

(No Model.)

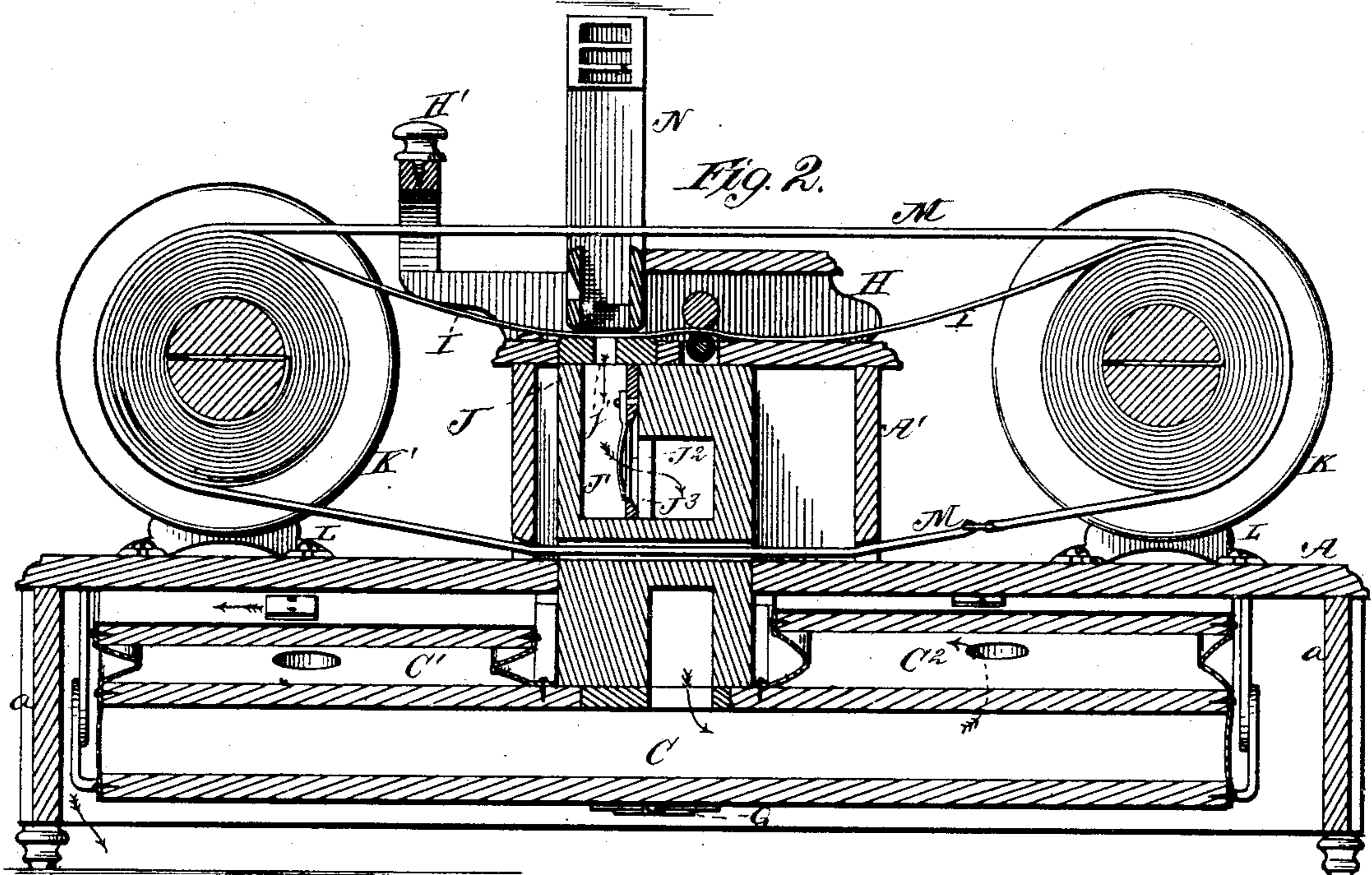
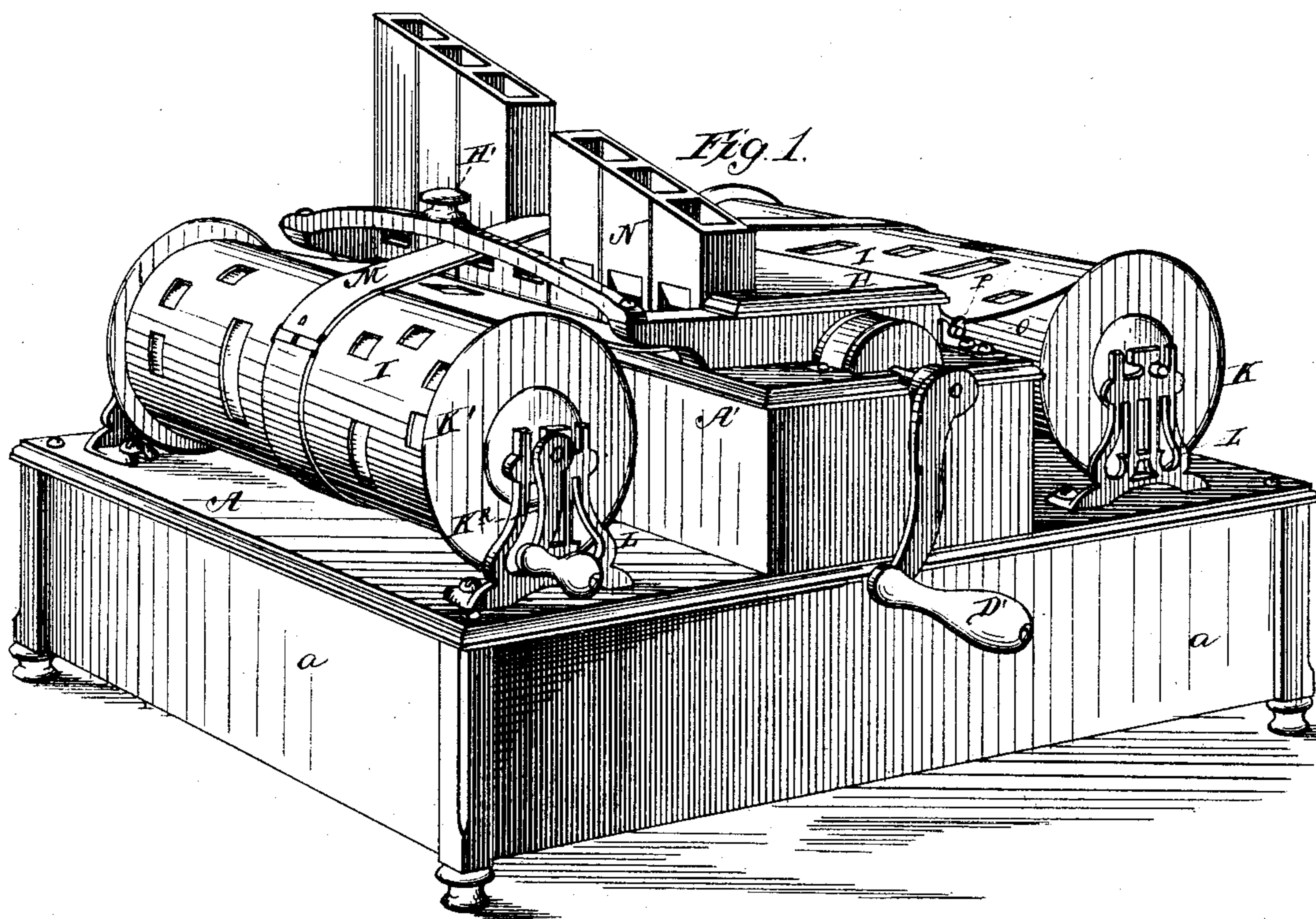
3 Sheets—Sheet 1.

J. McTAMMANY, Jr.

MECHANICAL MUSICAL INSTRUMENT.

No. 259,412.

Patented June 13, 1882.



Witnesses.
Robert Everett
Edward G. Diggers

Inventor:
John M.^c Tammany Jr.
by W^m H Babcock
Attorney

(No Model.)

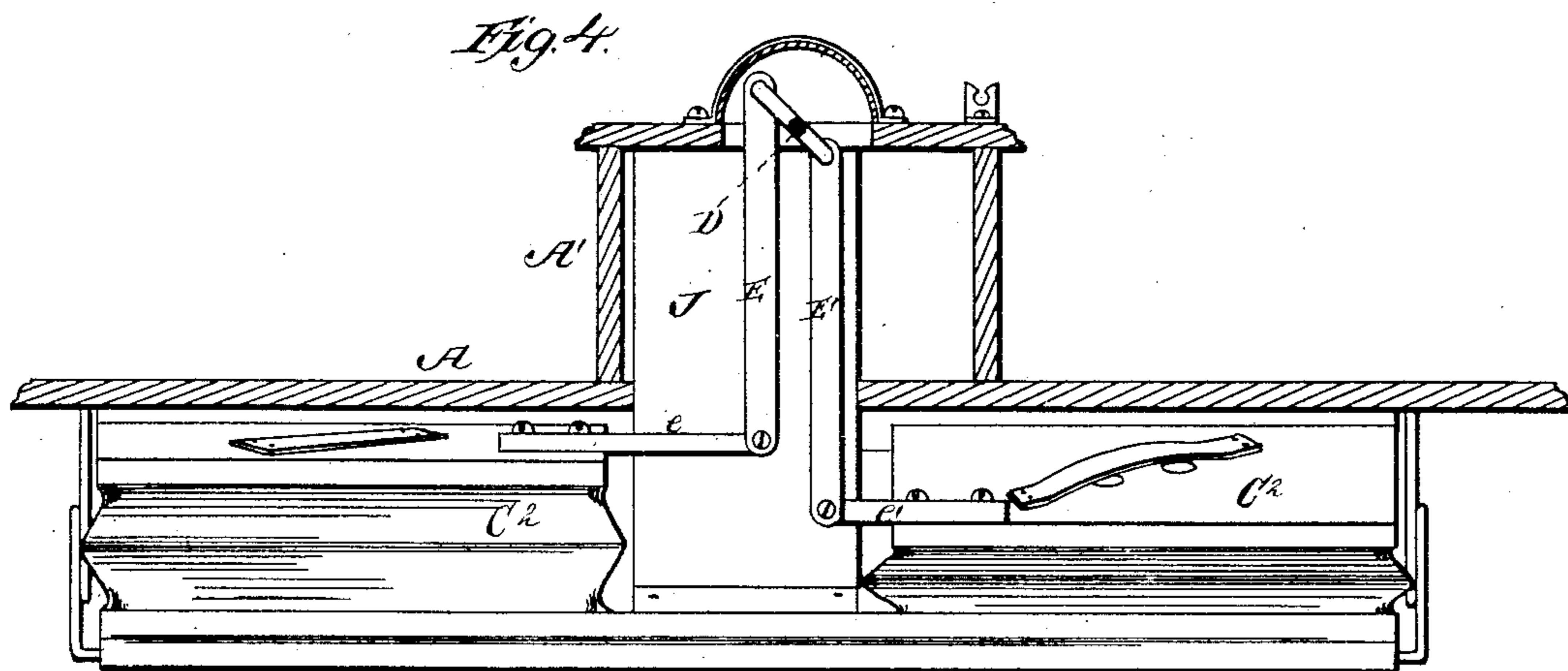
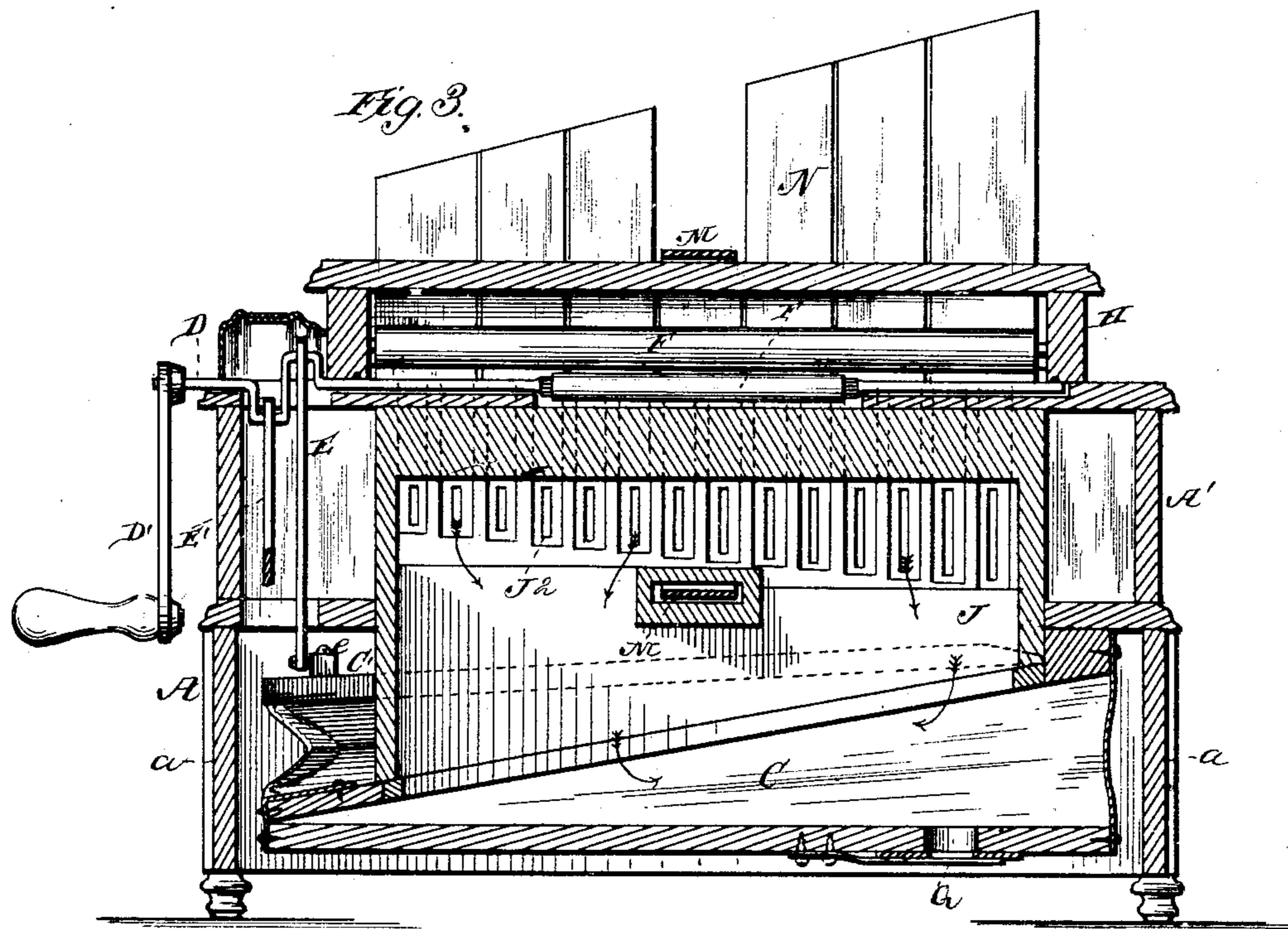
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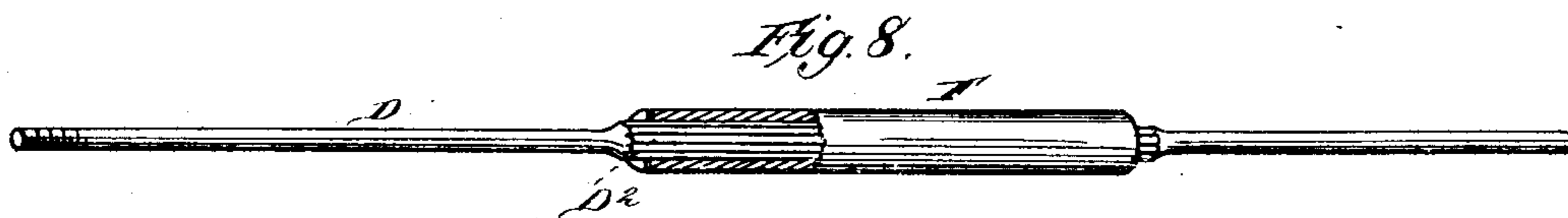
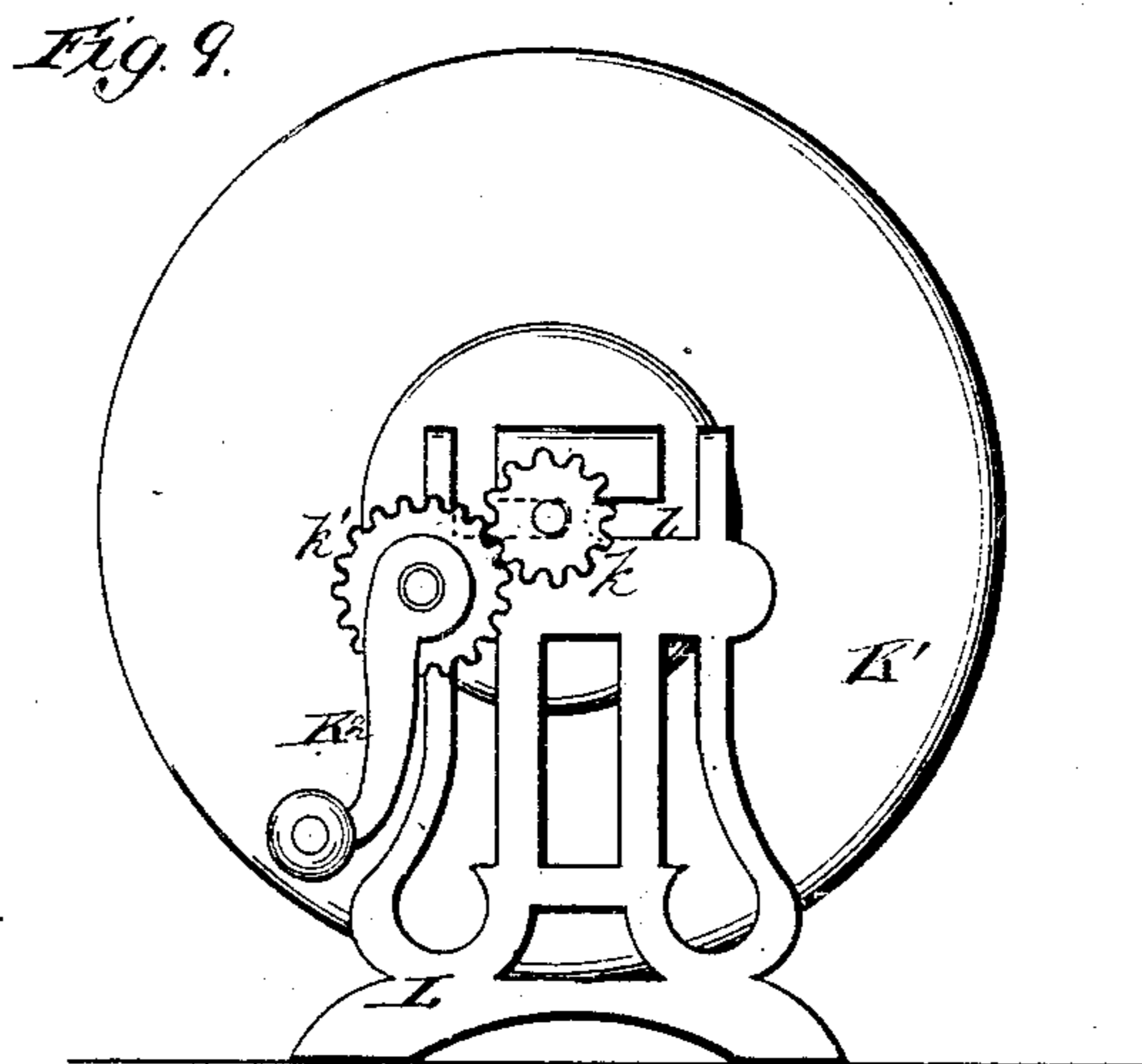
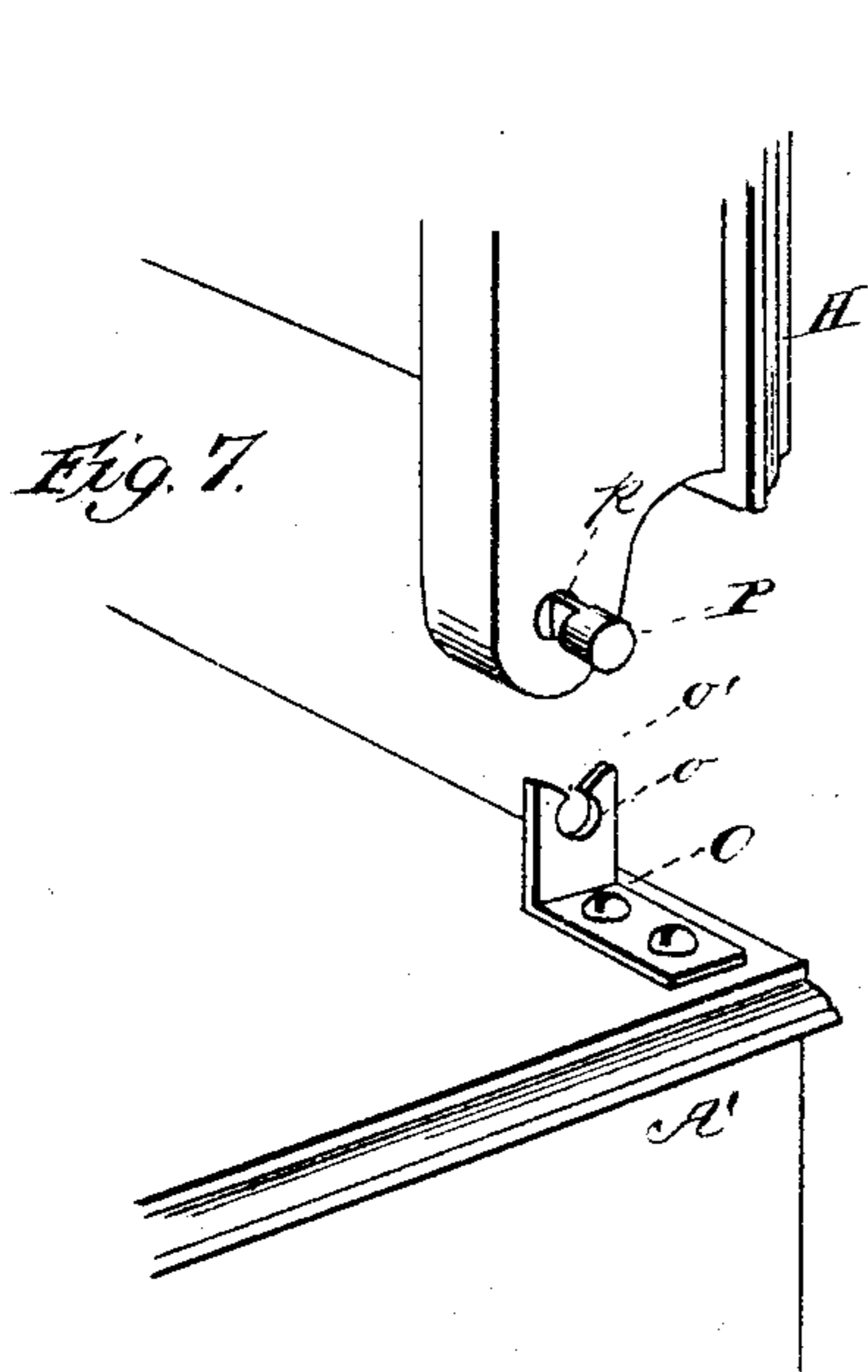
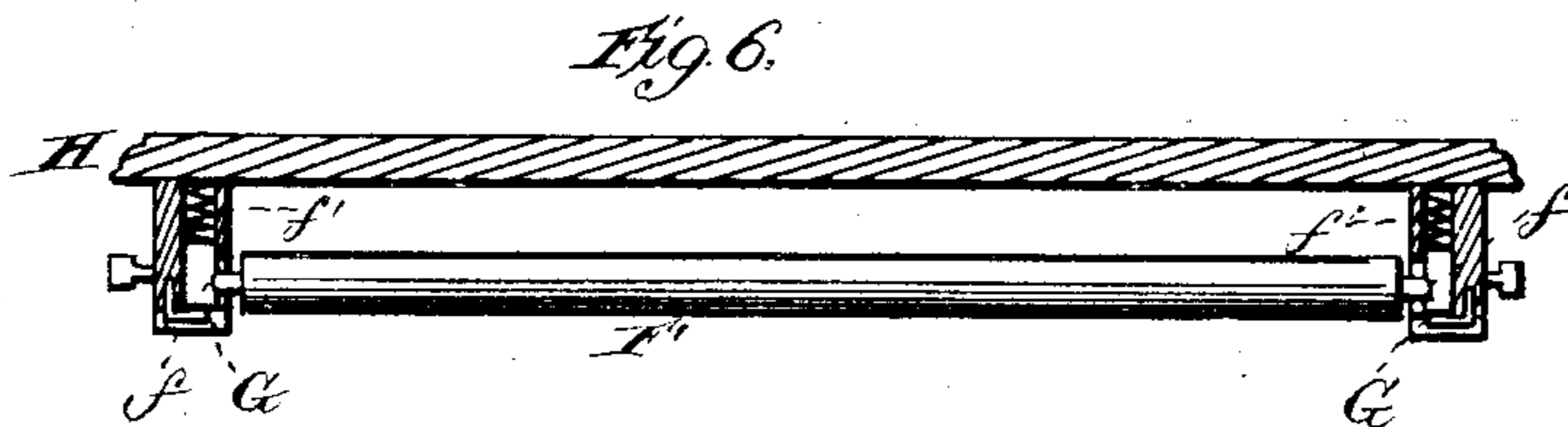
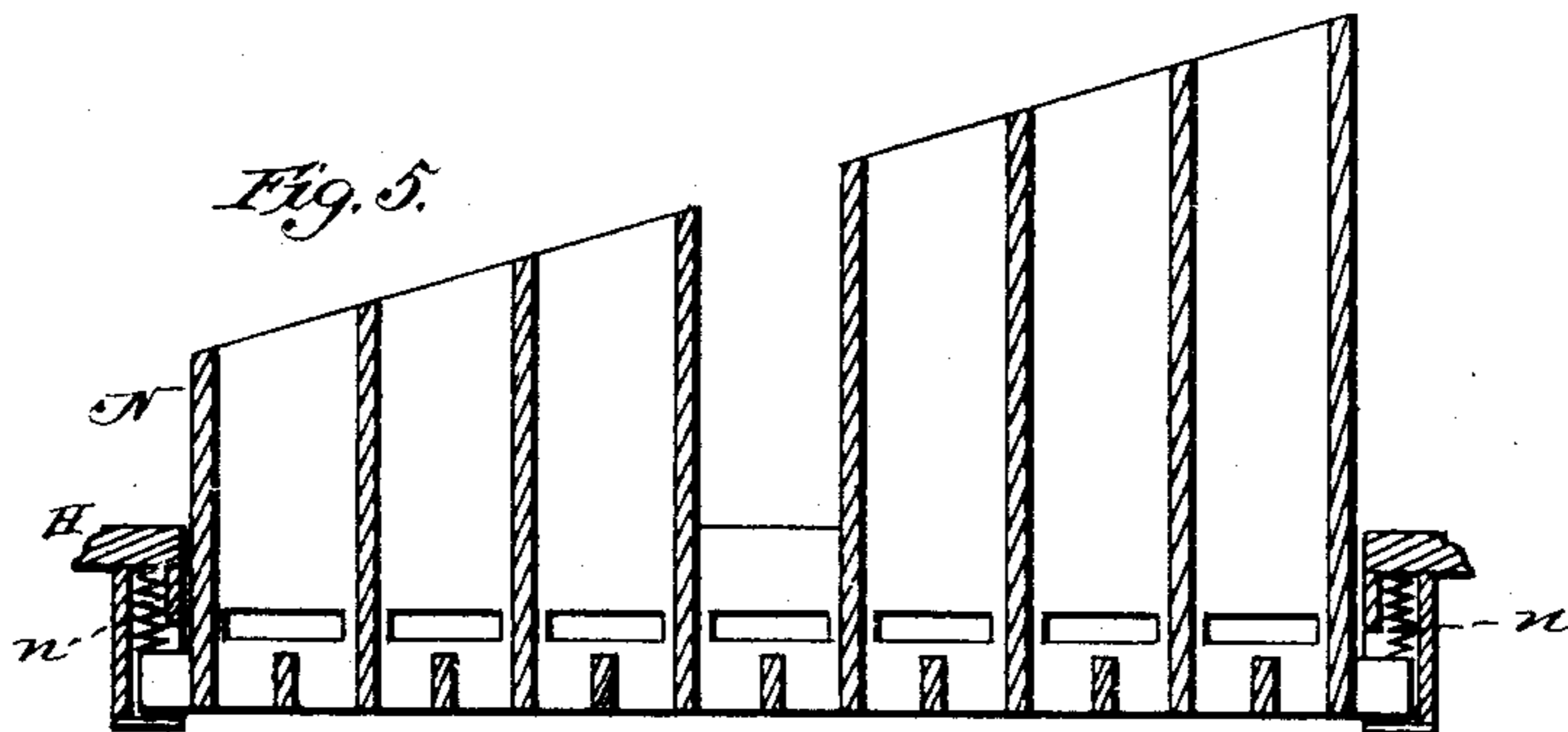
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UNITED STATES PATENT OFFICE.

JOHN McTAMMANY, JR., OF WORCESTER, MASSACHUSETTS, ASSIGNOR TO
ALEXANDER McTAMMANY, OF AKRON, OHIO.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 259,412, dated June 13, 1882.

Application filed December 23, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN McTAMMANY, Jr., a citizen of the United States, 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 it consists in the construction and combination of the various improvements, hereinafter more particularly described and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of an instrument embodying my invention. Fig. 2 represents a vertical longitudinal section of the same. Fig. 3 represents a vertical cross-section of the same. Fig. 4 represents a side view of the bellows and their operating mechanism, the side of the casing being removed. Fig. 5 represents a detail view in vertical section of the spring-pressed set of pipes. Fig. 6 represents a detail view of the upper feed-roll and its spring-pressed bearings. Fig. 7 represents a detail perspective view of one of the side hinges for the guide-rack, the parts thereof being separated. Fig. 8 represents a detail view of the lower feed-roll and its spindle, said roll being partly broken away to show the fluted form of the drum or enlargement of the said spindle; and Fig. 9 shows an end view of a modification of the winding-crank and adjacent devices.

A designates the supporting-table of the instrument, the sides and ends of which are provided with casing-pieces *a*, which inclose the space below the top of said table. On the middle portion of said top is a supplementary casing or table, *A'*, the interior of which communicates with said space. Within said space, under the top of said table *A*, are three bellows, *C C' C''*, the first, which is the reservoir-bellows, being arranged below, while the others

are arranged above it, one of them being on each side of the instrument with a space between them. Bellows *C'* and *C''* are smaller than *C* and communicate with the latter, and the exhaust is from *C* to *C'* and *C''*. These smaller bellows *C' C''* are operated alternately by means of a double-crank shaft, *D*, and connecting-rods *E E'*, Fig. 3, said shaft being operated by a crank-arm, *D'*, and said rods being pivoted at their lower ends to rigid bars *e e'*, attached respectively to each of said exhaust-bellows *C' C''*, as shown in Fig. 4.

Instead of mounting crank-arm *D'* directly on shaft *D*, as shown in Figs. 1 and 3, I may mount it on a smaller shaft or spindle (after the manner of the winding-roll shaft shown in Fig. 9) geared to said shaft *D* by cog-wheels or belt-gearing.

The shaft *D* is also the spindle of the lower feed-roll, *F*, which is a tube or sleeve of rubber that holds itself detachably but firmly upon a fluted enlargement, *D''*, of said shaft or spindle *D*. The said feed-roll and its spindle turn within a recess of the top of table *A*, which forms a broad bearing for said shaft or spindle. By this arrangement I economize space and avoid the raising of said sheet above the table-top as it passes through the feed-rolls. The upper feed-roll, *F'*, is an idle-roll, which turns in bearings *f f'*, that have vertical motion in recessed blocks *G*, attached to the under side of hinged guide frame or rack *H*. Springs *f' f'* above said bearings hold said roll *F'* down against the music-sheet. Thus said roll may, in case any accidental obstacle is encountered, move upward slightly independently of said hinged frame or rack. Said rack has on its vibrating end a handle or pressure-knob, *H'*, whereby it may be held down. These rolls *F F'*, feed the perforated music-sheet or valve-sheet *I*, as shown in Fig. 2, over the openings or air-ducts *j* of a reed-board, *J*, which extends down from the top of table *A'* to the lower or reservoir bellows, *C*, occupying the space between the upper bellows, *C' C''*, as shown in Fig. 2. The air, when drawn through any one of said ducts, first enters the valve-chamber *J'*, which conducts it to its reed *J''* and reed-cell *J'''*, whence it passes down to the reservoir-bellows *C*.

Of course various forms and arrangements of bellows may be employed to cause suction through said valve-sheet; but the construction, arrangement, and combination above described have decided advantages, whereby they become a valuable part of my invention. The reed-board, by entering within the bellows, as shown and described, opens direct and independent communication between the bellows and each reed, and thereby insures equal and immediate action on every reed as soon as the valve-sheet opens the duct thereof. In practice the tone of the instrument is found to be greatly improved thereby. I incline the bottom of my reed-board, as shown in Fig. 3, so as to economize space and leave room for the lower bellows. This aids me in obtaining the maximum bellows-space with the minimum size of casing. Said valve-sheet is attached at each end to one of two revolving winding-rolls, K K', on one of which it may be wound by the operation of the devices hereinbefore described. For rewinding I attach to the other roll, K', a crank, K²; or I may mount said crank on a separate shaft and gear the same to the shaft of roll K' by means of cogs *k k'*. (Shown in Fig. 9.) There is no need of a crank on the shaft of roll K when the instrument is constructed according to my invention, because the forward rotation of crank D' causes the music-sheet, by means of the elastic-belt gear M, to wind on said roll K. Crank K² is needed for rewinding, because the backward movement of crank D' would cause the tune to be played backward. The gudgeons or shafts of these rolls K K' turn in L-shaped recesses *l* in the tops of standards L. These recesses allow said winding-rolls K K' to have a certain motion toward or from each other. They also allow said rolls to be removed altogether from said standards when such removal is desired. The motion of said rolls toward or from each other makes it possible to provide for automatically compensating for the increased strain of the roll on which the valve-sheet winds, due to the accumulation of paper thereon. I effect this compensation and also gear together the two rolls by the following means: An endless rubber belt, M, is passed around both winding-rolls over the valve-sheet. When the strain at one end increases and the size of the opposite roll of paper diminishes the belt will accommodate itself to the change, while its elasticity will serve to make it fit snugly to the rolls at all times. When the belt by long use becomes unduly loose the slack may be taken up by a buckle, *m*, or any equivalent device—rows of holes and buttons, for example.

N designates a set of pipes which are united together and held down by springs *n n* against the valve-sheet. They take, in this respect, the place of the ordinary pressure-bar or pressure-roll. They also admit air to said valve-sheet. The springs *n n* are shown as bearing on lugs attached to said pipes, which lugs have vertical motion in guideways attached

to or formed in upper casing, A'; but other arrangements of springs or weights may obviously be used for the same purpose.

The guide-rack H, which carries the upper pressure-roll, is hinged at the rear corners thereof to bearing-plates O O, each of which has in its upper part a round eye, *o*, which has a narrow neck, *o'*, extending through the upper edge of said plate. The hinged corners of said rack are provided with pintles or studs P, which engage with said plates. The inner part of each stud, as shown in Fig. 7, is diminished so as to form a flat bar or neck *p*. To detach the rack from the instrument it is only necessary to raise it until the narrow edges of these bars or necks *p* are opposite the necks *o'* of eyes *o*. Then raise the frame or rack, drawing the said necks *p* vertically through necks *o'*. To attach the rack again to the instrument reverse this procedure throughout.

The bottom of the reservoir-bellows above described is provided with a safety-valve, Q.

Most of the parts of the instrument herein described may be considerably modified without departing from the spirit of this invention. They may also be used with a blast-bellows instead of a suction-bellows.

The rack H requires no spring nor fastening to hold it down, a pressure by the operator sufficing. Knob H' is very convenient for this pressure. Its form and method of attachment to said rack may be greatly changed from those shown.

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

1. In combination with a reservoir-bellows and two supply-bellows arranged above the latter, a reed-board having its bottom inclined and arranged on said reservoir-bellows and between the other two, substantially as set forth.

2. The recessed top of table A, in combination with the lower roll and its shaft, which bears on the top of said table, substantially as set forth.

3. In an automatic musical instrument, the combination of a casing top or table provided with openings to adapt it for operation with a traveling perforated music-sheet, and a reed-board arranged below said table and sheet, with a movable set of organ-pipes supported by the table and pressing said sheet down upon the latter by its weight, substantially as set forth.

4. In an automatic musical instrument, the combination of a casing top or table provided with openings to adapt it for operation with a traveling perforated music-sheet, and a reed-board arranged below said table and sheet, with a movable set of organ-pipes supported by said table, and pressing said sheet down upon the latter by its weight, said pipes being provided with a spring or springs to aid in said pressure, substantially as set forth.

5. A pair of winding-rolls for a music-sheet, in combination with an endless elastic belt which passes around said sheet and said rolls, substantially as set forth.

5 6. A pair of winding-rolls provided with a belt which passes around said rolls and the music-sheet, said belt being provided with a buckle or equivalent tightening device, for the purpose set forth.

7. A pair of winding-rolls, in combination 10 with bearings L, having L-shaped slots l, and elastic belt M, substantially as set forth.

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

JOHN MCTAMMANY, JR.

Witnesses:

ISAAC ROATH,

EDW. R. GEETER.