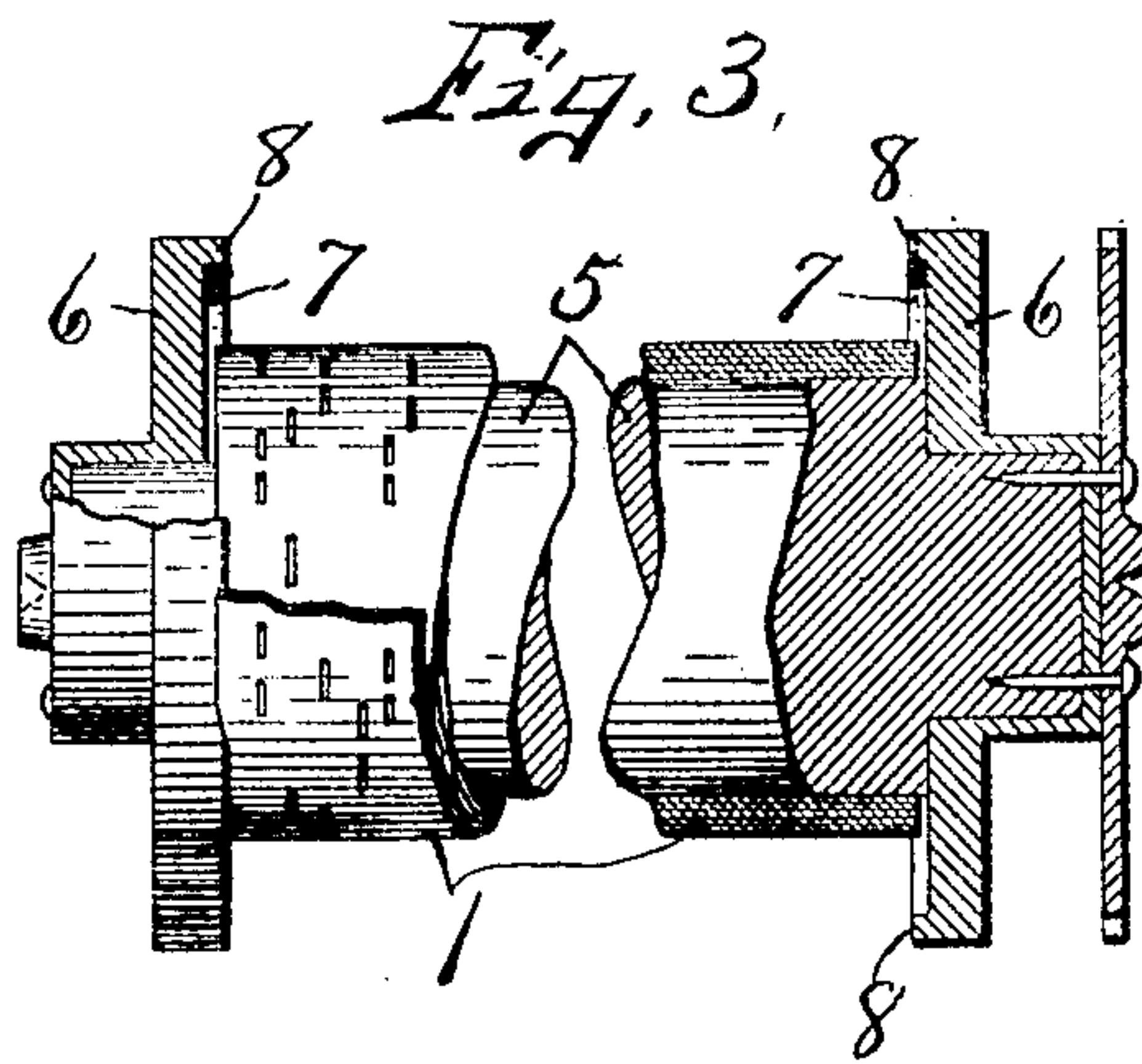
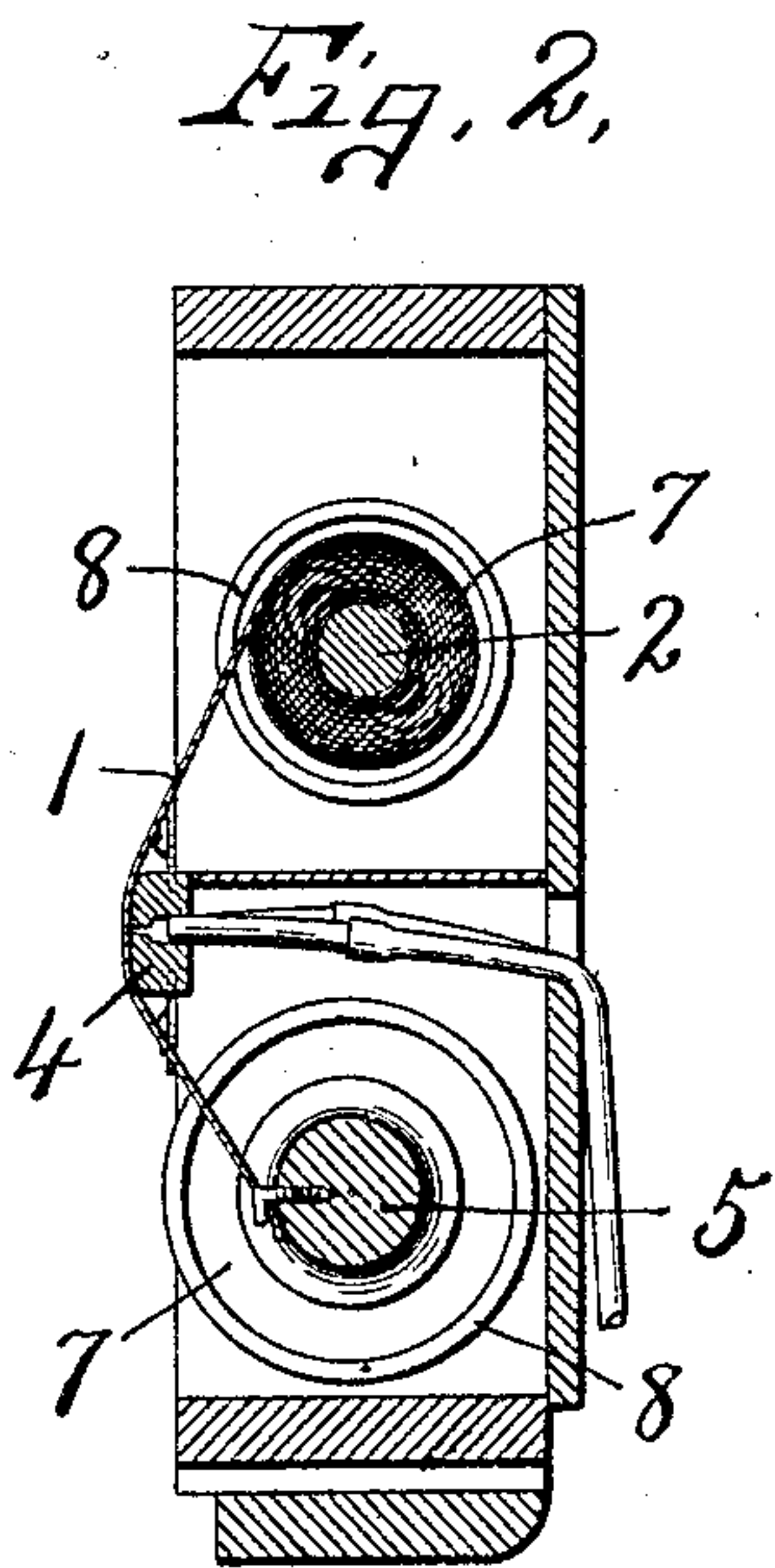
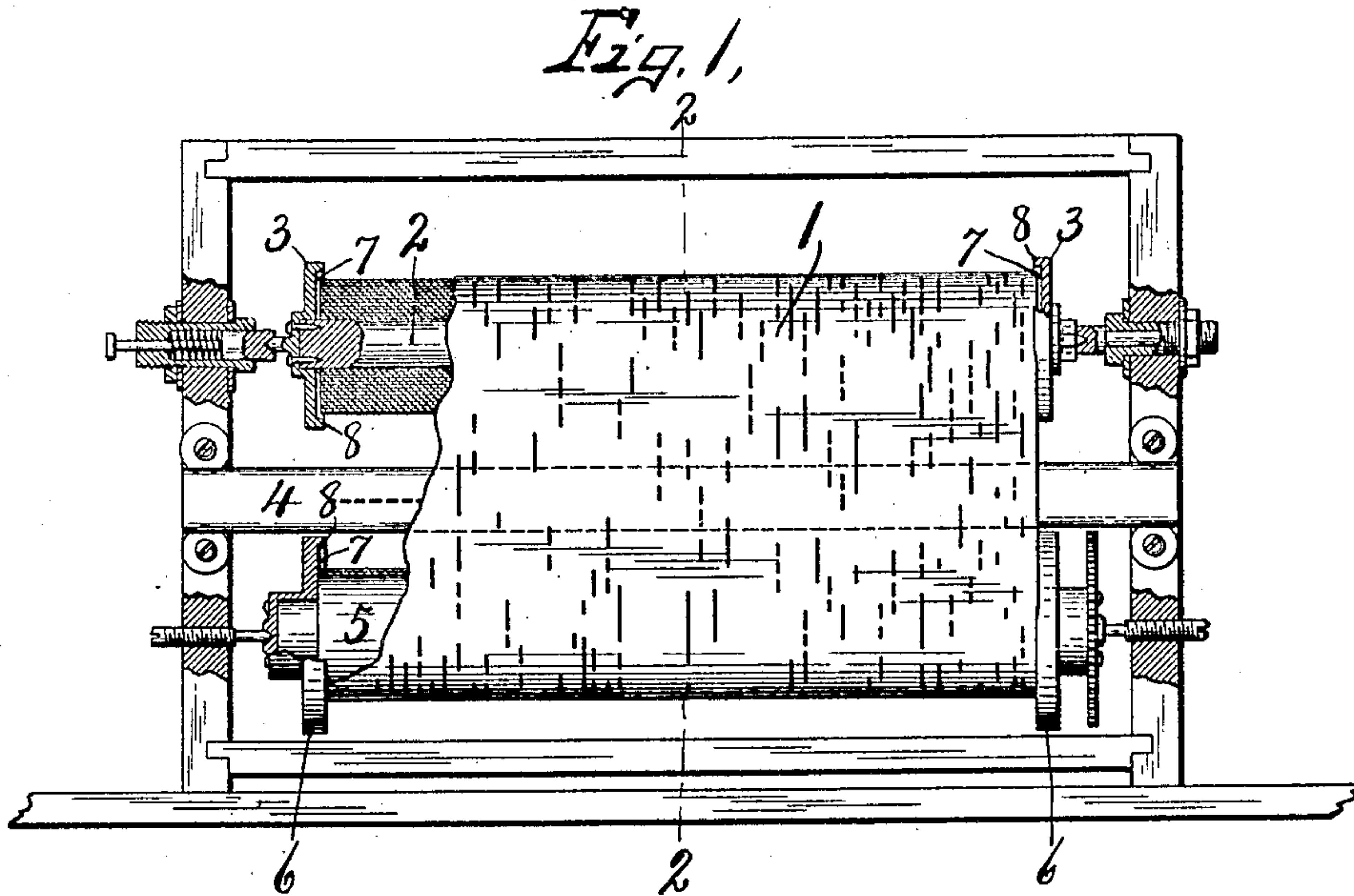


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 ROLLER FOR PAPER MUSIC SHEETS.
 APPLICATION FILED SEPT. 26, 1906.

904,762.

Patented Nov. 24, 1908.



Witnesses.

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LEWIS B. DOMAN, OF ELBRIDGE, NEW YORK.

ROLLER FOR PAPER MUSIC-SHEETS.

No. 904,762.

Specification of Letters Patent.

Patented Nov. 24, 1908.

Application filed September 26, 1906. Serial No. 336,340.

To all whom it may concern:

Be it known that I, LEWIS B. DOMAN, of Elbridge, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Rollers for Paper Music-Sheets, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in rollers for perforated paper music sheets of the class commonly used in pneumatic self-playing musical instruments. It is well known that paper of this character is subject to more or less expansion and contraction under the influence of varying degrees of humidity, and that when wound upon the rollers between the guide flanges which are necessary to guide the sheet to properly register its apertures with the tracker-ducts there is always more or less liability of the reeled paper expanding to such a degree as to bind against the flanges which not only interferes with the free unwinding of the sheet, but is liable to cause the edges of such sheet to become wrinkled or overturned, if not actually torn in the operation of winding from one roller to another. This mutilation of the edges of the sheet not only materially interferes with the free winding from one roller to the other, but also renders the alinement or guiding of the sheet more or less uncertain and frequently allowing the sheet to shift laterally (while passing over the tracker-bar) to such an extent as to cause a certain line of apertures to register with adjacent ducts of the tracker-bar.

My object, therefore, is to obviate this difficulty by recessing the inner faces of the flanges of the rollers to allow for the maximum expansion of the reeled paper without binding, and at the same time leaving the distance between the marginal edges of the flanges to correspond with the standard width of paper so as to guide such paper in its travel across the tracker-bar. In other words, I have sought to maintain the standard distance between the guiding faces or flanges of the roller, and at the same time to allow ample room for expansion of the paper when reeled in a more or less solid body upon the shaft of the spool.

In the drawings—Figure 1 is a front elevation of a pair of rollers and intervening tracker-bar of a self-playing musical instrument, showing the music-sheet in operative position as being wound from one roller to

the other across the tracker-bar, portions of said rollers being shown in section. Fig. 2 is a transverse sectional view through said rollers and music-sheet taken on line 2—2, Fig. 1. Fig. 3 is an enlarged longitudinal sectional view of my improved roller, the central portion being broken away.

The music-sheet, as —1—, is originally attached to and wound upon the cylindrical axis, as —2—, of a spool or roller having end flanges —3— and in the operation of playing a musical selection the free end of the music-sheet is drawn across and upon a tracker-bar —4— and is attached to the cylindrical shaft, as —5—, of a take-up spool or roller having end flanges —6—. These two rollers, so far as my invention is concerned, may be identical and interchangeable, except insofar as they are adapted to be operated by their particular driving mechanisms. In other words, my invention contemplates any roller or spool having a shaft and end-guide flanges for the music-sheet. These music-sheets are cut to a predetermined or standard width and the lines of perforations are also cut to register with the vents of a tracker-bar, and it, therefore follows that in order that the lines of perforations of the music-sheet may exactly register with their proper ducts in the tracker-bar, the music-sheet must be accurately guided in its travel across such tracker-bar, and the flanges —3— are carefully spaced apart a distance corresponding to the width of the music-sheet to accomplish this result. I have discovered, however, that under varying degrees of humidity of the atmosphere the width of the paper will be perceptibly changed thereby causing the reeled body of paper to bind at the ends against the flanges unless some provision is made to obviate such condition. After repeated experiments in an effort to overcome this objectionable binding effect and consequent wrinkling or mutilation of the edges of the paper, I have discovered that this objectionable effect may be successfully overcome by providing the inner face of each flange with an annular recess —7— of sufficient radial depth from the periphery of the shaft —2— to receive the entire roll of paper and of sufficient axial depth to permit the maximum expansion of the paper without binding against the end walls of the recesses, said recesses extending radially to nearly, but a slight distance short of the periphery of the flanges, leaving each flange with an

inwardly projecting marginal rib —8— surrounding the recess —7—, the bases of the recesses being flat and at right angles to the axis of the roller.

The distance between the inner adjacent faces of these annular ribs —8— is substantially equal to the standard width of paper as originally cut while the distance between the bases of the recesses is slightly greater than that between the ribs. It therefore follows that when this perforated sheet of paper is wound upon the roller it has ample clearance for expansion endwise into the recesses —7—, but when drawn across the tracker-bar, as a single sheet, either backwardly or forwardly its edges may be slightly compressed by contact with the guide-ribs —8—, and may cause a slight buckling of the sheet transversely while in contact with said ribs, but the transverse pressure is uniform on both edges of the single moving sheet which is readily flattened out by the tracker-bar, causing its apertures to accurately register with the ducts. The invention, therefore, lies primarily in providing one or both of the rollers with a central shaft and end flanges

having annular recesses in adjacent faces extending radially from the shaft forming inward turned marginal ribs surrounding the recesses.

What I claim:

A roller for paper music sheets comprising a cylindrical shaft having end flanges, said flanges having their inner faces slightly recessed to form annular inwardly projecting ribs, the bases of the recesses being flat and disposed at substantially right angles to the axis of the roller and the distance between the faces of the annular ribs being substantially equal to the standard width of paper, the distance between the bases of the recesses parallel with the axis of the roller being the same from the periphery of the shaft to the ribs and slightly greater than the distance between the inner faces of said ribs.

In witness whereof I have hereunto set my hand this 21 day of September 1906.

LEWIS B. DOMAN.

Witnesses:

FRED C. CARPENTER,
M. E. ELLIOTT.