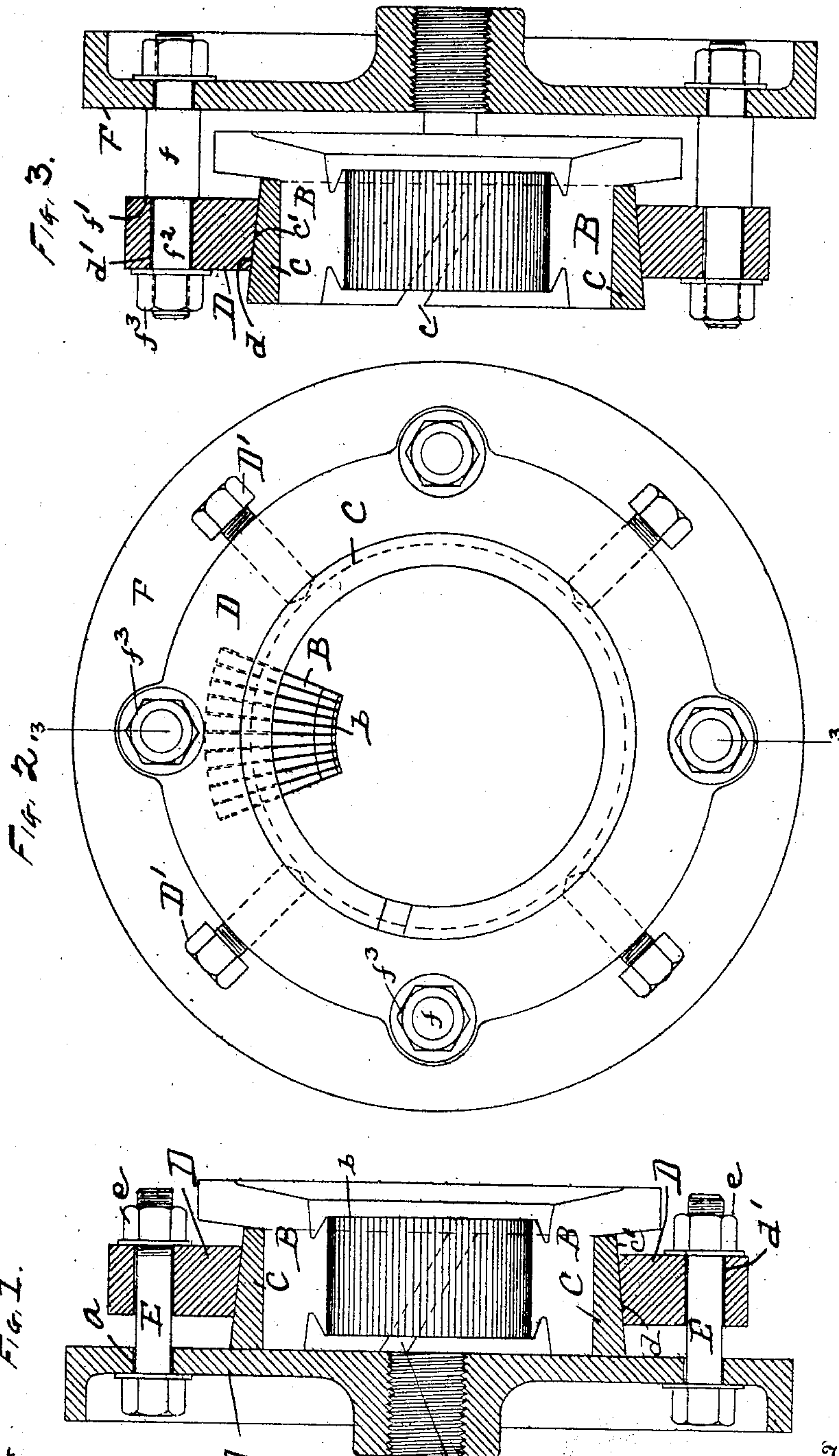


No. 855,134.

PATENTED MAY 28, 1907.

J. RISBRIDGER.  
COMMUTATOR ASSEMBLING AND FINISHING DEVICE.

APPLICATION FILED DEC. 1, 1905.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN RISBRIDGER, OF NORTH EAST, PENNSYLVANIA, ASSIGNOR OF FIFTY-FIVE ONE-HUNDREDTHS TO EUREKA TEMPERED COPPER WORKS, OF NORTH EAST, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

## COMMUTATOR ASSEMBLING AND FINISHING DEVICE.

No. 855,134.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed December 1, 1905. Serial No. 289,920.

*To all whom it may concern:*

Be it known that I, JOHN RISBRIDGER, a citizen of the United States, residing at North East, in the county of Erie and State of Pennsylvania, have invented new and useful Improvements in Commutator Assembling and Finishing Devices, of which the following is a specification.

This invention relates to commutator assembling and finishing devices and consists in certain improvements in the construction thereof as will be hereinafter fully described and pointed out in the claims.

The invention is illustrated in the accompanying drawings as follows:—

Figure 1 shows a central section through a commutator with the device in place thereon. Fig. 2, a front elevation of the device on a face plate of a lathe. Fig. 3, a section on the line 3—3 in Fig. 2.

A marks the face plate which may be of any desired form, ordinarily mounted on a bench; B, the commutator bars and these may be of any desired form; *b*, the insulating material between them. A former C is arranged around the contact surface of the commutator bars. Preferably it is in the form of a ring split diagonally at *c*, there being a space at the opening *c* for compression or contracting the ring C. The outer surface *c'* of the ring C is tapered and arranged on this tapered surface is a compression ring D having a tapered inner surface *d* that registers with the surface *c'*. The ring D is provided with a series of openings *d'* and the plate A is provided with openings *a* that will register with the openings *d'*. Bolts E are passed through the openings *a* and *d'* and nuts *e* are arranged on these bolts by means of which the ring D may be forced along the tapered surface so as to contract the ring C and thus clamp the bars B and insulating material *b* together.

Not only does the clamping ring D effect this compression but it also controls the form of the ring C, so that its inner surface forms a true cylinder. This is effected by making the ring C flexible and preferably elastic. Where the ring is elastic, and especially where it is made in one piece slightly larger than the clamped portion, it hugs the ring D at all times so that its shape is, as stated, controlled by the ring D, and inasmuch as the ring D is

of sufficient mass and rigidity to maintain its shape under normal conditions of use the inner surface of the ring C as it is contracted maintains the form of a true cylinder.

After the ring D is in place it is secured by the set screws *D'* which pass through the ring D into contact with the former C. After the parts are secured as just described on the plate A, the nuts *e* are removed and the ring D placed on a face plate F of the lathe. The face plate is provided with the studs *f* having the extensions *f'* which register with the openings *d'* in the ring D. The extensions *f'* leave a shoulder *f''* on the studs *f* and nuts *f''* are provided for clamping the ring against these shoulders. As these studs are arranged concentrically on the face plate the outer surface of the assembled commutator bars are centered so that all that is necessary is to turn up the interior of the inner surfaces. After such surfaces as can be conveniently reached, as shown in Fig. 3, are turned the ring D may be reversed and other parts machined.

What I claim as new is:—

1. In a commutator assembling and finishing device, the combination of a compression ring of sufficient mass and rigidity to practically maintain its shape under ordinary use, and a contractible former adapted to engage commutator bars arranged in annular form, said contractible former being arranged within the compression ring, the former being comparatively flexible, said compression ring and former having engaging surfaces, the engaging surface of one of them having a varying diameter to compress the former by a relative movement of said surfaces in engagement, the former being flexed and its shape maintained approximately a true circle as it is compressed by the compression ring.

2. In a commutator assembling and finishing device, the combination of a compression ring of sufficient mass and rigidity to retain approximately a circular shape under conditions of ordinary use, and a contractible former ring adapted to engage commutator bars arranged in annular form, said contractible former arranged within the compression ring, the former being comparatively flexible, one of said rings being tapered and adapted to engage the other of said rings



to contract the former as said rings are moved relatively to each other in an axial direction, the former being flexed and its shape maintained approximately in a true circle as it is  
5 compressed by the relative movement of the rings.

3. In a commutator assembling and finishing device, the combination of a compression ring of sufficient mass and rigidity to retain  
10 approximately a circular shape under the conditions of ordinary use, and a contractible former ring adapted to engage commutator bars arranged in annular form, said contractible former arranged within the com-  
15 pression ring, the former being comparatively elastic, the outer surface of the former being tapered and the inner surface of the compression ring being tapered in opposition to the surface of the former, said tapered sur-  
20 faces being in engagement and closing by actual movement of said rings relative to each other the former, the former being flexed and its shape maintained approximately in a true circle as it is compressed by the relative  
25 movement of said rings.

4. In a commutator assembling and finish-

ing device, the combination of a compression ring of sufficient mass and rigidity to maintain its shape under ordinary use, and a contractible former ring adapted to engage  
30 commutator bars arranged in annular form, said former being arranged within the compression ring, the former being comparatively flexible, one of said rings having a tapered engaging surface for acting on the  
35 other of said rings to compress the former when said rings are moved relative to each other in an axial direction, and said compression ring being provided with a series of openings through which bolts may be passed  
40 for moving the same in an axial direction to effect the compression of the former and which may be used as a means of securing said compression ring for operating upon the  
45 commutator bars.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN RISBRIDGER.

Witnesses:

O. McKENZIE,  
M. A. SCOULLER.