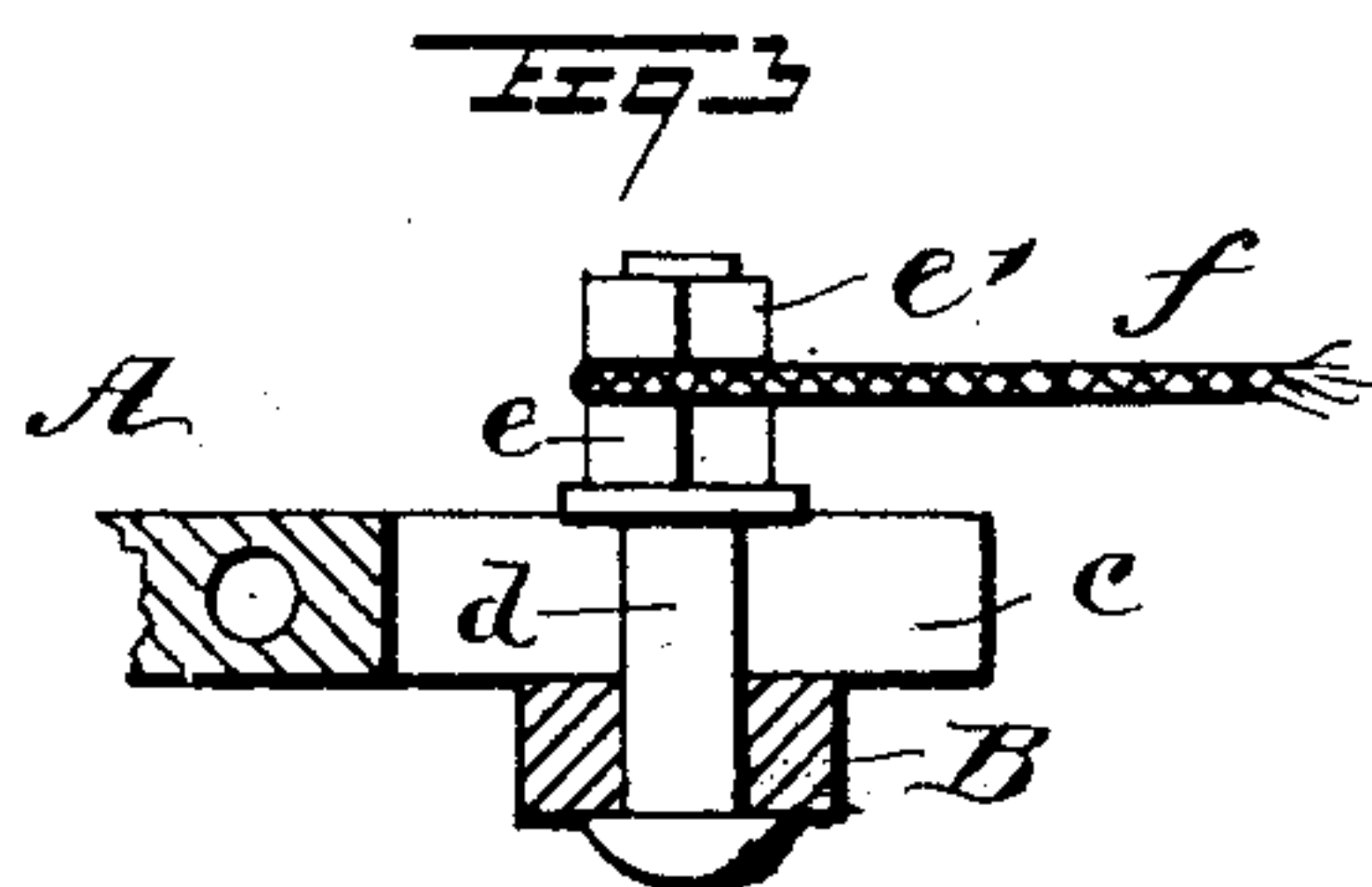
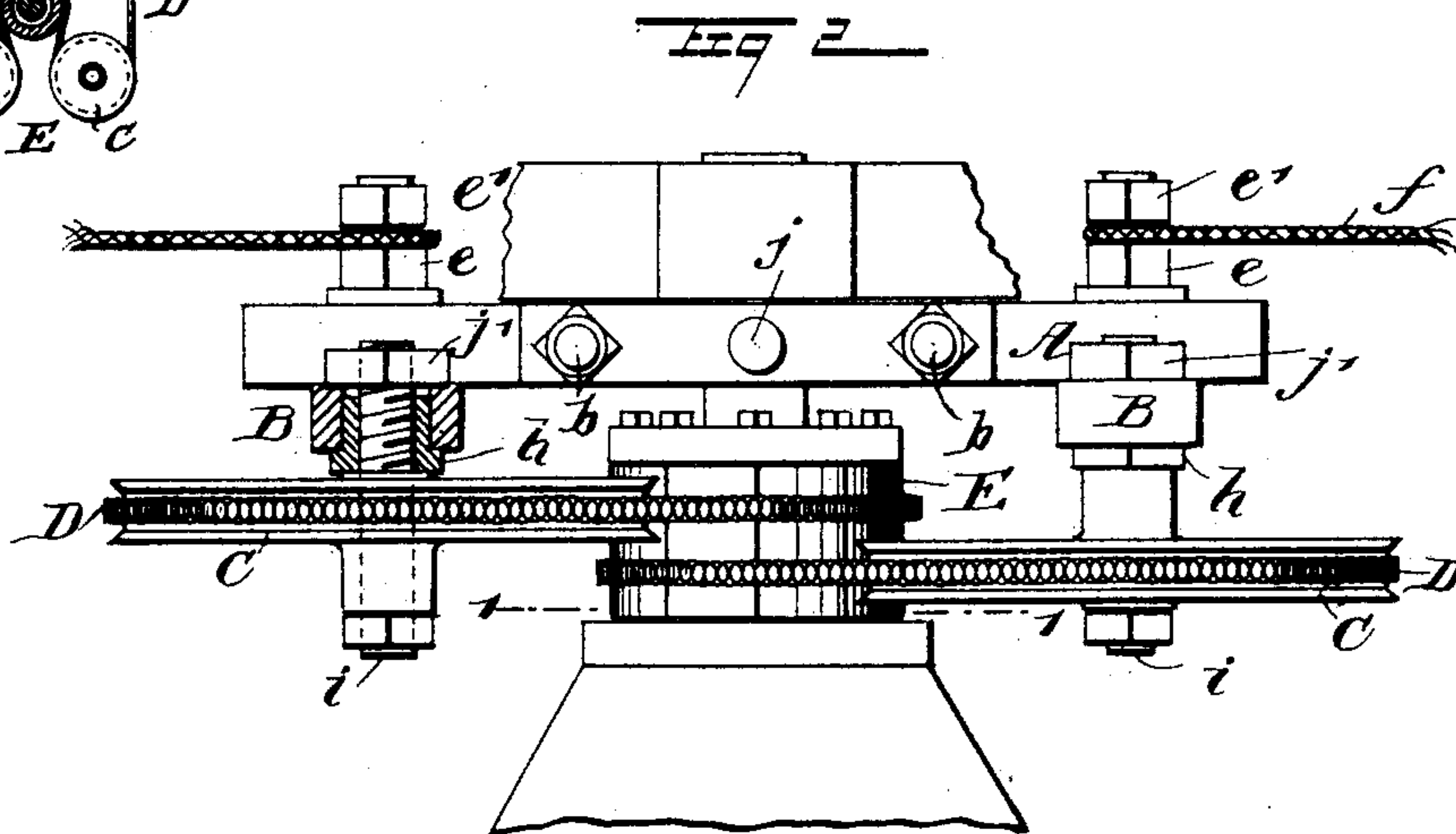
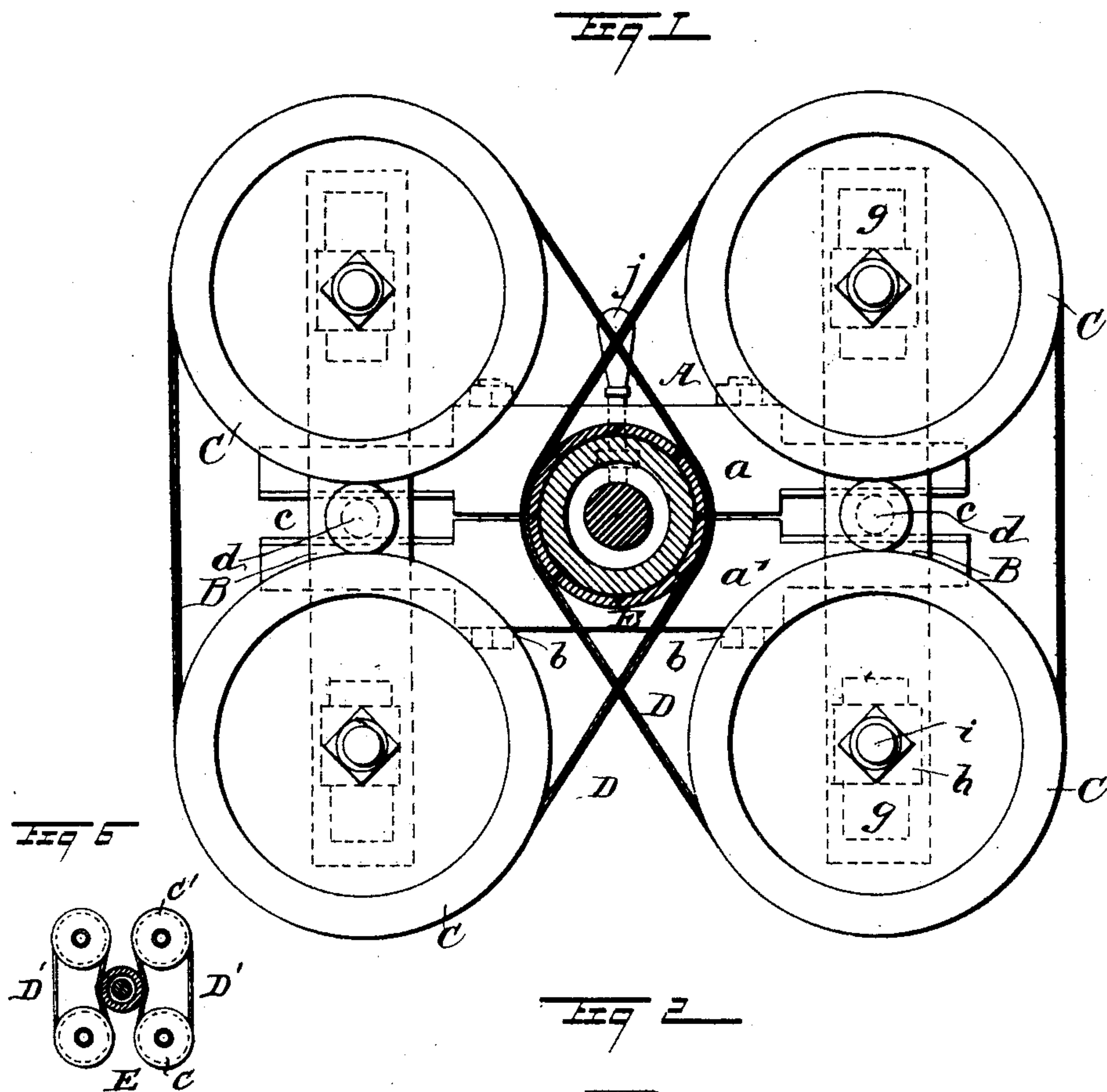


C. R. ROBERTS.  
CURRENT COLLECTOR FOR DYNAMOS.

No. 515,613.

Patented Feb. 27, 1894.



WITNESSES:  
*H. Walker*  
*C. Sedgwick*

INVENTOR  
*C. R. Roberts*  
BY *Munn & Co*  
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

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Fig 4

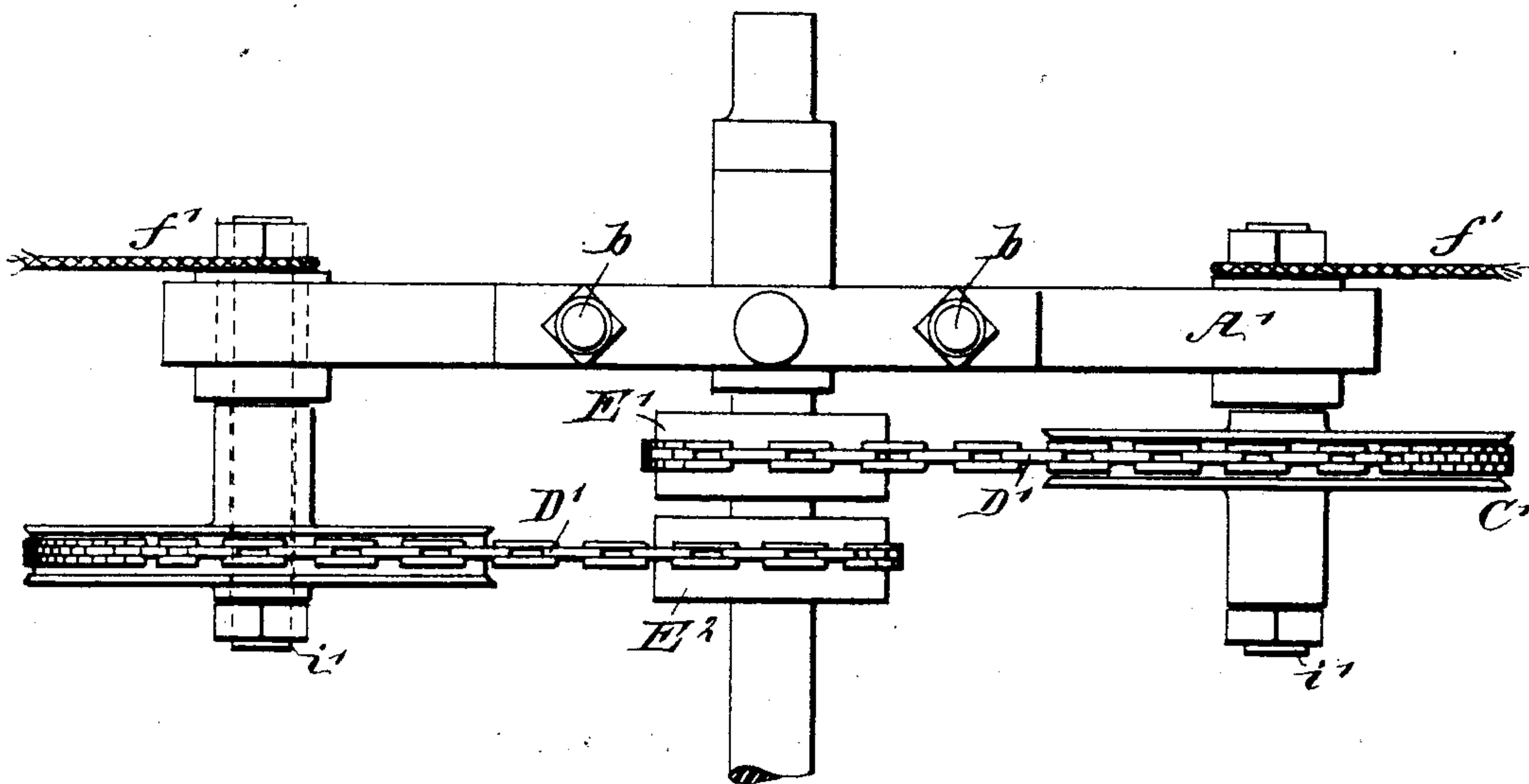
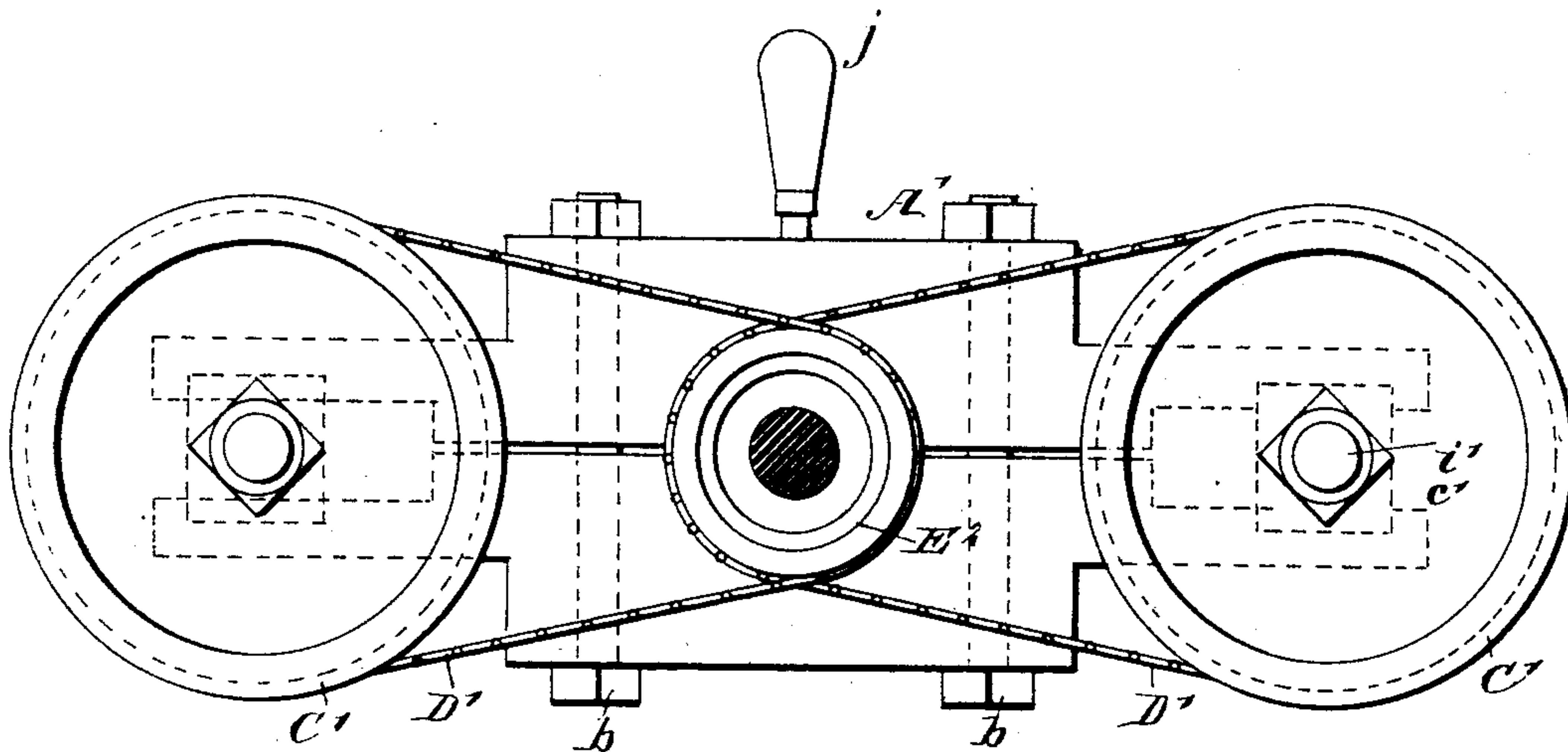


Fig 5

WITNESSES:

H. Walker  
C. Sedgwick

INVENTOR

C. R. Roberts  
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# UNITED STATES PATENT OFFICE.

CHARLES R. ROBERTS, OF ADDISON, PENNSYLVANIA.

## CURRENT-COLLECTOR FOR DYNAMOS.

SPECIFICATION forming part of Letters Patent No. 515,613, dated February 27, 1894.

Application filed August 21, 1893. Serial No. 483,686. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES R. ROBERTS, of Addison, in the county of Somerset and State of Pennsylvania, have invented a new and Improved Current-Collector for Dynamos, of which the following is a full, clear, and exact description.

The object of my invention is to provide a current collector for dynamos, which will take current from the commutator cylinder by a rolling contact, thereby avoiding the friction and wear due to the use of commutator brushes.

My invention consists in the combination with a commutator cylinder, of two endless chains or belts of conducting material, running over or in contact with the commutator cylinder and over guiding pulleys, which receive the current and deliver it to the conductors leading away from the machine.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation, partly in section on the line 1—1 in Fig. 2, of my improved current collector applied to a continuous current dynamo. Fig. 2 is a plan view of the same. Fig. 3 is a detail plan view, showing the connecting bolt and binding post. Fig. 4 is a side elevation of a collector adapted to an alternating current dynamo. Fig. 5 is a plan view of the same; and Fig. 6 is a side sectional elevation of a modified form.

The bar A, which takes the place of the brush arm of the dynamo is formed of the parts *a a'*, which are made of insulating material and clamped upon the brush arm supporting boss of the dynamo, the two parts being held together by bolts *b*. The projecting ends of the parts *a a'*, are cut away, forming slots *c* for receiving the bolts *d* which clamp the bar B to the side of the bar A. The bars B are made of conducting material, and the bolts *d* which pass through the bars and through the slots of the bar A, are each provided with two nuts *e e'*, the nut *e* serving to clamp the bar B, while the nut *e'* is used for binding the electrical conductor *f*, which carries the current of the machine.

In slots *g*, formed in the bars B, are inserted sliding blocks *h*, provided with shoulders

which rest upon the outer face of the bars B and are perforated to receive the threaded ends of the studs *i*, the said studs being provided with nuts *j'* which bear upon the rear surface of the bars B and clamp the blocks *h*. Upon the studs *i* are journaled the sheaves C which receive chains D passing around the commutator cylinder E. It will thus be seen that there is a pair of sheaves upon either side of the commutator cylinder E, and that the chains D, passing around these sheaves, form electrical contact with opposite sides of the commutator cylinder, the point of contact between the chains and the cylinder being the same as that of the ordinary commutator brushes.

By changing the distance between the sheaves and the commutator cylinder and also by altering the distance between the sheaves themselves, the amount of surface on the commutator cylinder covered by the chains may be varied. The position of the bar A on the supporting boss may be adjusted so as to vary the position of the point of contact as in the adjustment of ordinary commutator brushes, and the said bar A is held in position on the boss by the clamping screw *j*.

In the form shown in Figs. 4 and 5, the bars B are omitted and the studs *i'* which support the sheaves C' are clamped in the slot *c'* of the bar A'. In this case the commutator cylinder is displaced by collector cylinders E' E<sup>2</sup>, and the terminals of the alternating current dynamo are connected with the said collector cylinders in the usual way, and upon the said cylinders are placed endless chains D', which run around the sheaves C'. In the case of an alternating current dynamo, it is immaterial how much surface of the collector cylinder is inclosed by the chain, therefore a single sheave C' answers for each pole of the dynamo; in this case the stud *i'* serves a double purpose of supporting the sheaves C', and clamping the conductor *f'*.

Where any difficulty is experienced in causing the commutator or collector cylinders to drive the chains, the said cylinders may be corrugated, or they may be toothed, the teeth having a pitch corresponding with the pitch of the chain. In lieu of the chains, a wire cable or metallic bands may be employed.



In the modification shown in Fig. 6, the contact between the endless chains D' is effected by deflecting the chains outwardly toward the space between the sheaves C'. This construction permits of making contact with the commutator cylinder at diametrically opposite sides.

It is obvious that in my improvement, the friction and wear due to the use of metallic or carbon brushes resting upon commutator cylinders, is entirely avoided, and that the wear is simply that due to rolling friction, which, as is well known, is very slight.

Although I have described my improvement as applied to dynamos, it is obviously equally applicable to electric motors.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the commutator or collector cylinder of a dynamo, of two end-

less belts of conducting material, and adjustable sheaves for supporting the same, substantially as shown and described.

2. In a current collector for dynamos, the combination, of the adjustable arm supporting two bars, the sheaves, and two endless belts of conducting material passing over the commutator cylinders and around the sheaves, substantially as shown and described.

3. In a current collector for dynamos, the combination, of the bar A formed of the parts a, a' and provided with slots c, the slotted bars B, the studs i supported by the bars, the sheaves C journaled on the studs, and the endless conducting belts D, substantially as shown and described.

CHARLES R. ROBERTS.

Witnesses:

JUDSON S. HARTZELL,  
A. MARSHALL ROSS.