

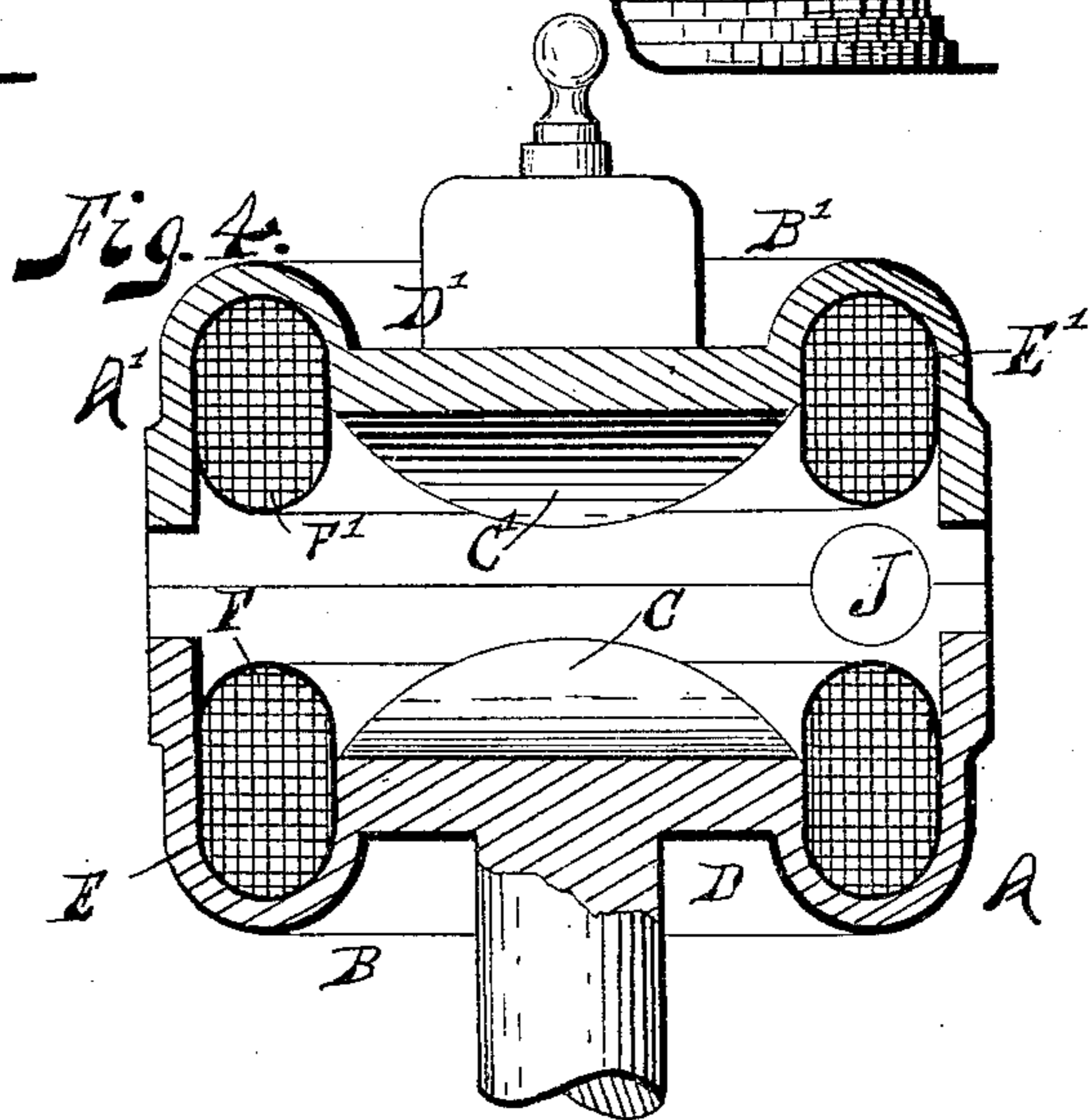
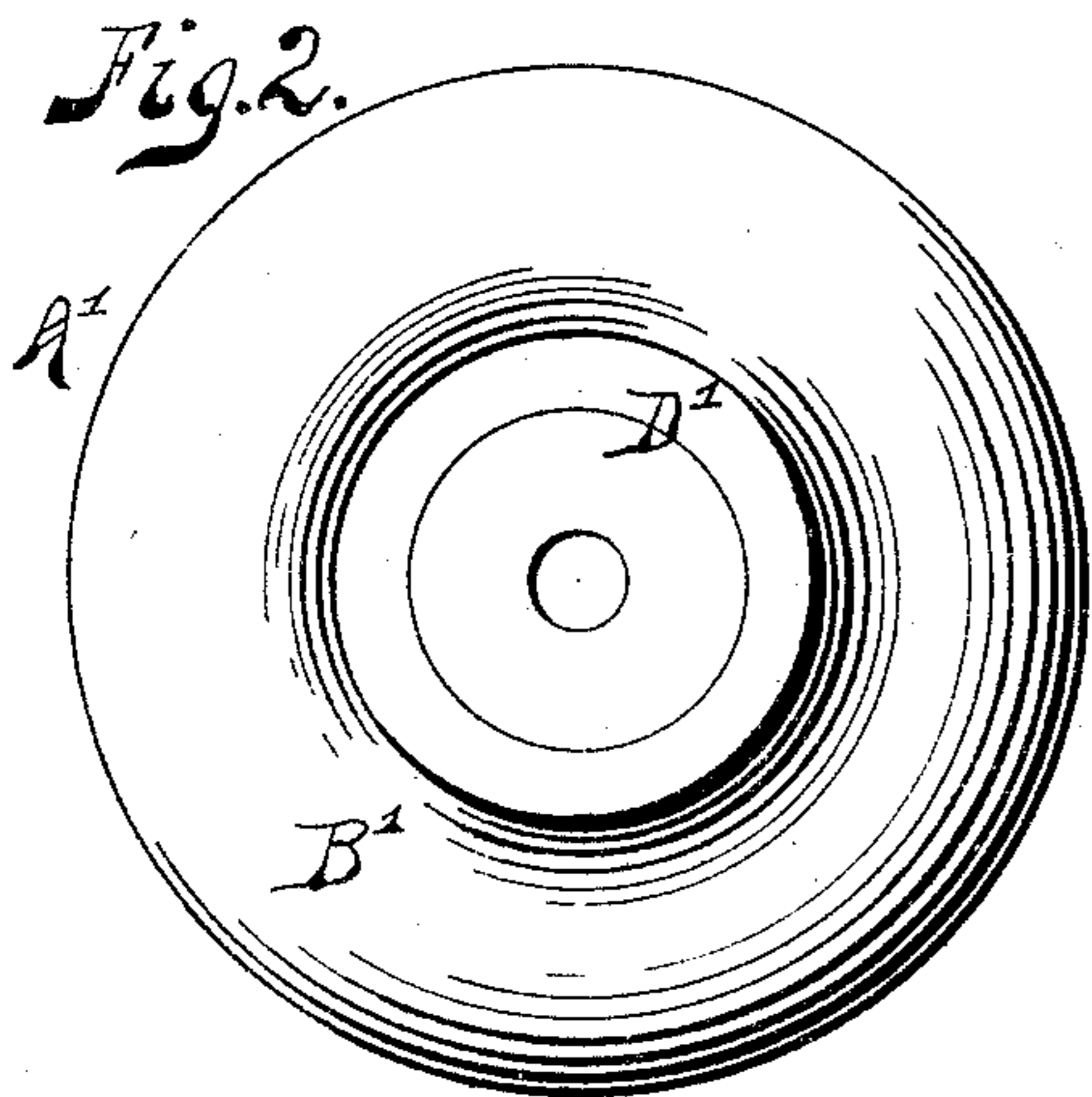
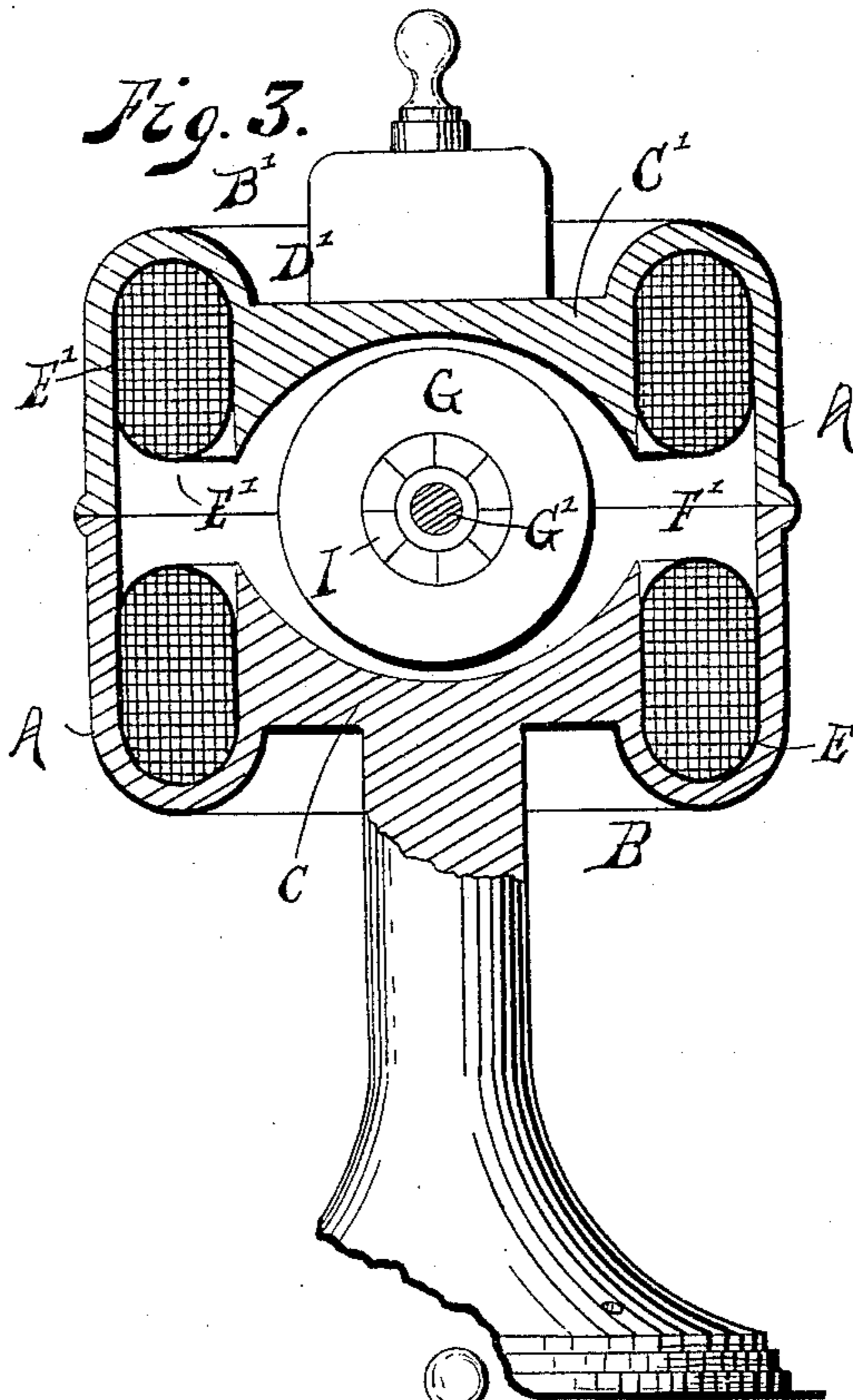
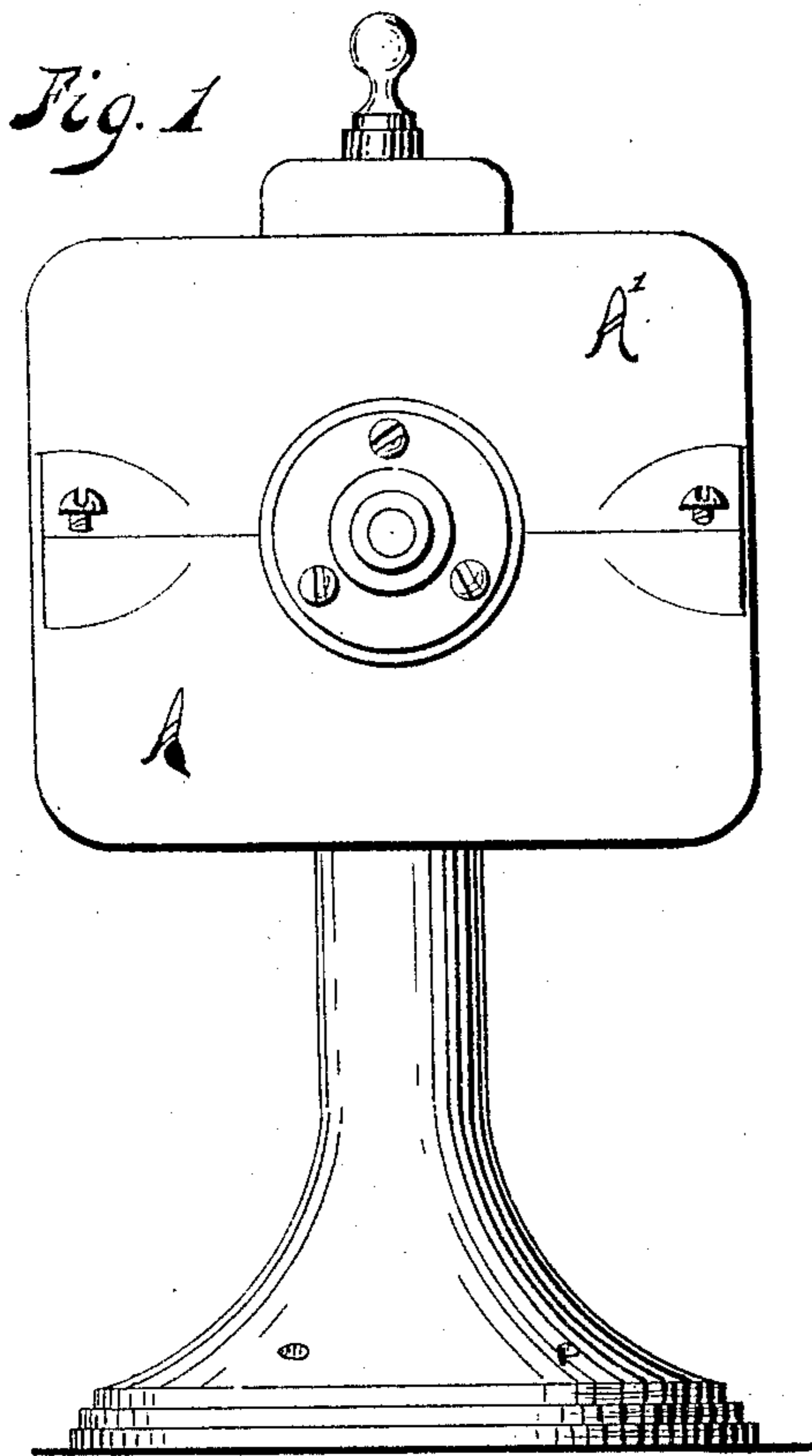
(No Model.)

2 Sheets—Sheet 1.

W. E. FREEMAN.  
ELECTRIC MOTOR.

No. 569,866.

Patented Oct. 20, 1896.



Witnesses:—

*Frank O. Dufour*

*Alex. Scott*

Inventor.

*Wallace E. Freeman*

*By Chas. E. Barber*  
Attorney.

(No Model.)

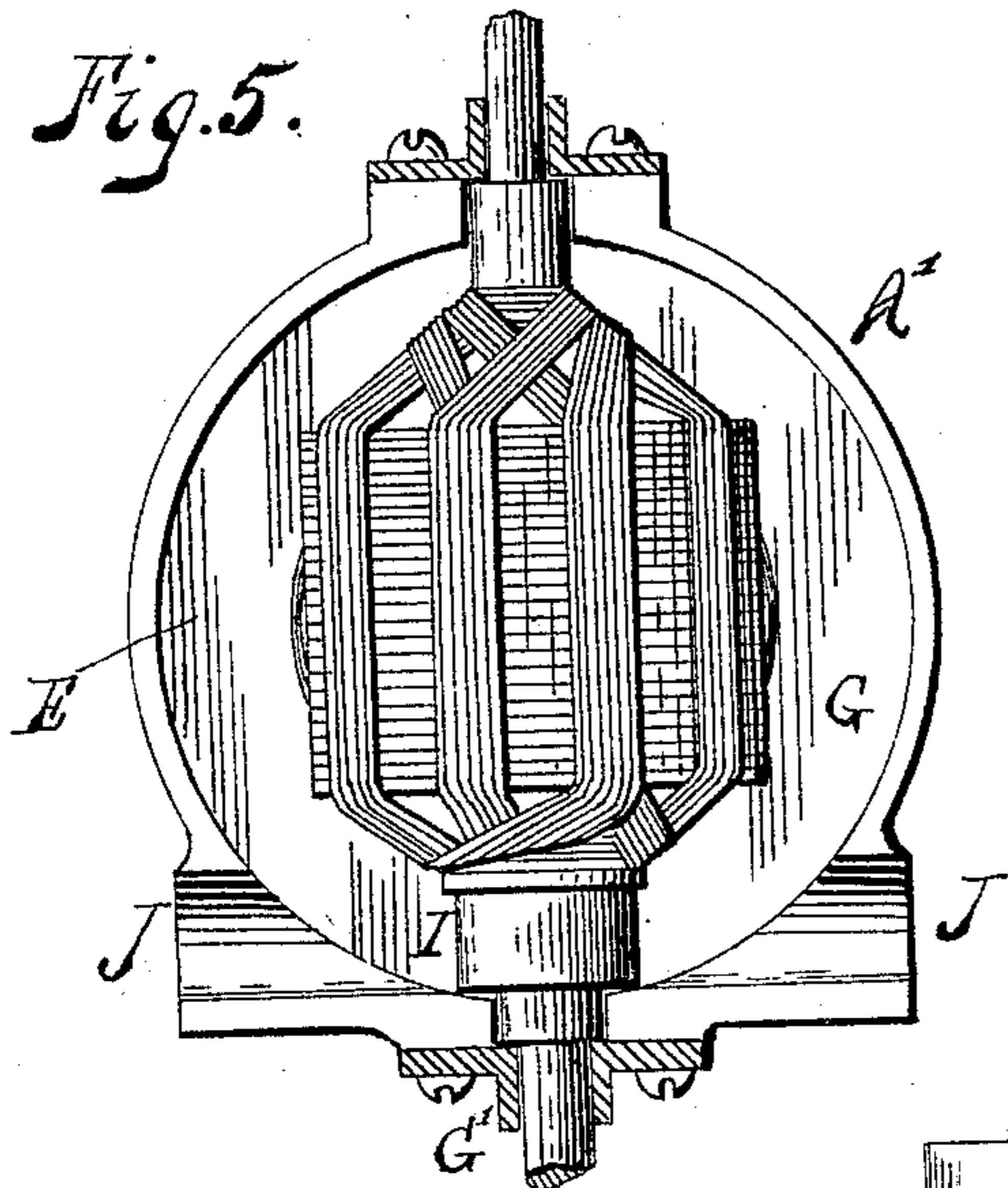
2 Sheets—Sheet 2.

W. E. FREEMAN.  
ELECTRIC MOTOR.

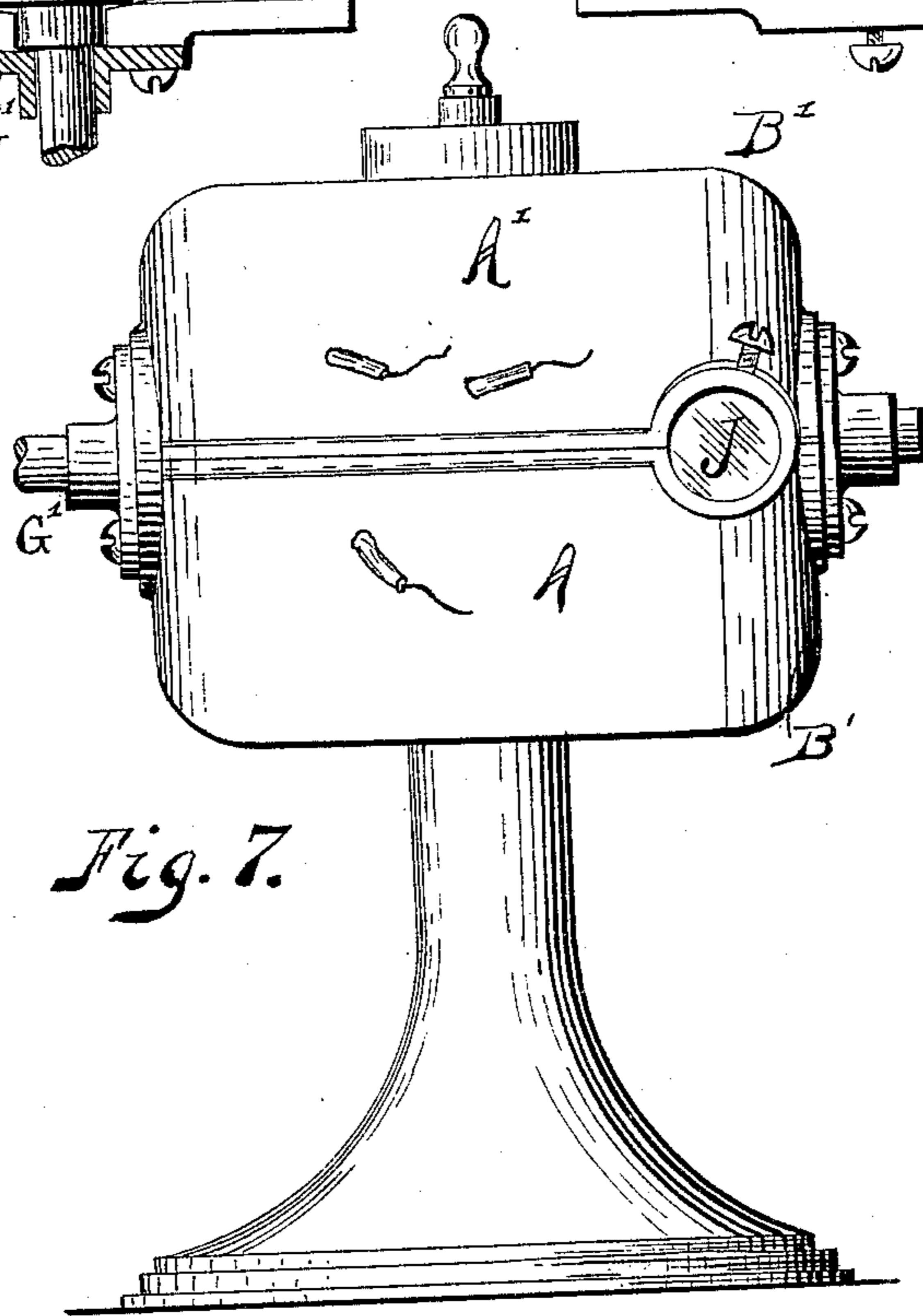
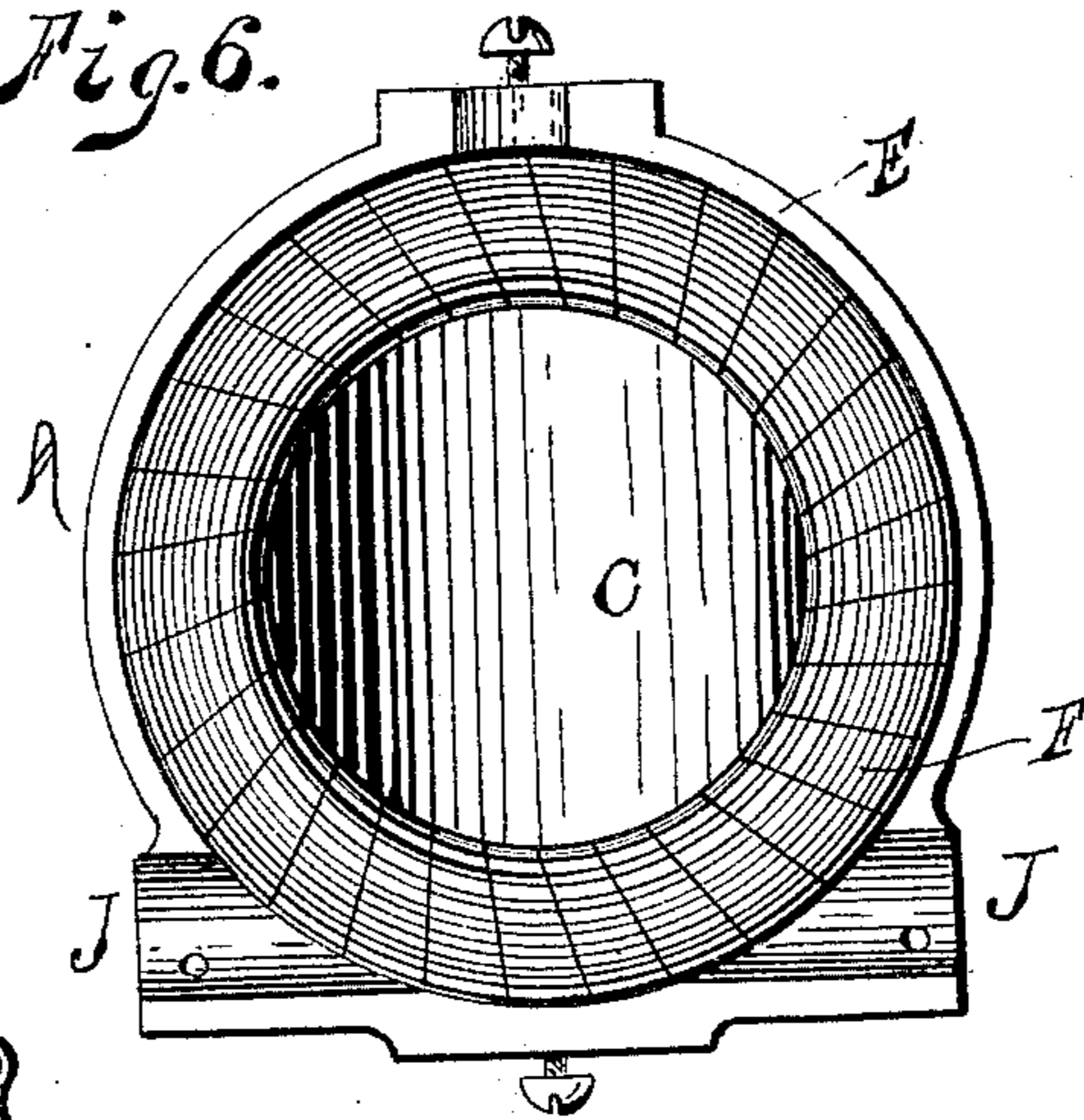
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*Fig. 5.*



*Fig. 6.*



*Fig. 7.*

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Witnesses: —

*Frank O. Buford*  
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# UNITED STATES PATENT OFFICE.

WALLACE E. FREEMAN, OF LONG ISLAND CITY, NEW YORK.

## ELECTRIC MOTOR.

SPECIFICATION forming part of Letters Patent No. 569,866, dated October 20, 1896.

Application filed June 4, 1895. Renewed September 24, 1896. Serial No. 606,884. (No model.)

*To all whom it may concern:*

Be it known that I, WALLACE E. FREEMAN, a citizen of the United States, and a resident of Long Island City, in the county of Queens and State of New York, have invented certain new and useful Improvements in Electric Motors, of which the following is a specification.

My invention relates especially to that class of electric motors employing a cylindrical armature, the axis of which is at right angles to the axis of the field-magnet poles and coils; and it consists of certain novel features of construction, particularly of the motor-shell, whereby I obtain various advantageous results, as hereinafter fully set forth.

In the accompanying drawings, Figure I represents a side view of a motor embodying my invention. Fig. II represents a plan or top view thereof. Fig. III represents a vertical section thereof in the transverse plane of the armature. Fig. IV represents a like section thereof in the longitudinal plane of the armature and omitting the latter. Figs. V and VI represent plan views of the sections of the armature-shell, detached, looking at the interior thereof. Fig. VII represents a side view of the motor from a direction at right angles to Fig. I.

Similar letters of reference indicate similar parts.

The motor-shell is of cylindrical shape, with a vertical axis, and it is constructed of two end parts or sections A A', as of cast metal, with a horizontal line of juncture. Each of these sections A A' is substantially a counterpart of the other, and constitutes a field-magnet core; and on the interior of the head B or B' of each of the sections is a central stud or projection C or C' of cylindrical outline, the end or exposed face of which is concave, as more clearly shown in Figs. III and IV, the concave faces of the two studs being parallel to each other and eccentric to the armature, to be hereinafter described. Each of the studs C or C' constitutes a field-magnet pole.

On the exterior of the head B or B' of each

of the sections is a central recess or depression D or D' of cylindrical outline, which has a curved edge continuous with the side of the shell, the diameter of this exterior recess being less than that of the interior stud. Now it will be observed that by the central location of the stud C or C' an annular groove E or E' is created around and between it and the side of the shell, adapted to receive the field-magnet coil F or F'; and the effect of the recess D or D' is to reduce or minimize the bulk of magnetic material forming the head B or B' without correspondingly reducing the depth of said groove, while the effect of the stud C or C', with its concave face, is to produce a superior magnetic operation of the machine and moreover render it of comparatively small area, which is a desideratum, especially in a machine for driving small articles, such as ventilating-fans, &c.

The two field-coils F F' are properly fitted into the annular grooves E E' of the two sections, and the armature G is fitted, by means of its shaft G', in suitable bearings in the line of juncture of the sections and with its axis at right angles to the axis of the studs and coils. The armature G is composed of a series of laminated disks with peripheral notches receiving the armature-coils, as indicated in Fig. V, and on the armature-shaft G' is a commutator-wheel I, adapted to cooperate with brushes of ordinary form, these brushes being in practice set into holes J in the line of juncture of the sections.

What I claim as my invention, and desire to secure by Letters Patent, is—

In an electrical motor a cylindrical shell constructed of two sections with a concentric cylindrical field-magnet on the interior of the head of each of the sections, said field-magnet constructed in outline eccentric to the line of the exterior of the armature, substantially as shown and described.

WALLACE E. FREEMAN.

Witnesses:

JOHN P. SKINNER,  
JAMES P. WILLIAMS.