M. RUBEN & H. K. BRADSHAW.

AUTOMATIC-FAN.

No. 182,961. Patented Oct. 3, 1876.

Fig. 2.

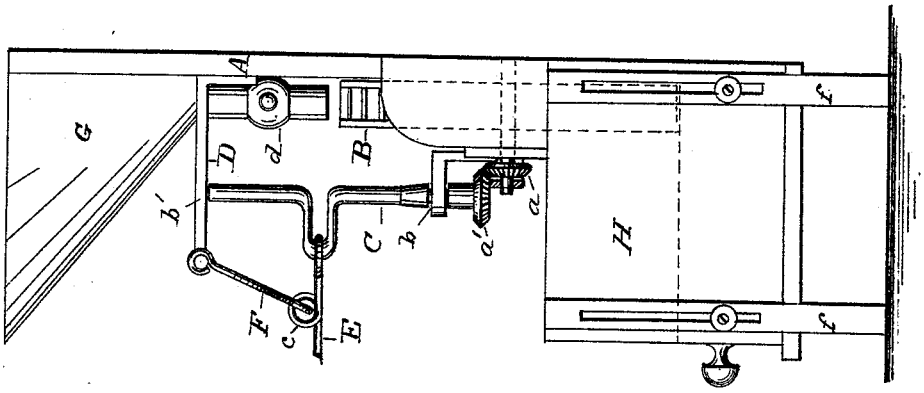
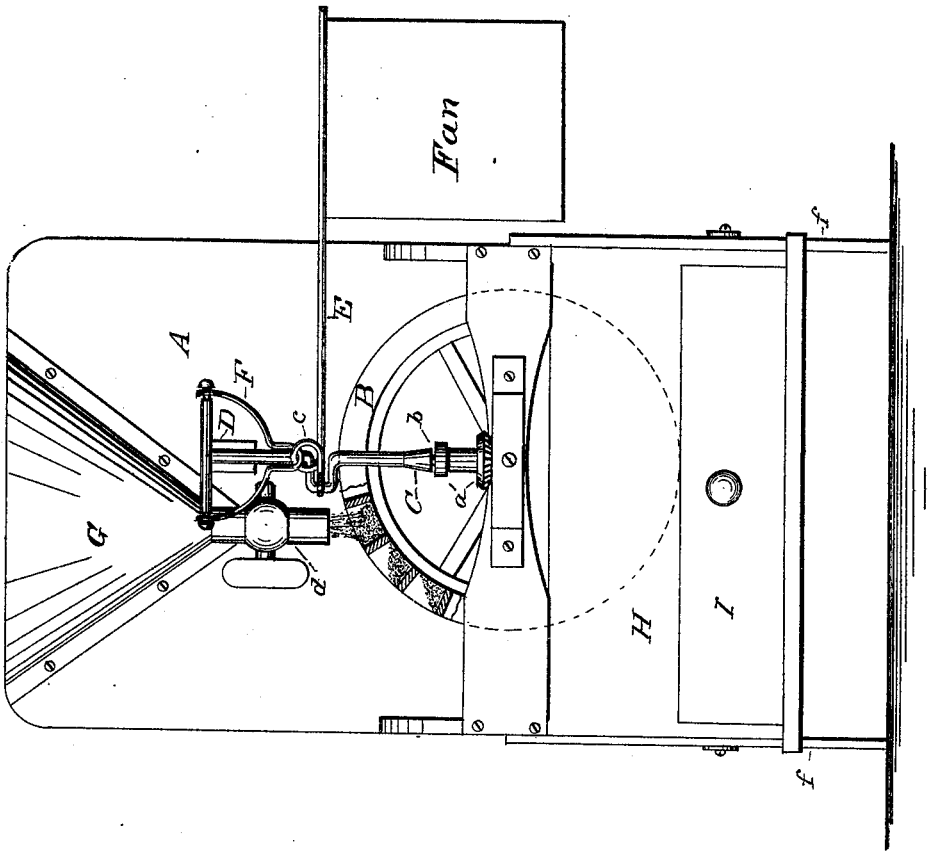



Fig. 1.




WITNESSES:

A. W. Hart.

Solon C. Kemon

INVENTOR:

M. Ruben

H. K. Bradshaw

BY

Munn & Co

ATTORNEYS.

# UNITED STATES PATENT OFFICE.

MORIS RUBEN AND HERMAN K. BRADSHAW, OF ALEXANDRIA, VIRGINIA.

## IMPROVEMENT IN AUTOMATIC FANS.

Specification forming part of Letters Patent No. **182,961**, dated October 3, 1876; application filed July 27, 1876.

*To all whom it may concern:*

Be it known that we, MORIS RUBEN and HERMAN K. BRADSHAW, of the city and county of Alexandria, and State of Virginia, have invented a new and Improved Automatic Fan; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a front elevation; Fig. 2, a side elevation.

The object of this invention is to provide a cheap and available motive power for driving fans with a force sufficient to produce a current of air over a dining-room table, butcher's meat-bench, counting-house desks, bed, or sick-couch, thereby accomplishing the double result of supplying a cool current of air, and driving away flies, mosquitoes, and other troublesome insects. To this end our invention consists in the combination, with an overshot wheel driven by suitable means, of certain mechanism which converts the rotary movement of the wheel into a compound reciprocating movement of a fan, whereby the latter is made to move through a greater space by moving in different planes of oscillation, and whereby also the use of pitmen and guides is dispensed with, as hereinafter more fully described.

In the accompanying drawing, A represents the frame, in which is journaled in suitable bearings an overshot-wheel, B, of any ordinary construction. The shaft of this wheel is extended upon one side, and to its extended end is keyed a bevel-wheel, *a*, which gears with and imparts motion to a second bevel-wheel, *a'*, keyed upon a perpendicular crank-shaft, C. Said crank-shaft is located in bearings *b b'*, of which the lower one, *b*, is attached to the frame A, and the upper one, *b'*, depends from a projecting bracket, D, attached to the back of the main frame. E is the arm which carries the fan, which arm is attached at one end to the double-cranked portion of the shaft C, and is loosely connected at *c*, by a bend in the rod to a swinging loop, F, which loop is pivoted at the top to the opposite sides of a T-shaped head upon the bracket D. The wheel being set in motion by any suitable power, the rotary motion of the wheel and crank-shaft is converted into a compound reciprocation of the arms carrying the fan, and thus at the same time creates a current of air, and drives away all troublesome insects.

The power employed for operating the device, as thus described, may be either clean dry sand or water. When sand is used, a hopper, G, is arranged immediately above the wheel, with a spout and cut-off, *d*, for regulating the flow of the same to the wheel, and immediately below the same is arranged a box, H, for receiving the sand discharged from the wheel after it has imparted its motive effect to the same. Said box is provided with a removable drawer, I, which may be taken out when filled with sand, and its contents transferred again to the hopper above the wheel.

We do not confine ourselves, however, to the use of sand for rotating the wheel, as when water is available, it may under some circumstances be more desirable than the heavier sand, as, unlike sand, it will not be liable to blow into the bearings of the mechanism, and wear the same, and it would also serve to assist in purifying and cooling the air of a sick-room, as the fan would co-operate with the falling stream of water to facilitate evaporation and increase the cooling effect.

In order to adjust the fan to the different heights which the various uses may render necessary, the legs *f* of the box are slotted, and attached to the box by binding-screws *g*, which pass through said slots, and secure the legs to the box, so as to permit of the elevation or depression of the whole apparatus, so as to adapt it to any height of bed, &c.

Having thus described our invention, what we claim as new is—

The combination, with an overshot-wheel, B, geared with and actuating a vertical crank-shaft, C, of a horizontal arm, E, carrying the fan, and pivoted at one end to the crank of the vertical shaft, together with the swinging loop F, loosely connected below to the fan-arm, and supporting the same so as to effect the compound reciprocation, substantially as and for the purpose described.

MORIS RUBEN.
HERMAN K. BRADSHAW.

Witnesses:
C. A. YOHE,
G. C. CLAUGHTON.