

(No Model.)

S. H. REYNOLDS & G. E. DANFORTH.

PISTON ROD PACKING.

No. 324,884.

Patented Aug. 25, 1885.

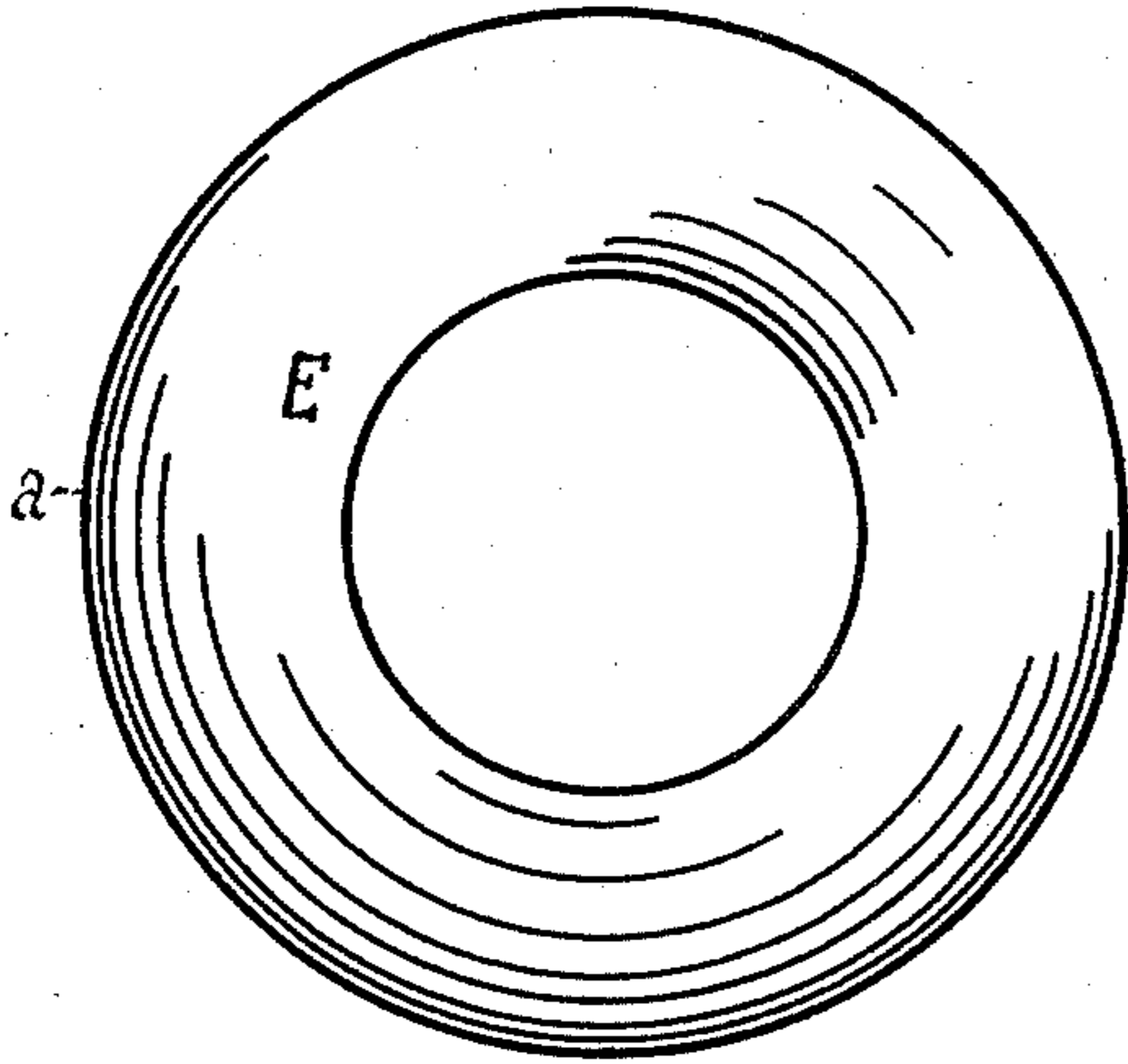


Fig: 1.

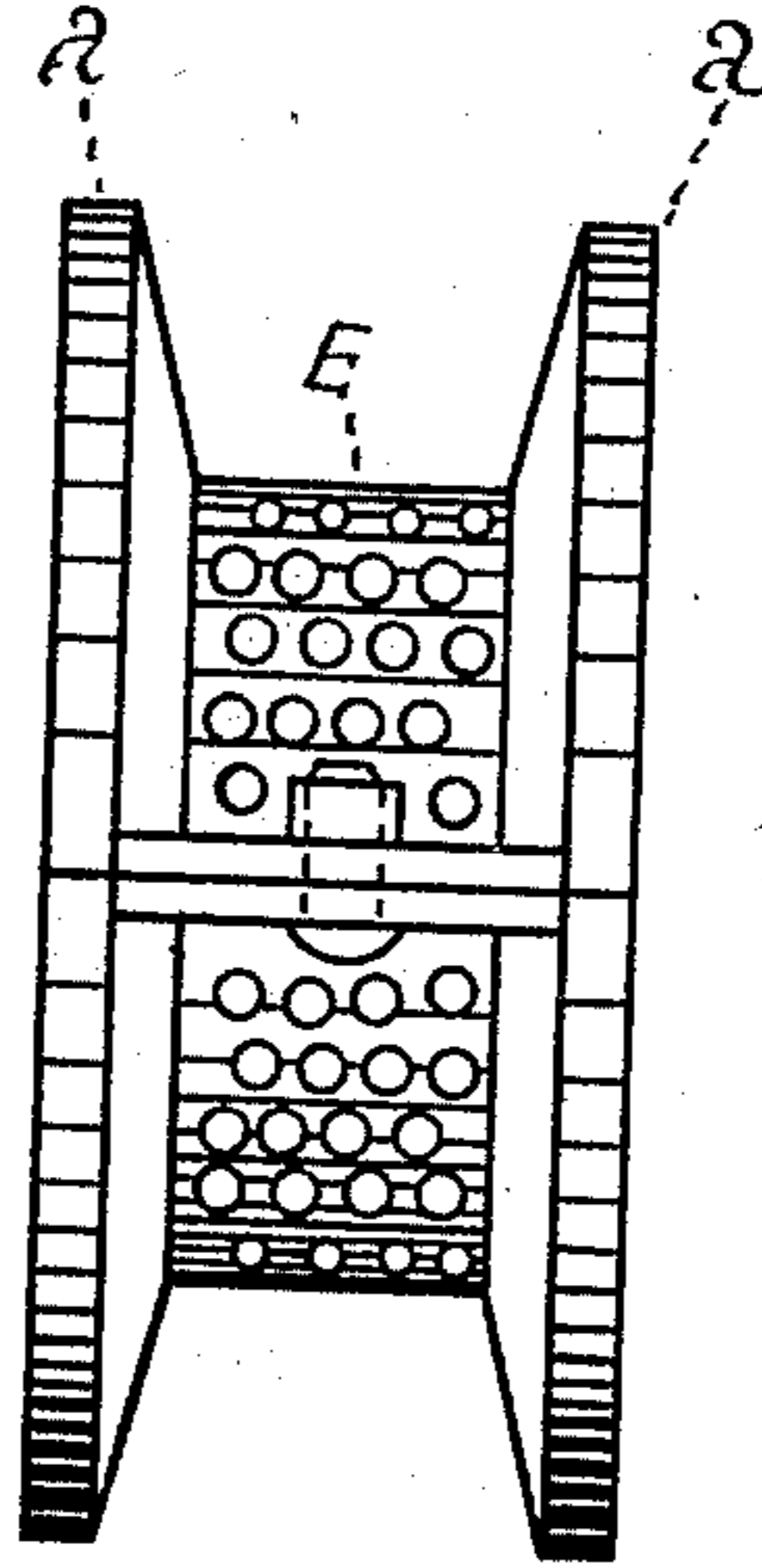


Fig: 2.

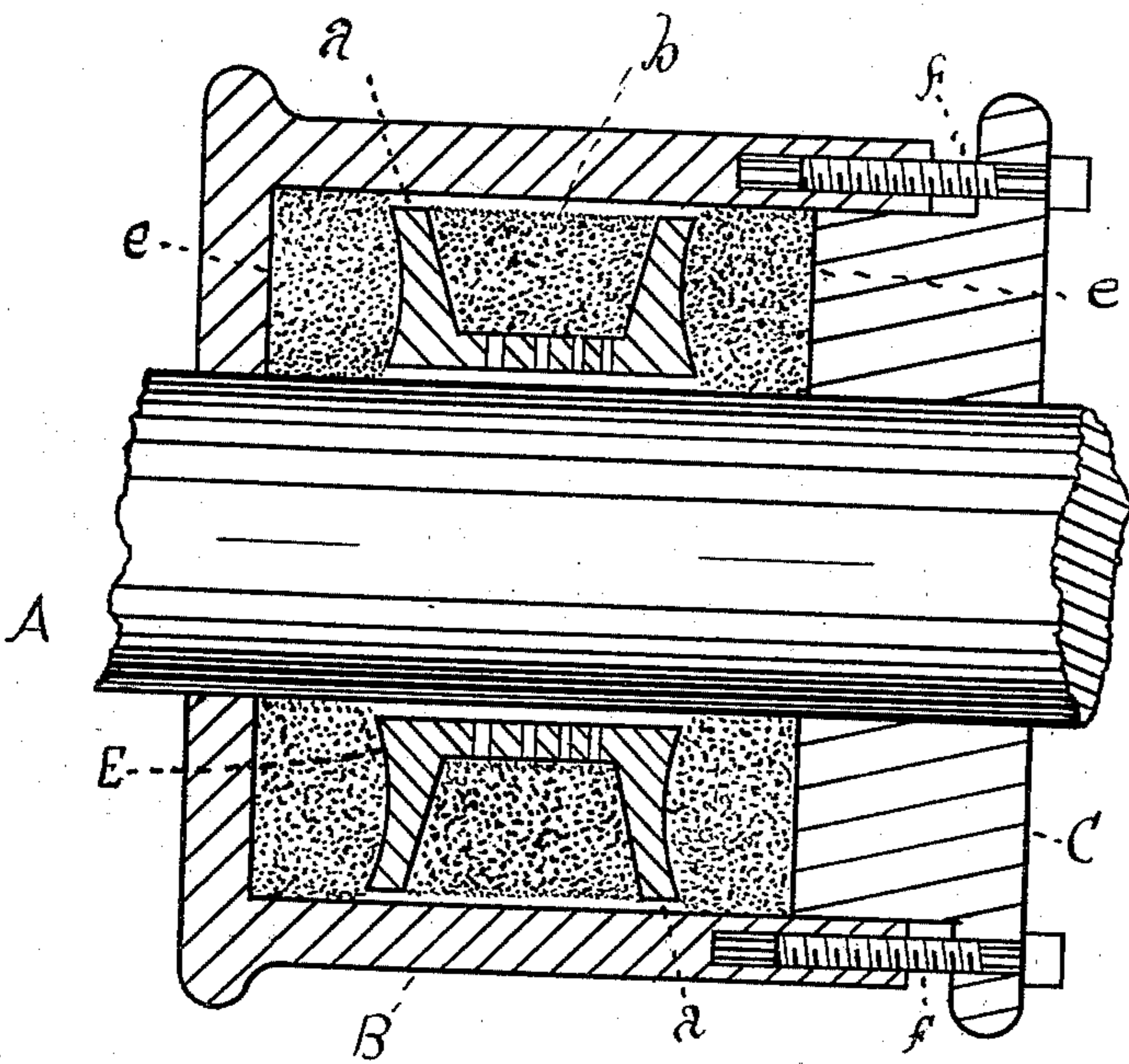


Fig: 4.

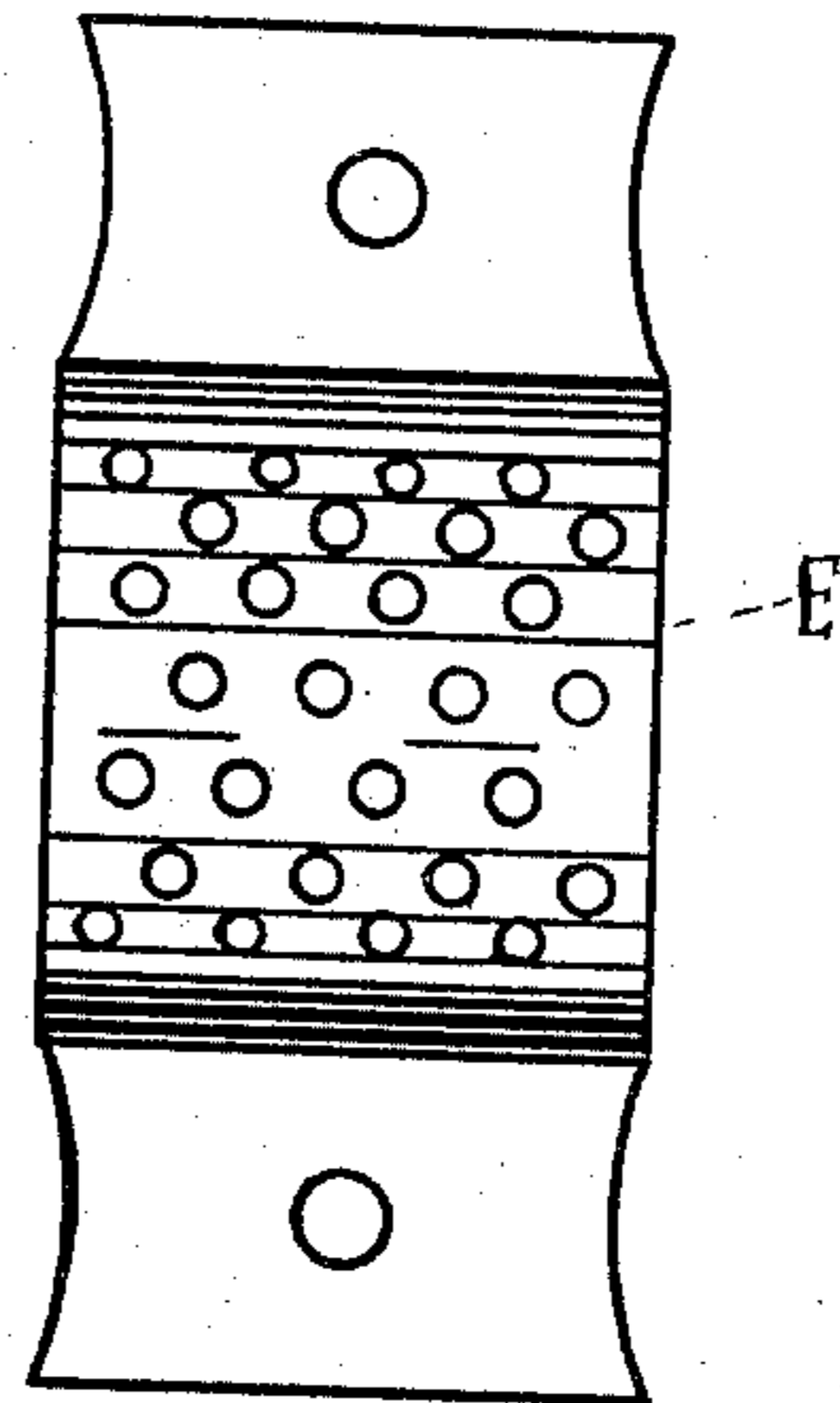


Fig 3.

Witnesses.

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# UNITED STATES PATENT OFFICE.

SILAS H. REYNOLDS AND GEORGE E. DANFORTH, OF LYNN, MASSACHUSETTS, ASSIGNORS TO SAID REYNOLDS, AS TRUSTEE.

## PISTON-ROD PACKING.

SPECIFICATION forming part of Letters Patent No. 324,884, dated August 25, 1885.

Application filed April 22, 1885. (No model.)

*To all whom it may concern:*

Be it known that we, SILAS H. REYNOLDS and GEORGE E. DANFORTH, of Lynn, in the county of Essex and Commonwealth of Massachusetts, have invented certain Improvements in Piston-Rod Packings, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to means for packing piston-rods, and the nature thereof is herein-after fully described and specifically claimed.

Referring to the drawings, Figure 1 is a side elevation of the bushing. Fig. 2 is an edge elevation of the same. Fig. 3 is an elevation of one side or half of the bushing. Fig. 4 is a sectional view representing the bushing, in combination with a stuffing-box, piston-rod, and packing, as more fully described herein-after.

The piston-rod A, the box B, and plunger or follower C may be constructed in the usual and customary way. The bushing E, which is composed of metal or other suitable material, is provided with a central opening, to receive the piston-rod, as in Fig. 4. Said opening is made slightly larger than the piston-rod, so as to prevent the walls of the bushing from bearing upon the rod. The outer flanges, *a a*, are extended upward to form a chamber for the reception of packing *b*, and we prefer to make the size of the bushing conform approximately to the size of the stuffing-box B, it being arranged to fit loosely in the box B.

The bushing is represented in the drawings as composed of two parts, bolted together, and this is the way we prefer to make it, as it may be easily applied to the piston-rod, though a ring-bushing would be quite useful, except that it might be inconvenient to apply it to the piston-rod, as it would have to be slipped on over the end thereof. The chamber between the flanges *a a* is filled with any suitable packing, *b*, which is saturated with oil, and this oil passes down through the perforations in the bushing to the piston-rod A, being drawn there by the motion and heat of the rod. On each side of the bushing E, between it and the box on one side and between it and the follower C on the other side, are rings of packing *e e*. Said packing may be of any suitable material commonly used for packing

piston-rods, and when placed in position on the two sides of the bushing E, as in Fig. 4, the follower C should be forced in by bolts or screws *f f*, in the usual way, to compress the packing, and thus cause it to bear closely against the piston-rod. It will be observed that the sides of the bushing are slightly concaved. (See Figs. 3 and 4.) This we do not regard as strictly essential, though if done it allows the packing to enter and thus to center the bushing, thereby holding it in suspension, as it were, and removed from actual contact with the piston-rod, and to this end the bushing is bored slightly larger than the piston-rod, as before remarked. We do not, however, wish it to be understood that the bushing must be bored larger than the piston-rod in order to secure the good results; but as such construction tends to remove friction from the rod, we prefer to use it, and, too, this construction allows for expansion caused by heat developed by the rod. A piston-rod packed in this manner will run much longer than if packed in the usual way. It will be constantly lubricated by the oil drawn through the bushing, and all excess of oil is constantly forced backward through the bushing because of the vacuum formed therein by each stroke of the piston-rod. From this construction and arrangement it will be seen that the bushing, being held by a yielding support and fitting loosely within the box, will assume a position out of contact with the piston-rod even should such relation exist just after being placed within the box.

We are aware that it is old to employ a perforated bushing surrounding the piston in connection with packing material saturated with oil, and also to form a space around the piston for receiving and holding the lubricant, and we do not claim these ideas.

What we claim as our invention, and desire by Letters Patent to secure, is—

1. In combination, a piston-rod, a stuffing-box, a central bushing adapted to fit loosely within the stuffing-box, and having a chamber filled with oil-retaining substance, and perforations leading therefrom to the piston-rod, and having a bore slightly larger throughout than the said rod, the concave sides of the bushing, the packing material arranged upon

either side of the bushing, whereby, when pressure is applied by means of the follower C, the bushing will be held by a yielding support and assume a position out of frictional contact with the piston rod, thus forming an oil-space around the rod, and the packing material will be pressed closely against the rod and prevent the escape of oil from the box, all substantially as described.

2. In combination with the piston-rod, a stuffing-box, and packing material, the bush-

ing E, formed in two parts, adapted to be clamped around the piston-rod, as described, and having a chamber filled with oil-retaining substance, and perforations leading therefrom to the piston rod, substantially as described. 15

Signed at Lynn, Massachusetts.

SILAS H. REYNOLDS.

GEORGE E. DANFORTH.

In presence of—

C. C. TUTTLE,

C. B. TUTTLE.