suitable stop notches.

The control switch 23 is constructed similar to the switch 22 and the outer end thereof also extends out of the base 15 and is provided with a suitable insulating handle 32. Intermediate the ends of the switch 23, a resilient tongue 33 is provided, which is adapted to engage either one of the two contact bolts or binding posts 34 or 35, the use of which will be hereinafter more fully apparent. The end of the bed plate 21 from which the switch lever 23 protrudes is also provided with a depending leg 36 which is provided with three stop notches 37.

The improved automatic control mechanism B, includes a clock 40 of the ordinary or any preferred construction, and the front face of the clock is provided with an annular flange 41 which can be secured in any preferred manner to a ring of insulation 42 which is fitted in a suitable opening formed in the base 15 of the fan A. The body portion of the clock 40 extends into the base, and this clock is provided with the usual alarm winding and setting stems 43 and 44 and with the ordinary clock winding and setting stems 45 and 46. In order to facilitate the winding and setting of the clock and alarm, the stems 43, 44, 45 and 46 are provided with extension stems 47 which protrude outwardly of the base 15, and these extension stems are provided with suitable handles 48. The alarm winding post 43 has frictionally secured thereto the movable portion 49 of the automatic circuit opening switch B which forms a part of the control mechanism B. This movable portion is in the nature of a lever, and the inner end of this lever portion 49 is provided with a

head 50 which is fitted over the winding stem 43. As stated, the lever is frictionally fitted upon the stem so that during the winding movement of the stem, the lever is permitted to slip on the stem when the same engages an abutment but the friction set up between the lever and stem is sufficient to move the lever with the stem during the reverse movement of the winding stem when the alarm goes off.

The rigid portion of the circuit closing device C includes the post or stud 51 which is secured in plane on the back of the clock by means of a suitable retaining bolt or the like 52. Suitable insulating members 53 are utilized for insulating the post or stud 51 from the back of the clock 40. This stud or stem 51 carries a pair of spaced outwardly extending resilient lips 54 between which the lever 49 is adapted to ride, and it can be seen that the lever 49 and the resilient lips 54 are formed in the nature of a knife switch. Now one end of the lever 49 can be provided with a suitable piece of insulation 55 to which is secured the thin blade 56 of the lever which is adapted to fit between the resilient tongues or lips 54.

The switches 22 and 23 and the automatic clock operated control switch C are connected together and with the fan motor 16 in the following manner. A feed wire 60 leading to any suitable source of electrical energy such as a generator 61 is extended into the base 15 of the electric fan A and secured to one end of the rheostat or to one of the end contacts 30 as at 62, and the switch levers 22 and 23 are electrically connected by the bridge piece or connecting strip 26. A lead wire 63 is connected with the contact point or binding post 35 and extended to one terminal of the fan motor 16. The opposite terminal of the fan motor 16 is connected by a feed wire 64 to the other terminal of the source of electrical energy which has been shown, as stated, to be a generator 61. The other contact point 34 has connected thereto a relatively short lead wire 65 which is in turn electrically connected to the contact post or stud 51. Now, the lever 49 has electrically connected thereto by means of a suitable binding post or the like 66, a lead wire 67 which is electrically connected with the lead wire 63 which extends to the fan motor 16.

In operation of the improved device, when it is desired to operate the motor in the ordinary manner, the switch lever 23 is moved so as to engage the contact point 35, and the switch lever 22 is then actuated in the ordinary manner to attain the desired speed of the fan motor.

When it is desired to use the automatic stop so that the fan can be brought to a stop at any determined time, the alarm mechanism of the clock is wound in the ordinary

manner which will move the lever 49 into engagement with the contact lips 54 and the alarm mechanism is then set to go off at the desired time. The hand switch lever 23 is then moved into engagement with the contact point 34, and the rheostat lever or switch 22 is actuated to attain the desired speed. Now when the alarm of the clock 40 goes off, the winding post 43 is forced to rotate in a reversed direction and move the switch lever 49 away from the post 51 and move the blade 56 from out of engagement with the contact lips 54. This will break the contact to the fan motor and thus stop the operation of the fan.

From the foregoing description, it can be seen that a novel means has been provided for permitting the fan to be operated in the ordinary manner or to be stopped automatically at any predetermined time by a novel clock mechanism, and thus a novel means has been provided for incorporating the clock with the base of the fan.

Changes in details may be made without departing from the spirit or scope of this invention; but,

I claim:

1. In an electric fan control mechanism, an electric fan, a circuit therefor, an alarm clock mechanism incorporated with the fan including an alarm winding stem, a switch interposed in the circuit including a contact blade secured to the alarm winding stem, and a rigid contact point adapted to be engaged by the contact blade.

2. In an electric fan control mechanism, an electric fan including a base, an alarm clock mechanism incorporated with the base including a winding stem for the alarm, a circuit for the fan motor, a blade secured to the stem, a contact point disposed in the path of the blade, means connecting the blade and contact point in the motor circuit, and a manually controlled speed regulating switch interposed in the circuit.

3. In an electric fan control mechanism, a fan including a base, and a fan motor

carried by the base, a circuit for the motor, a manually operated speed controlling switch interposed in the circuit, an alarm clock mechanism incorporated with the base, a switch lever secured to the winding stem of the alarm clock mechanism, a rigid contact post secured to the clock mechanism arranged in the path of the lever, and a second manually operable switch lever interposed in the circuit for cutting in or out the clock operated switch lever.

4. In an electric fan control mechanism, an electric fan including a base, a fan motor carried by the base, an electric circuit including the motor, a base plate of insulation disposed within the motor, a speed control switch pivotally secured to the bed of insulation, a second manually controlled switch pivotally secured to the bed of insulation, and electrically connected to the speed control switch, an electric feed wire electrically connected with one terminal of the speed control switch, a pair of contact times adapted to be engaged at different times by the second manually controlled switch, means electrically connecting one contact point with one terminal of the motor, means connecting the other terminal of the motor with the source of electrical energy, a stationary contact carried by the clock mechanism, a switch lever operated by the alarm mechanism, means electrically connecting the other contact points with the contact post carried by the clock mechanism, means connecting the switch lever of the alarm mechanism with the wire connecting the other contact point with the electric motor.

5. In an electric fan control mechanism, an electric fan, a circuit therefor, an alarm clock mechanism incorporated with the fan including an alarm winding stem, a switch interposed in the circuit including a contact blade secured to the alarm winding stem, a rigid contact point adapted to be engaged by the contact blade, and means connecting the contact point with the control mechanism.

JEROME G. HEITZMAN.