

**No. 680,280.**

Patented Aug. 13, 1901.

**R. ROESSER.**

**BLOWING FAN.**

(Application filed Sept. 9, 1899.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 2.

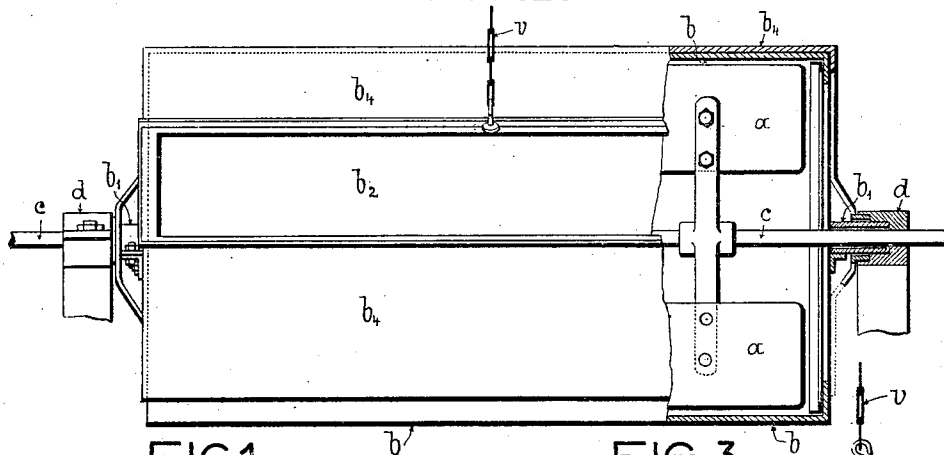


FIG1.

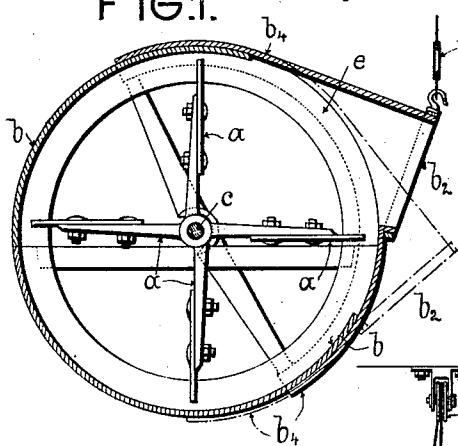


FIG.3.

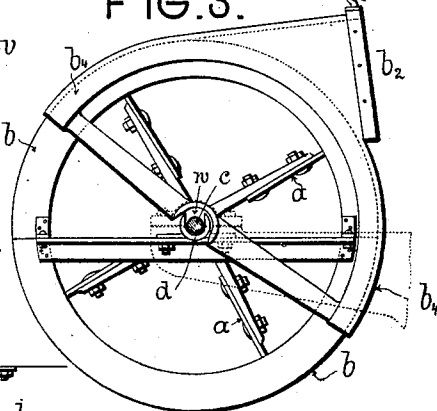
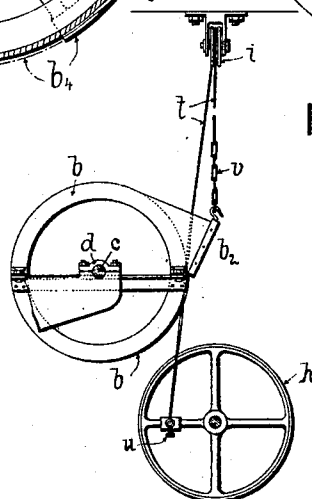


FIG. 5



***Witnesses:***

Witnesses:  
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FIG. 4.

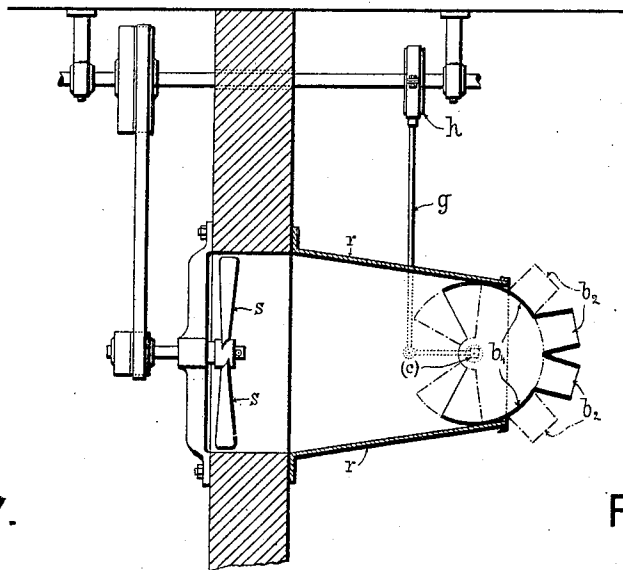


FIG. 7.

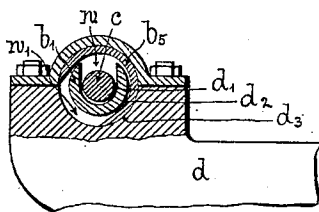
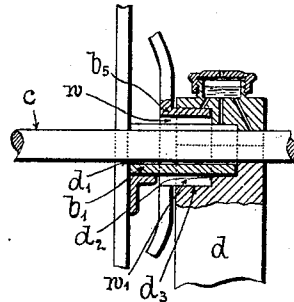


FIG. 6.



Witnesses:

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*Rudolf Roesser*  
by *Joseph R. R.*  
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# UNITED STATES PATENT OFFICE.

RUDOLF ROESSER, OF VIENNA, AUSTRIA-HUNGARY, ASSIGNOR TO ORKAN LUFTTROCKNUNGSAPPARAT ACTIEN GESELLSCHAFT, OF SAME PLACE.

## BLOWING-FAN.

SPECIFICATION forming part of Letters Patent No. 680,280, dated August 13, 1901.

Application filed September 9, 1899. Serial No. 729,899. (No model.)

*To all whom it may concern:*

Be it known that I, RUDOLF ROESSER, a citizen of the Empire of Austria-Hungary, residing at Vienna, in the Province of Lower Austria, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Blowing-Fans, of which the following is a specification.

The object of the invention is to provide a strong, durable, and efficient blowing-fan especially for use in drying-rooms, so that the current of heated air may be readily directed to all parts of the room in which the drying is taking place.

The invention consists of a blowing-fan comprising a stationary casing provided with a front opening, a fan in said casing, means for imparting continuous rotary motion to the fan, a discharge-nozzle provided with a regulating portion guided and rotatably movable on the open portion of the stationary casing, and means for oscillating the discharge-nozzle simultaneously with the continuous rotation of the fan, as hereinafter particularly described in detail and then claimed.

In the accompanying drawings, Figure 1 is a vertical transverse section of my improved blowing-fan. Fig. 2 is a front elevation thereof, partly in section. Fig. 3 is an end elevation of the same. Fig. 4 is an illustration of a modification of the blowing-fan. Fig. 5 is a side view showing a modified form of driving-gear for the movable portion or discharge-nozzle which forms a part of the fan-casing, and Figs. 6 and 7 are sectional detail views showing the bearings preferably employed.

Referring to the accompanying drawings, Figs. 1, 2, and 3,  $b$  indicates the fan-casing, which is stationary, and  $b^2$  indicates the movable or shiftable discharge-nozzle, which is provided with a regulating portion  $b^4$ , which corresponds in shape with and is guided and rotatably movable on the portion of the casing  $b$  surrounding the opening or aperture  $e$  therein. The casing  $b$  rests in the bearings  $d$  or is fixed to suitable brackets, or it is made stationary in any suitable manner. The regulating portion  $b^4$  of the discharge-nozzle  $b^2$  is concentric with and fits closely onto the outer surface of the stationary casing  $b$ . The opening or aperture  $e$  is made of such size as that

when the regulating portion  $b^4$  of the nozzle turns on the casing the cross-area of the opening through the discharge-nozzle is in no wise reduced or covered up.

A vertical or horizontal position may be given to the blowing-fans, as this is of no consequence, nor does it matter what form of device is used for creating the air-current, whether an ordinary fan  $a$ , as shown in Figs. 1, 2, and 3, or a ventilator or exhauster  $s$ , as shown in Fig. 4. It is evident also that the discharge portion may be provided with two or more nozzles  $b^2$  and that the regulating portion of the nozzle may move in instead of upon a fixed casing  $r$ , as illustrated in Fig. 4. The movable discharge-nozzle may be operated by a suitable eccentric  $h$  and connecting-rod  $g$ , as shown in Fig. 4, or by other suitable means or by the form of device hereinafter described and especially intended for operating several blowing-fans simultaneously. Instead of a connecting-rod, such as  $g$ , a cord, rope, or chain  $t$  may be used and secured at one end to the driving crank-pulley  $h'$ , Fig. 5, and at the other end to the upper part of the discharge-nozzle  $b^2$ , such cord, rope, or chain passing over a suitable pulley or pulleys  $i$ . In case several fans are to be operated simultaneously the cord or rope  $t$  is divided into as many branches as there are fans, so that upon revolving the crank-pulley  $h'$  the discharge-nozzles  $b^2$  of all the fans of a set will be shifted synchronously.

In order to permit the adjustment of the extent of the stroke of the discharge-nozzle, an adjustable attachment or slide  $u$ , (shown in Fig. 5,) for holding the end of the rod or cord  $t$  in connection with the crank-pulley  $h$ , may be shiftable radially on one of the spokes of the latter, and for the purpose of allowing the mean direction of the air-current to be altered the rope or cord  $t$  may be connected with the discharge-nozzle by means of a short chain  $v$ , adapted to be engaged with a hook on said nozzle, so that by lengthening or shortening the same the mean position of the discharge-nozzle may be adjusted, and in case of several fans being operated in a set the air-currents of the various fans may thus be distributed at different levels.

For the purpose of obviating the necessity

of taking apart the whole apparatus in case the fan-shaft *c* is to be removed the stationary casing *b* is made in two parts, Fig. 1, which can be securely connected by suitable angle-irons and screw-bolts.

The trunnions *b'* support the fan-casing in the fan-shaft *d*, and through these trunnions the fan-shaft *c* freely passes, such trunnions being provided with radial slits or grooves *w*, corresponding in width with the diameter of the bore, so that the fan-shaft *c* can be passed laterally into such slits in order to be placed in its bearings. If the fan-shaft *c* is to be taken out, it is therefore only necessary to remove the upper portion of the stationary casing *b* after removing the upper halves of the bearings, and then the shaft *c*, with its fan, can be freely lifted out of its bearings through the slits or grooves *w*.

If the stationary casing *b* is to be supported in the bearings, the latter must have three bores, as shown in Figs. 6 and 7. The bore *d'* corresponds with the diameter of the fan-shaft *c* and bore *d''* corresponds to the external diameter of the trunnions or necks *b'* of the stationary casing, while the bores *d'''* correspond with the bearing sockets or necks *b''* of the movable discharge-nozzle. The trunnions *b'* and necks *b''* must be made sufficiently large to give some play to the shaft *c* and necks *b''*, respectively, and to admit, therefore, of as little friction as possible. The trunnions *b'* and necks or sockets *b''* are also provided with radial slits or grooves *w w'*, corresponding in width to the diameter of

their bores, in order to admit readily of unmounting and removing the fan-shaft without taking the whole apparatus apart.

The advantages of my invention are that the casing which incloses the fan is stationary, so that the bearings for the fan-shaft are not weakened by the turning of the casing, as well as by the turning of the fan-shaft, and thus the friction at the bearing-points is reduced.

Another advantage is that in the present invention a movable discharge-nozzle is used which has a regulating portion concentric with and movable on the open portion of the stationary casing, so that the said nozzle may be operated with the least expenditure of power and with a minimum of friction.

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

The combination of a stationary casing provided with an opening or aperture, a rotary fan in said casing, means for imparting continuous rotary motion to said fan, a discharge-nozzle provided with a regulating portion, concentric with and guided and rotatably movable on the apertured or open portion of the casing, and means for oscillating the nozzle simultaneously with the continuous rotation of the fan, substantially as set forth.

In witness whereof I have hereunto set my hand in presence of two witnesses.

RUDOLF ROESSER.

Witnesses:

WILHELM BERGER,  
ALVESTO S. HOGUE.