(No Model.)

A. WIEDENBAUER.

COMMUTATOR AIR BLAST DRIVING SHAFT.

No. 596,928. Patented Jan. 4, 1898.

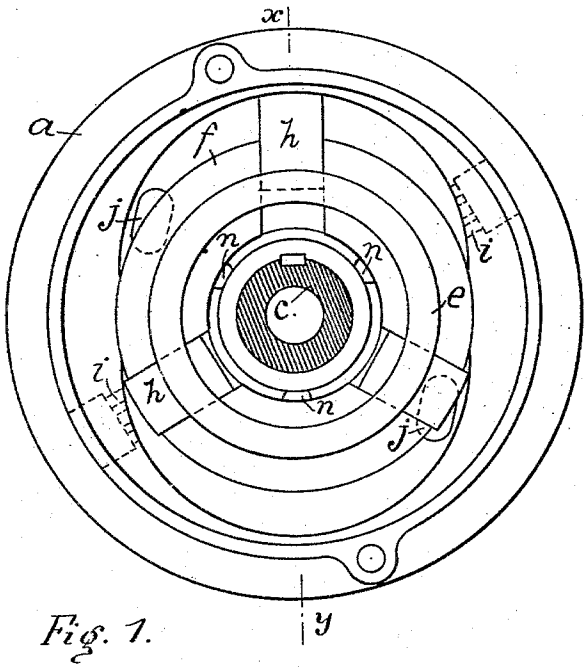

Fig. 1.

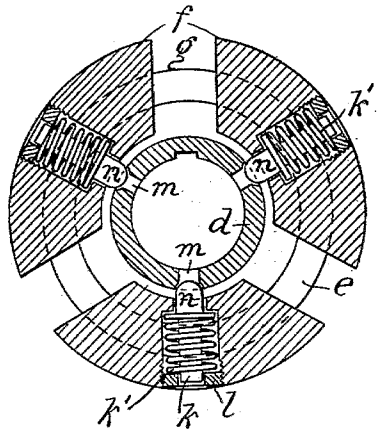

Fig. 2.

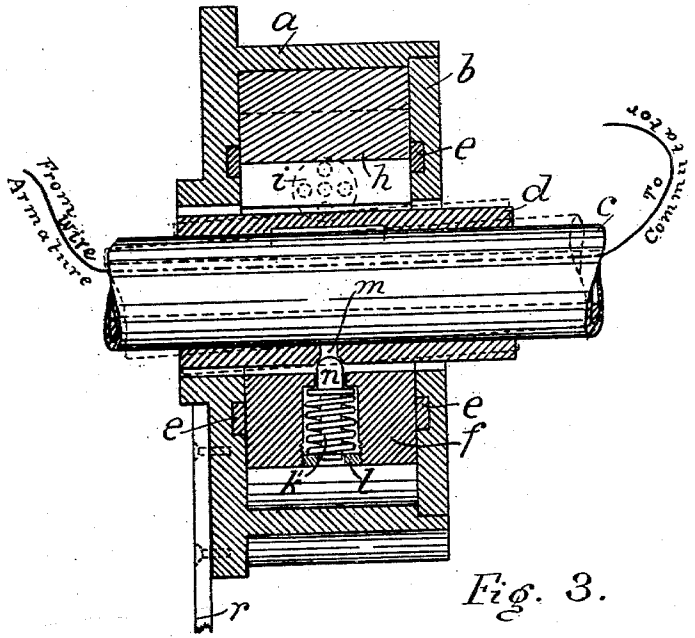

Fig. 3.

Witnesses
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UNITED STATES PATENT OFFICE.

ALOIS WIEDENBAUER, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM ZIMMERMAN, OF SAME PLACE.

COMMUTATOR AIR-BLAST DRIVING-SHAFT.

SPECIFICATION forming part of Letters Patent No. 596,928, dated January 4, 1898.

Application filed December 29, 1894. Serial No. 533,341. (No model.)

To all whom it may concern:

Be it known that I, ALOIS WIEDENBAUER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Commutator Air-Blast Driving-Shafts, which are fully set forth in the following specification, reference being had to the accompanying drawings, forming a part hereof, and in which—

Figure 1 shows my said device in end view with one end or cover removed. Fig. 2 shows a vertical section of the rotary sectors through the axes of the dogs forming part of my device. Fig. 3 shows a longitudinal section on the plane *x y* of Fig. 1.

Like letters refer to like parts.

The object of my invention is to provide improved mechanism for driving the blower or air-pump used in blowing out the sparks of commutators. As heretofore constructed such blowers have caused great trouble and have not infrequently become dangerous to the attendants, owing to faulty construction, inducing their parts to become hot, and to thus consume great quantities of oil, while notwithstanding all this lubrication they will run very hard and at times become stuck fast and then cause breakage of more or less of the entire device. Usually, however, the shaft gives way by becoming twisted and bent, and it, with the other mechanism immediately and mediately attached to this device—as the brush-yokes, brush-holders, commutator, leads from armature, regulator-arm, and sundry other attachments—usually suffer through said injury and therefore cause great damage and expensive repairs and delays. When solid-core armatures are used and the shaft becomes twisted, the repairs required will then be the rewinding of the armature, inserting new shafts, rebuilding core, &c. To overcome said difficulties, I construct my said improved device in substantially the following manner, namely:

Within the usual oblong casing or box *a* and its cover *b* are circular grooves in which move rings *e*, forming bearings which are either attached to or form a unitary part of a set of sector-blocks *f*, which move freely but closely within the ends of said casing, and between said blocks in spaces *g* are reciprocating blades *h*. Said blades and spaces are of the usual construction, but said blocks are connected by said rings only, which also form their axial support. Said connected blocks form a rotary piston in which are reciprocating blades *h*, which sweep the air before them and out at the exit or outlets *j*. Through the center of said casing passes the armature-shaft *c*, hollow to pass the wires from the armature to the commutator, upon which is shown, in this illustration, a sleeve *d*, which extends beyond the end of the casing, but which, in fact, needs to be only long enough to secure a good hold on the shaft and room enough for the sockets *m* in it, into which play the ends of dogs *n*. Said dogs are radial to the piston, spring-actuated, and adjustable, each in a chamber of said blocks *f*. The purpose of said sleeve is to avoid weakening the shaft by sinking the sockets into it. Said dogs are held in said chambers each by a nut *l*, threaded in the sides of said chambers, and they each press upon the outer end of a coiled spring *k'*, of which the inner end rests upon a shoulder of said dog. The pressure of said springs may therefore be regulated by the position of said nut. The air-inlets *i* and air-outlets *j* and means of conveying the air through them are of the usual construction. Said moving mechanism within said casing is, as is now evident, rotated by the contact and operation of said dogs with said shaft. Therefore if by any accident said piston becomes heated and held, either by great friction, or finally becomes stationary through such resistance, the dogs will yield and allow the shaft *c* to revolve and give notice by the noise caused by such release of the difficulty, leaving the shaft uninjured. It is also evident that said shaft *c* may be out of center, be untrue, or vibrate considerably without injury to the other mechanism, a condition wherein the heretofore-known devices are peculiarly sensitive and a source of great annoyance and expense. Furthermore, through my construction the consumption of oil is reduced to a mere fraction of what is now required, it being scarcely ten per cent. of the quantity now consumed. A further and decided advantage is also at-

tained through said low consumption of oil, due to the fact that correspondingly less oil is thrown on the commutator and thus its efficiency proportionately increased. The axes of the rotary piston and its shaft are coincident in true position, but when the shaft *c* is bent its axis will revolve around the piston-axis, the latter remaining in its true center. The case or box *a* is held stationary by an arm *r*, attached to it and any suitable object, or through any other suitable means.

What I claim is—

1. The combination with a pump-case with rotary piston, of a shaft with axis coincident with the piston-axis and yielding connecting mechanism between said shaft and piston, whereby the shaft may revolve independent of the piston, substantially as specified.

2. The combination with a pump-case with rotary piston and radial spring-actuated and yielding dogs in said piston, of a shaft with axis coincident with the piston-axis and a sleeve on the shaft with sockets for the dogs, substantially as specified.

3. The combination with a pump-case with rotary piston with annular bearings, of a shaft with axis coincident with the piston-axis and yielding connecting mechanism between said shaft and piston, whereby the shaft may revolve independent of the piston, substantially as specified.

ALOIS WIEDENBAUER.

Witnesses:
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