

May 9, 1933.

B. ELSHOFF

1,908,287

ELECTRIC FAN

Filed Oct. 6, 1930

2 Sheets-Sheet 1

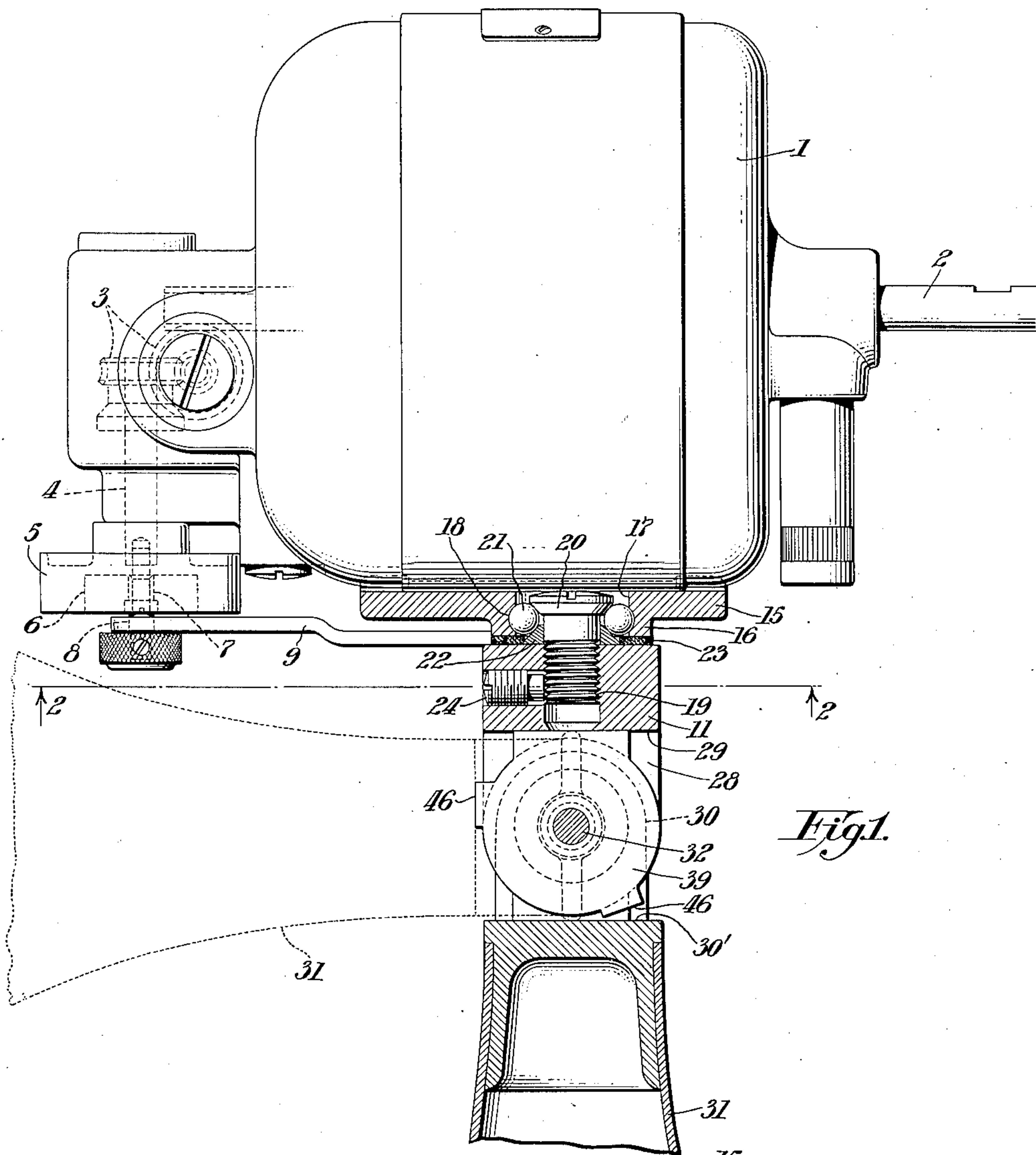


Fig.1.

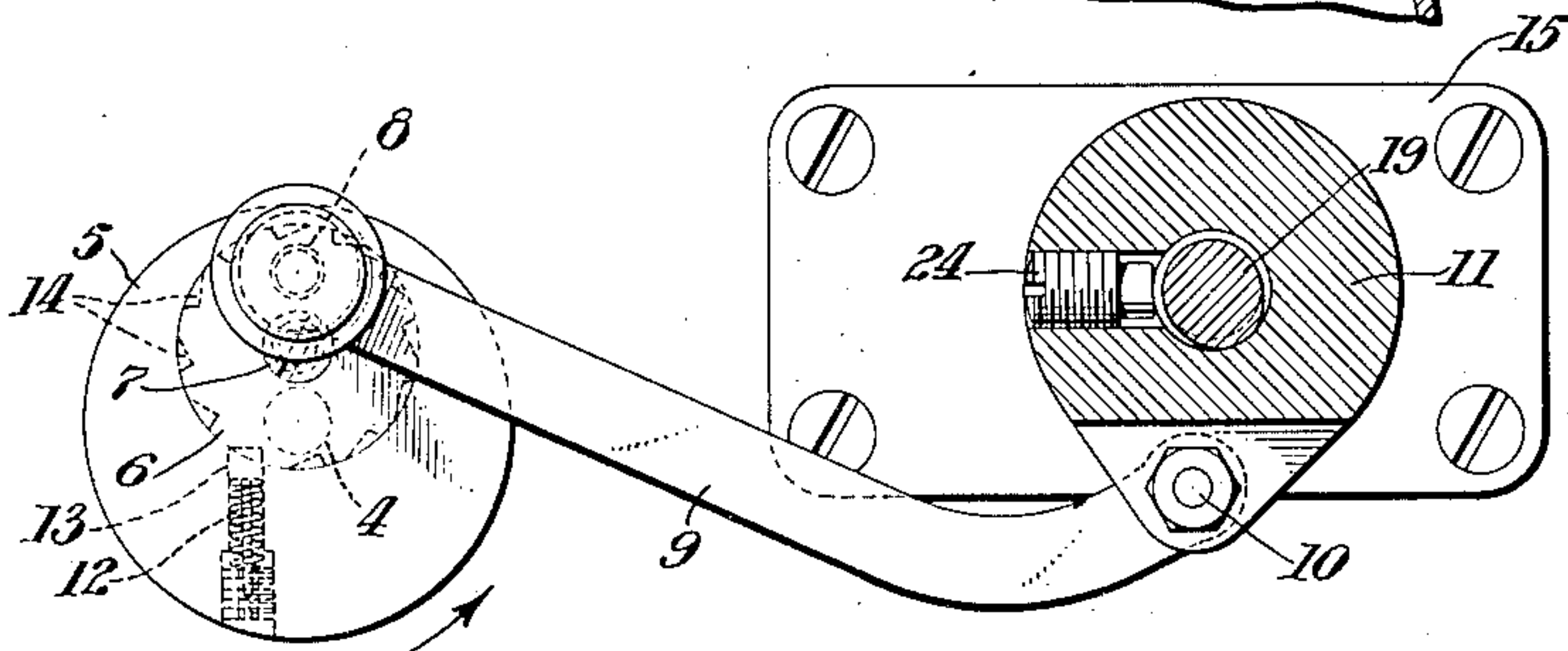


Fig. 2.

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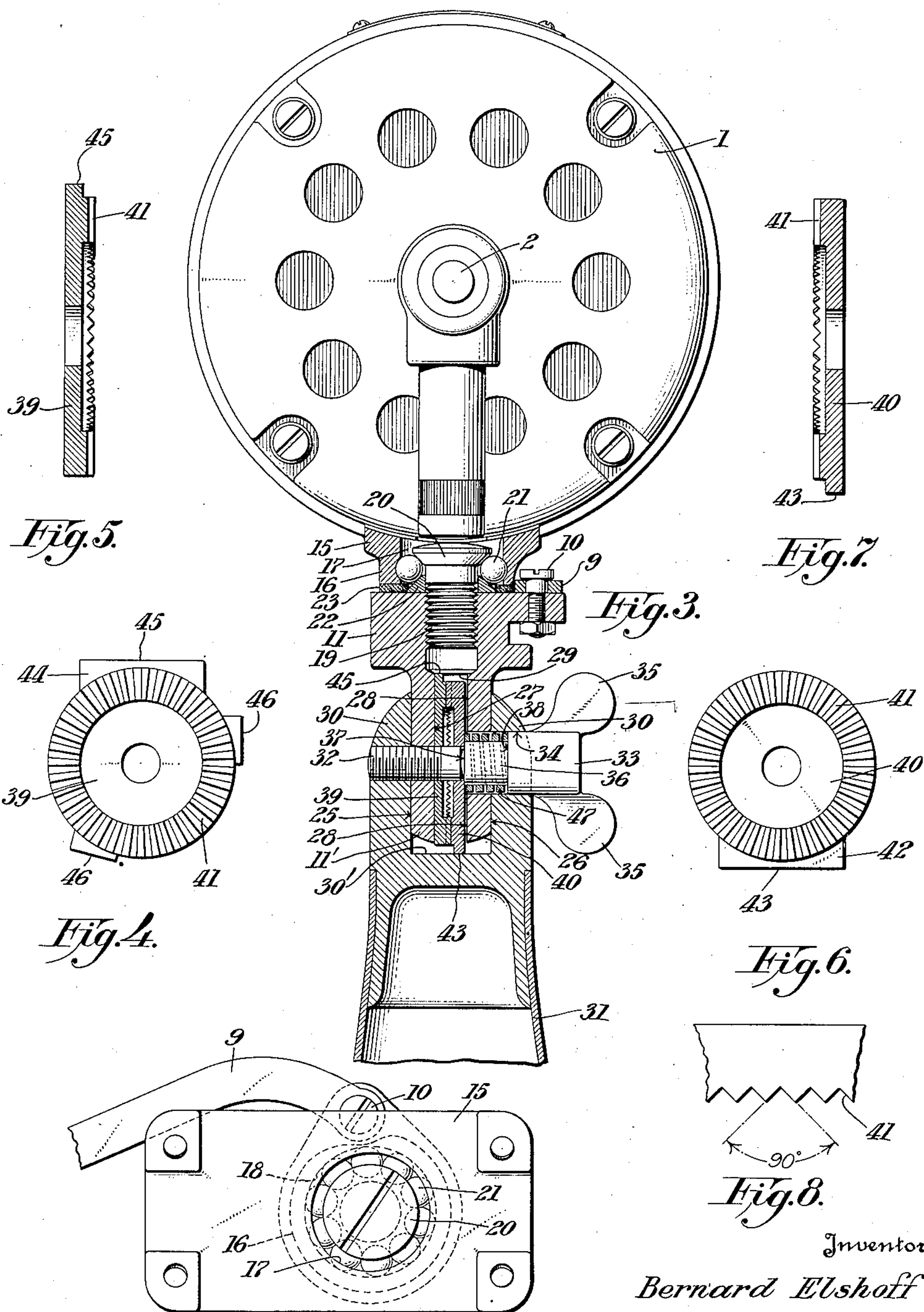
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Fig. 9.

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UNITED STATES PATENT OFFICE

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ELECTRIC FAN

Application filed October 6, 1930. Serial No. 486,527.

This invention relates to electric fans and has for an object to provide such a fan with an improved and simplified pivotal connection between the pedestal and the fan-motor body.

With the above and other objects in view, as will hereinafter appear, the invention comprises the devices, combinations and arrangements of parts hereinafter described and claimed.

The features of the invention and the advantages attained thereby will be readily understood by those skilled in the art from the following detailed description of a preferred embodiment thereof, reference being had to the accompanying drawings, of which Fig. 1 is a side-elevation of the fan-motor body with the pedestal in vertical section; the section being taken transversely of the pivot of the pivotal connection. Fig. 2 is a section on the line 2—2, Fig. 1. Fig. 3 is a view similar to Fig. 1 with the vertical section taken parallel to the pivot of the pivotal connection. Figs. 4 and 5 are, respectively, face and vertical sectional views of one of two coacting serrated locking disks. Figs. 6 and 7 are, respectively, face and vertical sectional views of the other serrated locking disk. Fig. 8 is a diagrammatic edge view of either of the locking disks, and Fig. 9 is a top plan view of the motor-body mounting block, showing the bearing about which the fan-motor oscillates.

The fan-motor body 1 is of usual construction and includes the fan-shaft 2 which at one end is connected through suitable reduction gearing 3 to the slowly driven shaft 4 to the lower end of which is fixed the circular head 5 having the inset disk 6 mounted for circular adjustment about the pivot-screw 7 which is offset from the shaft 4. The inset disk 6 has fixed to it a crank-pin 8 which is connected by a link 9 to the stationary anchor-stud 10 fixed to the fan-supporting stem 11. The crank 8 is offset from the pivot-screw 7 the same distance that the screw 7 is offset from the shaft 4 so that, by turning the inset disk 6 one-half of a revolution, the eccentricity of the crank 8 relative to the shaft 4 may be adjusted from zero to a given maximum. The disk 6 is retained in any adjusted position by

the spring-pin 12 which has a head 13 entering any one of a plurality of depressions 14 in the periphery of the disk 6. The engagement of the spring-pin 12 with the depressions 14 is a one-way locking engagement; that is, the disk 6 is locked against turning in a clockwise direction, Fig. 2, relative to the head 5, but may be readily turned counter-clockwise relative to the head 5 by manual exertion of a turning force upon the disk 6. In other words, the disk 6 may be turned counter-clockwise, Fig. 2, by hand, relative to the head 5 and will remain operatively in such position as it may be turned to.

The fan-motor body 1 is screwed to the rectangular seat-plate 15 which is formed with a hub 16 and bearing aperture 17 having a ball-race 18. A screw 19 having a tapered head 20 disposed in the aperture 17, confines the bearing balls 21 in the race 18 and in bearing engagement with the conical bearing ring 22 which surrounds the screw 19 and rests upon the stem 11. A washer 23 is preferably interposed between the hub 16 and stem 11. The screw 20 is held against turning by the set-screw 24.

The stem 11 is formed with a flattened downward extension 11' having parallel outer faces 25, 26. Such extension is also slotted to form the inner flat faces 27, 28 which are parallel to each other and to the outer faces 25, 26. The base 29 of the slot which forms the inner faces 27, 28 is flat and at right angles to the axis of the screw 19.

The flat downward extension 11' of the stem 11 is snugly fitted between the spaced ears 30 of the slotted upper end of the usual pedestal 31. A pivot-screw 32 is passed transversely through the ears 30 and flat stem-portion 11'. This screw 32 is threaded into one of the ears 30 and has an enlarged head 33 which enters an enlarged aperture 34 in the other ear 30. The head 33 of the pivot screw is formed with wings 35 for ready manipulation by hand. Between the enlarged head 33 and the threaded shank of the screw 32 there is formed a cylindrical portion 36 of intermediate size, at the ends of which are the shoulders 37, 38.

Mounted on the shank of the screw 32 in

the slot between the inner faces 27, 28 of the fan-motor supporting stem 11 are the locking disks 39, 40 having interengaging faces 41 which are preferably annular and radially serrated. The radial serrations on the faces 41 are preferably formed as wedged or V-shaped grooves of 90° angular spread at their outer ends, Fig. 8.

The combined minimum thickness of the disks 39, 40, with their serrated faces 41 interfitted, is less than the distance between the inner faces 27, 28 of the stem 11 by an amount sufficient to permit relative rotation of such disks while positioned between said faces 27, 28. This clearance is shown in Fig. 3 between the disk 40 and the face 28.

The disk 40 has a downwardly extending portion 42 formed with a square end 43 fitting against the flat bottom wall 30' of the slot between the ears 30. This construction prevents relative rotation between the disk 40 and the pedestal 31. The disk 39 has an upwardly extending portion 44 formed with a square end 45 fitting against the flat top wall 29 of the slot between the inner faces 27, 28. This construction prevents relative rotation between the disk 39 and the fan-motor supporting stem 11. The disk 39 is also formed with stops 46 which are engaged by the flat bottom wall 30' at the extreme positions of adjustment between the stem 11 and pedestal 31. The range of adjustment provided will permit the fan-body to be shifted from a 15° downwardly tilt to a 90° upward tilt; the latter permitting the pedestal to be mounted on a side wall with the fan-shaft disposed horizontally, as indicated in dotted lines in Fig. 1.

When the screw 32 is tightened, the shoulder 37 on such screw is adapted to bear upon the disk 40 and clamp the disks 39, 40 tightly together. A coil spring 47 of square wire, disposed upon the intermediate portion 36 of the screw 32 and between the screw-head 33 and the disk 40, exerts a yielding pressure upon the disk 40 after the screw 33 is loosened sufficiently to permit the motor 1 and pedestal 31 to be relatively rotated. The pressure of the spring 47 at this time is sufficient to hold the motor 1 temporarily in adjusted position until the screw 32 is tightened. The engagement between the disks 39, 40 is not a locking engagement except when the screw 32 is tightened. When the screw 32 is loosened the motor-body may be manually tilted to any desired position between the limits provided, where it will be held by the yielding engagement of the disks 39, 40 until the screw 32 is tightened.

The construction is simple and the few parts involved are easy to machine and assemble. Manual adjustment of the motor-body relative to the pedestal is readily effected without the necessity of holding the motor in

adjusted position on the pedestal while the screw 32 is being tightened.

Having thus set forth the nature of the invention, what I claim herein is:

1. An electric fan having pedestal and stem members each formed with an end slot having a bottom wall, the slotted end of one of said members being fitted in the slot in the other member, a pivot-screw connecting said members, and a pair of clamping disks in the slot in that one of the members which is fitted in the slot in the other member, said disks having clamping faces in engagement with one another and also having key-extensions engaging respectively, the bottom walls of the slots in said members, said pivot-screw having a shoulder in clamping engagement with one of said disks, one of said disks also having limiting stop-extensions adapted to engage the bottom wall of the slot in the member to which it is not keyed.

2. An electric fan having pedestal and stem members each formed with an end slot having a bottom wall, the slotted end of one of said members being fitted in the slot in the other member, a pivot-screw connecting said members, and a pair of clamping disks in the slot in that one of the members which is fitted in the slot in the other member, said disks having clamping faces in engagement with one another and also having key-extensions engaging, respectively, the bottom walls of the slots in said members, said pivot-screw having a shoulder in clamping engagement with one of said disks for positively holding said disks, one of said disks also having limiting stop extensions adapted to engage the bottom wall of the slot in the member to which it is not keyed, said pivot screw also having a head, and a spring interposed between said head and said clamping disks for yieldingly holding said disks.

3. A pivotal fan-motor support comprising, a member having a slot defining spaced walls, a second member having outer faces engaging said walls and a slot between said faces, a pair of facially serrated disks disposed in the slot of said second member and having a combined thickness less than the width of said last mentioned slot, means for keying said disks, respectively, to said members, and a pivot screw passing through said members and disks, said pivot screw having a shoulder engaging one of said disks to clamp it to the other disk.

4. In an electric fan, a pedestal having a slotted upper end defining spaced ears, one of said ears having a screw-threaded hole and the other ear having an enlarged hole in line with the screw-threaded hole, a stem having a slotted lower end which is received in the slot between the ears of the pedestal, a pivot-screw passing through said ears and slotted stem, said screw having an enlarged head partially received in said enlarged hole,

a pair of clamping disks disposed in the slot-
ted lower end of said stem and keyed, respec-
tively, to said stem and pedestal, said pivot
screw having a clamping shoulder in engage-
ment with one of said disks, and a spring on
said pivot-screw between the head of the lat-
ter and the adjacent clamping disk.

In testimony whereof I have signed my
name to this specification.

BERNARD ELSHOFF.