

994,058.

J. COATES.
ARMATURE.
APPLICATION FILED MAR. 27, 1907.

Patented May 30, 1911.

Fig. 1.

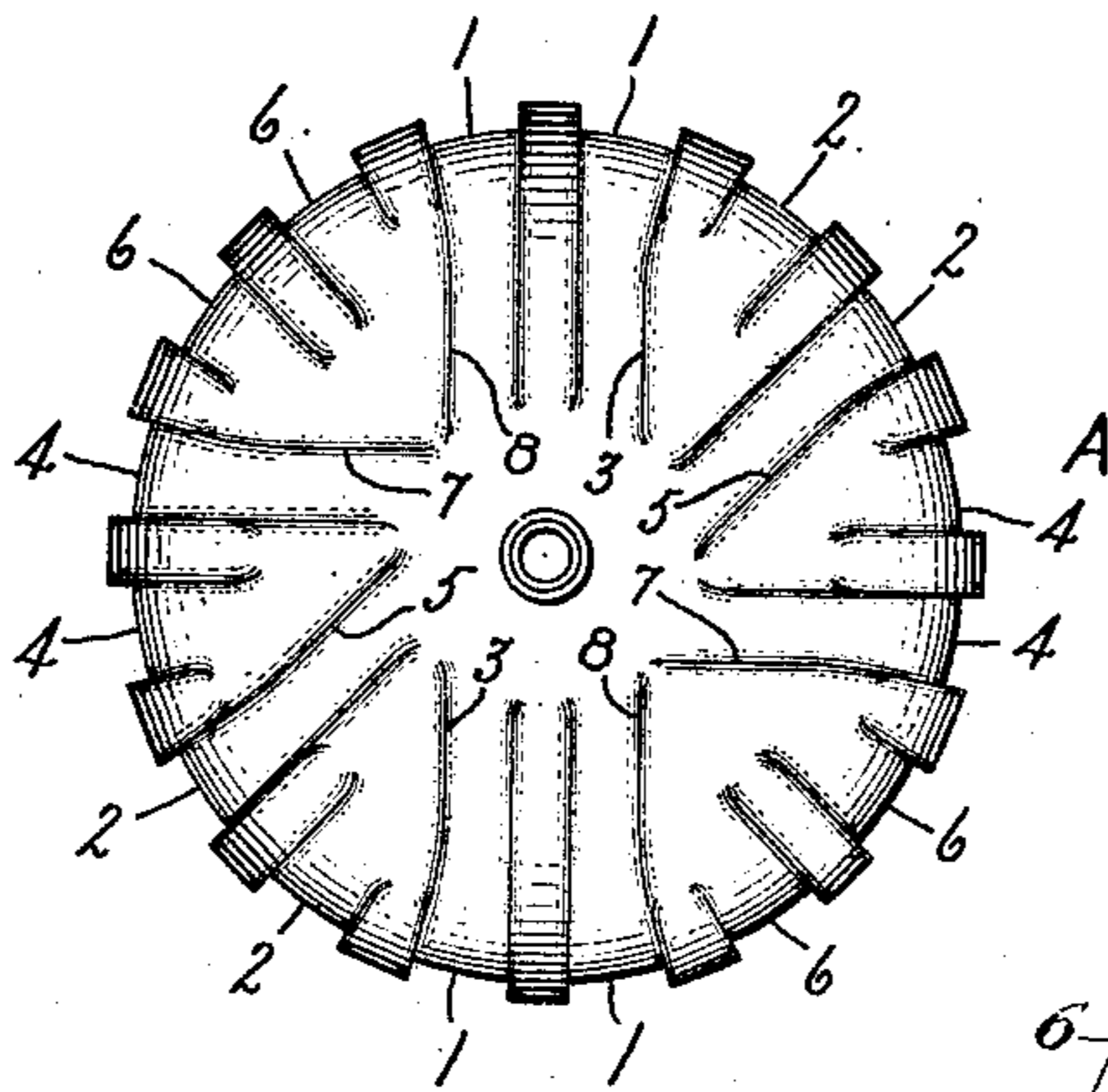


Fig. 2.

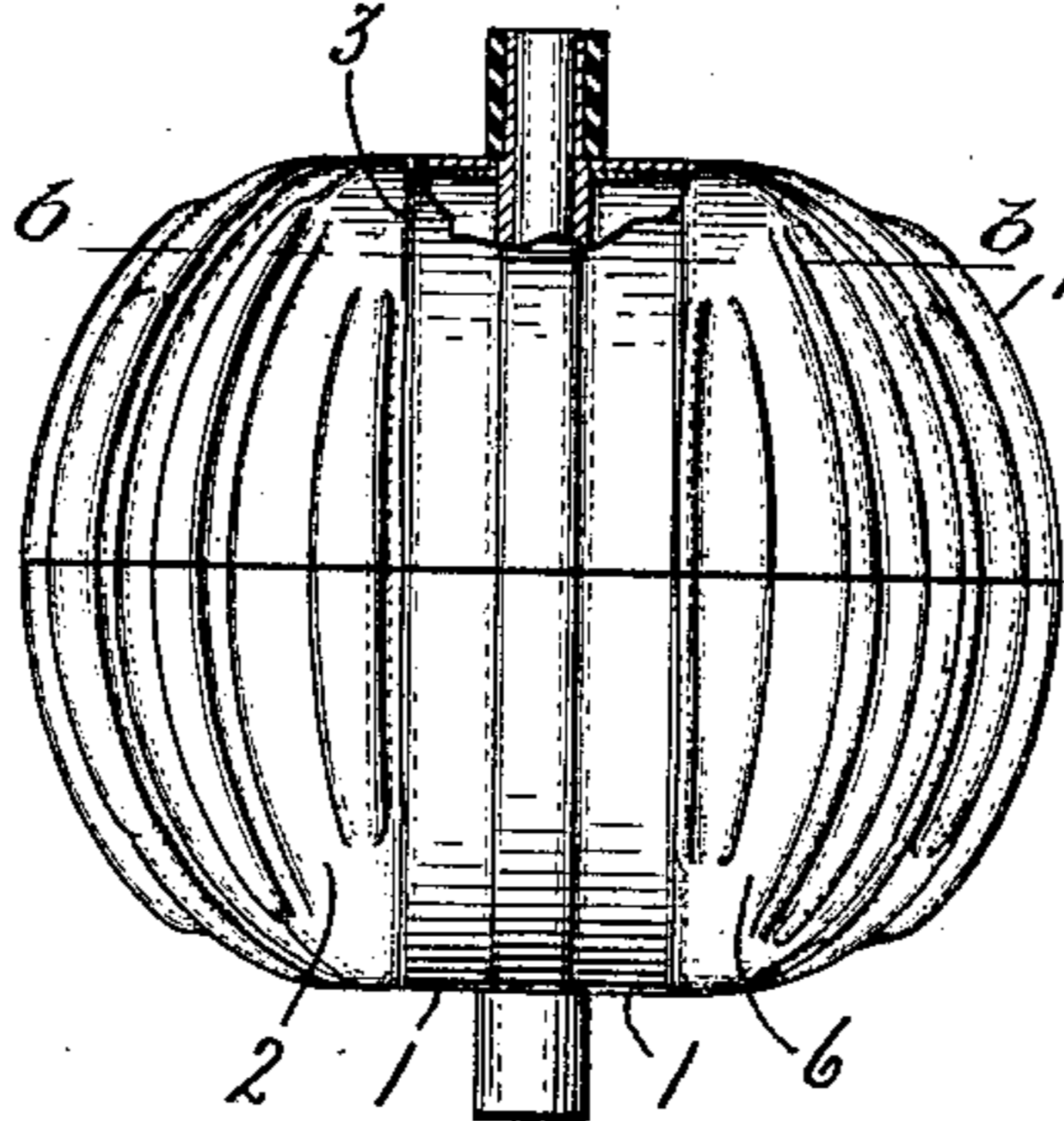


Fig. 3.

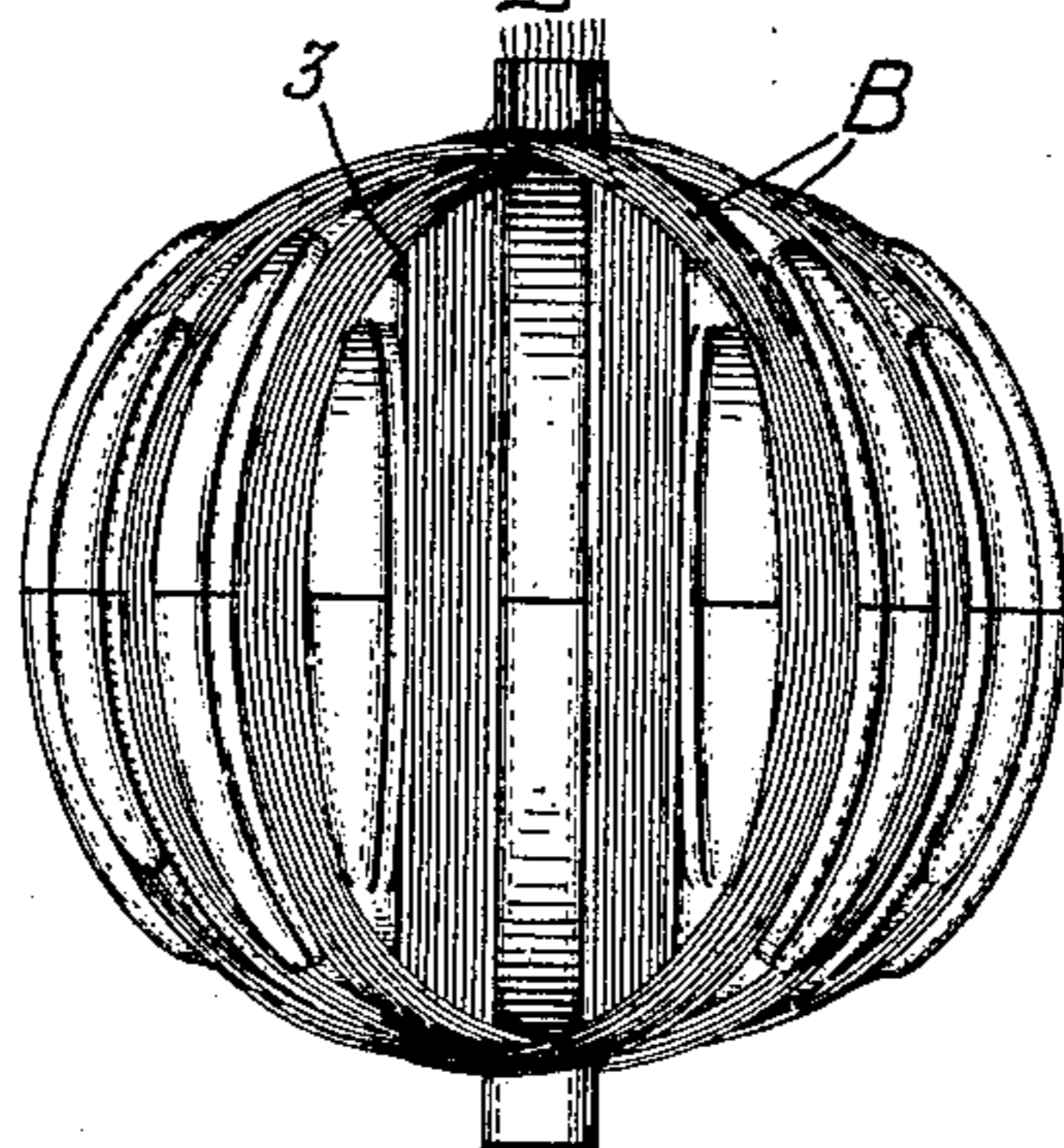
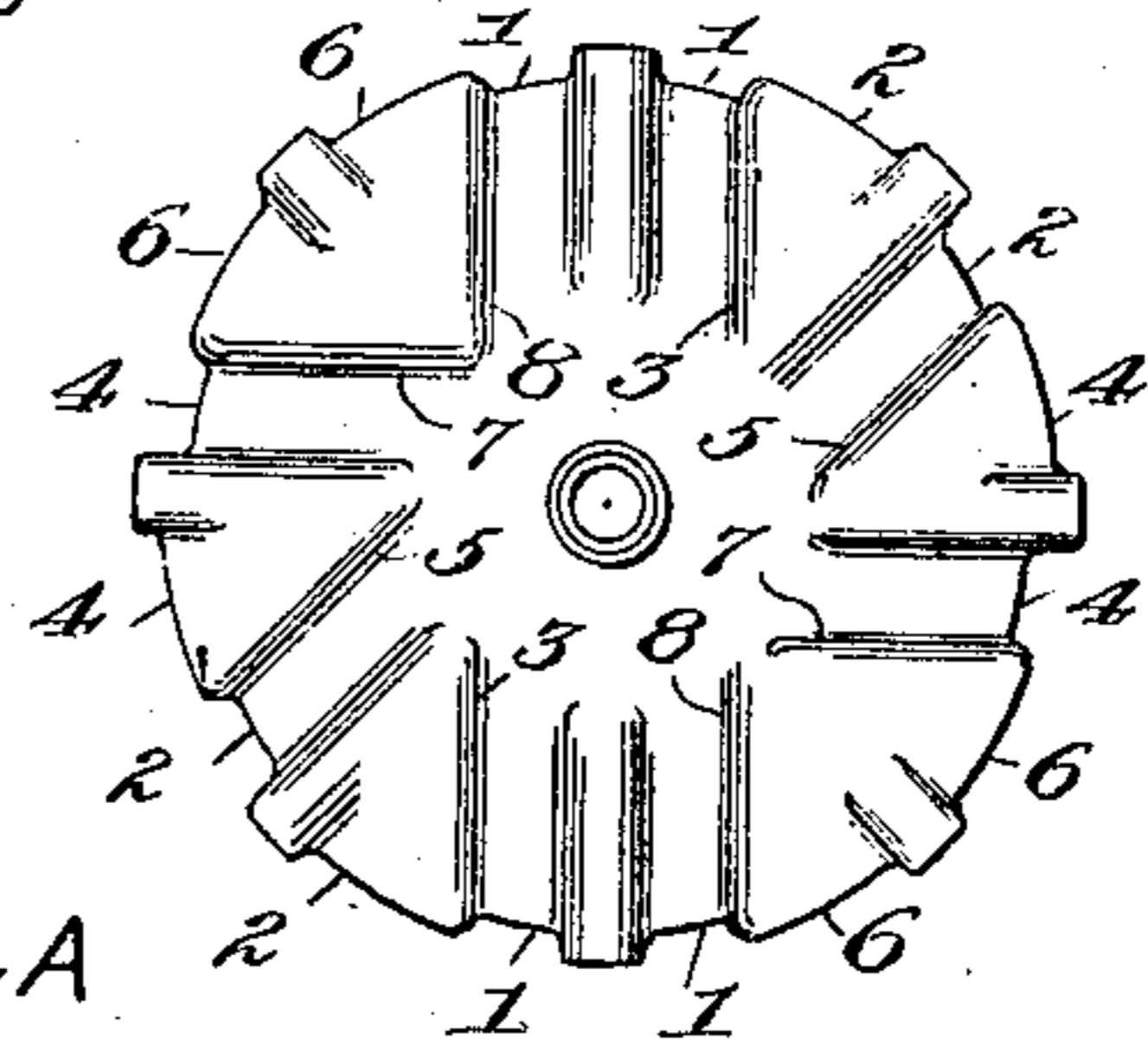


Fig. 4.



Witnesses:

George H. Tilden.
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Att'y.

UNITED STATES PATENT OFFICE.

JESSE COATES, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ARMATURE.

994,058.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed March 27, 1907. Serial No. 364,808.

To all whom it may concern:

Be it known that I, JESSE COATES, a citizen of the United States, residing at Lynn, county of Essex, State of Massachusetts, have invented certain new and useful Improvements in Armatures, of which the following is a specification.

My invention relates to small light armatures, such as are employed in the motors of electric motors of the commutator type, and my invention consists in an improvement in the armature construction described in Patent No. 825,252, issued to F. M. Vogel, July 3, 1906. In that patent is described a vertical armature comprising a light shell of paper or other moldable material for supporting the armature coils, which are spaced apart by integral projections on the shell. In armatures of this type, the coils cross at the ends of the armature at an acute angle, and it has been found in practice that there is a tendency for a coil to slip on the coil immediately below it at the point of intersection; and since the wires of the coil are small, this slipping tends to cut the insulation and to produce a short-circuit.

My invention consists in so shaping the supporting shell that each coil is raised above the coil immediately below at the point of intersection, so that injury to the insulation, due to slipping, is prevented.

My invention will best be understood by reference to the accompanying drawing, in which—

Figure 1 is a plan view of the armature-shell; Fig. 2 shows an elevation of the same, partly broken away, showing the method of securing the shell to the supporting shaft; Fig. 3 shows an elevation of a complete armature; and Fig. 4 shows a view looking downward from the top of the armature if it be cut on the line *b—b* of Fig. 2.

In the drawing A represents the armature-shell which, for convenience in manufacture, is molded in two approximately hemispherical parts of paper or other moldable material, the edges of which may be joined by shellac. The shell is slightly flattened at its ends where the coils B cross, in order that the finished armature may be approximately spherical in shape, as shown in Fig. 3. The shell is provided with integral projections, formed in molding the shell, for spacing the coils, substantially as

shown in the patent to Vogel, above mentioned, and is, in addition, provided with raised portions, as is most clearly shown in Fig. 1 and Fig. 4. These raised portions are for the purpose of raising each coil above the coil immediately below it at the point where the two coils cross, so as to remove any tendency of the upper coil to slip on the lower coil. That the arrangement of raised portions shown in Fig. 1 and Fig. 4 is adapted to produce the desired result, will be obvious from the drawings, when the order of winding the coils is considered. The first coil is wound in the spaces that are marked 1 1 in Fig. 1 and Fig. 4, one half the coil passing on each side of the shaft, and the second coil in the spaces marked 2 2. The points where the second coil intersects with the first, and the coil is raised above the first coil on account of the configuration of the armature body are indicated at 3 in Figs. 1 and 4. The third coil is wound in the spaces 4 4 intersecting the second coil at points 5, at which points it is raised above the second coil. The fourth and last coil is wound in the spaces 6 6 intersecting the third coil at points 7, and the first coil at points 8. At both of these points it is raised above the coils immediately below it. Thus, each coil is raised above the coil immediately below it at their crossing point, so that all slipping of one coil on the other is avoided.

I do not desire to limit myself to the particular construction and arrangements of parts here shown, but aim in the appended claims to cover all modifications which are within the scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is;—

1. An armature of substantially spherical shape comprising a plurality of coils crossing at the ends of the armature at an acute angle and a supporting shell for the coils having raised portions adapted to raise a coil above the coil immediately below it at the crossing point of the coils.

2. An armature of a substantially spherical shape comprising a plurality of coils crossing at the ends of the armature at an acute angle and a thin supporting shell for the coils formed of moldable material and having portions adapted to raise a coil above the coil immediately below it at the crossing point of the coils.

3. A spherical armature comprising coils
crossing at the ends of the armature, and a
supporting shell for the coils formed of two
approximately hemispherical parts having
5 raised portions adapted to raise a coil above
the coil immediately below it at the crossing
point of the coils.

In witness whereof, I have hereunto set
my hand this twentieth day of March, 1907.

JESSE COATES.

Witnesses:

JOHN A. McMANUS, Jr.,

HENRY O. WESTENDARP.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
