(No Model.)

# S. TOMPKINS.

## DEVICE FOR IMPARTING END MOTION TO SHAFTS.

No. 385,649. Patented July 3, 1888.

Fig. 1.

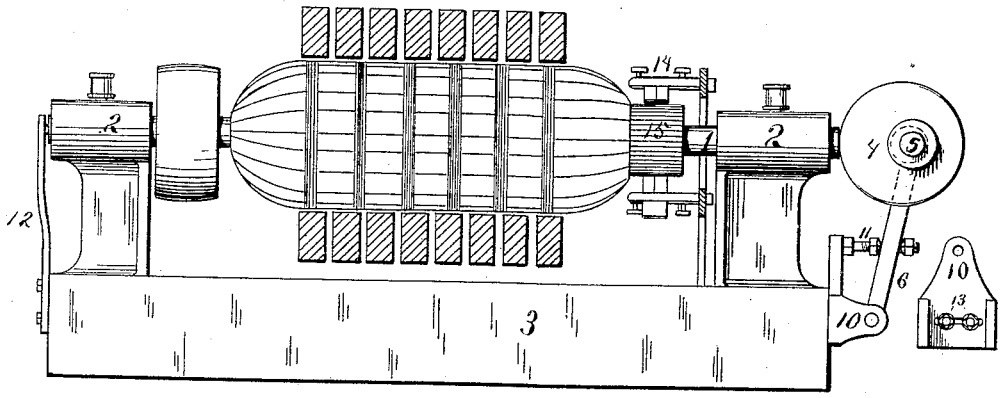
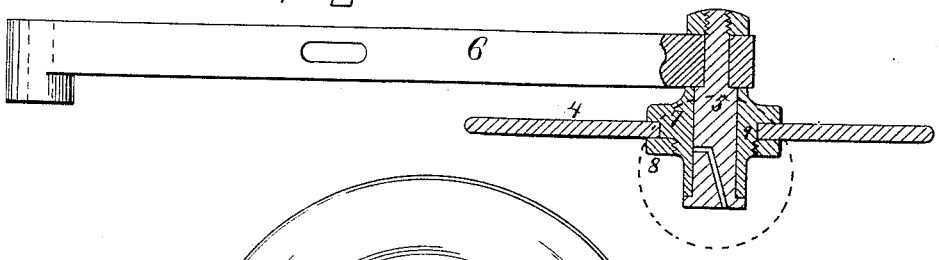



Fig. 2.



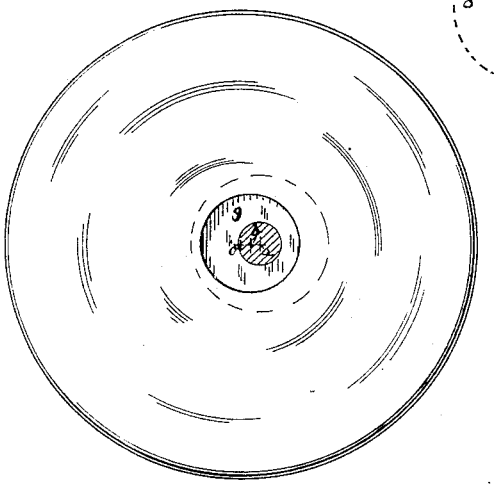




Fig. 3.

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# UNITED STATES PATENT OFFICE.

STONEWALL TOMPKINS, OF CROZET, VIRGINIA.

## DEVICE FOR IMPARTING END MOTION TO SHAFTS.

SPECIFICATION forming part of Letters Patent No. 385,649, dated July 3, 1888.

Application filed May 11, 1887. Serial No. 237,886. (No model.)

*To all whom it may concern:*

Be it known that I, STONEWALL TOMPKINS, a citizen of the United States, residing at Crozet, in the county of Albemarle and State of Virginia, have invented certain new and useful Improvements in Devices for Imparting End Motion to Shafts, of which the following is a specification.

My invention is here shown for the purpose of illustrating its application in connection with the armature-shaft of a dynamo-electric machine; and it consists of certain combinations of devices, hereinafter claimed, for imparting to rotary shafts in general an end motion in their journals, so as to insure a more even wear of the journals, and in the present instance of the commutator, and a better distribution of the oil.

In the accompanying drawings, Figure 1 is an elevation, partly in section, of my improvements applied to a dynamo-electric machine, as above stated, for illustration. Fig. 2 is a view of the disk and its supporting-arm, the disk and its pivotal stud being shown in section. Fig. 3 is a side view of the disk and a section through its pivotal stud in the plane of the front face of the disk.

I have shown my invention as applied to a dynamo, because it is particularly advantageous in connection with the armature-shafts of these machines. It is evident, however, that it may be applied to any shaft where an end motion is desirable.

The armature-shaft 1 is mounted on bearings 2 2, supported on frame 3. The shaft is made long enough to protrude beyond the bearing at one end, and against it at this end impinges a disk, 4, which is free to rotate on stud 5, rigidly supported in arm 6.

The disk is supported on a hub or thimble, 7, on which it is clamped by nut 8, as shown in Fig. 2. The portion of the hub or thimble at 9 over which the disk fits is eccentric to the stud 5, as shown in Fig. 3, and the hole in the disk is also eccentric to the rim of the disk, so that by shifting the disk around upon the hub any desired eccentricity of the periphery of the disk between certain limits may be obtained.

In Fig. 3, *a* is the center of the stud, *b* of the hub, and *c* of the disk. The arm 6 is pivotally supported on bracket 10, fastened on the frame of the machine by set-screws 13, which pass through a slot in the bracket, (see Fig. 1,) and enables a lateral adjustment of the bracket so as to cause the eccentric disk to bear on the shaft at any desired distance from its center, thereby varying the rapidity of the end motion. A stud, 11, projecting from the bracket and passing through a slot in the arm, with adjusting-nuts on either side of the arm, enables the adjustment of the disk to and from the end of the shaft, so as to accommodate the different throws that may be given to the disk, or to vary the position of the throw. A spring, 12, fastened to the frame and bearing against the other end of the shaft, presses the same constantly against the disk.

In Fig. 2 the position of the shaft is shown in dotted lines, and it will be seen that the disk bears upon the end of the shaft a short distance from the center, so that as the shaft rotates it will in turn rotate the disk by its frictional contact therewith. The disk being eccentric on its stud, it will, in connection with the spring 12, impart an end motion to the shaft, the amount of the motion being adjusted to suit the conditions under which the machine is operating.

When the invention is used in connection with an electric machine, the commutator 15 and brushes 14 have a relative motion axially, and the wear and cutting action are therefore very much reduced. The commutator is kept truer and in better condition every way.

I claim—

1. The combination of a rotating shaft, bearings therefor, and an eccentric disk bearing against the end of the shaft, so as to impart an end motion thereto in rotating.

2. The combination of the rotary shaft, the bearings therefor, and a rotating eccentric disk rigidly supported, bearing against the end of the shaft and driven by frictional contact therewith.

3. The combination of the shaft, the bearings therefor, the eccentric disk bearing against the end of the shaft and driven thereby, and an adjustable arm supporting the disk.

4. The combination of the shaft, the bearings therefor, the eccentric disk bearing

against the end of the shaft and rotated thereby, and the spring pressing against the other end of the shaft, so as to hold it in contact with the disk.

5. The combination of the shaft, the bearings therefor, the disk bearing against the end of the shaft, and the support therefor, the disk having an orifice eccentric with its periphery and fitted over a hub eccentric with the supporting-pivot, and a clamp for holding the disk in any position on the hub.

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Witnesses:
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