

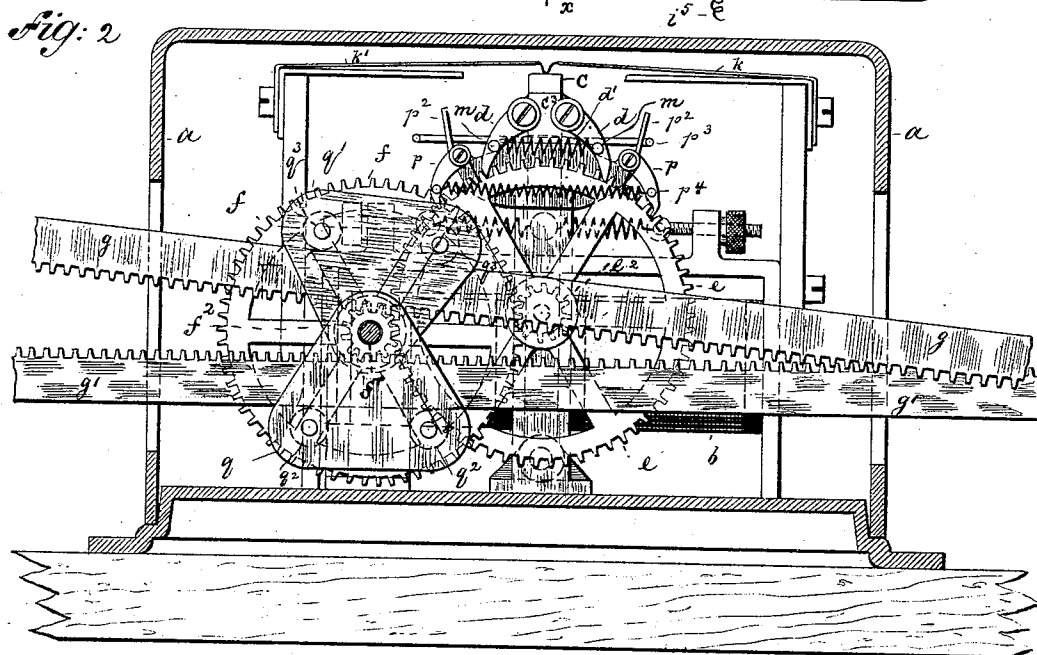
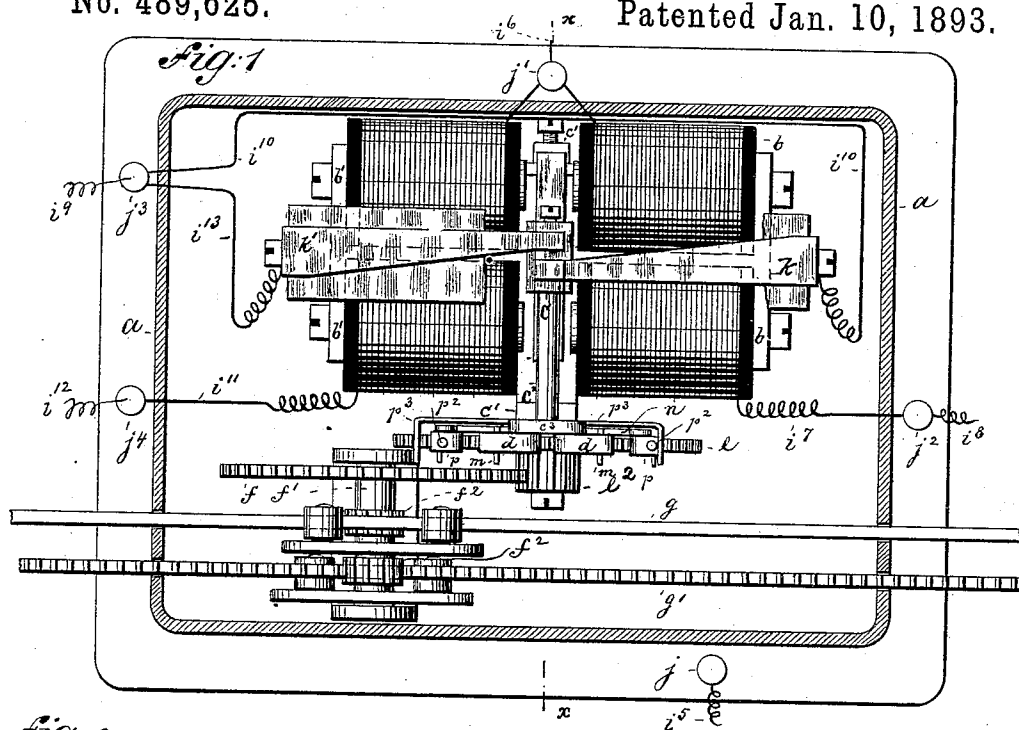
(No Model.)

2 Sheets—Sheet 1.

S. G. BRINKMAN.
ELECTRICALLY CONTROLLED VENTILATOR.

No. 489,625.

Patented Jan. 10, 1893.



WITNESSES:

A. Schehl.
Wm. Schulz.

INVENTOR

S. G. Brinkman.

BY

Roeder & Brisen

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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Fig: 3

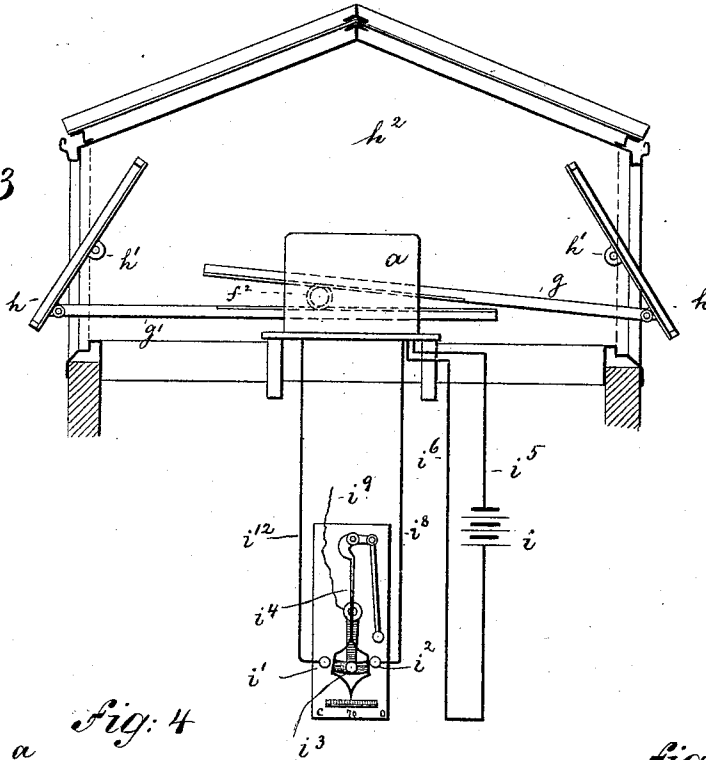


Fig: 4

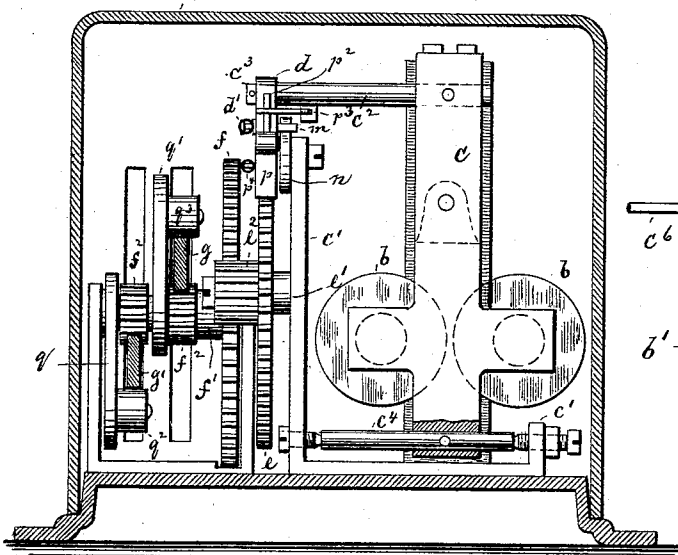
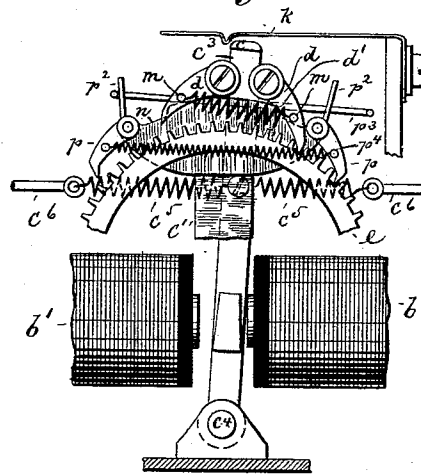


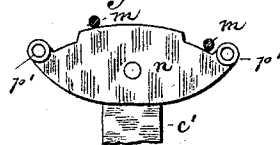
Fig: 5



WITNESSES:

A. Schohl.
Wm. Schulz.

Fig: 6



INVENTOR

BY S. S. Brinkman
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

SEBASTIAN G. BRINKMAN, OF NEW YORK, N. Y.

ELECTRICALLY-CONTROLLED VENTILATOR.

SPECIFICATION forming part of Letters Patent No. 489,625, dated January 10, 1893.

Application filed March 3, 1892. Serial No. 423,560. (No model.)

To all whom it may concern:

Be it known that I, SEBASTIAN G. BRINKMAN, of New York city, New York, have invented an Improved Ventilator, of which the following is a specification.

This invention relates to an improved ventilator and more particularly to the means for opening and closing the ventilating valve by electricity.

It consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings: Figure 1 is a top view of the operating mechanism. Fig. 2 an elevation thereof. Fig. 3 a cross section through a skylight provided with my improvement. Fig. 4 a section on line *x, x*, Fig. 1. Fig. 5 a detail of the operating and detent pawl and Fig. 6 a detail of the shoulder *n*.

The letter *a*, represents a casing inclosing two pairs of electro-magnets *b, b'*; between these electro magnets, there oscillates upon a pivot *c*⁴ hung in a bracket *c'*, an upright armature *c*. To this armature there is attached an arm *c*², terminating in a head *c*³. To this head there is pivoted a pair of diverging pawls *d, d*, engaging a ratchet wheel *e*, that revolves on a shaft *e'*, fast on the bracket *c'*. The wheel *e*, is provided with a pinion *e*², engaging a toothed wheel *f*. This wheel turns on a shaft *f'*, and is provided with pinions *f*². These pinions engage the teeth of two racks *g, g'*, extending in opposite directions and meshing respectively into the top and bottom of the pinions *f*². The outer ends of the racks *g, g'*, are pivoted to the valves *h*, turning on pivots *h'*, and shown to be set into a skylight *h*². Of course, these valves exclude or admit air by being closed or opened and they may be located at any point where such an object is to be attained.

i, is a battery. *i'*, *i*², the contact posts and *i*³, the switch for opening and closing the circuit. This switch I have shown to be formed by a thermostat *i*⁴, which is used when the ventilator is to operate automatically at a predetermined temperature. If this is not desired however, the switch is set by hand. *i*⁵, *i*⁶, are the two battery wires going to the binding posts *j, j'*, respectively. If the switch is set to make contact with the post *i*², the current travels as follows: Through the wire *i*⁶,

post *j'*, electro-magnets *b, b*, wire *i*⁷, post *j*², wire *i*⁸, post *i*², switch *i*³, thermostat *i*⁴, wire *i*⁹, post *j*³, wire *i*¹⁰, contact spring *k*, armature *c*, and out through the ground or base to the post *j*, and by the wire *i*⁵, back to the battery. The result will be to vibrate the armature from its central position toward the electro-magnets *b*, and in this way the right hand pawl *d*, will revolve the ratchet wheel *e*, to the right so as to revolve, by the wheels *e*² *f*, the pinions *f*², to the left. Thus the racks *g, g'*, are drawn inward to close the ventilators *h*.

If the switch is set to make contact with the post *i'*, the current travels as follows: Through the wire *i*⁶, post *j'*, electro-magnets *b', b'*, wire *i*¹¹, post *j*⁴, wire *i*¹², post *i'*, switch *i*³, thermostat *i*⁴, wire *i*⁹ post *j*³, wire *i*¹³, contact spring *k'*, armature *c*, and out through the ground or base to the post *j*, and by the wire *i*⁵, back to the battery. The result will be to vibrate the armature from its central position toward the electro-magnets *b'*, and in this way the left hand pawl *d*, will revolve the ratchet wheel *e*, to the left so as to revolve, by the wheels *e*², *f*, the pinions *f*², to the right. Thus the racks *g, g'*, are pushed outward to thus open the ventilators *h*.

In order to disengage the inoperative pawl *d*, from the teeth of the wheel *e*, each pawl is provided with a backwardly and forwardly extending pin *m*. At the front, the pins are connected by a spring *d'*. At the rear the pins engage a shoulder *n*, raised at the center (Fig. 6) and held by the bracket *c'*, directly back of the pawls. It is clear that if the armature is vibrated in either one direction, the pin *m*, of the neutral pawl *d*, is by the spring *d'*, drawn upon the raised part of the shoulder *n*, and is thus thrown out of engagement with the wheel *e*.

In order to prevent the pressure of the ventilator *h*, exercised through the racks and gear wheels from counteracting the motion imparted to the gear wheel *e* by the pawls *d*, I employ a pair of detents *p, p*. These detents engage the ratchet wheel *e*, and are pivoted at *p'*, to the shoulder *n*. Each detent is provided with an upwardly projecting arm *p*². These arms are adapted to be engaged by the bent ends of a rod *p*³, attached to the bar *c*². As the armature vibrates, one of the detents *p*, will be raised out of engagement with the

wheel *e*, while the other detent will be thrown into engagement with such wheel. A spring *p*⁴, connecting the detents *p*, holds the operative detent in place and permits it to glide
5 over the teeth as the wheel is revolved.

The usual armature springs *c*⁵ are shown in Fig. 5, and are connected at one end to the armature and at the other end fixed to eyes *c*⁶.

In order to hold the racks *g*, *g'*, in contact
10 with the pinions *f*², and to still permit the slight tilting motion of such racks, I hang upon the shaft *f'*, a pair of triangular bearing plates *q*, *q'*, provided with the rearwardly extending rollers *q*², *q*³. Between these rollers
15 and pinions *f*², the racks *g*, *g'*, are introduced and as the racks swing up and down, the bearing plates *q*, *q'*, will follow their motion as will be readily understood.

It will be seen that by my invention, I am enabled to easily operate ventilators placed at an inaccessible position, from the most desirable point and without any muscular exertion or the employment of cumbersome and unsightly motion-transmitting mechanism.
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25 What I claim is:

1. The combination of a pair of electro magnets with an intermediate pivoted armature, a pawl connected to the armature, a ratchet wheel engaged by the pawl, a pivoted valve
30 and mechanism for transmitting the motion of the ratchet wheel to the valve, substantially as specified.

2. The combination of a pivoted valve with an electro-motor, pinion *f*², revolved thereby
35 and a rack engaging the pinion and secured to the valve, substantially as specified.

3. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, ratchet wheel *e*, engaged by the pawls, pinion *f*², revolved by
40 the ratchet wheels, a rack engaging the pin-

ion, and a valve secured to the rack, substantially as specified.

4. The combination of an electro-motor with a thermostat within its circuit, a pinion revolved by the electro motor posts *i'* *i*², for contact with the thermostat switch, a valve *h*, and racks engaging the pinion for connecting the electro-motor with such valve, substantially as specified.
45

5. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, pivoted thereto, gear wheel *e*, pinion *e*³, gear wheel *f*, pinion *f*², a rack engaging such pinion and a valve engaged by the rack, substantially as specified.
50

6. The combination of electro-magnets *b*, *b'*, with armature *c*, actuating pawls *d*, *d*, detents *p*, *p*, gear wheel *e*, engaged thereby, pinion *f*², revolved by the gear wheel and with rack *g*, and valve *h*, substantially as specified.
55

7. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, *d*, pivoted thereto, pins *m*, spring *d'* and shoulder *n*, for disengaging the pawls and with the pinion *f*², rack *g*, and valve *h*, substantially as specified.
60

8. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, *d*, detents *p*, *p*, arms *p*², bent rod *p*³, spring *p*⁴, and with ratchet wheel *e*, pinion *f*², rack *g*, and valve *h*, substantially as specified.
65

9. The combination of electro-magnets *b*, *b'*, with armature *c*, pawls *d*, gear wheel *e*, pinion *f*², pivoted bearing plate *q*, rack *g'*, engaged thereby and with valve *h*, engaged by the rack, substantially as specified.
70

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Witnesses:

F. V. BRIESEN,
WM. SCHULZ.