

2 Sheets. Sheet 1.

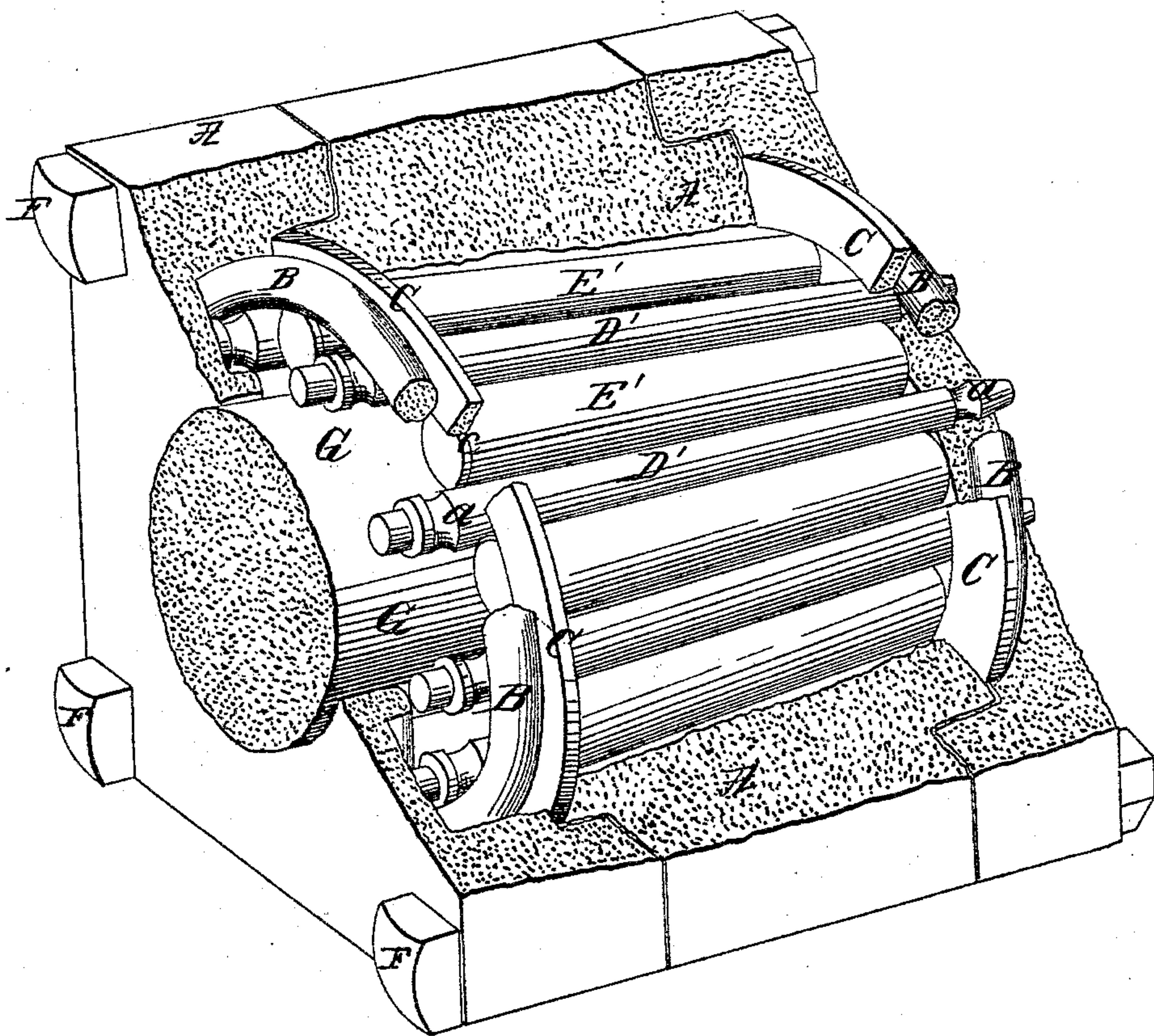
G. F. Lynch,

Anti-Friction Roller.

N^o 62,143.

Patented Feb. 19, 1867.

Fig. 1.



Witnesses.
A. B. S. Houghton
Wm. H. Rowe

Inventor.
G. F. Lynch

G. F. Lynch,
Anti-Friction Roller.

N^o 62,143. *Fig. 4*

Patented Feb. 19, 1867.

Fig. 2.

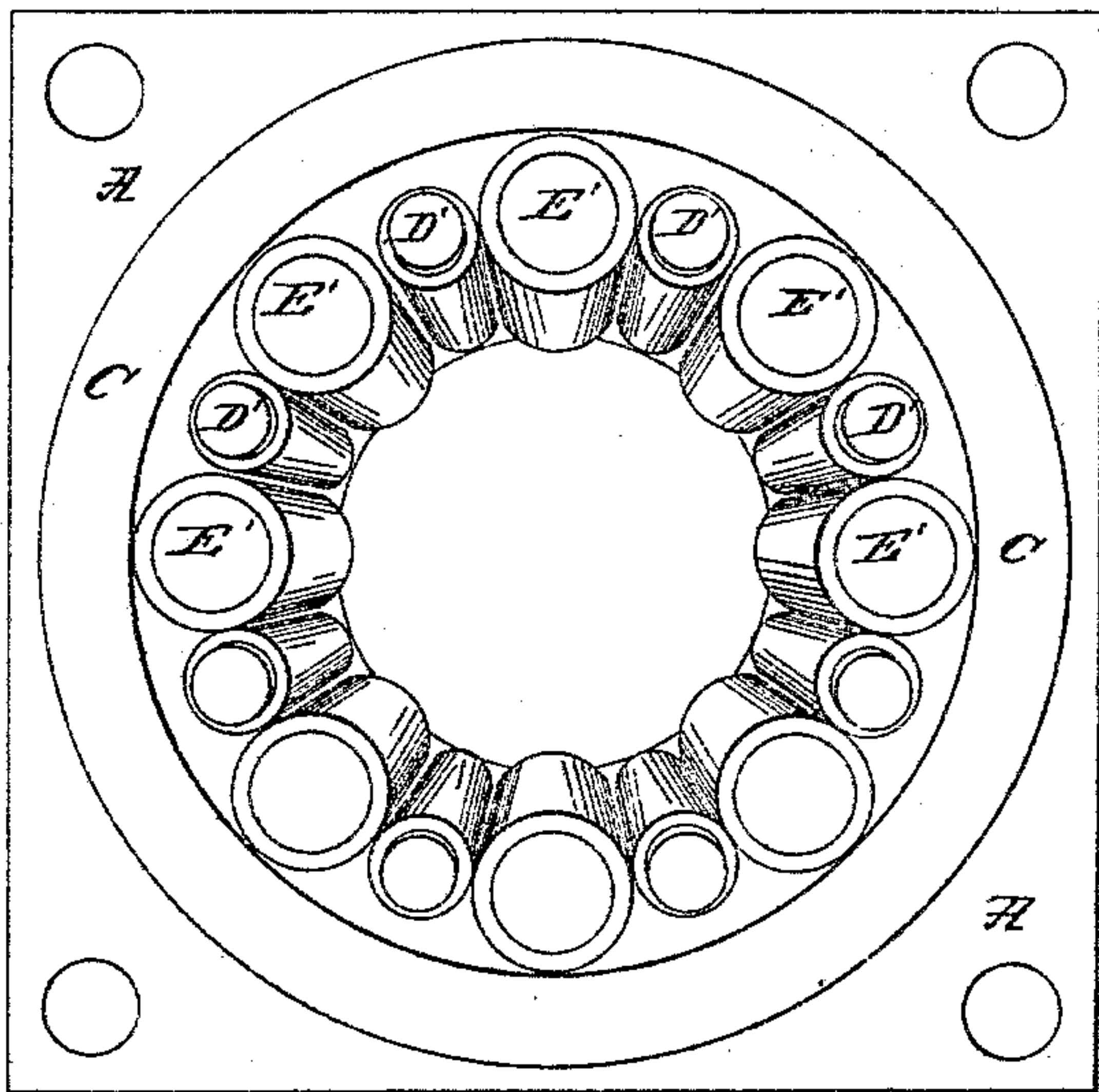


Fig. 3.

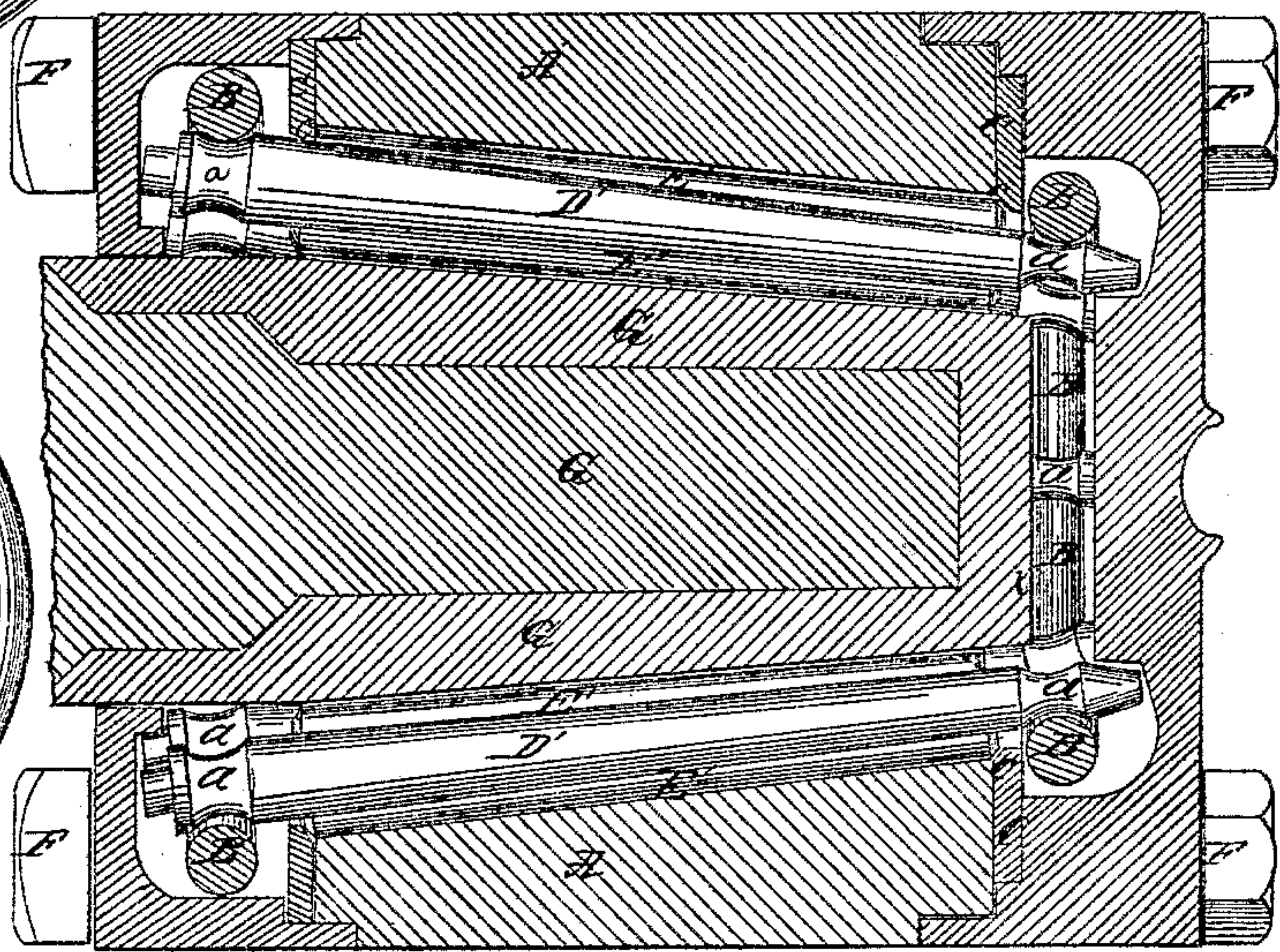


Fig. 5.

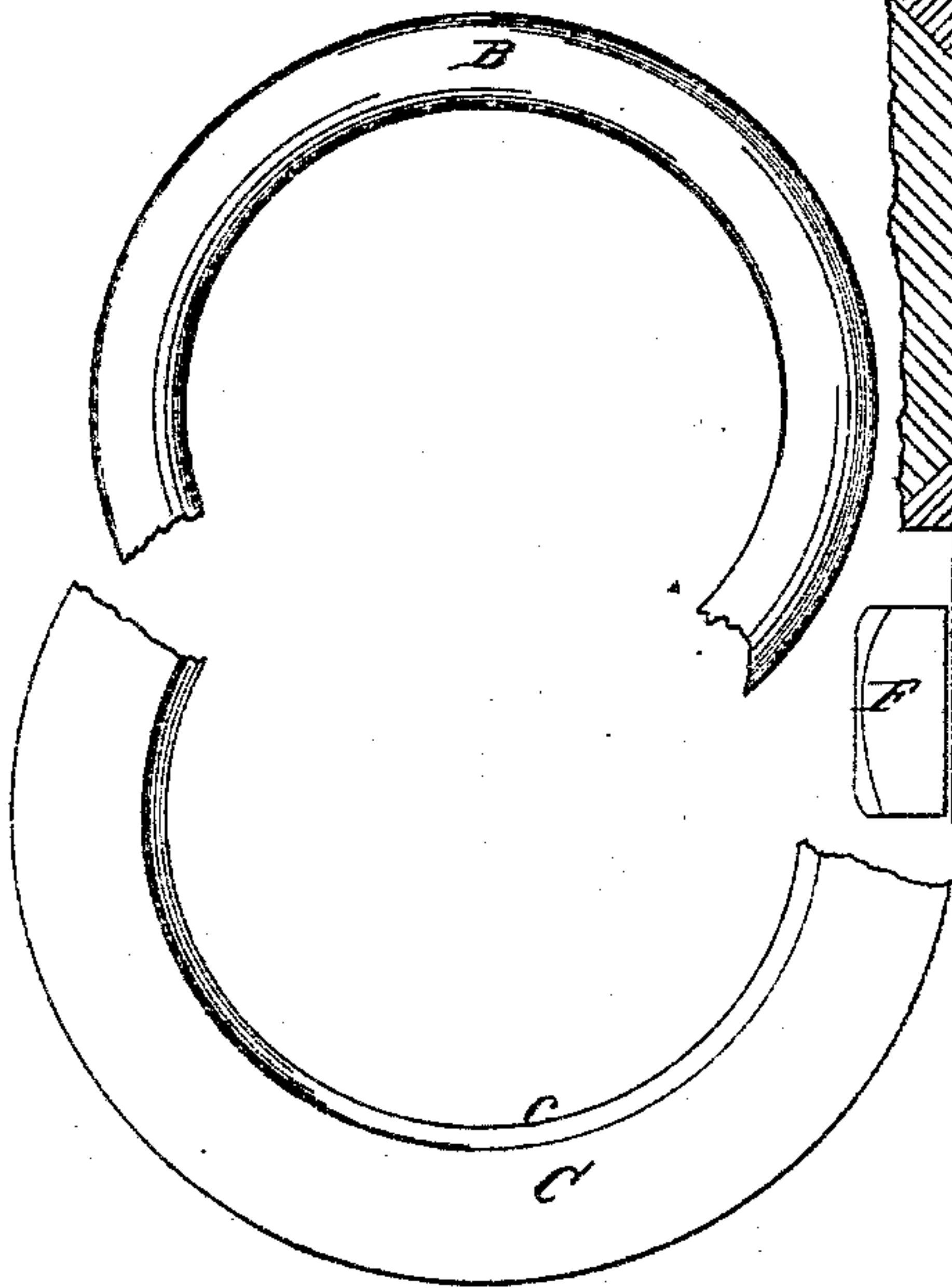


Fig. 6.

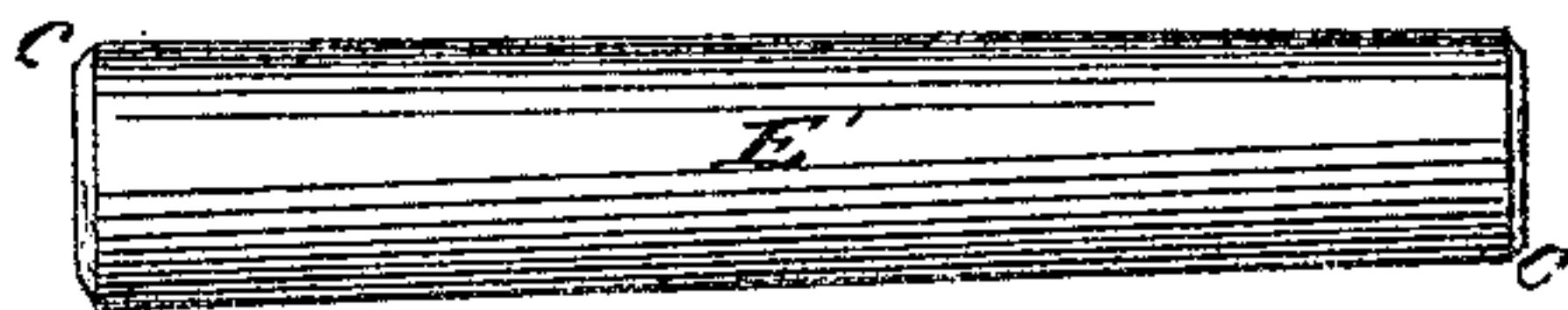
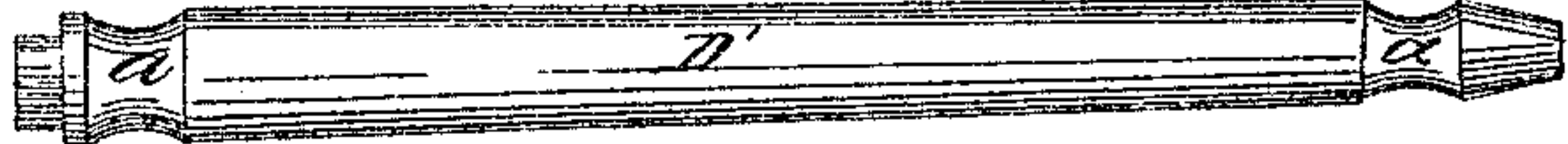


Fig. 7.



United States Patent Office.

GEORGE F. LYNCH, OF MILWAUKEE, WISCONSIN.

Letters Patent No. 62,143, dated February 19, 1867; antedated February 4, 1867.

IMPROVED RAILROAD BOX AND JOURNAL.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE F. LYNCH, of Milwaukee, in the county of Milwaukee, and State of Wisconsin, have invented certain new and useful improvements in Boxes and Journals for Railroad Cars or other carriages, and which may be used for shaft or journal bearings generally, and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 represents a sectional perspective view of a box and journal as designed for railroad cars.

Figure 2 represents an end view of the box or bearing with the journal or axle removed.

Figure 3 represents a longitudinal vertical section through the box and journal.

Figures 4, 5, 6, and 7 represent details of the box, which will be hereafter more particularly referred to.

Similar letters of reference, where they occur in the separate figures, denote like parts of the box or journal in all the drawings.

My invention consists in a box and journal or bearing, in which all the contact or weight-supporting parts can roll against each other, or one against the other, but under such regulation that they cannot clog or cut, and by which means the friction is much reduced, and the necessity of frequent oiling entirely obviated.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The box or bearing A is made in sections, for the purpose of introducing the rings B C, and the rolls D E, into its interior; and when they are in place the bolts F are passed through the sections, and their nuts run on, which holds all in position. And when the journal G is inserted in the box or bearings it serves as a key to keep the rings and rolls in their proper relative positions, whilst they are free to roll around against each other. The rings B are made of round iron, or approximately so, and form ways, against which the necks *a* of the smaller tapering rollers D' run. The rings C are made of flat or chamfered iron, and are designed for holding the larger rolls E' longitudinally; and these rolls are dressed off at their ends so as to run against the chamfer of the rings, as seen at *c c*. The rollers D' D' alternate with each other, one keeping the other or next adjacent one always in proper position. The journal G has its bearing upon the larger rollers E', whilst the interposed rolls D', between those E', prevent the latter from ever getting out of proper working position. The rolls D' are prevented by their necks from running against the rollers E' with too much friction. The journal G is made with a chilled sleeve, cap, or covering over it, as seen in fig. 3, to prevent cutting or wear, whilst its inner portion, of wrought iron, gives it the necessary strength. The sleeve or covering may be shrunk on to the wrought-iron portion, or otherwise secured thereto. The rollers being of a tapering form, their rolling surfaces are so arranged as to equalize, or nearly so, their relative surface speed or motion. It will be perceived that the journal G and the rollers E' roll against and in concert with each other. The rollers E' roll against and in concert with the rollers D', placed between them, and in the line of their length, and against the rings C, at the chamfered corners *c*; at their ends. The rollers D', in addition to their rolling motion against and with the rollers E', also roll against or with the rings B, by their necks *a*, which keep them in proper position longitudinally. Thus all the parts, though not positively connected to each other, are so restrained or kept in proper working position as to prevent cramping or cutting or binding between any of them. The rings B C are also unrestrained, being free to move with or independent of the parts bearing on or against them, thus leaving all the parts free to move just as the friction for the time being should require of them. By this construction of journal and box, or roller and ring bearings, a journal has been very rapidly run for several hours without any lubricating material upon it, and without apparent heating or wearing, whilst the friction has been very materially reduced; and actual experiment has proven that very little, if any, lubrication is required. When the journal is inserted into this roller-box or bearing it keeps all the parts in their proper positions circumferentially.

Having thus fully described my invention, what I claim, is—

Combining with a box or bearing for an axle or journal a series of rollers and rings, not positively fastened to each other, or to the box or bearing, but so controlled as to be kept in proper working position, and free to move with or independent of each other, and with or independent of the journal or shaft, substantially as and for the purpose set forth.

G. F. LYNCH.

Witnesses:

A. B. STOUTON,

WM. H. ROWE.