

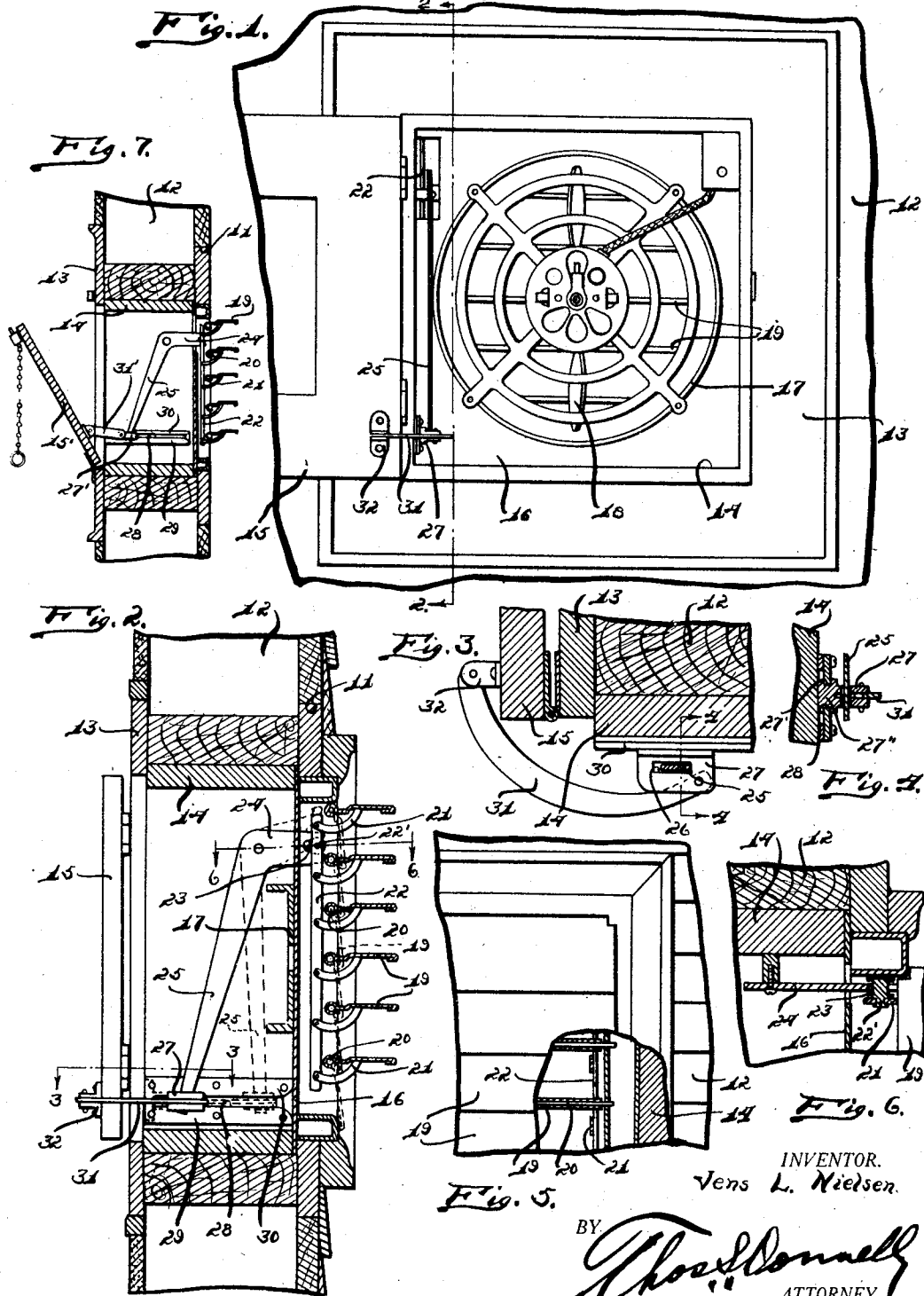
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VENTILATOR OPENER

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VENTILATOR OPENER.

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My invention relates to a new and useful improvement in a ventilator opener adapted for use on ventilating openings in which a fan is used for setting up circulation and bringing about the desired ventilation. The invention is used particularly in rooms, such as kitchens and the like, where it is desired that the foul air, odors, and vapors arising in the room, may be expelled therefrom.

When these ventilators are installed in the manner now practised the motor for driving the ventilator and the fan of the ventilator are all exposed and present an unseemly appearance particularly in a well appointed room. In order to close communication of the room with the outside atmosphere a shutter arrangement is generally constructed at the outside of the wall, and this shutter arrangement, when closed, affords the only protection of the interior of the room from the exterior, which in severely cold weather proves insufficient.

In the present invention it is an object to provide an arrangement whereby the ventilating fan and its operating mechanism may be, when not in use, entirely concealed so that the appearance of the room will not be marred by the exposure of the ventilating apparatus.

It is another object of the invention to provide a closure for the recess in which the ventilating fan and its operating parts are enclosed so that protection from the outside atmosphere may be provided in addition to the usual shutters.

Another object of the invention is the provision in a ventilating apparatus of this class of shutters cooperating with a door adapted to be opened and closed synchronously with the door and with a single operation.

Another object of the invention is the provision of apparatus for connecting the door with the shutter mechanism so that the opening and closing of one will effect the opening and closing of the other.

Other objects will appear hereinafter.

The invention consists in the combination and arrangement of parts hereinafter described and claimed.

The invention will be best understood by a reference to the accompanying drawings which form a part of this specification and in which,

Fig. 1 is a fragmentary elevational view of the invention taken from the inside show-

ing the invention applied with the shutter open.

Fig. 2 is a view taken on substantially line 2-2 of Fig. 1.

Fig. 3 is a view taken on substantially line 3-3 of Fig. 2.

Fig. 4 is a view taken on substantially line 4-4 of Fig. 3.

Fig. 5 is a fragmentary exterior elevational view with parts broken away and parts shown in section.

Fig. 6 is a fragmentary sectional view taken on substantially line 6-6 of Fig. 2.

Fig. 7 is a view similar to Fig. 2 showing a modified form of the invention.

In the drawings I have illustrated the invention mounted in an opening 11 formed in the wall 12. The invention comprises a frame 13 which is adapted for positioning in the opening 11 and which is provided with the inwardly positioned frame 14 upon which is hingedly mounted the door or closure 15. Mounted in the frame 14 is a plate 16 preferably formed from metal and which carries the channel 17, in which the blades of the fan 18 rotate. This plate 16, with the channel 17 and the fan 18, is of the usual type of structure in ventilating fan, and since the same in itself forms no part of the invention it is not shown in detail.

A motor is customarily used for driving the fan 18. The shutters 19 are swingably mounted on the rods or pintles 20 to serve as a closure for the opening in the frame 14. Each of these shutters 19 is, as shown in full lines in Fig. 2, connected by the arcuate arm 21 pivotally to a connecting bar 22 which carries a pin 22' engaging in the notch or slot 23 formed in the arm 24 of the bell crank, the other arm 25 thereof, projecting through a slot 26 formed in the bracket 27. This bracket 27 is provided with a neck 27' having a groove 27'', the neck being adapted to ride in the space 28 between the guide strips 29 and 30. An arcuate arm 31 is pivotally connected at one end to the bracket 27 and at its opposite end to the bracket 32 which is fixedly mounted upon the door or closure 15.

In operation when the mechanism is assembled in the frame 14 and the door 15 is swung to open position, as shown in full lines in Fig. 2, the shutters will be moved to open position, as shown in full lines in Fig. 2. When the door is moved to closed position the arm 25 will move inwardly to

the position shown in dotted lines in Fig. 2 and the shutters will be moved to closed position, as shown in dotted lines in Fig. 2. The thickness of the wall is generally sufficient to provide a housing for accommodating the fan and operating mechanism, and it will be observed from the description given that upon the closure of the door 15, the fan and its operating mechanism will be concealed from view, the closure and the shutters 19 serving to conceal this mechanism. The movement of the shutters to open position is a simple and easy operation being performed simultaneously with the movement of the door 15.

In Fig. 7 I have shown a modified form of the invention in which the door 15' swings downwardly instead of laterally, and is connected by the arms 31' to the bracket 27', this bracket being guided as already described for the bracket 27.

It is obvious that changes may be made in the present invention either in the method of installing, the method of swinging the door or of connecting the various parts, and it is intended to embrace in this specification such changes and variations as come within the scope of the appended claims.

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

1. A device of the class described adapted for use with a wall opening having a ventilator fan mounted therein, comprising: a swingably mounted closure for the inner side of said opening; swingably mounted shutters for closing the outer side of said opening; a vertically extending bar; means for pivotally connecting each of said shutters to said bar; a bell crank having one end bifurcated; a pin on said bar for engaging between the bifurcations of said bell crank, said bell crank being pivoted on said wall in said opening; and means for connecting the opposite end of said bell crank to said door, the opening and closing of said door effecting a swingable movement of said bell crank alternately in opposite directions for moving said shutters alternately to open and closed position.

2. A device of the class described adapted for use with a wall having an opening formed therein, comprising: a swingably mounted closure for the inner side of said opening; swingably mounted shutters for closing the outer side of said opening; a substantially L-shaped bar pivotally mounted on said wall in said opening; a bar for connecting said shutters together and adapted upon vertical movement for swinging

said shutters to open and closed position dependent upon the direction of movement of said bar; a pin projecting outwardly from one face of said bar and adapted to engage between bifurcations formed in one end of said L-shaped member; a bracket; guide members for mounting said bracket on said wall in slidable relation thereto, said bracket having an opening therein for the reception of the opposite end of said L-shaped member; and means for connecting said bracket to said swingably mounted closure, the movement of said door to open and closed position effecting a slidable movement of said bracket.

3. A device of the class described adapted for use with a wall having an opening formed therein comprising: a swingably mounted closure for the inner side of said opening; swingably mounted shutters for closing the outer side of said opening; a substantially L-shaped bar pivotally mounted on said wall in said opening; a bar for connecting said shutters together and adapted upon vertical movement for swinging said shutters to open and closed position dependent upon the direction of movement of said bar; a pin projecting outwardly from one face of said bar and adapted to engage between bifurcations formed in one end of said L-shaped member; a bracket; guide members for mounting said bracket on said wall in slidable relation thereto, said bracket having an opening therein for the reception of the opposite end of said L-shaped member; and an arcuate arm pivotally connected at one end to said bracket and at its opposite end to the inner surface of said closure.

4. A device of the class described adapted for use with a wall opening having a ventilator fan mounted therein, comprising: a swingably mounted closure for the inner side of said opening; swingably mounted shutters for closing the outer side of said opening; a vertically extending bar; means for pivotally connecting each of said shutters to said bar; a bell crank pivoted on said wall in said opening; means for connecting one end of said bell crank to said bar pivotally; means for connecting the opposite end of said bell crank to said door, the opening and closing of said door effecting a swingable movement of said bell crank alternately in opposite directions for moving said shutters alternately to open and closed position.

In testimony whereof I have signed the foregoing specification.

JENS L. NIELSEN.