2 Sheets—Sheet 1.

G. B. KELLY & M. J. MATTHEWS.

Mechanical Musical Instrument.

No. 217,798. Patented July 22, 1879.

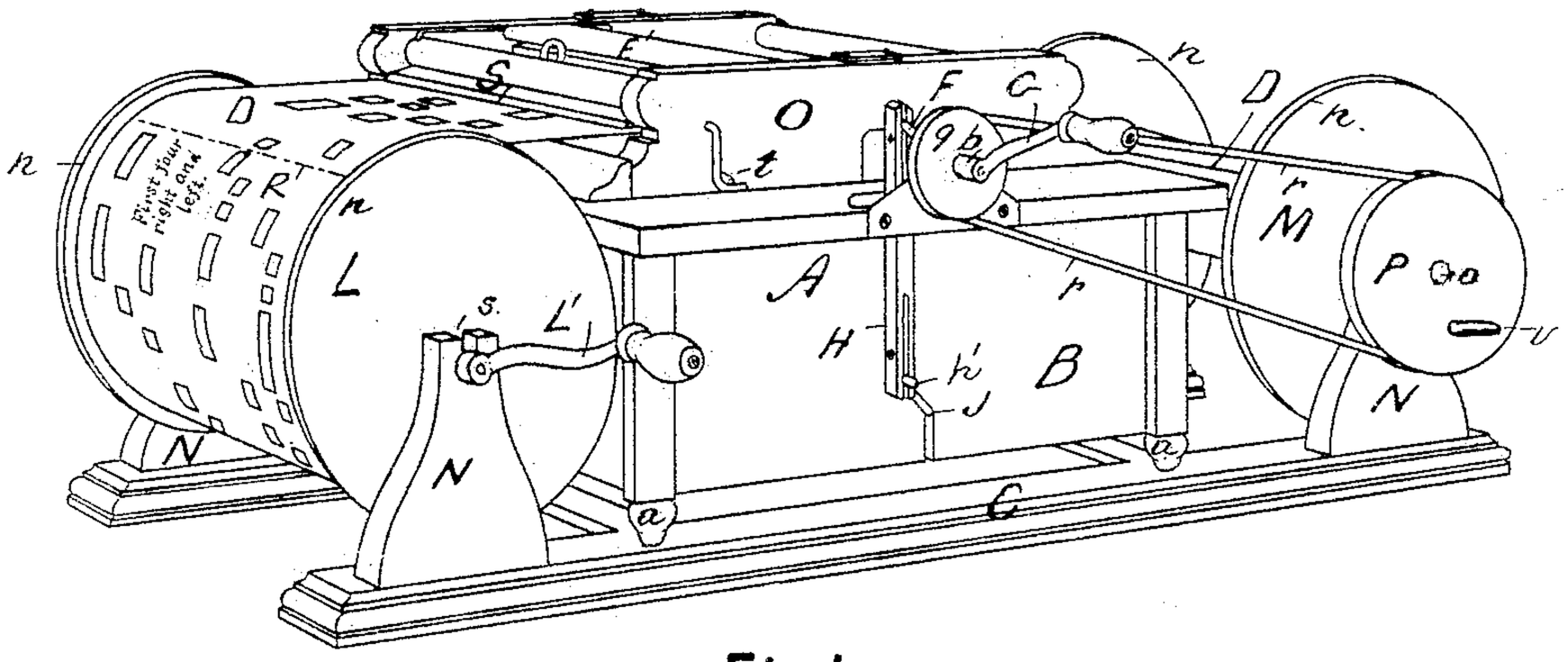

Fig: 1.

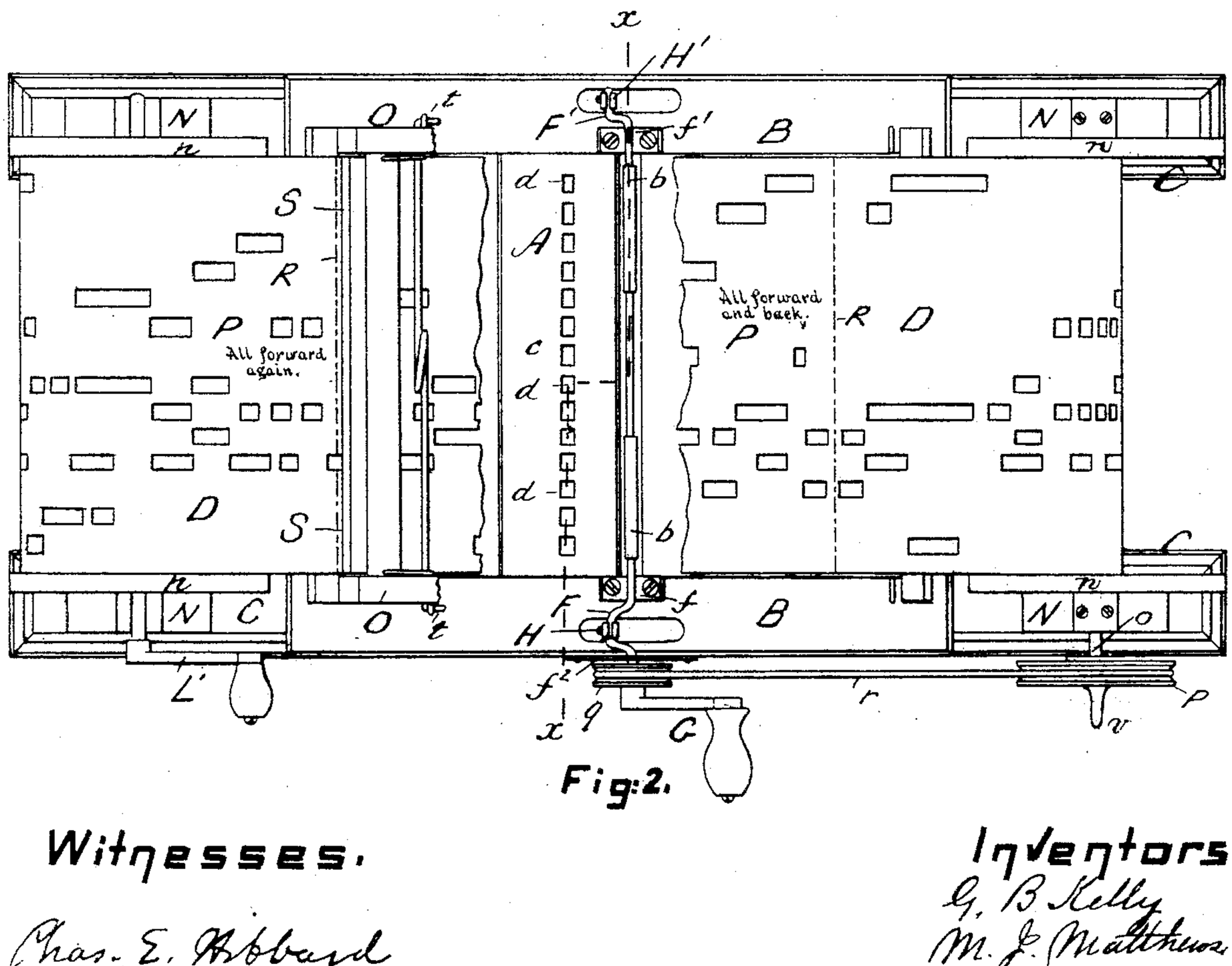

Fig: 2.

Witnesses.

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2 Sheets—Sheet 2.

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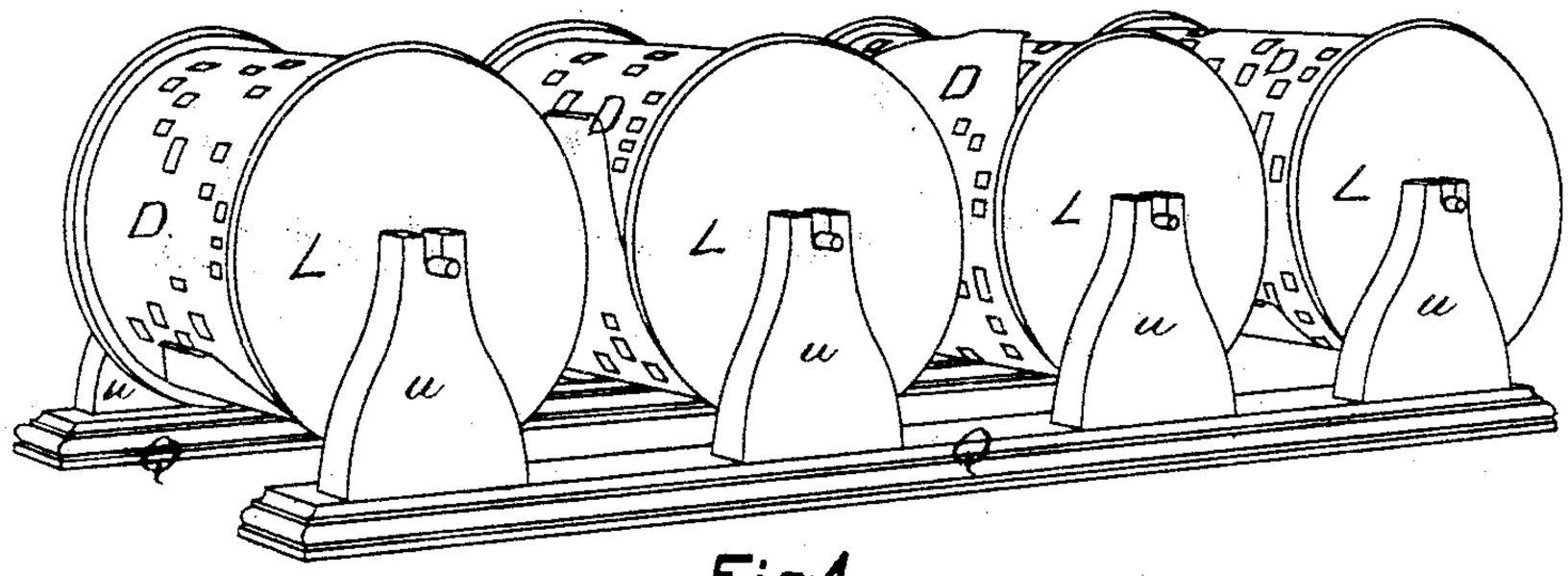

Fig:4.

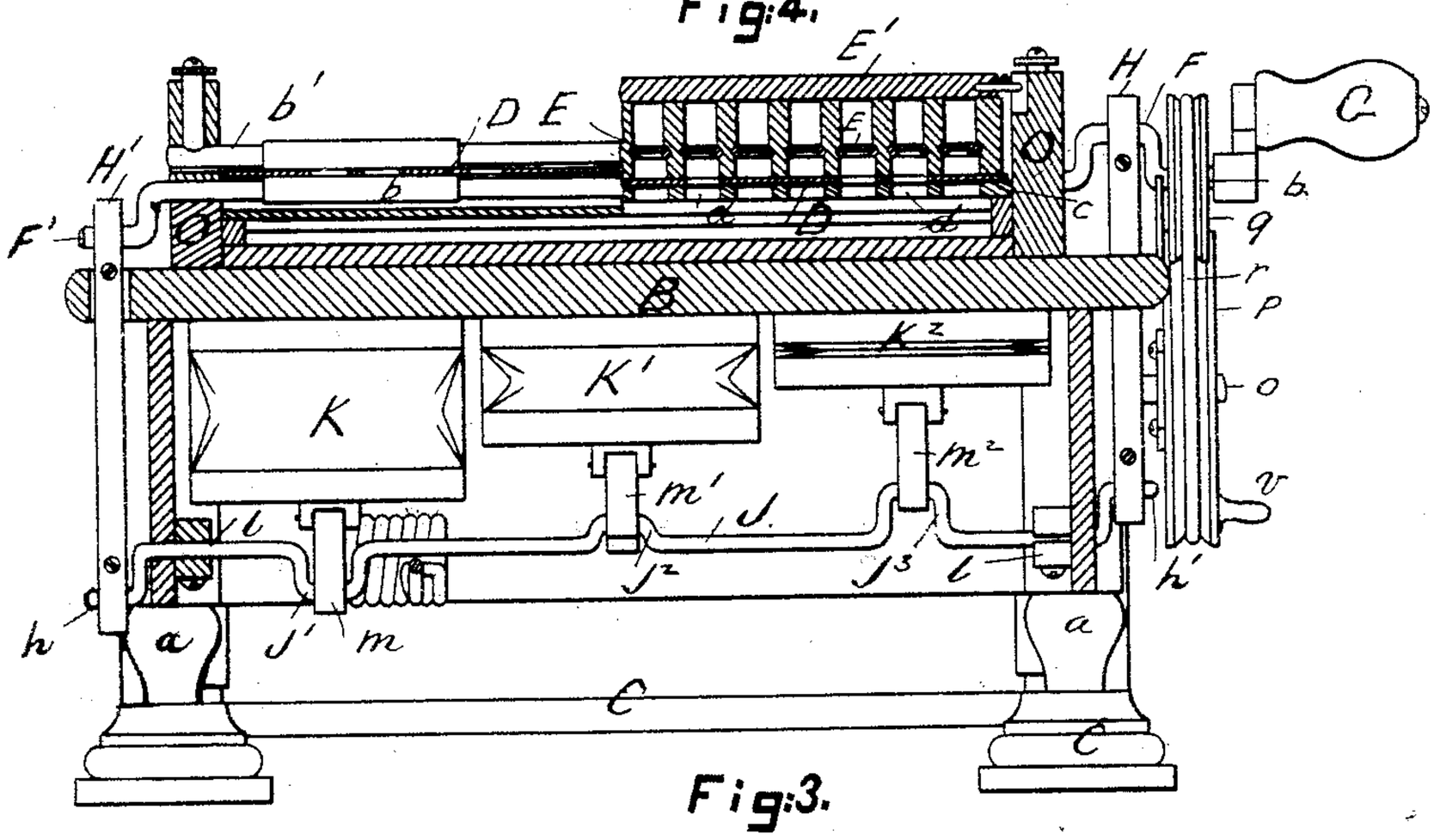

Fig:3.

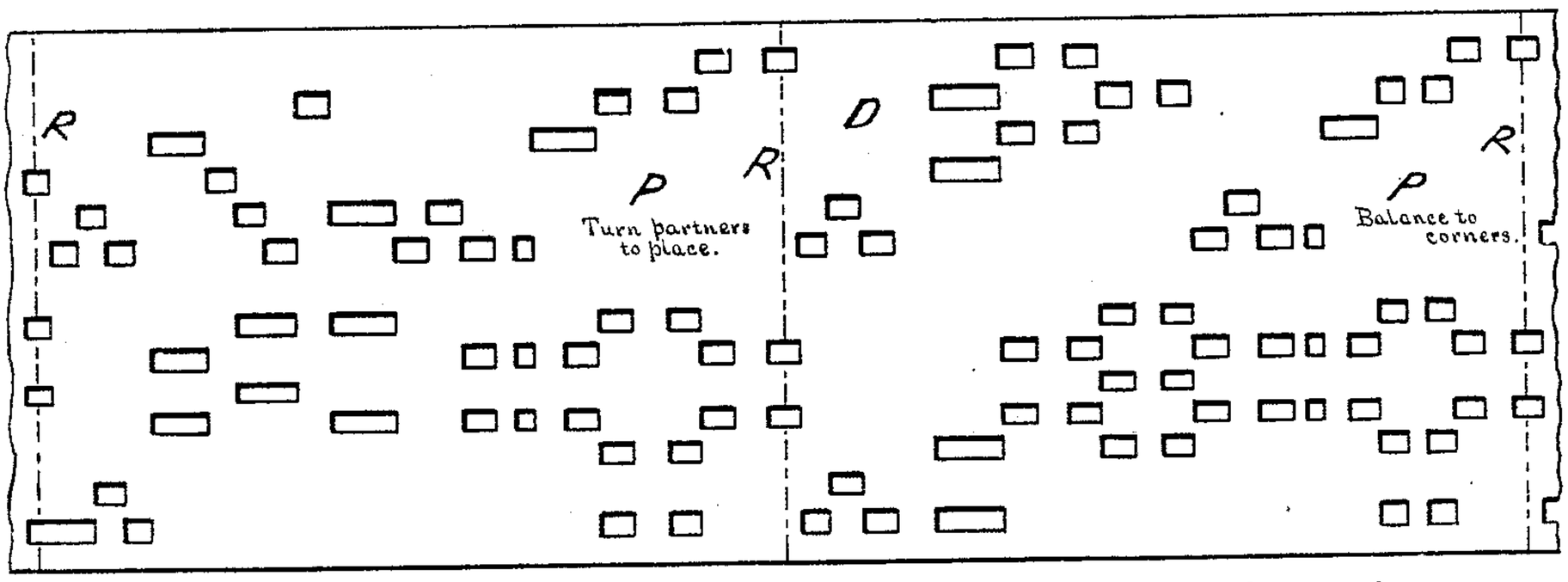

Fig:5.

Witnesses.

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UNITED STATES PATENT OFFICE.

GEORGE B. KELLY AND MASON J. MATTHEWS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MECHANICAL MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **217,798**, dated July 22, 1879; application filed January 10, 1879.

To all whom it may concern:

Be it known that we, GEORGE B. KELLY and MASON J. MATTHEWS, both of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Mechanical Musical Instruments, of which the following is a full, clear, and exact description.

This invention relates to improvements in mechanical musical instruments in which a strip of perforated paper, &c., as it is caused to be moved along, either directly or through suitable mechanism, opens and closes air-passages connecting musical reeds with the bellows of the musical instrument, whereby the reeds are caused to sound according as the perforations are arranged in said strip of paper.

It also relates to mechanism by which the strip of perforated paper can be wound or rolled up while using the same in operating the instrument, which can be also easily adapted and applied to such musical instruments now in use, as well as in constructing new ones.

The invention consists—

First, in the combination, in a mechanical musical instrument in which a strip of perforated paper is used, of a main driving and feed-roll shaft, one or more pitman-rods, connected to a crank or cranks on said shaft, and a secondary rotary shaft, connected by cranks with said pitman-rods and provided with crank-bends, connected by suitable links or pitmen with all the exhausters of the bellows of the instrument. By this arrangement we substitute a single rotary shaft for the two rocking shafts which operate the exhausters in Matthews' Patent No. 211,635, of January 28, 1879, thus simplifying the construction and reducing the cost of the instrument.

Second, in the combination, in a mechanical musical instrument, of a strip perforated for dance-music and inscribed with suitable figure-calls and division-marks of a stationary indicator or index, the coincidence of which with one of said division-marks indicates the time for the call adjacent to said mark, whereby the instrument is adapted for use in performing dancing-tunes by a person unskilled in or ignorant of musical reading.

Third, in an improved stand for supporting the instrument and the delivering and winding reels, as hereinafter particularly described.

In the accompanying plates of drawings the present invention is illustrated.

In Plate 1, Figure 1 is a view, in perspective, of a mechanical musical instrument located on a stand, with two rollers for the paper sheet arranged on the same, and the whole ready for operation. Fig. 2 is a plan view of Fig. 1, with a portion of the frame above the instrument and the reed-chest removed. In Plate 2, Fig. 3 represents a vertical cross-section on line *x x*, Fig. 2. Fig. 4 represents the stand for holding extra rollers, in the present instance showing four rollers, supplied with strips of perforated paper. Fig. 5 shows a plan view of a strip of paper having perforations therein, and showing two calls and the marks belonging thereto located thereon.

In the drawings, A represents a mechanical musical instrument, consisting of reeds, bellows, &c., and mechanism to operate the same, having a strip of paper on which is arranged by perforations the tune to be played on the instrument, and all arranged in and on the box B, said instrument being known to the trade and to the public under the name of the "orguinette," and needing no more particular description herein except as to those parts to which it is necessary to refer in describing the present invention.

The instrument A rests by its feet *a a* in sockets on a frame, C, in such a manner that it can be readily and easily attached to and detached from said frame at pleasure.

b b' are two feed or draw rolls. These rolls *b b'* pull or draw the strip of perforated paper D between the reeds E in reed-chest E' and board *c* of box B.

In the board *c* are air-passages *d* leading to the bellows in box B in the usual manner of such instruments.

The lower one, *b*, of these feed or draw rolls extends at each end beyond its bearings *f f*^{1}, and has on each end a crank-arm, F and F', said shaft being operated by the crank-arm G beyond the outer support, *f*^{2}, on the box B.

Connected to crank-arms F F', respectively, are vertical pitman-rods H H', one each side of box B, which, by their other ends, are connected to crank-arms *h h'* on another shaft, J,

arranged horizontally below said driving-shaft, and adapted to turn in suitable bearings *l* in the box B, which shaft has three other crank-arms, J^1 J^2 J^3, relatively arranged on it to connect by links *m* m^1 m^2 with the exhausters K K^1 K^2 of the bellows, as shown in Fig. 4 more particularly.

The crank-arms on driving-shaft *b* and the crank-arms *h h'* on the shaft J are so arranged relatively to each other that the turning of the driving-shaft will, through the pitman-rod connections, turn the shaft J, and thus through the link-connection operate the exhausters of the bellows for its proper exhaustion for the sounding of the reeds, the several crank-arms being arranged so as to relieve the dead-center.

The links *m* m^1 m^2 by one of their ends turn on their respective crank-arms on shaft J, and by their other ends are hinged, respectively, to the exhausters of the bellows, and each link is made of two pieces, secured together in its middle by a screw, to facilitate its connection with the shaft and bellows-exhausters.

L M are two wooden rollers, provided with disks *n* on their ends, and adapted by journals to freely turn in standards or uprights N of the frame C.

Attached to one end of the journal *o* of the roller M is a pulley, *p*, which pulley is connected to another pulley, *q*, on driving-shaft *b* by a belt, *r*, so that turning the driving-shaft *b* will, through the belt-and-pulley connection, turn the roller M. This roller M is permanently attached to the frame; but the roller L, on the other end of frame, merely sits by its journals in the open slots *s* in the standards N, so that when desired it can be easily removed and another roller inserted.

The strip of paper D, on which is arranged the tune, &c., to be played, is first wound upon the roller L, and removing the frame O, carrying the reed-chest E' and upper feed-roller, *b'*, by unhooking it at *t*, the end of the paper strip D is then passed over the box B to and connected with the roller M of the frame C, and then having put back the frame O and secured it by its hook *t* in place, the instrument is ready for operation.

Turning the driving-shaft *b* by its crank-arm G through the feed-rolls *b b'* feeds or draws the paper strip along. At the same time, by the belt-and-pulley connection to roller M, it is wound up on said roller; and by the pitman-rods and shaft J, connected with the exhausters of the bellows, the bellows are properly exhausted, and as a perforation in the paper strip passes over a corresponding air-passage, *d*, the reed above said passage will be sounded, and thus whatever tune is arranged by the perforations on the strip of paper will be played.

When the paper strip has been entirely wound up on the roller M, and it is desired to play the tune or any part thereof over again, or if more than one tune is arranged on said strip and it is desired to play any one of the intermediate tunes, by raising the frame O the paper strip can be easily rewound upon the roller L by its crank-arm L', as desired; or the whole length being removed, the roller L can be removed and another roller having another strip of perforated paper can be put in its place on the standard, and thus new tunes be played.

The rollers serve also for a convenient means of holding the strips of paper and keeping them in proper condition when not in use; and in Fig. 4 is represented a stand, Q, having uprights *u*, in which can be placed the rollers when not in use on the instrument.

The perforations in the strip of paper, in the present instance, represent a quadrille called the "lancers," and printed on said strip are the various calls or figures, P, in their regular order for such dance, and also the marks (in the present instance transverse lines R) which indicate when the call is to be made, as in the moving of the paper strip when playing the instrument said marks pass under the bar or indicator S on frame O; that just as such mark is to or does disappear under said bar the call next to and at the left of it is to be called, and by this simple means of indicating when the call is to be called any person, however ignorant of such matters, can easily and properly give the right call at the proper time in the dance.

The indicator S is located on the frame O at such a distance from the air-passages and reeds as will give a sufficient time for the call on the paper to be called for the dancers to commence the figures in the dance at the proper time with the music, and the marks on the strip of paper being arranged to correspond with such distance.

The frame C, supporting the rollers L and M, can be made permanent with the instrument, or the instrument can be arranged to be attached and detached at pleasure, substantially as described; and in lieu of a separate frame to hold the rollers, the reed-chest frame O can be extended at each end, and adapted to receive and hold them in substantially the same manner; and also any designating mark can be used on the paper strip for the call, and the bar or indicator changed as to its distance from the air-passage of the reeds as desired, or located on the box B anywhere, making, however, a corresponding relative change of the mark on the paper; and also the present invention can be applied and connected to mechanical musical instruments in which a strip of paper is used to operate the valves of the reeds, or levers or other mechanism connected with said valves; and the perforated strip can be of any suitable material other than paper, although paper is preferable; and the strip of paper can be marked with the calls of any dance desired, the proper music being arranged by perforations on the paper.

The driving-shaft can be connected with the roller L instead of the roller M, if desired; and on the pulley P of roller M is a crank-arm, *v*, (shown in Figs. 2 and 3,) which can be

used to wind up the strip of paper on the roller M, independent of the driving mechanism of the instrument.

Having thus described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In combination with the driving-shaft of the feed or draw rollers of a mechanical musical instrument, A, in which a strip of perforated paper is used, one or more pitman-rods connected to a crank or cranks on said shaft, a secondary rotary shaft connected by cranks with said pitman-rods and provided with crank-bends, connected by suitable links or pitmen with all the exhausters of the bellows of the instrument, substantially as and for the purpose set forth.

2. A strip of paper having perforations arranged so as to represent a quadrille, lancers, &c., having marked or printed thereon the calls or figures belonging to said quadrille, lancers, &c., at the proper places for the same to be called when said strip of paper has a mark or line, &c., in combination with an indicator, S, located on a mechanical musical instrument, substantially as and for the purpose described.

3. The stand C, having standards N at each end, and an intermediate space adapted to receive the instrument A in such position that a strip of paper may pass from a reel on one pair of said standards and connect with a reel on the other pair of standards, substantially as described.

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