

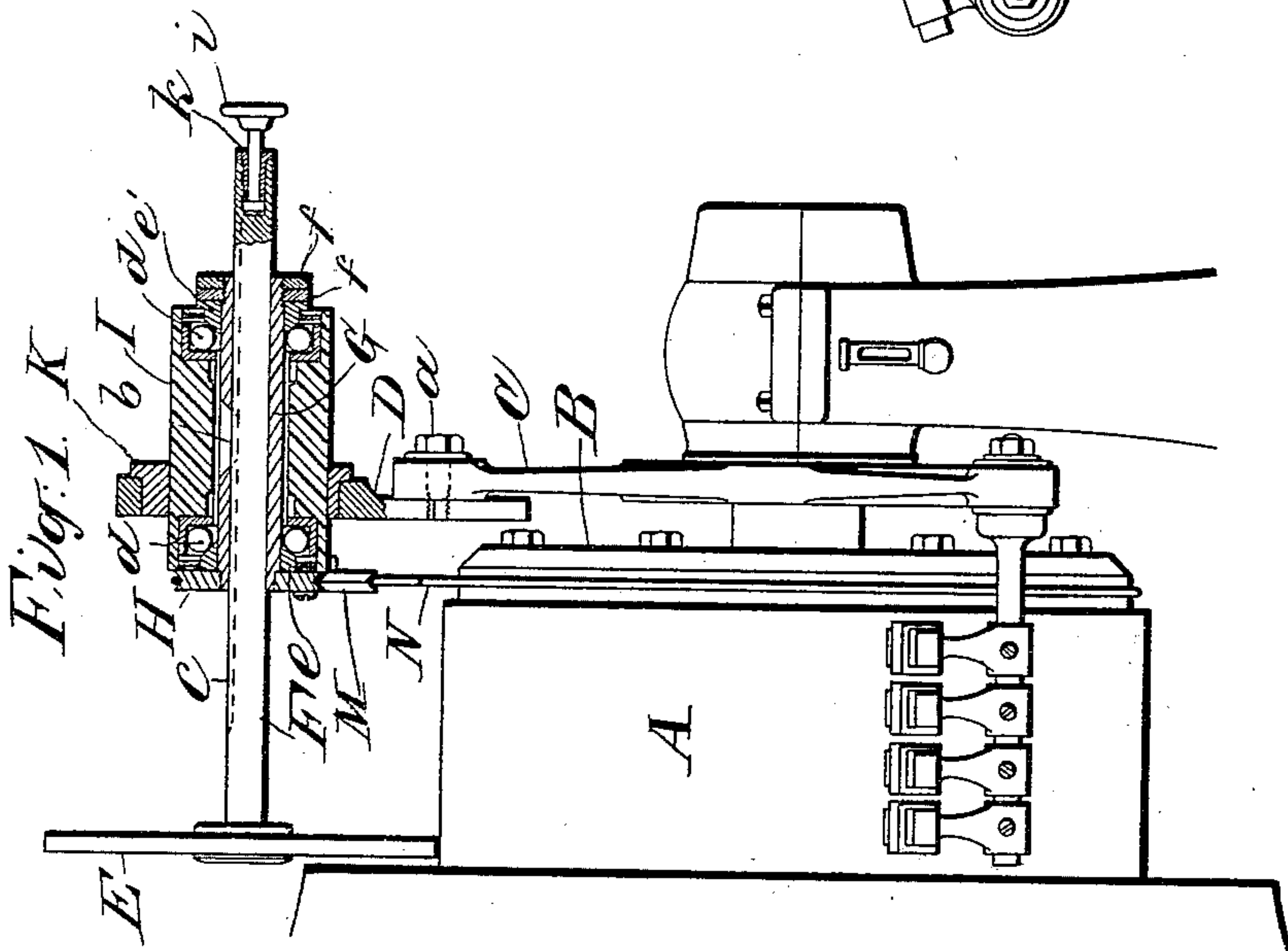
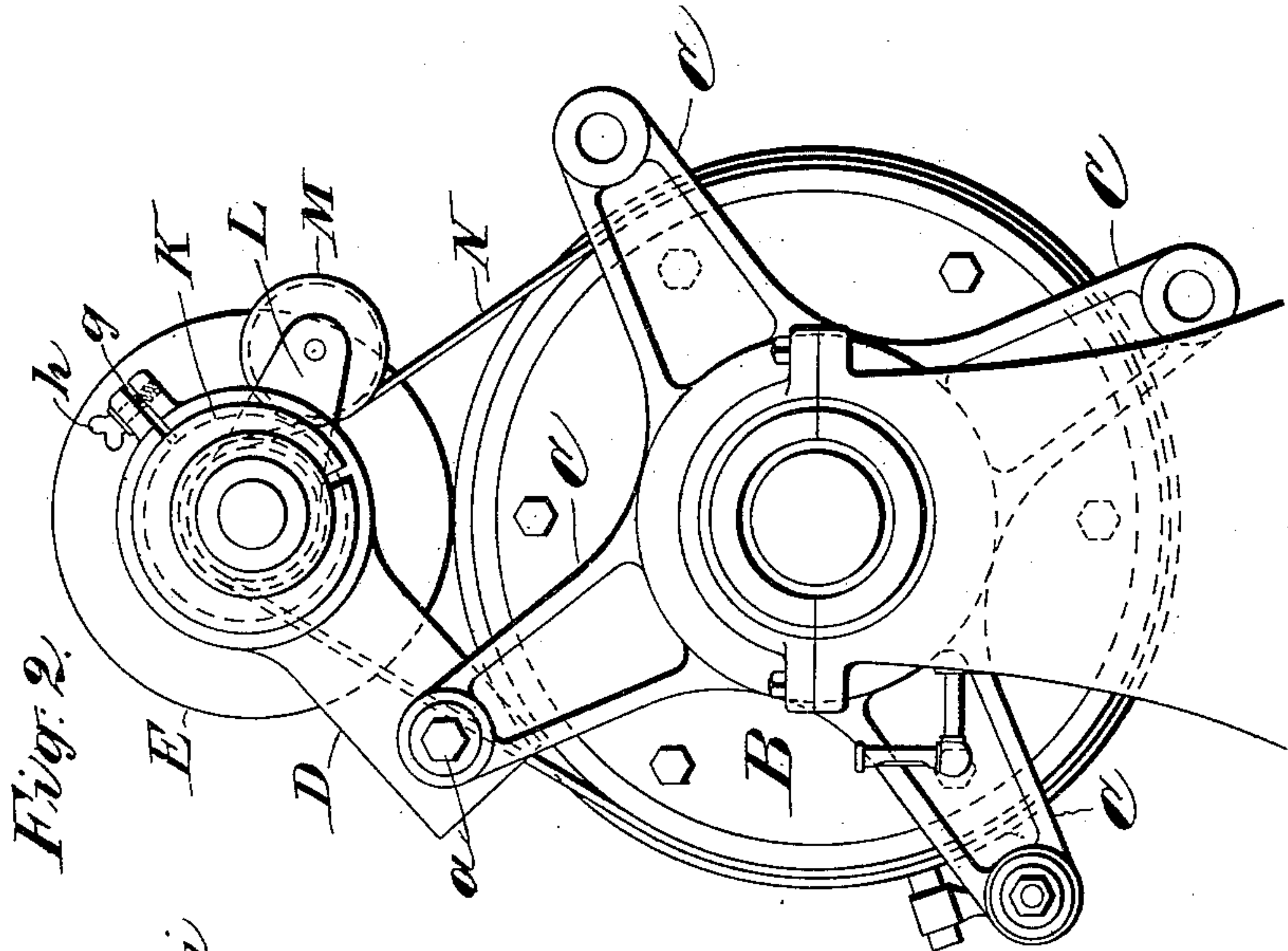
No. 632,666.

Patented Sept. 5, 1899.

F. WILKIE.
COMMUTATOR GRINDING RIG.

(Application filed May 25, 1899.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

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COMMUTATOR-GRINDING RIG.

SPECIFICATION forming part of Letters Patent No. 632,666, dated September 5, 1899.

Application filed May 25, 1899. Serial No. 718,160. (No model.)

To all whom it may concern:

Be it known that I, FREDRICK WILKIE, a citizen of the United States, residing at New York city, borough of Queens, in the county of Queens and State of New York, have invented certain new and useful Improvements in Commutator-Grinding Rigs, of which the following is a full, clear, and exact specification, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to means for truing up or perfecting the surfaces of commutators of dynamo-electric machines by grinding, and has for its object the production or provision of a simple, cheap, efficient, and easily-applicable implement or rig which may be quickly mounted in place for work, which will satisfactorily true the entire surface of the commutator, and which will be operable directly from the commutator-head without disturbing or disarranging the dynamo or its connections further than to remove the brushes from one of the arms.

To accomplish the above-named object and to secure other and further advantages in the matters of construction, operation, and use, my improvements involve certain novel and useful arrangements or combinations of parts and peculiar features of invention, as will be herein first fully described and then pointed out in the claims.

In the accompanying drawings, forming part of this specification, I have shown my improved commutator-grinding rig in place for use, Figure 1 being a side elevation and partial sectional view, and Fig. 2 a corresponding end elevation.

In both the figures like letters of reference wherever they occur indicate corresponding parts.

A represents the commutator-surface of any dynamo-electric machine, B the commutator-head, and C C the brush-arms. I employ one of the brush-arms for sustaining the rig in its working position, a suitable yoke D being arranged to be bolted to the arm, as by bolt *a*, and adapted to maintain the desired rigidity while the implement is at work.

E is a grinding wheel or disk secured upon a spindle F, the spindle being mounted so that

it may be easily adjusted back and forth in the direction of its length while it is rapidly revolved to carry the grinding-wheel into contact with every portion of the commutator-surface.

The spindle F of sufficient length for the largest machines is mounted in a sleeve G, which communicates rotary movement to the spindle, the sleeve being supplied with a belt-wheel H of suitable pattern and with a spline *b*, fitting the seat or channel *c* in the spindle to compel the simultaneous turning, but permitting any desired axial adjustment of the spindle.

I is an outer sleeve or hub which is capable of longitudinal and rotary adjustment in its support, but which is rigidly held while the implement is at work, and in this outer sleeve the inner sleeve G is journaled, so that it may be freely turned. The preferable manner of mounting the inner sleeve is, as indicated, upon ball-bearings *d d*, being the balls which are held against the stationary seats in the outer sleeve by two cones *e e'*, of which the latter is adjustable upon the sleeve G, being held in place as by nuts *f f*.

The sleeve I is encircled by a split eccentric bushing or cam-ring K of sufficient eccentricity to provide for the necessary working adjustments, and this cam-ring is sustained in and by the yoke D, the latter being also split, as at *g*, and arranged to firmly clamp and hold the cam-ring, as by use of a thumb-nut *h*.

A rigid arm L, shown as formed integrally with sleeve I, carries a pulley M, calculated to operate as a belt-tightener when suitably adjusted to bear upon the belt.

N is a belt for driving the spindle F. The rig being mounted upon one of the brush-arms, as indicated, the belt N is applied upon the commutator-head B, and belt-wheel H being suitably tightened for work by simply turning the outer sleeve I so as to bring the pulley M to bear upon the belt, which is easily done when screw *h* is loosened, and the belt-wheel is located in proper relation to the commutator-head by longitudinal adjustment of sleeve I within its sustaining-cam. The desired height or distance of the grinding-wheel E from the axis of the commutator is

then accurately regulated by turning the eccentric bushing or cam K in its seat, which movement will effect the variation in a manner easily understood. The proper initial location of the parts being assured, screw *h* is tightened and the implement is ready for operation. To facilitate the traverse movement of the grinding-wheel—that is, in the direction of the axis of the commutator—I supply the outer end of spindle F with a finger-piece *i*, the same being stepped in the end of the spindle and loosely held therein, as by a hollow screw *k*. With this the rapidly-revolving spindle may be moved back and forth without injuring the hand, the piece *i* not turning with the spindle and being located in the spindle, permitting longitudinal adjustment thereof without interfering with the sleeve. The implement being located and made ready, as above indicated, the dynamo is started up without changing its usual belting or driving connections. The rapidly-moving grinding-wheel is brought into contact with all parts of the likewise-moving surface of the commutator and the grinding and truing quickly and accurately accomplished. Any necessary feeding of the grinding-wheel to its work is effected by slightly turning the eccentric bushing or cam in its seat.

The improved implement is in itself simple and easy to apply and operate, and its use obviates the necessity of disturbing the dynamo or its mountings or of rigging up to obtain driving power from a source independent of the dynamo itself.

Having now fully described my invention, what I claim as new herein, and desire to secure by Letters Patent, is—

1. In a commutator-grinder, the sustaining-yoke adapted for application to a brush-arm of the dynamo, said yoke being divided and combined with means for clamping the two parts thereof substantially as explained, for the purpose of maintaining the working parts in place and permitting their adjustment, as set forth.

2. In a commutator-grinder, the combination with the adjustable sleeve for communicating movement to the spindle of a belt-pulley mounted on said sleeve and adjustable longitudinally therewith, and the belt for connecting the said pulley with the commutator-head, the sleeve being sustained in and by a

divided cam, substantially as and for the purposes explained.

3. In an implement of the character herein set forth, the combination with the hub carrying the inner sleeve and spindle, of a divided supporting-yoke and a divided cam interposed between said hub and yoke, the hub being capable of adjustment longitudinally through the cam and toward or from the axis of the commutator by the cam, substantially in the manner and for the purposes set forth.

4. In an implement of the character herein set forth, the combination with the hub adjustably mounted in a cam located in a yoke arranged to be applied upon a brush-arm, of the inner sleeve carrying the belt-pulley, a grinding-wheel, the spindle having the channel, and the spline for connecting the sleeve and spindle, substantially as and for the purposes set forth.

5. In an implement of the character herein set forth, the combination with the hub adjustably mounted in a cam located in the yoke, of the inner sleeve, ball-bearings interposed between the sleeve and hub, the belt-pulley, and the channeled spindle and grinding-wheel, the spindle and sleeve being connected by a spline, substantially as and for the purposes set forth.

6. In an implement of the character herein set forth, the combination of the hub, the inner sleeve, the belt-pulley mounted on said sleeve, and a rigid arm formed integrally with the hub, said arm carrying a pulley for bearing on the belt to operate as a belt-tightener, substantially as shown and for the purposes set forth.

7. In an implement of the character herein set forth, the combination of the hub, the inner sleeve, the spindle carrying the grinding-wheel and arranged to be revolved and adjusted in axial direction as explained, and the finger-piece loosely stepped within the end of the spindle, substantially as shown and described.

In testimony that I claim the foregoing I have hereunto set my hand in the presence of two witnesses.

FREDRICK WILKIE.

Witnesses:

C. SEDGWICK,
WORTH OSGOOD.