

(No Model.)

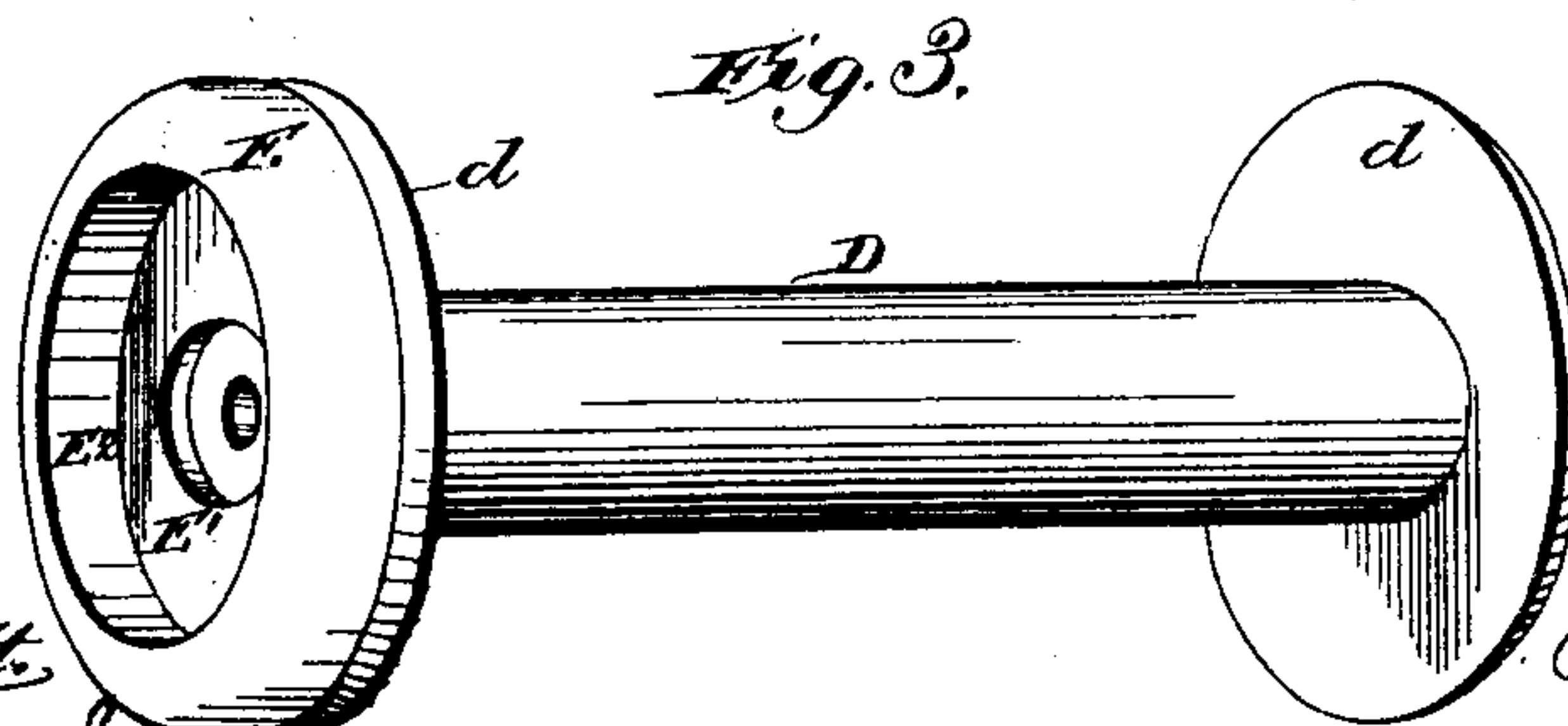
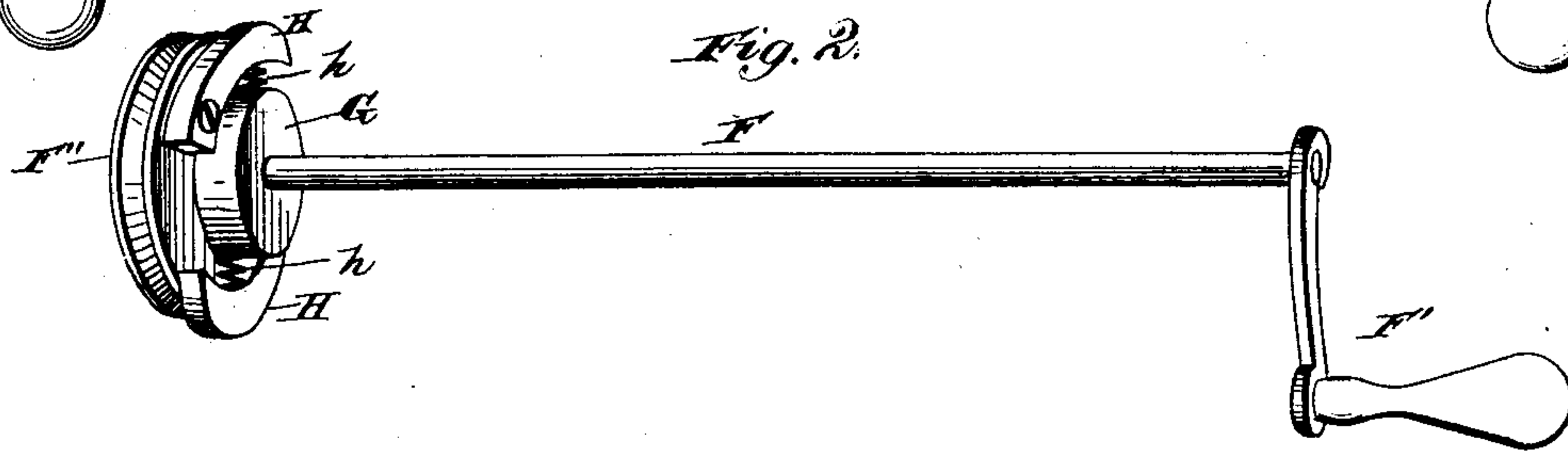
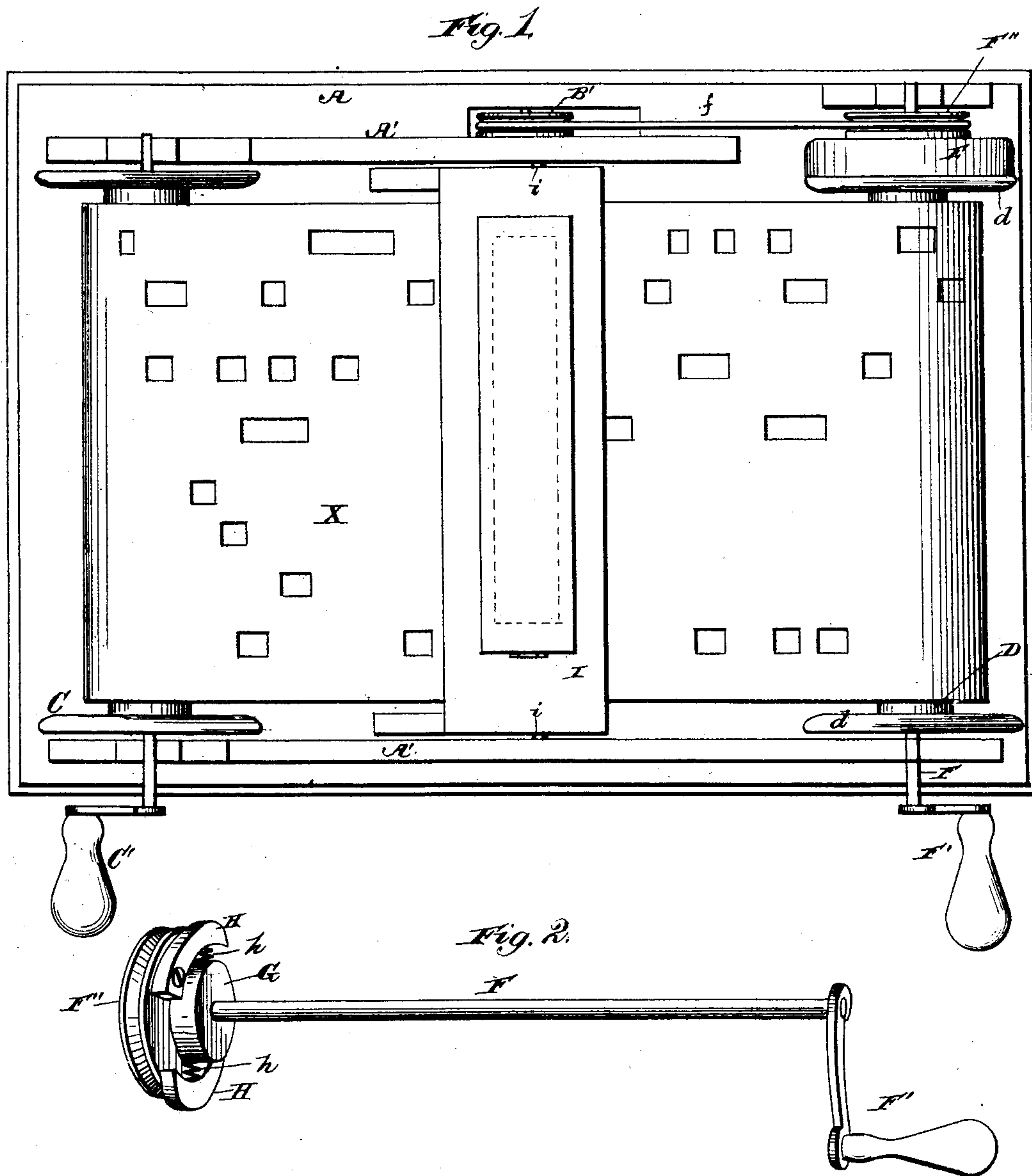
2 Sheets—Sheet 1.

J. McTAMMANY, Jr.

MECHANICAL MUSICAL INSTRUMENT.

No. 273,120.

Patented Feb. 27, 1883.



Witnesses

Robert L. Smith.

Edward G. Siggers.

Inventor.

John McTammany.

W. H. Babcock

Att'y.

By

(No Model.)

2 Sheets—Sheet 2.

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Fig. 4.

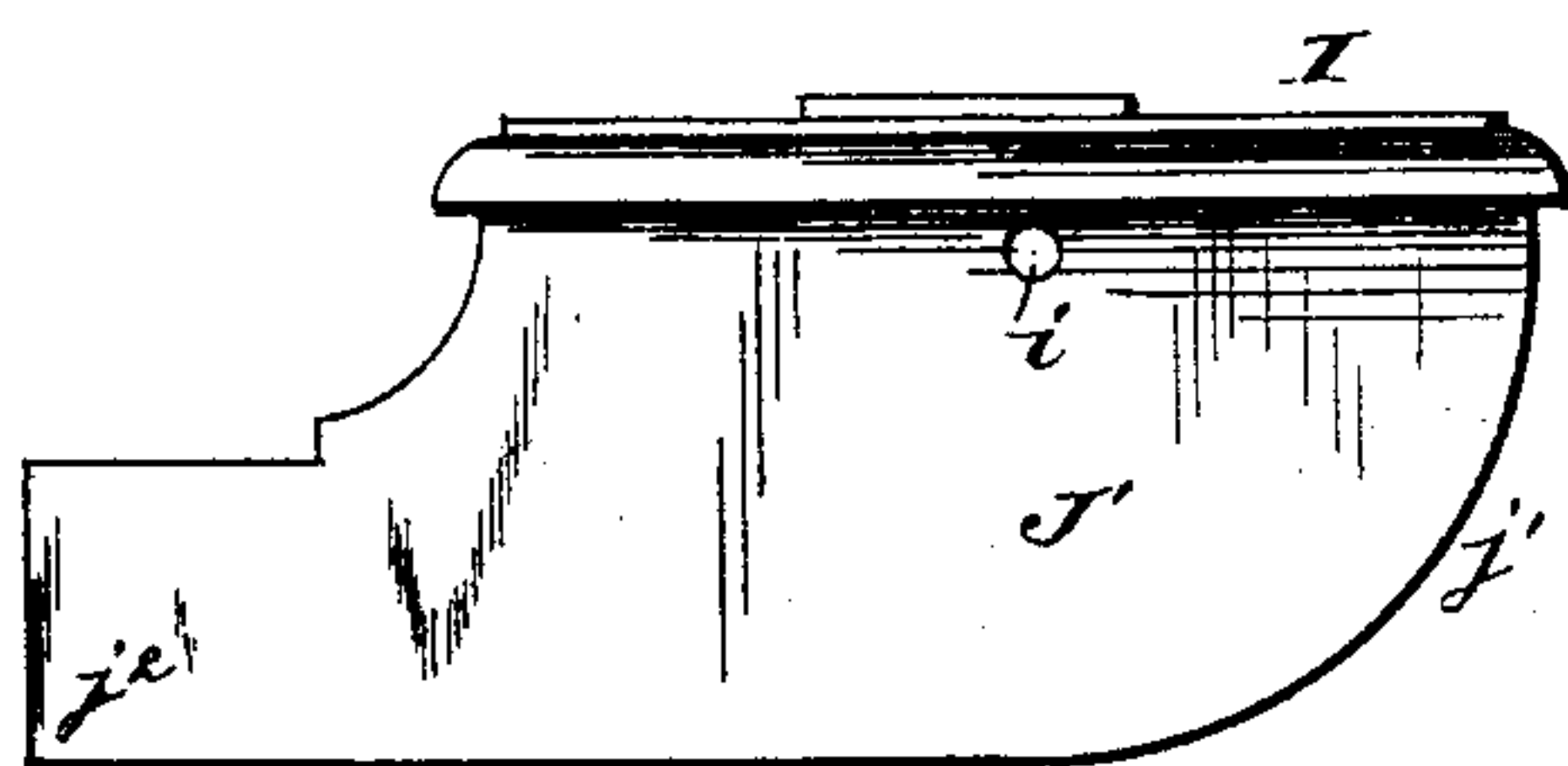


Fig. 5.

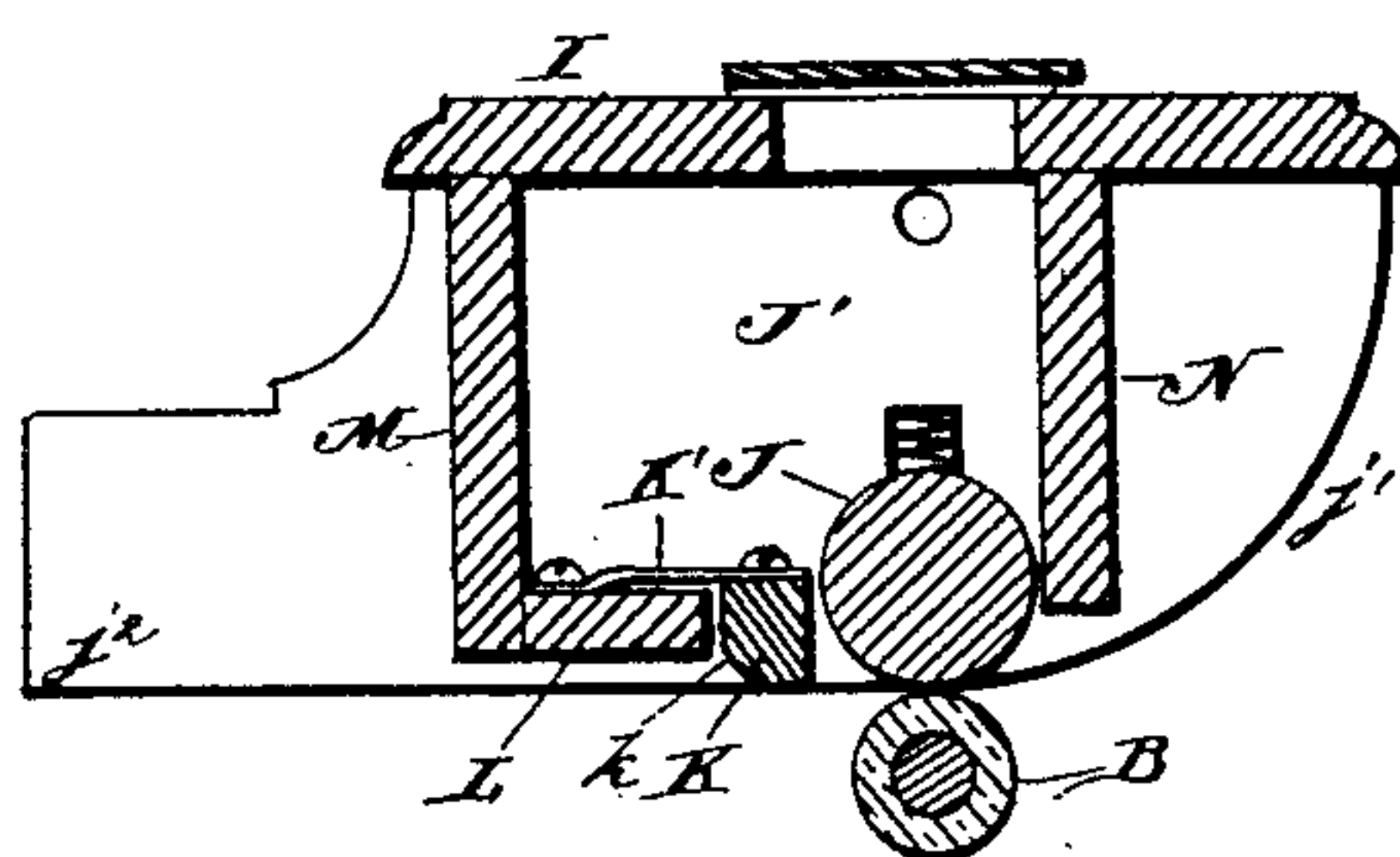
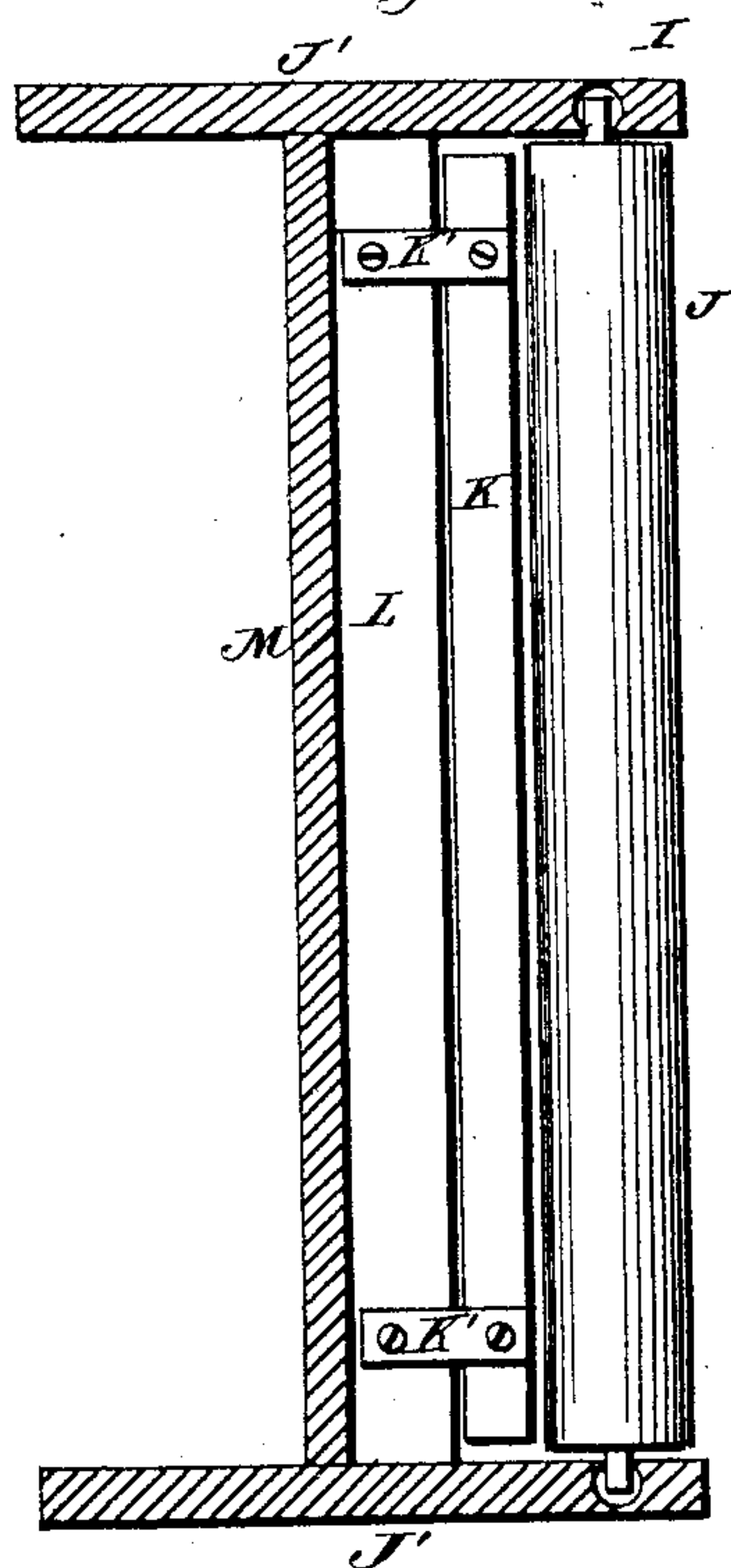


Fig. 6.



Witnesses.

Robert Everett,

Edward G. Siggers.

Inventor.

John McTammany Jr.

By

W. H. Babcock

Atty.

UNITED STATES PATENT OFFICE.

JOHN MCTAMMANY, JR., OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO
ALEXANDER MCTAMMANY, OF SAME PLACE.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 273,120, dated February 27, 1883.

Application filed August 30, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN MCTAMMANY, JR., a citizen of the United States of America, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Automatic Musical Instruments; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to automatic musical instruments, and more especially to the winding and feeding mechanism for the perforated music-sheets used therein.

The said invention consists in certain improvements in the devices for winding the music-sheet, the devices for feeding the same, and the movable rack to which they are attached, which improvements are hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 represents a plan view of a machine embodying my invention. Fig. 2 represents a detail perspective view of the crank-shaft which feeds the music-sheet, with its pulley and spring-pressed friction-cams attached. Fig. 3 represents a perspective view of the winding-roll for the music-sheet and the recessed hub or disk attached thereto. Fig. 4 represents an end view of the guide-rack or feed-rack for the music-sheet. Fig. 5 represents a vertical section through the said rack and the feed-roll and presser-bar attached thereto, taken longitudinally of the machine and through one of the springs of said bar. Fig. 6 represents a plan view, in detail, of the presser-bar, its supporting cross-bar, and the springs whereby it is attached thereto.

In said drawings, A designates the casing of the machine, having side walls A' A' erected on the top thereof; B, the lower feed-roll of the music-sheet, having a belt-pulley, B', attached to the protruding end of its shaft; C, the rewinding-roll, provided with a rewinding-crank, C', and D the tubular winding-roll for the music-sheet. With the exception of the last-named roll, the above-mentioned parts are

constructed substantially in the usual manner, and require no particular description. The tubular roll D is of spool form, having fixed disks *d d* at each end, to one of which a thick hub or disk, E, is attached. This disk E has in its outer face a circular recess, E', surrounded by a rim, E², and communicating by a central passage with the interior of said tubular roll.

F designates a driving-shaft or spindle longer than roll D, and having the latter loosely sleeved upon it, so as to allow motion of said roll on said shaft, as hereinafter stated. On one end of said shaft F a crank-handle, F', is attached, and on the other (the one near recessed disk E) a grooved pulley, F'', which is belted to pulley B' by belt *f*, so that the operation of crank-handle F' drives the lower feed-roll, B, and thus feeds forward the music-sheet, which latter is designated as X. A small circular offset, G, is formed on the inner face of pulley F'', being concentric therewith, and to the said inner face two curved friction cams or bars, H H, are pivoted at one end of each, their other ends being forced outward beyond the periphery of said pulley by the action of expansion-springs *h h*, which set into sockets in the periphery of offset G and bear against the inner faces of the free ends of said curved bars or cams. Said offset and cams or bars set into recess E' of disk E, so that said springs force said cams outward against the inner face of circular rim E² of said disk. The free ends of said cams or bars are inclined rather abruptly, and clutch against said rim E² as said shaft is turned forward, so as to cause said roll D to turn with said shaft. Thus the same motion feeds and winds the music-sheet X. As the roll D is considerably larger in diameter than the shaft of the lower feed-roll, it is evident that when the motion of the crank F' is sufficiently rapid to properly operate said feed-roll it will cause said winding-roll D to strain said music-sheet and probably to tear it, unless some yielding or compensating device is employed. This is the purpose and function of the friction cams or bars hereinbefore described. When the strain of the music-sheet becomes excessive it affords resistance enough to overcome the friction of said cams, and holds the winding-roll D mo-

tionless until the operation of shaft F has fed forward a sufficient length of the music-sheet to relieve said strain.

I designates the feed-rack or guide-rack, to which is attached the upper feed-roll, J. Hitherto said rack has ordinarily been pivoted to the side walls A' at its lower rear corners, and therefore has required some special device to counteract its tendency to rise while the music-sheet was fed forward through and by the feed-rolls, or, more exactly, through said rolls and by the lower one of the pair. I however improve on this construction by locating the pintles *i i* (a pivot-rod may be substituted) at points immediately above the ends of the upper feed-roll when said upper feed-roll is in position to operate, and also vertically above the journals of the lower feed-roll. As the pivots of the frame or rack are then in the same vertical plane that passes longitudinally through the axes of the feed-rolls, it is evident that the passage of the music-sheet through the latter will not exert any leverage on the rack, so as to lift the upper feed-roll. I also curve the lower rear corners of the side walls J' of said rack, as shown at *j'*, but leave the corresponding front corners thereof angular, so that the parts of the side pieces proximate thereto are flat against the music-sheet to the very corner, as shown at *j*². In this connection, it should be remarked, I use the term "front" to signify the face of the rack where the music-sheet is received and "rear" that where it is delivered. The result of this construction is that as the music-sheet is fed through the rack it does not lift the rack in the least, but merely causes the spring-pressed upper feed-roll to rise slightly against such pressure toward the pivotal points of the rack. The construction of the end pieces, J', at the front corners, *j*², will prevent any upward motion of the rack itself. When the motion of the music-sheet is reversed by rewinding, the curvature at *j'* will allow said rack to readily tilt and free said music-sheet from all impediment. Hitherto I have generally used a presser-roll to hold said music-sheet down to its work, though a bar without rotation has sometimes been employed. I find, however, that the best practical results are obtained by the improved form of drag-bar designated K, which has its bottom curved and beveled, as shown at *k*, and is connected by springs K' K' to a fixed horizontal bar, L, secured on a fixed vertical wall, M, which closes the rack at its front. This drag does not yield too easily, as most pressure-rolls do, and therefore will not allow the music-sheet X to crumple or fold between it and the feed-rolls. It has, however, a cer-

tain curvilinear yielding motion, owing to the shape of its bottom and to its elastic attachment, which avoids all danger of rasping or unduly retarding the music-sheet, as might be done by a presser-bar having a flat bottom and vertical motion only.

N designates the rear wall of the rack I, which is extended down so near to the feed-roll B as practically to prevent the escape of sound between them or reduce such escaping sound to a very slight volume. The four walls J' J', M, and N of said rack form, with the top thereof, a sound-chamber, which receives the vibrations of air ascending through the reed-ducts. In the top of the said rack an opening is made, and this may be supplied with a swell or crescendo, if desired.

Of course the amount of friction exerted by the cams hereinbefore described may be varied by changing the springs for stronger or weaker ones or by loosening or tightening said springs. The action of the drag or yielding-pressure bar may be similarly varied.

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

1. In an automatic musical instrument, a tubular winding-roll having a disk or enlargement at one end, in combination with shaft within said roll and a pair of pivoted spring-pressed cams attached to said shaft and binding against said disk, for the purpose set forth.

2. In combination with pulley F², having circular offset G, the cams or bars H, pivoted to said pulley, and forced outward by springs *h h*, socketed in said offset, the shaft F, rolls D B, recessed disk E, pulley B', and the belt connecting said pulleys, substantially as set forth.

3. In an automatic musical instrument, a rack supporting the upper feed-roll, in combination with the lower feed-roll, said rack being pivoted at points in the transverse vertical plane which passes through the axis of the upper feed-roll, from end to end thereof, when the latter is in position to operate.

4. In combination with the case of a musical instrument, a rack pivoted thereto at points above the feed-rolls, and having its lower rear corners curved or rounded, substantially as and for the purpose set forth.

5. The drag K, curved at the bottom on one side, in combination with the rack and springs connecting it thereto, for the purpose set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN MCTAMMANY, JR.

Witnesses:

W. H. BABCOCK,
EDWARD G. SIGGERS.