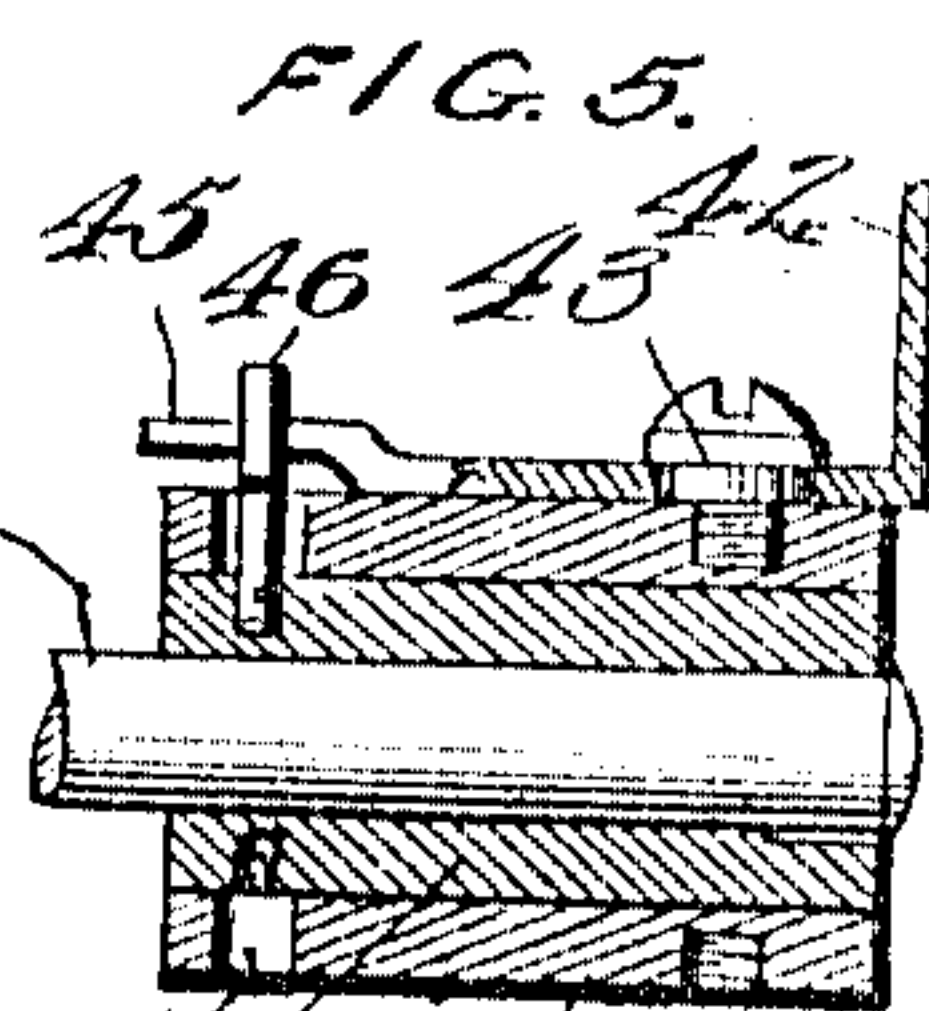
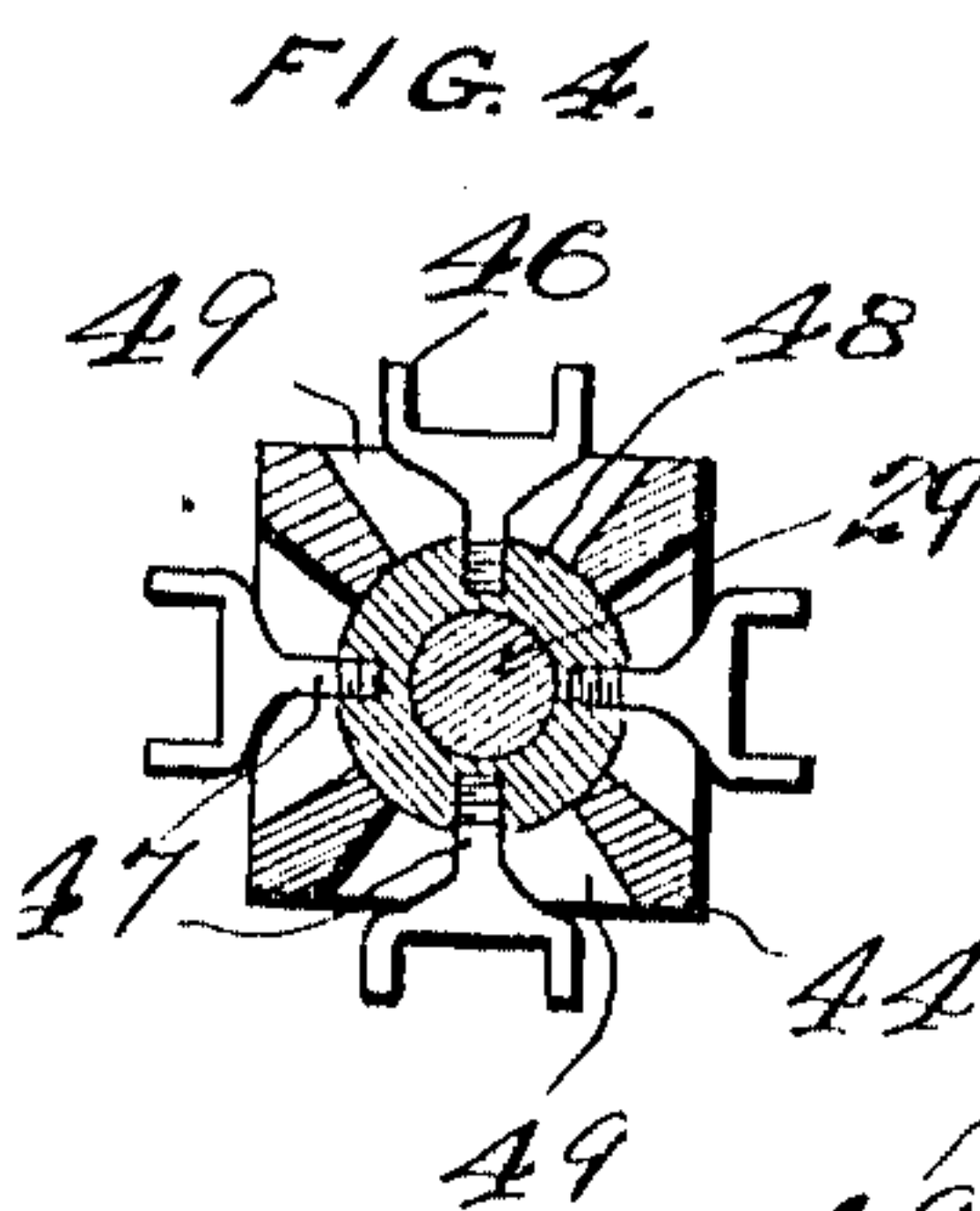
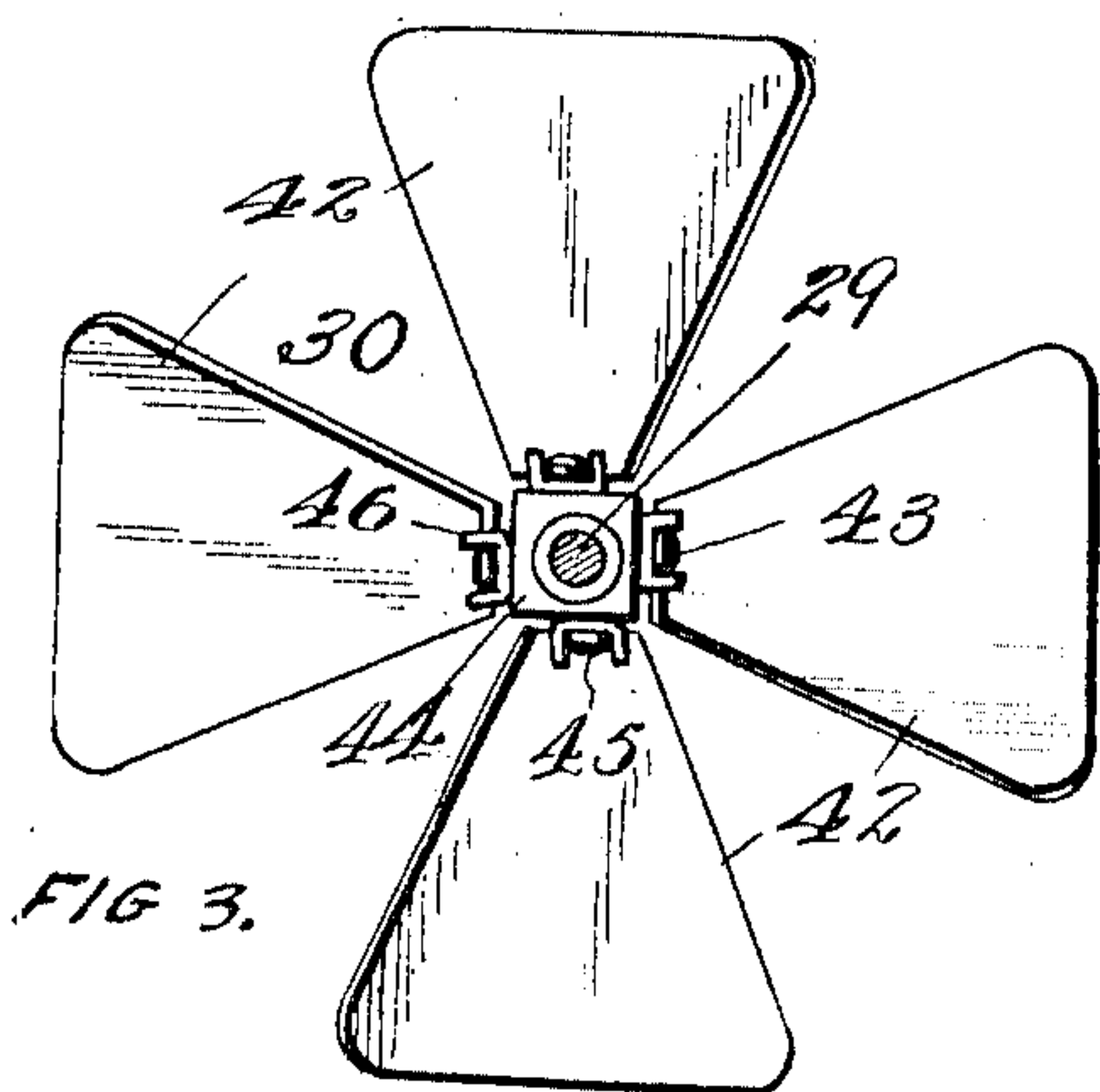
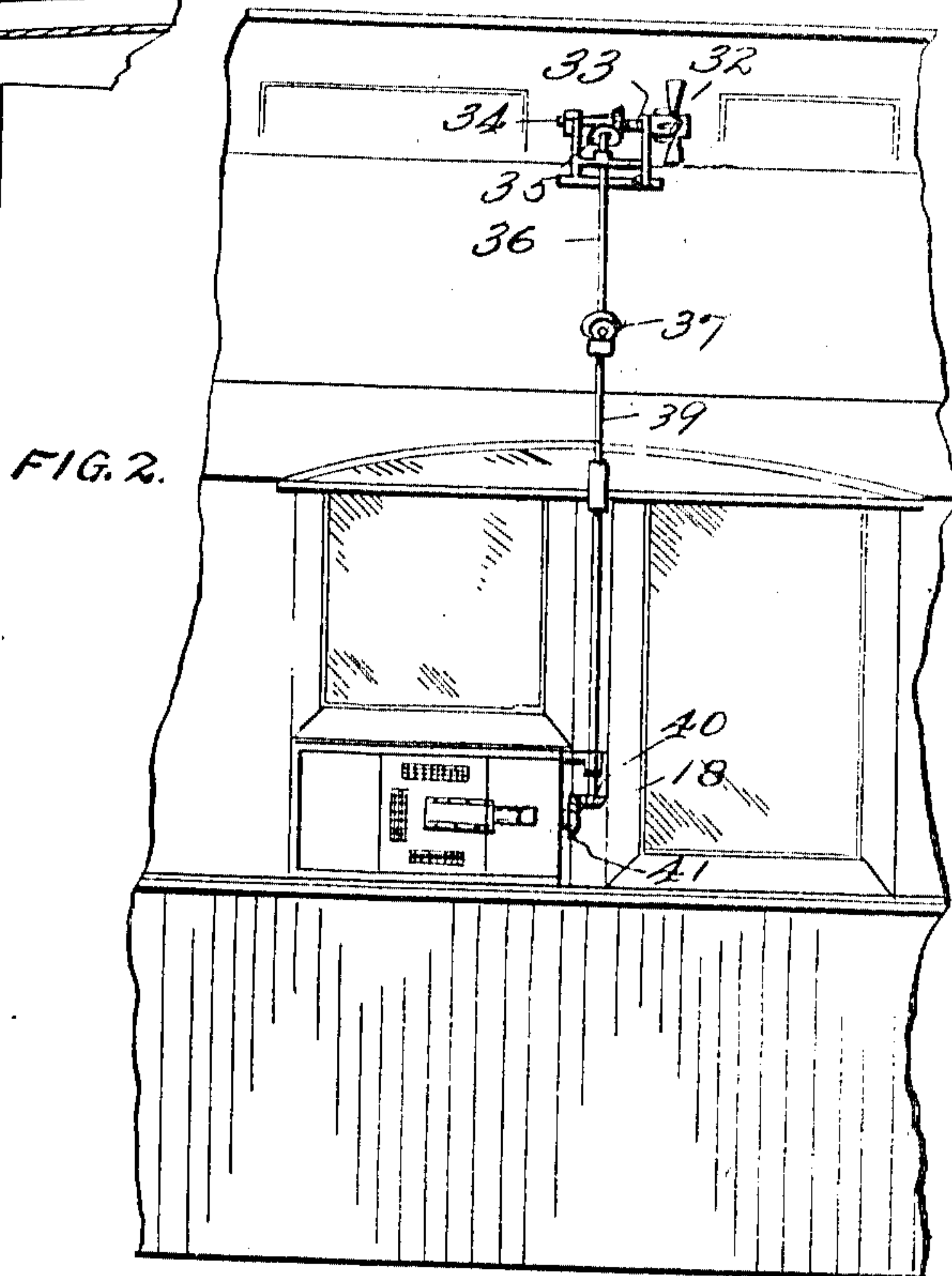
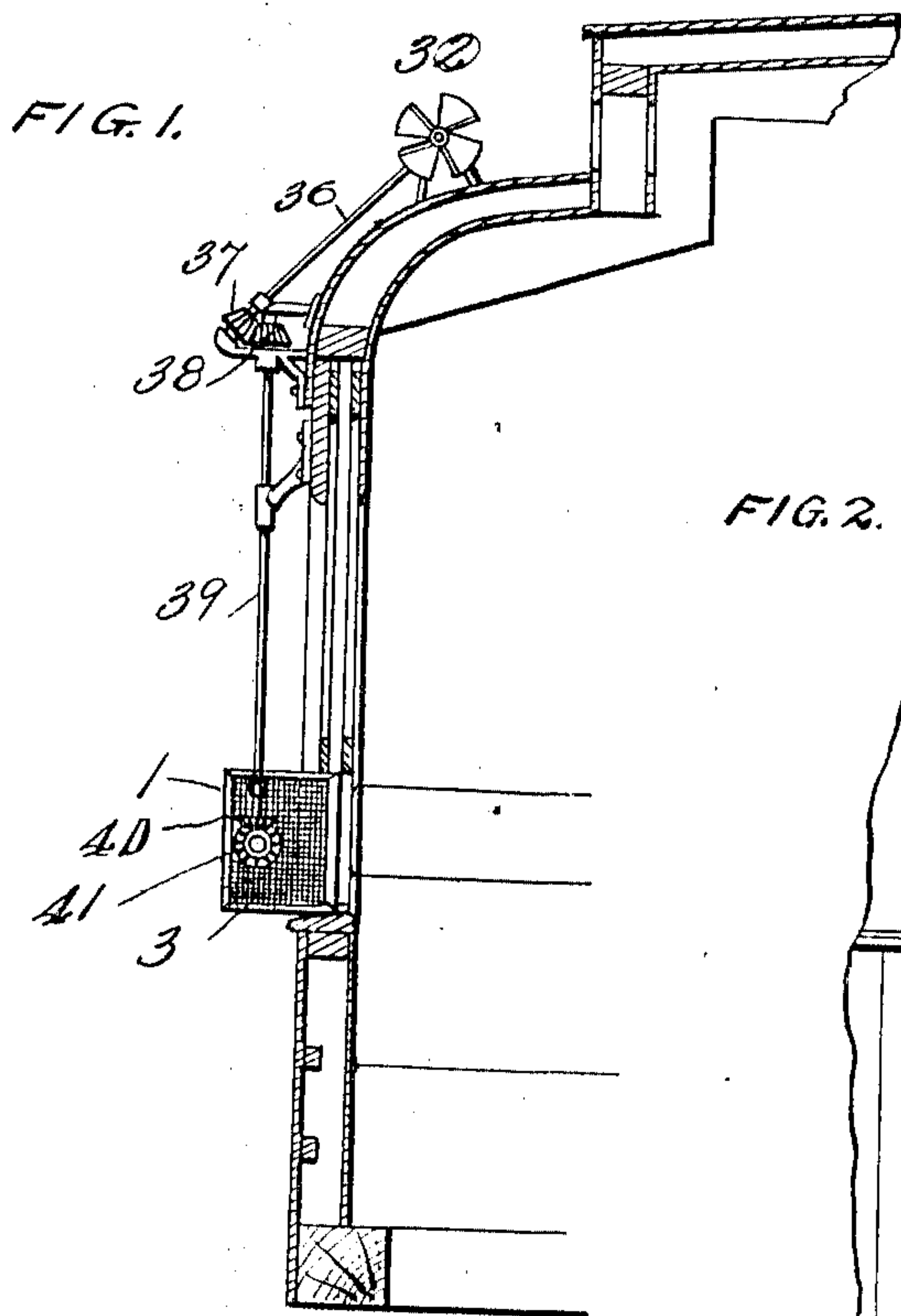


964,373.

A. BEST.
CAR VENTILATOR.
APPLICATION FILED JAN. 24, 1910.

Patented July 12, 1910.
2 SHEETS—SHEET 1.



WITNESSES
C. H. Davies
M. E. Moore

Alfred Best
INVENTOR

By *M. E. Moore*
Attorney

964,373.

A. BEST.
CAR VENTILATOR.
APPLICATION FILED JAN. 24, 1910.

Patented July 12, 1910.
2 SHEETS—SHEET 2.

FIG. 6.

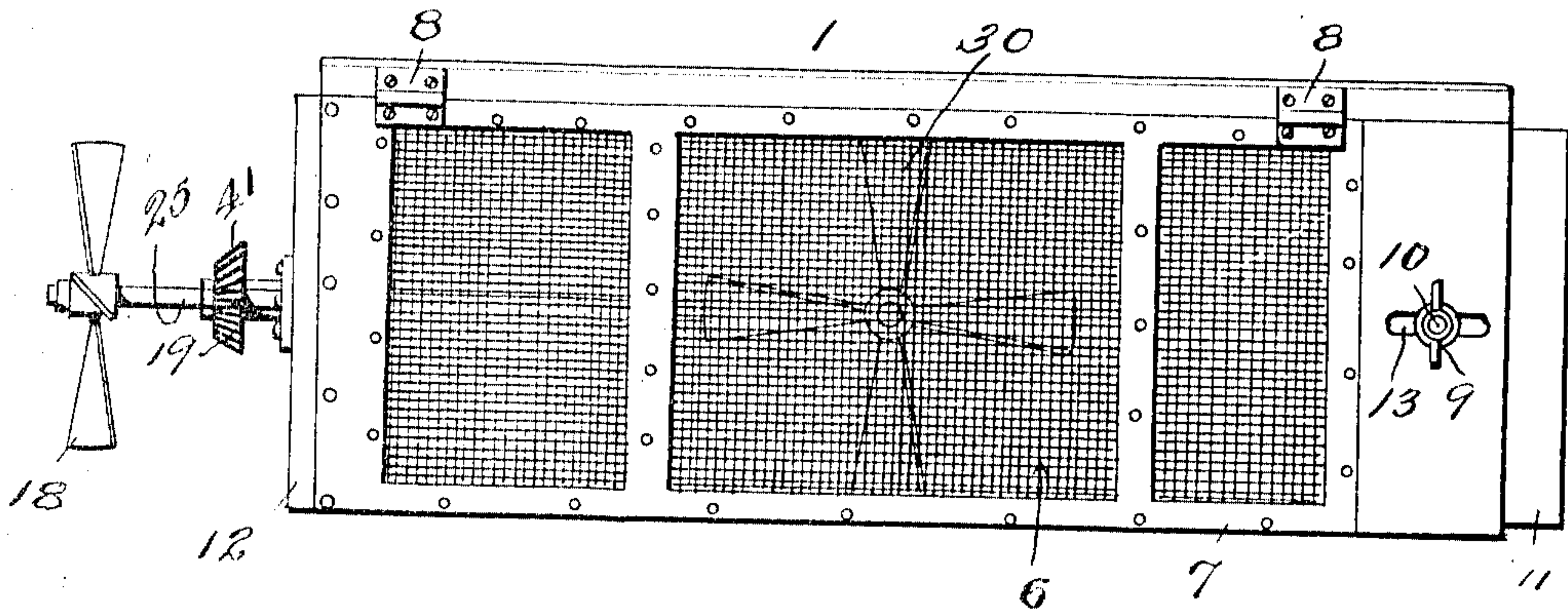


FIG. 7.

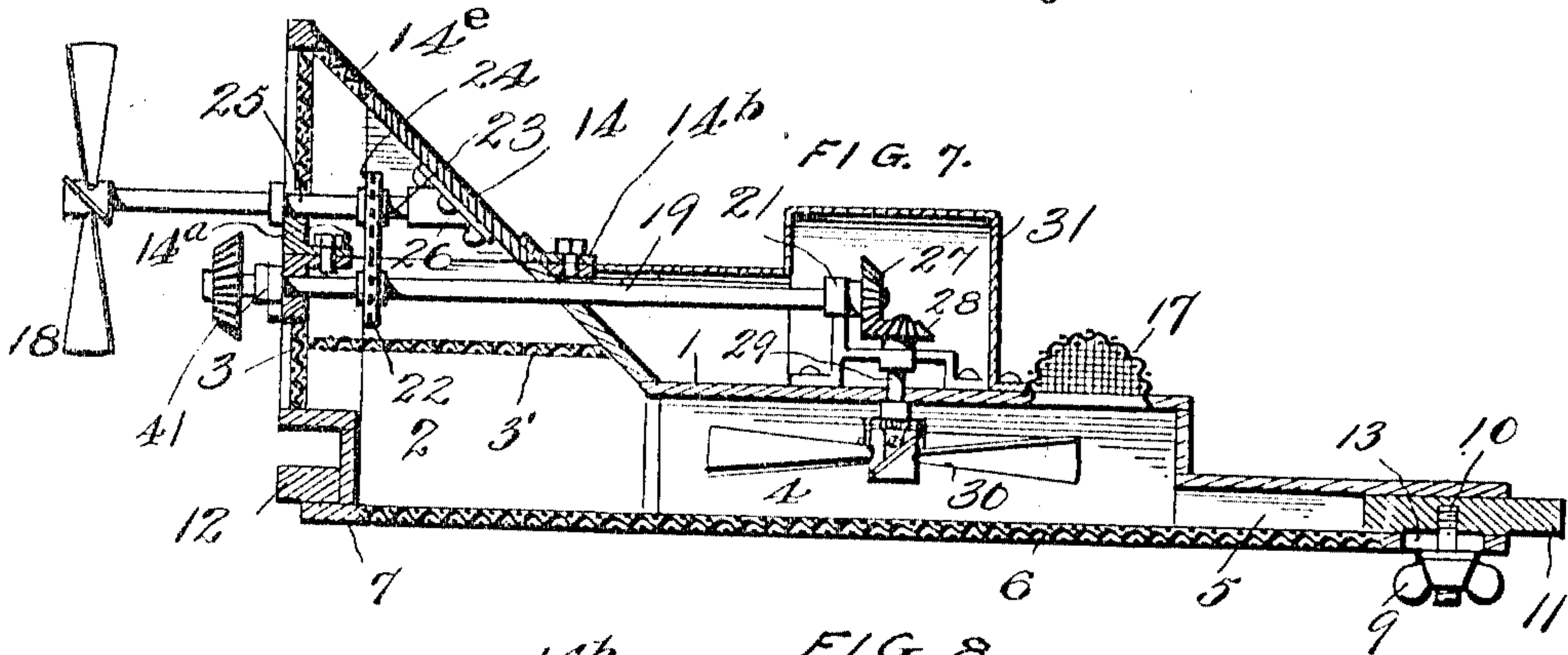
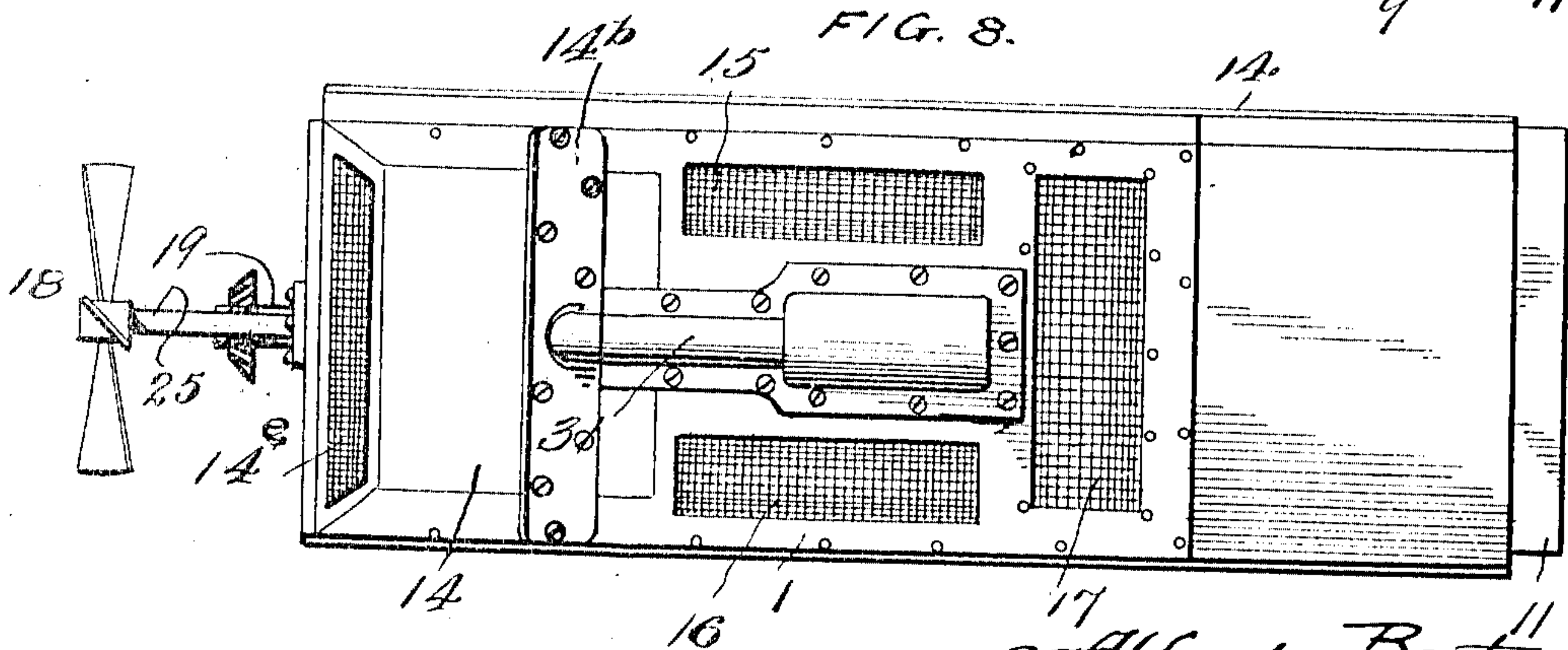


FIG. 8.



WITNESSES
C. N. Davis
M. E. Moore

Alfred Best
INVENTOR
By J. P. Moore
Attorney

UNITED STATES PATENT OFFICE.

ALFRED BEST, OF SALT LAKE CITY, UTAH.

CAR-VENTILATOR.

964,373.

Specification of Letters Patent.

Patented July 12, 1910.

Application filed January 24, 1910. Serial No. 539,798.

To all whom it may concern:

Be it known that I, ALFRED BEST, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Car-Ventilators, of which the following is a specification.

The present invention relates to improvements in car ventilators, particularly as applied to railway passenger cars, and is especially designed to overcome objectionable features of the ordinary screen ventilator as commonly used on cars.

The essential object of the invention is the provision of means, actuated by the moving car, for preventing the ingress of cinders etc., through the ventilated window of the car, and to furnish a supply of fresh air to the interior of the car by suitably impelled currents of air.

With these objects in view the invention consists primarily in a device applicable to the car window frame which is provided with necessary screens, and with a series of fans, operated as the car travels, to impel air currents through the screens to the interior of the car for ventilation; and the invention further consists in certain novel features of construction, and combinations and arrangements of parts as will be hereinafter described.

An important characteristic of the invention is its capability of reverse action in ventilating; that is, the ventilating fan is automatically reversible to adapt the device for use when the direction of the travel of the car is reversed.

I have provided for use of the ventilator on both single and double track railroads, and the invention may be adapted for either use with great facility.

In the accompanying drawings I have shown one exemplification of the invention constructed according to the best mode I have so far devised for the practical application of the principles of the adaptation of the invention.

Referring to the drawings:—Figure 1 is a vertical sectional view of a portion of a railway car, taken through the window, showing the invention applied thereto for use on a double-track road. Fig. 2 is a view of Fig. 1 as seen from the left. Fig. 3 is an enlarged view of the reversible ventilating fan. Fig. 4 is a transverse view in section of the supporting shaft, sleeve, and hub of

the reversible fan. Fig. 5 is a horizontal vertical sectional view of parts of Fig. 4. Fig. 6 is an elevation of the casing or screened ventilator as seen from the inside. Fig. 7 is a horizontal longitudinal sectional view of Fig. 6, showing also an attached casing and actuating fan for use on single-track roads. Fig. 8 is an elevation of the exterior side of the ventilator casing of Fig. 7.

The ventilator as illustrated in Figs. 6, 7, and 8 is complete in itself, and illustrates the principles of the invention embodied for use on single-track roads or where the lateral clearance of the car is not limited, and under some conditions the device may be utilized as an integral element. Under other circumstances I use the actuating means illustrated in Figs. 1 to 5, to operate the ventilating fan, when the device is used for instance on double-track roads, or where the lateral clearance of the car is limited.

The casing 1 is formed with a series of compartments, the forward space 2 being inclosed by wire screens 3, 3' and the intermediate space being closed by screen 6, which latter also forms a closure for a part of the compartment 2. The screen 6 is an integral part of a door 7, which is hinged at 8, 8 to the upper portion of the casing 1 and provided with a butterfly nut 9 and screw bolt 10 by means of which the door may be secured. The locking nut and bolt also form an adjusting and clamping means for the retaining rabbet-strip 11, said strip being located at the end of the compartment 5 between the back wall of the casing and door, and in addition to closing the compartment, forms one of a pair of retaining elements by means of which the entire casing is held in the window frame. The complementary strip 12 is held stationary at the other or front end of the casing. The strip 11 may be moved, laterally as in Fig. 7, through a space limited by the dimensions of the slot 13 in the door. Thus, in applying the casing to a car window, the stationary strip 12 is first located in the window groove at one side, and then the strip 11 is projected into the groove in the opposite side of the window frame. When properly adjusted strip 11 is clamped securely in place by the butterfly nut as described. Rubber strips may be secured at the edges of the casing, to make a tight-fitting joint if desired. On the outer side of the ventilator

I provide a series of screened portions 15, 16, 17, preferably semi-circular in form, or bulging, to aid in producing a movement of the air currents furnished to the car.

5 A triangular shaped casing 14 may be attached by means of clamp plates or flanges 14^a and 14^b and bolts or screws 14^c, to the casing 1 at the forward end, and this auxiliary casing forms, with compartment 10 2, a funnel shaped forward entrance to the ventilator casing. The attachable casing 14 is provided with a front screen 14^a and outside screen 14^b, and at the forward end of the casing I locate a fan or windwheel 18, 15 supported on shaft 25 which is journaled in bearings 26.

At the front of casing 1 a sprocket wheel 22 is supported on the shaft 19 and rotatable therewith. This wheel is connected by 20 sprocket chain 23 to a second sprocket wheel 24 rotatable with the shaft 25 which is supported in journal bearings or brackets 26. At its rear end the driven shaft carries a bevel gear 27, which meshes with a 25 similar gear 28 secured on the stud shaft 29, which shaft also carries the automatically reversible ventilating fan 30. This fan 30 is located in the compartment 4, back of the protective screen 6, which latter is of strong 30 wire with a comparatively large mesh to permit entrance of air currents, but which forms an effective barrier against accidents due to contact with the revolving fan. The shaft and gearing are inclosed by a metallic 35 casing 31 secured at the outer side of the ventilator box. The ventilating fan is of peculiar construction, its vanes being automatically movable to adapt it to use with the car when the car is reversed in its di- 40 rection of travel, as will be described hereinafter more fully.

When properly adjusted in position and the train is running, the motion of the car causes the forward fan or windwheel 18 to 45 rotate, as will be understood. The action of the revolving fan or wheel dispels the flying cinders from the proximity of the forward screens and prevents their entrance through the ventilator, thus eliminating the passage 50 of cinders, grit, etc. to the interior of the car. The rotation of the wind wheel or fan also revolves the ventilator fan 30, and the action of this fan causes the air currents to be set in motion, and said currents are im- 55 pelled through the screened door of the casing 1 into the interior of the car; the screens forming an effective barrier against entrance of cinders etc., and the fan provides a supply of fresh air at all times to the moving 60 car.

As illustrated in Figs. 1 to 5, the mechanism of the device may be propelled by actuating means as shown. This actuating means comprises an actuating fan 32 supported on 65 shaft 33 on the roof of the car; bevel gears

34, 35, located respectively on shaft 33 and short shaft 36; a second pair of bevel gears 37 and 38 carried respectively by shafts 36 and 39; and a third pair of bevel gears 40 and 41 rotatable with shafts 39 and shaft 19. 70

In operation of this device, the motion of the moving train causes the air currents to revolve the wind wheel or fan 32 on the car roof, and power is transmitted through the connections described to the driven shaft, 75 which in turn rotates the ventilating fan 30, as heretofore described.

To provide for travel of the car in reverse direction and eliminate the objectionable 80 feature of manually altering the ventilating fan to adapt it for its work, fan 30 is provided with automatically movable vanes 42. Each of these vanes is pivoted at 43 to a 85 hub 44, which hub is rectangular in cross section, and the end 45 of the vane is inclosed between the forked end 46 of a screw bolt 47. The bolt 47 is secured in a sleeve 48 on the shaft 29, and its forked end projects through a slot 49 formed radially of the 90 hub. It will thus be observed that the vane may swing or swivel on its pivot to a limited extent, and as it swings the forked bolts cause the sleeve to revolve until the bolts strike the walls of the slots of the hubs, and the revolving motion is thus transmitted 95 from the vanes of the wheel or fan to the shaft 29. It will be evident that upon a reversal of the direction of travel of the car, the vanes will swing on their pivots until they are properly set to receive the impact 100 from the passing air currents.

In Fig. 2 the car is supposed to be traveling to the right. When traveling to the left 105 under the same conditions the ventilating box will be secured in the unoccupied window, and the ventilating fan will be operated reversely, but the mechanism is actuated as before, to ventilate the car.

From the above description taken in connection with the drawings it is obvious that 110 I have provided a device which fulfils the conditions set forth as the purpose of my invention, and one which may be adapted for use on either a single-track or a double-track railroad, without departing from the scope 115 of my claims.

Minor changes or colorable alterations may be made in the device when adapting it for particular service, without departing 120 from the spirit of the invention, but these slight changes I consider covered by my claims.

Having thus fully described my invention, what I claim as new and desire to secure by 125 Letters Patent is:

1. In a car ventilator, the combination with a rectangular casing having reticulated walls, of a funnel shaped member secured to one end thereof and adapted to feed air 130 thereinto, a fan mounted in the casing, and

means for operating the fan to drive the air through certain of the reticulated walls.

2. A car ventilator, comprising a rectangular casing provided with adjustable means for securing the same in position, said casing having a reticulated front wall, an enlarged reticulated draft chamber formed on one end of the casing, and a fan located in the casing and adapted to force the screened air received from the chamber through the front wall of the casing, there being suitable means for actuating the fan.

3. In a car ventilator, the combination with a rectangular reticulated casing having means for adjustably securing it in position, a funnel-shaped lateral extension carried by the casing and provided with a reticulated front wall, a fan mounted in the casing, a stud shaft on which said fan is mounted, a gear carried by said shaft, a second shaft having a gear in mesh with the gear of the stud shaft, the latter shaft being journaled in the extension of the casing, a shaft bearing a wind wheel, and driving connections between the shafts for actuating the fan.

4. In a car ventilator, the combination with a reticulated casing, of a stud shaft carried thereby, a sleeve secured thereto, a block loosely mounted on the sleeve, fan blades carried by the block, and abutments carried by the sleeve and engaging said blades for adjusting the angle thereof.

5. A ventilator comprising a casing having a hinged, reticulated inner wall, a front

funnel shaped compartment having a reticulated closure, a fan in the casing for creating air currents therethrough, means for rotating said fan, and screened portions at the outer side of the casing.

6. In a car ventilator, the combination with a reticulated casing, of a longitudinally disposed shaft carried thereby, means for driving said shaft, a stud shaft carried by the casing and driven by said shaft, a sleeve carried by the stud shaft, a block loosely mounted on the sleeve, fan blades pivotally secured to the said block and provided with basal extensions, and means carried by the sleeve and engaging said extensions for adjusting the angle at which said blades are set.

7. The combination with the casing of a car window, of a ventilator comprising a sectional box having a hinged inner reticulated wall, a funnel shaped front compartment formed of two sections, means for preventing the entrance of cinders therethrough, a rotary fan in the casing and retaining strips, one of which is adjustable, on the casing for engaging grooves of the window casing.

In testimony whereof I affix my signature, in presence of two witnesses.

ALFRED BEST.

Witnesses:

W. L. YOUNG,
SIDNEY D. ALDER.