

V. G. HYATT, JR.

AIR MOTOR.

APPLICATION FILED JULY 11, 1914.

1,294,910.

Patented Feb. 18, 1919.

2 SHEETS—SHEET 1.

Fig. 1.

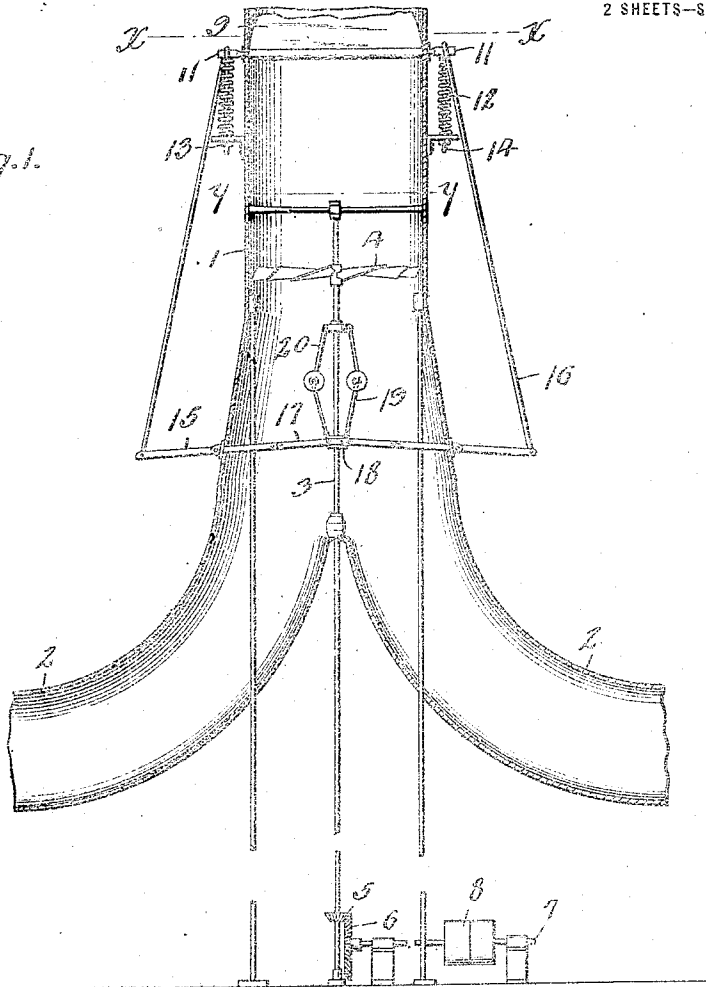
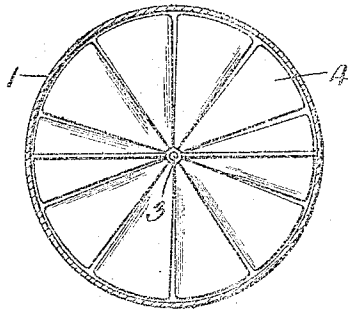


Fig. 4.



Witnesses

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2 SHEETS—SHEET 2.

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Fig. 2.

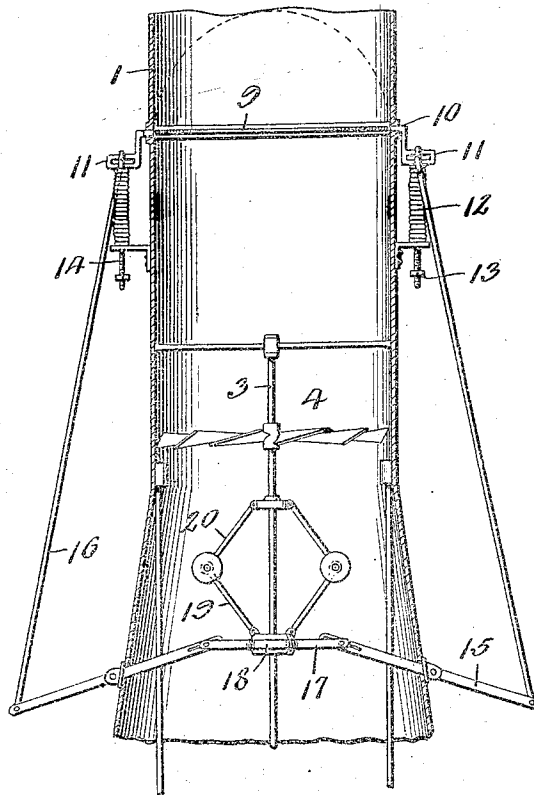
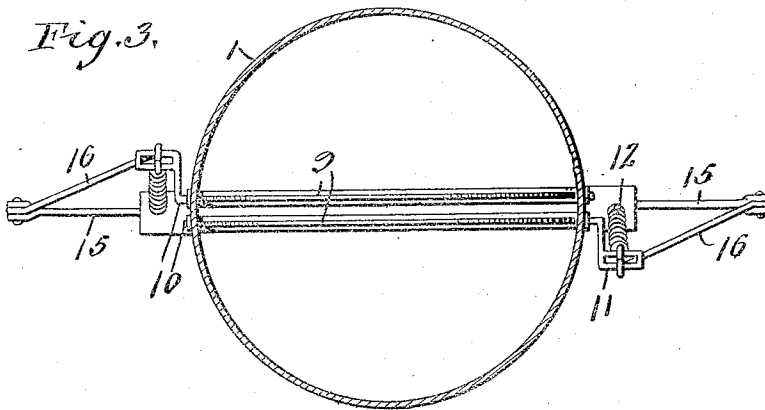


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

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AIR-MOTOR.

1,294,910.

Specification of Letters Patent.

Patented Feb. 18, 1919.

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To all whom it may concern:

Be it known that I, VALENTINE G. HYATT, Junior, a citizen of the United States, residing at Welby, in the county of Salt Lake and State of Utah, have invented new and useful Improvements in Air-Motors, of which the following is a specification.

The invention has relation to motors, which utilize a current of air as the motive medium, and in its specific adaptation the invention is designed to utilize air currents in shafts, stacks, or analogous flues, and has for its object to provide novel regulating means for governing the speed of the motor proportionate to the load and the force developed by the current of air.

The invention consists of the novel features, details of construction and combination of parts, which hereinafter will be more particularly set forth, illustrated and claimed.

In the drawings hereto attached:—

Figure 1 is a sectional view of a vertical shaft, flue, or stack provided with a motor and governing means for such motor embodying the invention.

Fig. 2 is a sectional view showing the relation of the governor mechanism when moved to prevent excessive speed of the motor wheel.

Fig. 3 is a horizontal section on the line $x-x$ of Fig. 1.

Fig. 4 is a horizontal section on the line $y-y$ of Fig. 1.

Corresponding and like parts are referred to in the following description, and indicated in all the views of the drawings, by the same reference characters.

The shaft, flue, or stack 1 may be of any construction, and as shown is provided at its lower end with branches 2 which diverge toward their lower ends. A shaft 3 is arranged within the flue 1 and extends below the point of divergence of the branches 2. The shaft 3 is mounted so as to rotate with the least amount of friction possible. A motor wheel 4 is secured to the shaft 3 and is arranged in a horizontal plane and is of a diameter to practically extend across the flue and fill the space thereof so as to utilize all the currents of air passing upwardly through the flue. The motor wheel 4 may be of any construction generally employed in air motors. Power is taken from the shaft 3 to operate any light machinery and for this purpose a beveled pinion 5 is secured

to the shaft 3 and meshes with a beveled gear wheel 6 fastened to a horizontal shaft 7 which is provided with belt pulleys 8 from which the power is taken by means of a drive belt, not shown, to operate the part to be driven.

Dampers 9 are arranged to extend across the flue 1 and regulate the current of air therethrough. The dampers 9 are secured to rods 10 which are mounted in the sides of the flue 1 and extend at one of their ends and terminate in cranks 11. Helical springs 12 normally exert a pressure upon the crank arms 11 to hold the dampers 9 open and the tension of such springs may be regulated by means of nuts 13 threaded upon rods 14 which pass through the springs 12. Levers 15 are fulcrumed to the sides of the flue 1 and their outer ends are connected by means of links 16 to the crank arms 11 and the inner ends of such levers 15 are connected by links 17 to a member 18 which is connected by links 19 to weighted arms 20 which are pivotally connected at their upper ends to the shaft 3 so as to rotate therewith. Under normal conditions the weighted arms 20 depend and the dampers 9 are open but when the motor wheel 4 attains an excessive speed the weighted arms 20 fly upward and throw the member 18 upward, thereby operating the levers 15 and closing the dampers 9 against the tension of the springs 12 thereby diminishing the speed of the motor wheel proportional to the load and the force of the current of air passing upwardly through the flue 1. When the speed of the motor wheel 4 decreases the weighted or governor arms 20 drop thereby moving the levers 15 and admitting of the dampers 9 opening with the result that the motor wheel is subjected to an increased current of air with the result that its speed increases.

From the foregoing description, taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention appertains, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as are within the scope of the invention as claimed.

Having thus described the invention, what is claimed as new is:—

- In combination with a vertical flue having a plurality of branches communicating with the lower end thereof and adapted for the passage of a current of air, a vertically disposed shaft mounted centrally of the flue, a motor wheel fixed upon the shaft, a centrifugal governor mechanism mounted upon said shaft below said motor wheel, a pair of diametrically opposed substantially horizontally disposed levers extending through the side of the flue and pivotally mounted thereon for vertical swinging movement, a pair of slightly spaced horizontally disposed rods journaled through the sides of the flue at a point considerably above said wheel and terminating at their ends in cranks, the crank on one rod being disposed in the opposite direction to the crank on

the other rod, substantially semi-circular plates carried by said rods and adapted to close the flue, springs secured to said cranks and normally holding said plates in one position, links pivotally connected with the outer ends of said levers and with said cranks, and a member having revoluble connection with the governor mechanism and having pin and slot connection with the inner ends of said levers whereby movement of said governor mechanism will correspondingly actuate said plate carrying rods.

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

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."