

F. G. HOFFINE.
FAN AND GUARD COUPLING.
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1,355,145.

Patented Oct. 12, 1920.

Fig. I.

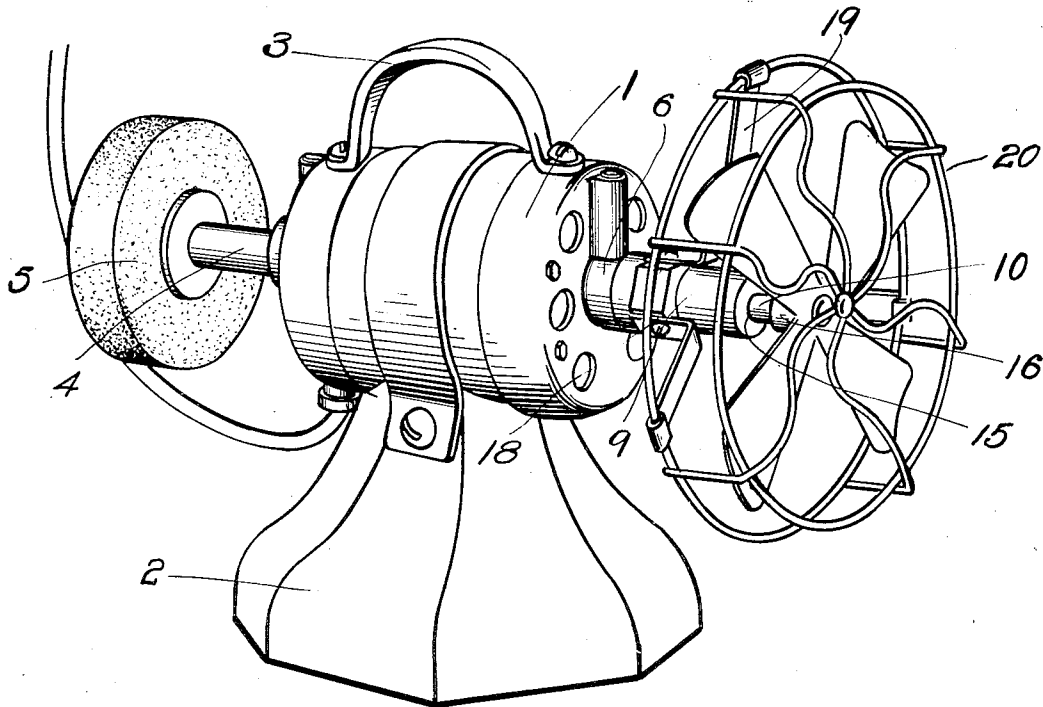


Fig. II.

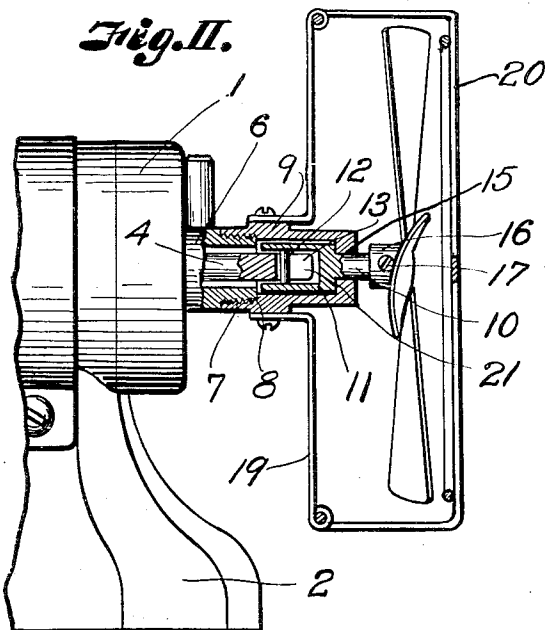
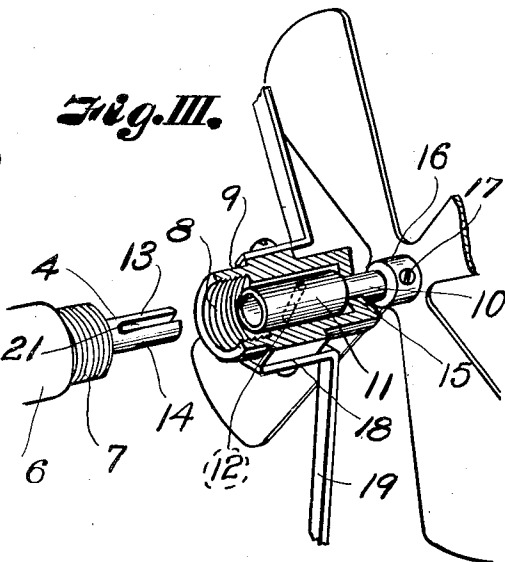


Fig. III.



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FAN AND GUARD COUPLING.

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To all whom it may concern:

Be it known that I, FRED G. HOFFINE, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Fan and Guard Couplings; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to a motor driven fan and one of the objects thereof is to provide a fan and guard so constructed that both may be removed from and attached to the armature shaft of a motor by a single operation. Heretofore, it has generally been the practice to construct a fan and guard as separate elements and as a result it became necessary to first apply the fan and then the guard, requiring two separate operations; and in the event that it became necessary to remove the fan for any purpose, the guard would have to first be removed before the fan could be uncoupled from the motor shaft.

I have provided means whereby the fan and guard may be constructed so as to be in effect a unitary structure so that when one of the elements is applied to the motor, the other one will automatically position itself ready for operation when the armature shaft is rotated.

In the drawings,

Figure I is a perspective view of a motor fan and fan guard constructed in accordance with my invention.

Fig. II is a sectional view through the coupling members, and

Fig. III is a fragmentary perspective view of the coupling members, the guard coupling being shown in section.

Referring now to the drawings by numerals of reference:

1 designates a motor casing supported upon a base 2 and provided with a handle 3 whereby it may be transported from place to place. On the armature shaft 4 of the motor is an abrading wheel 5 which also serves as a fly-wheel for the motor. Projecting outwardly from the casing of the motor 1 is a tubular coupling member 6 hav-

ing an externally threaded portion 7 adapted to be engaged by the internally threaded portion 8 of the bearing cap member 9 through which the fan shaft 10 projects, the fan shaft is provided within the cap 9 with a tubular head 11 across the tubular portion of which is a coupling pin 12 adapted to slide between the bifurcated ends 13 and 14 of the armature shaft 4 so that the fan and armature shaft can be locked together. The cap or sleeve 9 is slightly larger in diameter than the diameter of the head 11 so that when the head 11 and the armature shaft 4 are coupled together, the only bearing for the shaft 10 will be the bearing opening 15 in the end of the cap 9. The shaft 10 is secured to the hub 16 by a set screw 17 in the usual manner, it being obvious that in order to assemble the parts, the shaft 10 is first projected through the opening 15 and the hub 16 secured thereto. The cap or sleeve 9 is provided with a plurality of guard arm seats 18 which carry radially projecting arms 19 adapted to be rigidly secured to the fan guard frame 20, as best seen in Fig. I.

When the parts are disassembled, as shown in Fig. III, it will be only necessary to screw the sleeve or cap 9 onto the coupling 6 to cause the pin 12 to register with the slot 21 between the bifurcated ends 13 and 14 to cause the pin to move up into the slot, as shown in Fig. II. If the slot and pin do not come into register, the armature shaft may be slightly turned by manipulating the wheel 5 and upon continuing to screw up the cap 9, the pin 12 and the slot 21 will come into register.

From the foregoing it will be apparent that the fan shaft may be expeditiously removed by simply unscrewing the cap or sleeve because as the cap or sleeve rotates, the end of the cap will abut against the hub 16 of the fan and impart a longitudinal movement to the shaft 10. When the device is being applied, the turning movement of the cap upon the threads 7 will cause the end of the cap to abut against the shoulder 11 and move the shaft 10 longitudinally toward the fan case.

What I claim and desire to secure by Letters-Patent is:

1. In a device of the class described, a cap for engagement with a motor case, and a shaft journaled in said cap and having a tubular head having engagement with the armature shaft of the motor, the head of the

shaft being of less diameter than the inner diameter of the cap.

2. In a device of the class described, a cap for engagement with a motor case, and a hollow shaft journaled in said cap and having a transverse pin extending through the axis of said shaft, the head of the shaft being of less diameter than the inner diameter of the cap, the pin being adapted to engage a bifurcated portion on the end of the motor shaft.

3. In a device of the class described, a tubular cap having a threaded end for engagement with a corresponding part on a motor case, a shaft journaled in said cap and having a tubular head for engagement with an armature shaft of the motor, the head for the shaft being of less diameter than the inner diameter of the cap.

4. The combination with a motor having an armature shaft provided with a bifur-

cated end, a coupling member projecting from the casing of said motor and having a threaded end, a fan guard coupling having a threaded end for engaging the threaded end on the first named coupling member, and a fan shaft provided with a tubular head having means for engagement with the bifurcated end of the shaft and carried by the fan guard coupling member.

5. In a device of the class described, a coupling member having a closed end and an internally threaded open end, a fan guard carried by said coupling member, a tubular member within the first named member and of less diameter than the inner diameter thereof, a shaft connected to the tubular member and extending through the closed end of the coupling member, and a fan carried by said shaft.

In testimony whereof I affix my signature.
FRED G. HOFFINE.