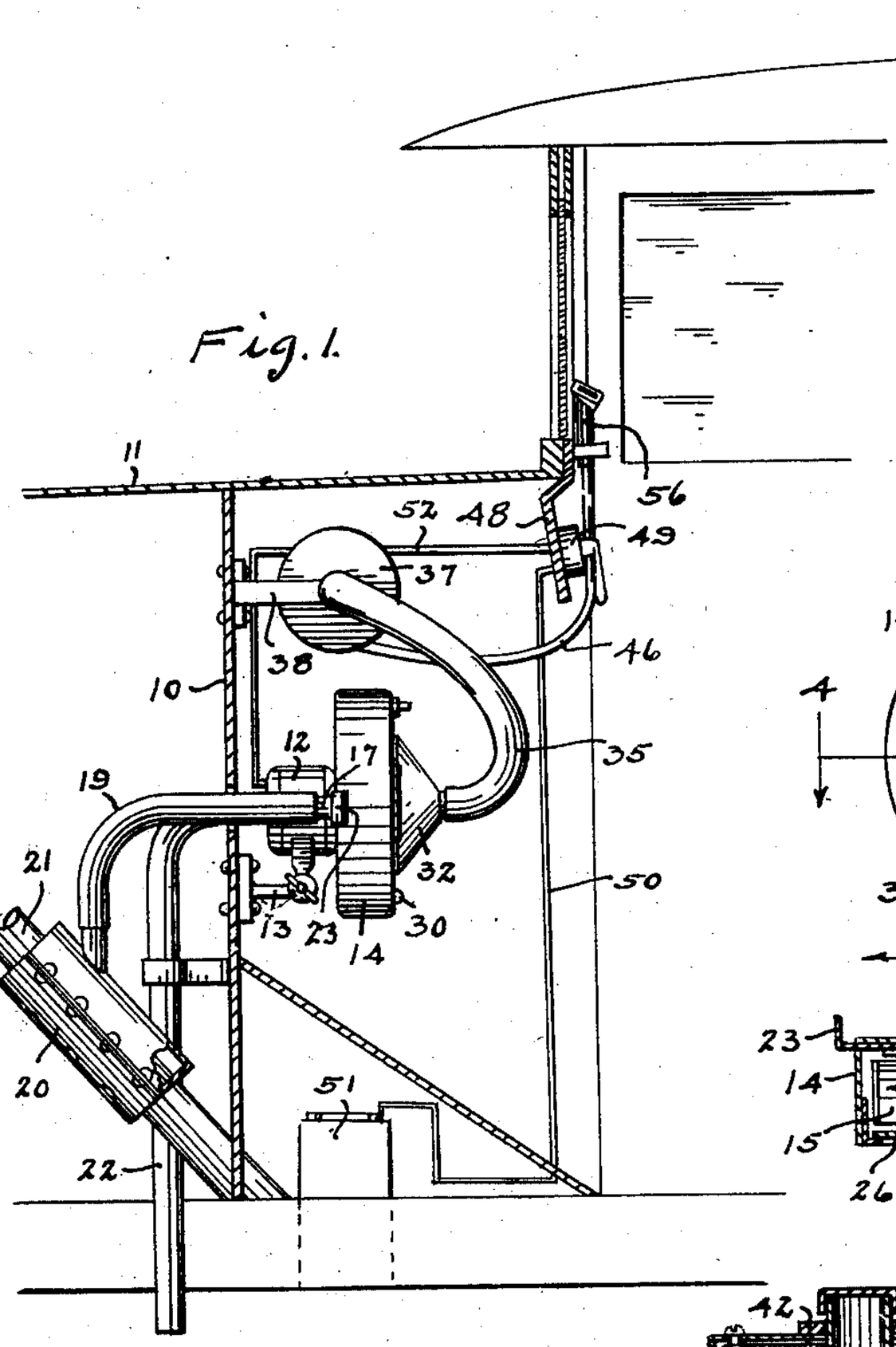
Oct. 7, 1930. K. H. BURGIN ET AL 1,777,514

UNIVERSAL AUTOMOBILE FAN

Filed May 4, 1929

Fig. 1.



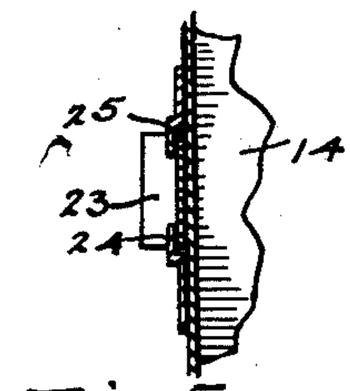


Fig. 5.

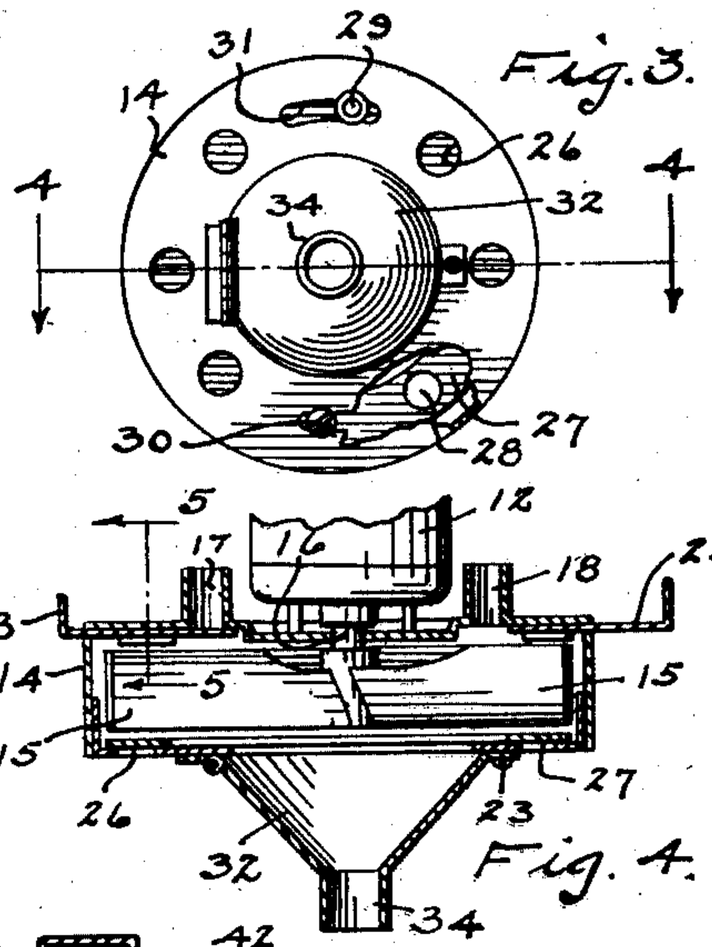


Fig. 3.

Fig. 4.

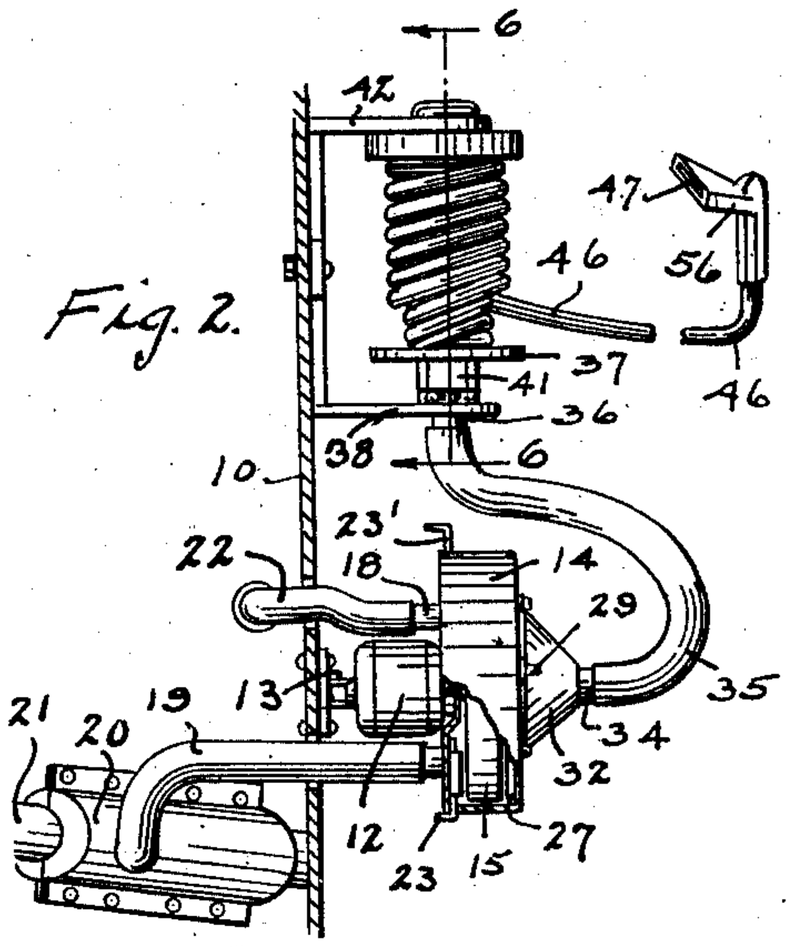


Fig. 2.

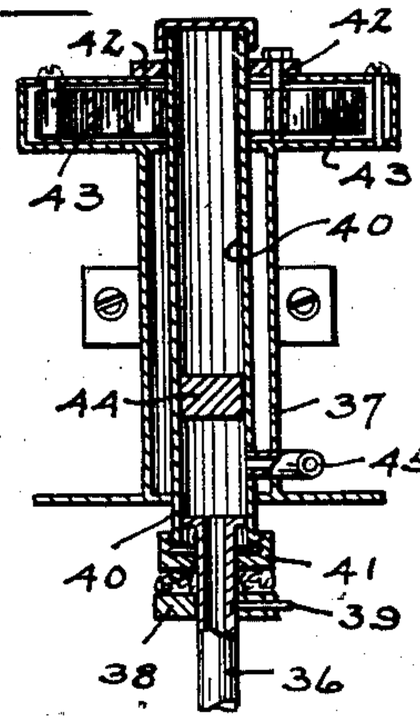


Fig. 6.

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UNITED STATES PATENT OFFICE

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UNIVERSAL AUTOMOBILE FAN

Application filed May 4, 1929. Serial No. 360,530.

This invention relates to fan means particularly adapted for use in automobiles and has for its primary objects the creation of a current of air directed through the automobile; means for heating that current of air as desired; the creation of a vacuum suitable for cleaning the upholstery of the car without additional mechanical elements being employed; and means for controlling the current of air whereby part of the air may be directed toward the windshield or any other desired point and the balance of the air directed in other directions.

Other objects reside in means for controlling the above indicated current of air and in providing a compact unit that may be operated directly from the usual storage battery commonly employed in automobiles.

These and other objects will become apparent in the following description of the invention with reference being made to the accompanying drawing in which—

Fig. 1 is a vertical longitudinal section through the forward part of a body of an automobile showing our invention applied thereto;

Fig. 2, a top plan view of the various units embodying the invention;

Fig. 3, a front elevation of the fan units;

Fig. 4, a horizontal section on the line 4—4 in Fig. 3;

Fig. 5, a vertical section on the line 5—5 in Fig. 4 through an air port valve; and

Fig. 6, a vertical section through the hose reel on the line 6—6 in Fig. 2.

Like characters of reference indicate like parts throughout the several views.

On the dash 10 on the automobile 11 is mounted a motor 12 by means of the bracket 13, the motor being adjustably rockabable on the bracket 13.

To the rear side of the motor is attached a housing 14 completely surrounding a fan comprised of a pluralitv of blades 15 revolvably mounted on the motor shaft 16, the fan blades being revolved freely by the shaft 16 within the housing.

The blades 15 are angularly positioned in relation to the shaft 16 so that by reversing the direction of rotation of the blades, the current of air produced by the blades is likewise reversed in direction of flow.

From the front side of the housing project two nipples 17 and 18 and a flexible hose is slipped over the nipple 17 and carried forwardly through the dash 10 and downwardly to connect with the stove 20 carried on the exhaust pipe 21. A flexible pipe 22 leads from the nipple 18 forwardly through the dash and down to under the automobile.

Valves are provided to open and close the openings from the housing 14 and through the nipples 17 and 18 in the form of slides 23 and 23′ slidably carried under the guides 24 and 25. The slides are entered through slots from the outside of the housing to pass under these guides 24 and 25 so that by pushing inwardly on the slides the discharge openings and the nipples may be closed, the slide 23, Fig. 4 being here shown as closing the opening and the nipple 17 and the slide 23′ on the opposite side being shown as withdrawn from over the opening and the nipple 18.

The rear side of the housing 14 is provided with a plurality of holes 26 thereabout having their centers on the same circumference of a circle and on the inside of the housing is positioned a ring 27 with a plurality of holes 28 therethrough which may match with the holes 26. This ring 27 is slidably retained against the back side of the housing 14 by means of the post 29 and screw 30 slidably extending rearwardly through slots 31 in the housing wall so that by pushing the post 29 along the slot 31 the ring 27 may be moved to permit the holes 28 and 26 to register or the reverse as may be desired.

The central portion of the rear wall of the housing 14 is opened and a conical cover 32 is hinged to the housing 14 to be normally secured thereagainst by its base by the screw 33. At the apex of the cover 32 is a nipple 34 which receives thereover the end of the flexible hose 35. The other end of the hose 35 is slipped over the end of the pipe 36 which extends from the hose reel or drum 37.

The pipe 36 is held stationary in the supporting bracket 38 by the pin 39 and projects

into the drum tube 40 to permit the tube 40 to revolve therearound. A stuffing nut 41 surrounds the pipe 36 and screw-threadedly engages the end of the tube 40. The tube 40 extends axially through the drum 37 and is rotatably supported by its other end in the supporting bracket 42. A helical spring 43 has one end fixed to the drum 37 Fig. 6, and the other end to the standard or bracket 42 so as to yieldingly and elastically resist rotation of the drum 37. A plug 44 is fixed in the tube 40 and an elbow 45 is passed through the drum 37 and fixed in the tube 40 to receive the end of the hose 46 on the outer end of the elbow and permit the hose to be wound about the drum 37.

A nozzle 56 is provided to be carried on the free end of the hose 46 and this nozzle is shaped to have a narrow slot opening 47. On the instrument board 48 of the automobile 11 is mounted a switch 49 having a cable 50 leading thereto from any suitable source of electricity such as the storage battery 51 and suitable wiring is conducted from the switch through the cable 52 to the motor 12, to permit the switch to turn the motor on and off and to reverse the flow of current to the motor so as to reverse the direction of rotation of the fan blades 15.

In operation, the motor 12 may be started by the switch 49 and the slide 23 pushed in to close off the nipple 17 and the slide 23′ pulled outwardly to open the nipple 18. Air will be drawn in through the pipe 22 and discharged by the blades 15 through the cover 32, the pipe 35 and the hose 46, from the nozzle 56 which may be hung in the automobile to direct the current of air as desired. It is here shown, Fig. 1, as being held by the bracket 58 to direct the air across the windshield 59. In cold weather, the slide 23′ is pushed in and the slide 23 pulled outwardly whereupon warm air will be drawn through the stove 20 and the pipe 19 and discharged from the nozzle 56. The warm current of air striking the windshield will prevent formation of frost or steam thereon in cold weather.

As the opening in the nozzle 56 is small, additional discharge of air from the blades 15 may be desirable, in which case, the ring 27 is rocked to open the holes 26 and the motor 12 may be rocked on its bracket 13 to direct the air discharging therefrom as desired. The cover 32 is hinged to the housing 14 to permit access thereto for inspection and cleaning.

By reversing the direction of rotation of the motor 12 by the switch 49, air is drawn in through the nozzle 56 and discharged through the nipple 18 and out the pipe 22, the slide 23 and the ring 27 being in the closed positions in this case. Thus the device becomes a vacuum cleaner by employing the nozzle 56 in running over the upholstery of the automobile or clothing and the like of the passengers. Sufficient hose 46 is carried on the drum 37 to permit its reaching about the automobile, the hose being automatically rewound on the drum when released by the pull of the spring 43.

The ring 27 may be shifted to permit rapid withdrawal of air from the automobile when necessary.

Having described and shown our invention in the best form now known to us, it is obvious that many structural changes may be made therein without departing from the spirit of the invention, and we, therefore, do not desire to be limited to that precise form, nor any more than may be required by the following claims.

We claim:

1. In an air current producing device, a motor, a housing, blades within the housing adapted to be revolved by said motor said housing having an air port on the front side of the housing and two discharge ports removed from said air port, valve means for opening and closing said air port, hose means leading from one of said discharge ports, and valve means controlling the opening of the other of said discharge ports.

2. In an air current producing device, a motor, a housing, blades within the housing adapted to be revolved by said motor, said housing having an air port on the front side of the housing and two discharge ports removed from said air port, valve means for opening and closing said air port, hose means leading from one of said discharge ports, and valve means controlling the opening of the other of said discharge ports, and means for directing the discharge from said other discharge port independently of the discharge from said hose means.

3. In an air current producing device, a motor, a housing, blades within the housing adapted to be revolved by said motor, said housing having an air port on the front side of the housing and two discharge ports removed from said air port, valve means for opening and closing said air port, hose means leading from one of said discharge ports, and valve means controlling the opening of the other of said discharge ports, means for warming air, said housing having a second air port on the front side, a pipe leading from said air warming means to said second air port, and valve means for opening and closing said second air port.

4. In an air current producing device, a motor, a housing, blades within the housing adapted to be revolved by said motor, said housing having an air port on the front side of the housing and two discharge ports removed from said air port, valve means for opening and closing said air port, hose means leading from one of said discharge ports, and

valve means controlling the opening of the other of said discharge ports, and means for reversing the direction of rotation of said blades whereby air may be drawn in through either of said discharge ports and discharged from said air port.

5. In a motor driven fan, a plurality of blades adapted to be revolved by said motor, a housing surrounding the blades, said housing having an air port on one side of the blades and two openings on the other side of the blades, valve means controlling the opening of said air port, valve means controlling one of said openings, hose means leading from the other of said openings to a relatively fixed position in relation to the housing, and means permitting the rocking of the housing to direct a discharge of air from said valve controlled opening independently of the direction of discharge from said hose.

6. In a motor driven fan, a plurality of blades adapted to be revolved by said motor, a housing surrounding the blades, said housing having an air port on one side of the blades and two openings on the other side of the blades, valve means controlling the opening of said air port, valve means controlling one of said openings, hose means leading from the other of said openings to a relatively fixed position in relation to the housing, means permitting the rocking of the housing to direct a discharge of air from said valve controlled opening independently of the direction of discharge from said hose, and a second hose in communication with the fixed end of said hose means.

7. In a motor driven fan, a plurality of blades adapted to be revolved by the motor, a housing surrounding the blades, a cold air intake and dirt discharge pipe leading from the front side of the housing, a warm air intake pipe leading from a source of heat to the front side of the housing, valve means selectively controlling the openings of each of said pipes into said housing, a hose leading from a discharge opening in said housing, said housing having a second discharge opening, valve means controlling said second discharge opening, and means for reversing the direction of rotation of said blades whereby the current of air created by said blades may be reversed in direction.

8. In a motor driven fan, a plurality of blades adapted to be revolved by the motor, a housing surrounding the blades, a cold air intake and dirt discharge pipe leading from the front side of the housing, a warm air intake pipe leading from a source of heat to the front side of the housing, valve means selectively controlling the openings of each of said pipes into said housing, a hose leading from a discharge opening in said housing, said housing having a second discharge opening, valve means controlling said second discharge opening, and means for reversing the direction of rotation of said blades whereby the current of air created by said blades may be reversed in direction, and means permitting selective adjustment of the housing to vary the direction of the discharge from said discharge opening in respect to the discharge from said hose.

In testimony whereof we affix our signatures.

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