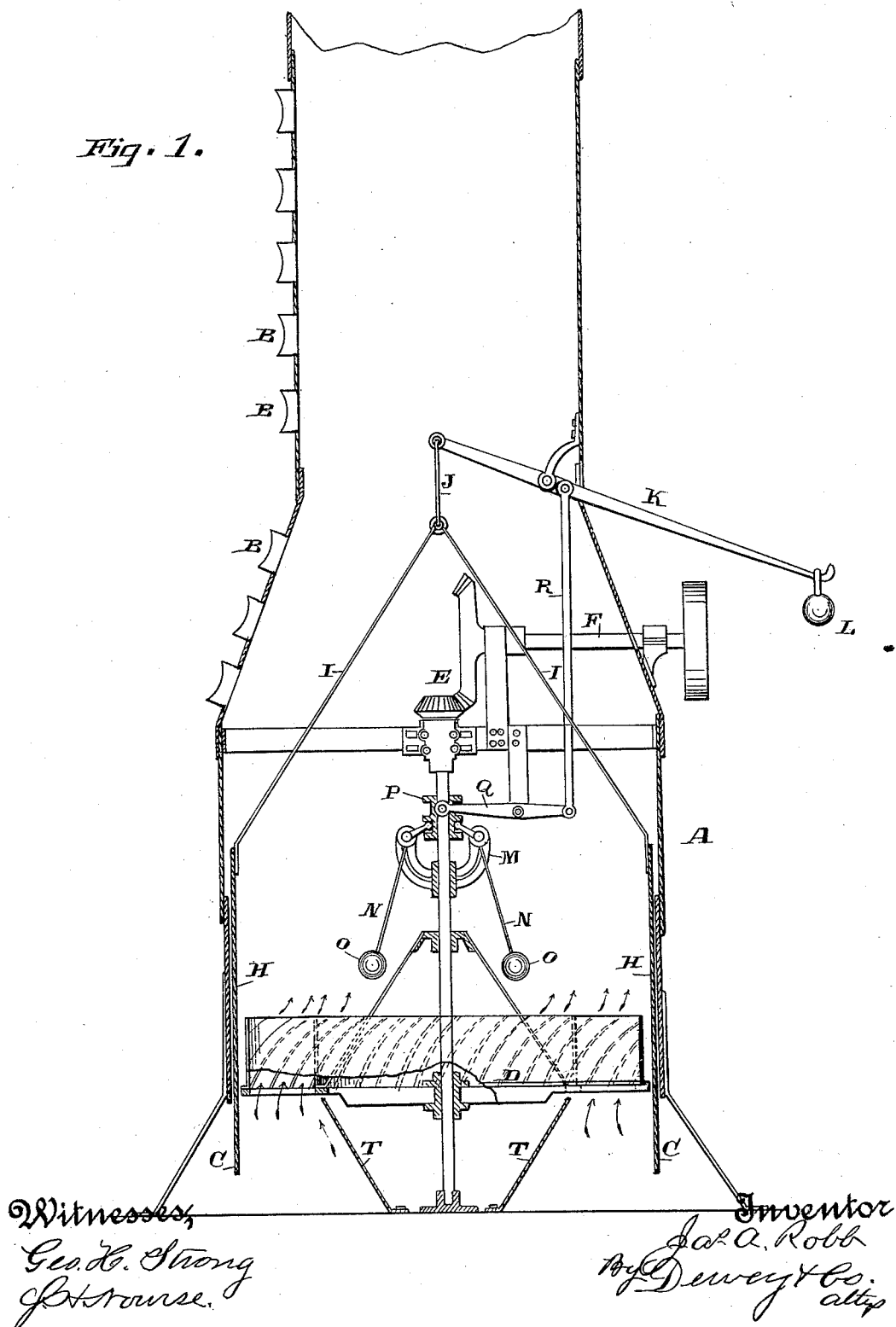


J. A. ROBB.
CHIMNEY OR STACK PROPELLER AND GOVERNOR.

No. 401,516.

Patented Apr. 16, 1889.

Fig. 1.



(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

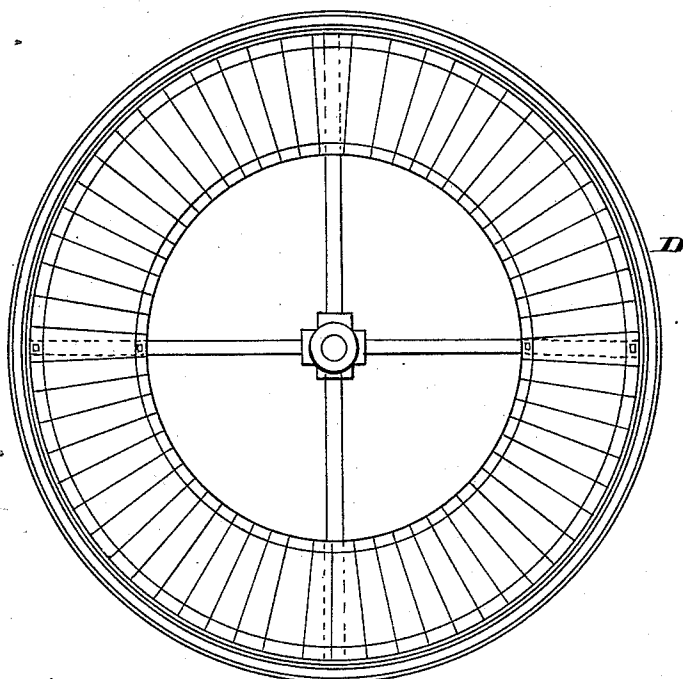
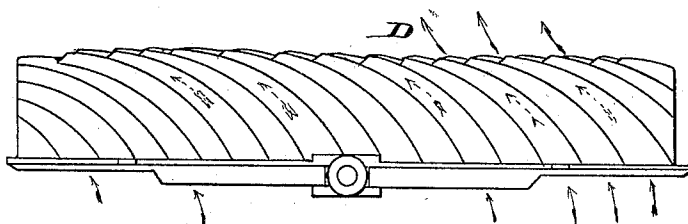


Fig. 3.



Witnesses,
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UNITED STATES PATENT OFFICE.

JAMES A. ROBB, OF SAN JOSÉ, CALIFORNIA.

CHIMNEY OR STACK PROPELLER AND GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 401,516, dated April 16, 1889.

Application filed April 14, 1888. Serial No. 270,647. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. ROBB, of San José, Santa Clara county, State of California, have invented an Improvement in a Chimney or Stack Propeller and Governor; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to a wind-wheel driven by the upward current of air within a stack or chimney, and a governor in connection therewith, whereby its speed and power may be controlled, and a means for rarefying the air within the stack.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a vertical section taken through the stack, showing the wheel and governing apparatus. Fig. 2 is a top view of the wheel. Fig. 3 is an edge view of the same.

A is the stack or chimney, which is made of any suitable or desirable height or diameter. It may be made of stone, brick, wood, or metal, and may be employed especially for the purpose herein described, or it may unite with such use a further use for carrying away smoke, fumes, and products of combustion from a furnace or other supply.

In the present case I have shown the chimney as made of iron formed in cylindrical sections and riveted together, and upon the sides which are exposed to the sun I have fixed glass disks or lenses B, the object of which is to receive and concentrate the heat of the sun's rays, so as to rarefy the air within the stack and increase the upward draft. Around the lower part of the stack are made openings C of sufficient size to admit air freely and supply the vacuum caused by the upward draft. Within the stack is fixed a wheel, D, which in the present case I have shown in the form of a turbine or propeller wheel, through which the upward current of air passes and by its action upon the blades of the wheel causes it to rotate. The vertical shaft of this wheel is properly supported in a step at the bottom and in journal-boxes at the upper end, and power is transmitted from it either by pulleys and belts or, as shown in the present case, by means of the bevel-gearing E, which transmits the power to a horizontal shaft, F, extending out through an opening in the sides of the stack, so that

power may be transmitted upon the outer end of the shaft to any desired point where it is to be employed.

Around the interior of the stack is fitted a vertical loosely-moving cylinder or ring, H, and its object is to open or close the air-passages at the bottom when it is raised or lowered. This ring-damper is supported by arms I and a suspending-link, J, from the lever K, which is fulcrumed to the side of the stack, as shown. This lever extends out through an opening, having a counterbalance-weight, L, upon its outer end, which weight is nearly or quite sufficient to balance the weight of the cylindrical valve or damper and its supporting parts. Upon the vertical wheel-shaft is secured a hub or collar having the branching arms M, to which the supporting arms or rods N of the governor are fulcrumed.

O are the balls on the outer ends of these arms, which are caused to spread out by centrifugal action of the rotating vertical wheel-shaft. The inner ends of the governor-arms act upon the collar P, which slides loosely upon the vertical shaft, and the lever Q, fulcrumed to a convenient support within the stack, has one end forked so as to engage a channel or groove in the collar, and the other end is connected by the link or rod R with the suspending counterbalance-lever of the cylindrical valve or damper above described.

It will be manifest that by this construction as the wheel runs more rapidly the governor-balls will be thrown outward and, through the levers just described, will act to partially close the air-inlets; and when the wheel runs more slowly the opposite action will take place, and the air-inlets will be open. A conical or cylindrical wall, T, extends from the ground or base up to the inner wheel-rim, so as to prevent the air from entering the chimney except through the wheel.

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

1. The combination, with the vertical chimney, of the lenses fixed in the side thereof and concentrating the rays of the sun on the inner side of the stack away from the sun, whereby the upward draft in the stack is increased, substantially as herein described.

2. The wheel journaled to rotate within the

vertical shaft or chimney, which has openings
at the bottom through which air is admitted
to drive said wheel, the interior cone, T, for
directing the current of air through the wheel,
5 in combination with a vertically - moving
damper for opening and closing the air-sup-
ply passages, a governor driven by the wheel,
and mechanism, substantially as specified,
whereby the governor is connected with the

suspending-arms of the damper so as to open 10
and close it, substantially as herein described.

In witness whereof I have hereunto set my
hand.

JAMES A. ROBB.

Witnesses:

S. H. NOURSE,

H. C. LEE.