

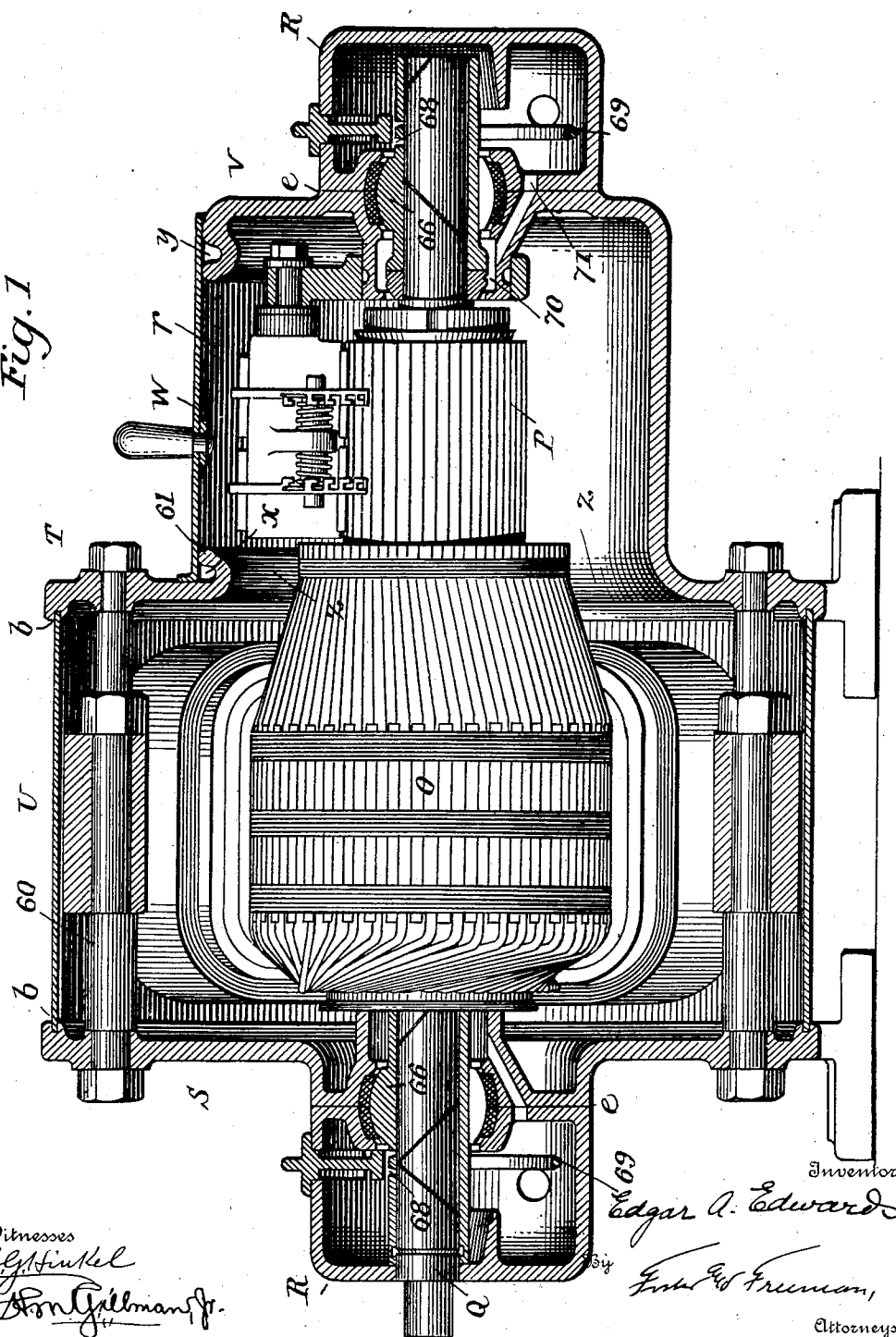
E. A. EDWARDS.
DYNAMO ELECTRIC MACHINE.

APPLICATION FILED DEC. 9, 1901.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1



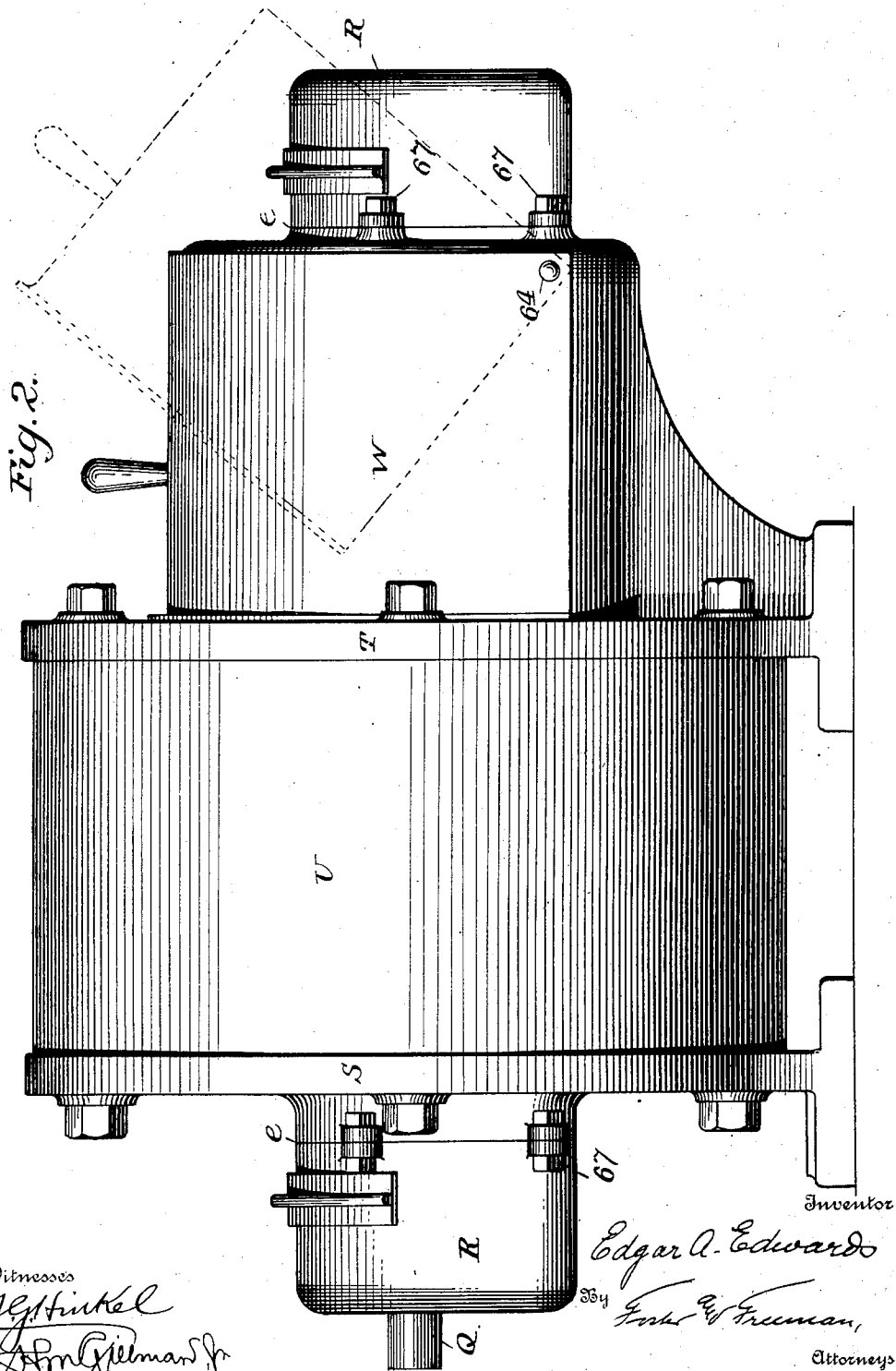
Witnesses
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DYNAMO ELECTRIC MACHINE.
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2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

EDGAR A. EDWARDS, OF CINCINNATI, OHIO, ASSIGNOR TO EDWARDS RAIL-ROAD ELECTRIC LIGHT COMPANY, A CORPORATION OF INDIANA.

DYNAMO-ELECTRIC MACHINE.

SPECIFICATION forming part of Letters Patent No. 738,782, dated September 15, 1903.

Application filed December 9, 1901. Serial No. 85,244. (No model.)

To all whom it may concern:

Be it known that I, EDGAR A. EDWARDS, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Dynamo-Electric Machines, of which the following is a specification.

My invention relates to dynamo-electric machines, and has reference especially to the construction of the casing inclosing the operating parts and the supports for and lubrication of the bearings; and to this end the parts are constructed, as fully set forth hereinafter and as illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal sectional elevation of a dynamo embodying my invention, and Fig. 2 is an exterior view.

The casing of the machine has two heads or end plates S and T, each with peripheral grooves *b* to receive one end of a sheet-metal cylinder U, which is confined in place to make a closed casing by means of transverse bolts 60, extending through the ends of the casing and supporting the yoke, to which are attached the pole-pieces. The shaft Q extends through the casing and is provided with the armature O and with the commutator P, and the latter is inclosed within a casing which preferably is integral with the head or end plate T, with an intervening opening *z* for the passage of the shaft. The commutator-casing is cut away at the top to leave an opening *r*, affording access to the commutator and brushes, and a flange 61 projects from the head T around the opening *z* at one side of the opening *r* and has a peripheral groove or channel *x*, so that any moisture condensing on the outside of the head T cannot pass into the opening *r* or *z*, but is shed from the outside of the commutator-casing. The outer end or head V of the commutator-casing may have a channel *y* at the periphery outside the opening *r*, which also serves to prevent the access of moisture to the inside of the casing, and a cover or cap W closes the opening *r* and has a flange at the end which bears against the head T, the said cap covering the channel *x* and also the channel *y* when the latter is in the head V, and thus tending

to prevent the passage of moisture to the said channels. In order to avoid the expense of a heavy cast-metal cap or cover and insure the full uncovering of the opening *r*, I prefer to form, the cap W of a semicylinder of sheet metal pivoted at the outer corners by the pivots 64 to the sides of the commutator-casing, whereby the cap may be thrown out to the position shown in dotted lines and whereby it will maintain its rigidity although made of very light material.

Any suitable bearing may be used for the shaft; but preferably there is at each end a sleeve 66, inclosing the end of the shaft and having a bearing in the casing. As shown at the commutator end, the sleeve 66 has its bearing in an opening in the head V of the commutator-casing and in an opening in a casing R, which meets the head V upon a plane *e* intersecting the sleeve 66 at some point between its ends, so that the removal of the outer section R of the casing uncovers the bearing and permits access thereto. This is especially desirable when the bearing has a rounded or curved face, as shown, which rounded or curved portion is received by the two parts of the inclosing casing and has one-half uncovered by the removal of the outer casing R, thus permitting the bearing to be readily slipped outward from the other portion of the divided casing, these two parts being bolted together by bolts 67, passing through suitable ears, or otherwise. In order to properly lubricate the bearing, the casing R is formed to constitute an oil chamber or receptacle, and means are employed for supplying that portion of the shaft within said chamber with oil. For instance, the sleeve 66 is cut away to form a notch 68 at the upper side to thereby permit a ring 69 to rest upon the shaft within said notch, the said ring 69 extending downward into the oil-chamber and carrying oil with it to the shaft as it is rotated by contact with the latter. In order to prevent any oil from passing inward to the commutator, the shaft is surrounded at the other side of the bearing by a chamber 70, from which a channel 71 leads back to the oil-receptacle, so that any oil escaping from the bearing at the inner end can pass back through said channel to the oil-receptacle,

thus saving oil as well as preventing its passage to the commutator. At the opposite end of the shaft there is casing similar to the casing R, with bearings, oil-chambers, and channel, the same as at the commutator end.

I do not here claim the construction of bearings shown, the same being the subject of a separate application, Serial No. 96,986, filed March 6, 1902.

10 Without limiting myself to the precise construction and arrangement of parts shown, I claim as my invention—

15 1. The combination with the armature-shaft of a dynamo-electric machine and with the commutator thereof, of a casing inclosing the commutator, said casing having an upper opening and a curved cap pivoted at the outer corner to swing endwise from the casing, substantially as set forth.

20 2. The combination with the armature-shaft of a dynamo-electric machine and with the commutator thereof, of a casing inclosing the commutator, said casing being closed at the outer end, with an upper opening and a 25 curved cap pivoted at the outer corner to swing endwise from the casing, substantially as set forth.

30 3. The combination with an armature-shaft and commutator, of a casing inclosing the armature with an opening for the passage of the shaft, a flange around said opening with an outer channel *x*, a casing inclosing the com-

mutator and closed at the end, with a channel *y* in said end, and an opening in the top of the commutator-casing closed by a cap extending over the channels *x* and *y*, substantially as set forth. 35

4. The combination with an armature-shaft and commutator, of a casing inclosing the armature with an opening for the passage of the shaft, a flange around said opening with an outer channel *x*, a casing inclosing the commutator and closed at the end, an opening in the top of the commutator-casing, a cap closing said opening and covering the channel *x*, 45 substantially as set forth.

5. The combination with an armature-shaft and commutator, of a casing inclosing the armature with an opening for the passage of the shaft, a flange around said opening with an outer channel *x*, a casing inclosing the commutator and closed at the end, an opening in the top of the commutator-casing, a cap closing said opening and covering the channel *x* and provided with a flange at the inner end, 55 substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDGAR A. EDWARDS.

Witnesses:

H. M. GILLMAN, Jr.,
W. CLARENCE DUVALL.