

(No Model.)

J. P. RICHARDSON.  
Mechanical Musical Instrument.

No. 238,156.

Patented Feb. 22, 1881.

Fig 1.

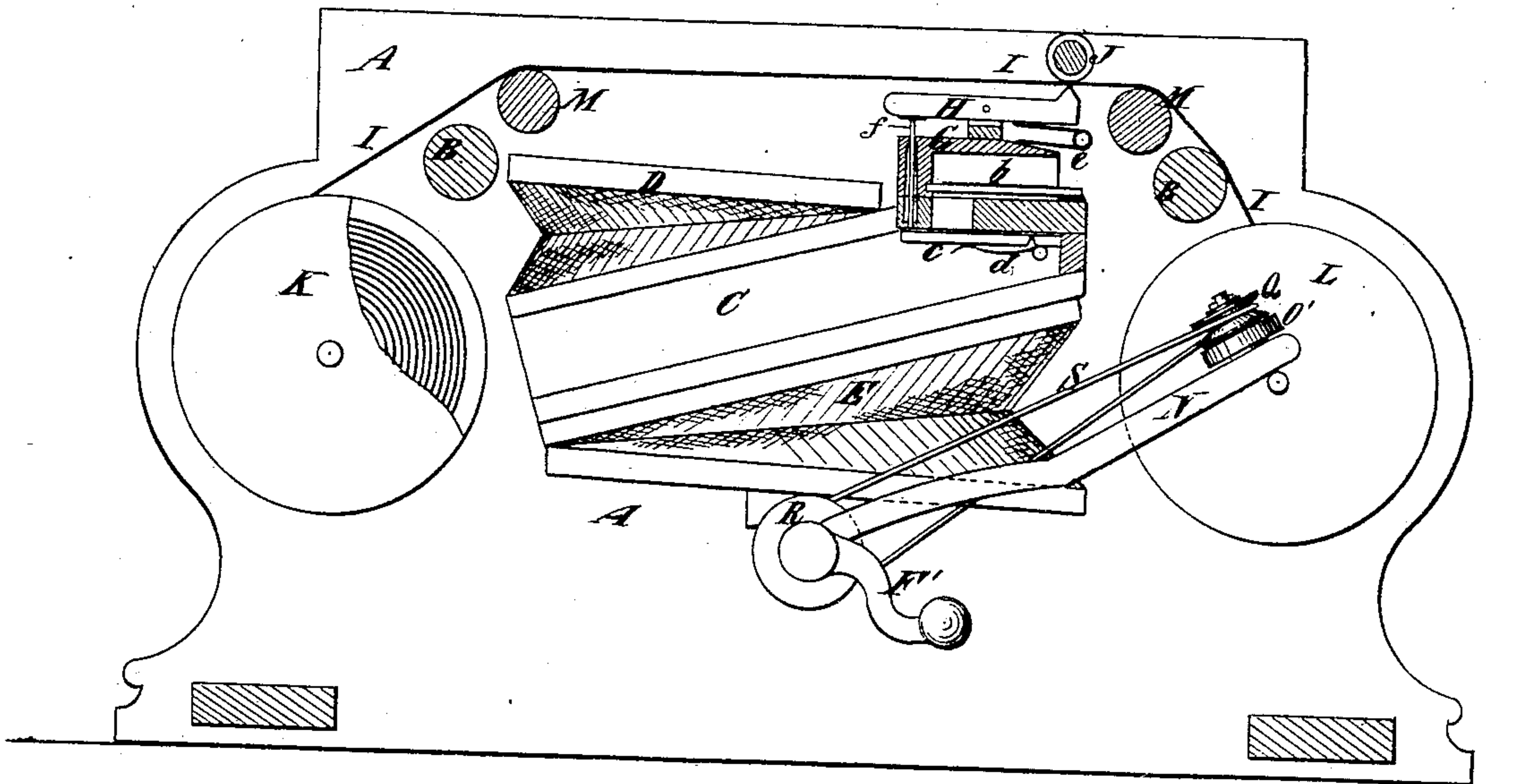
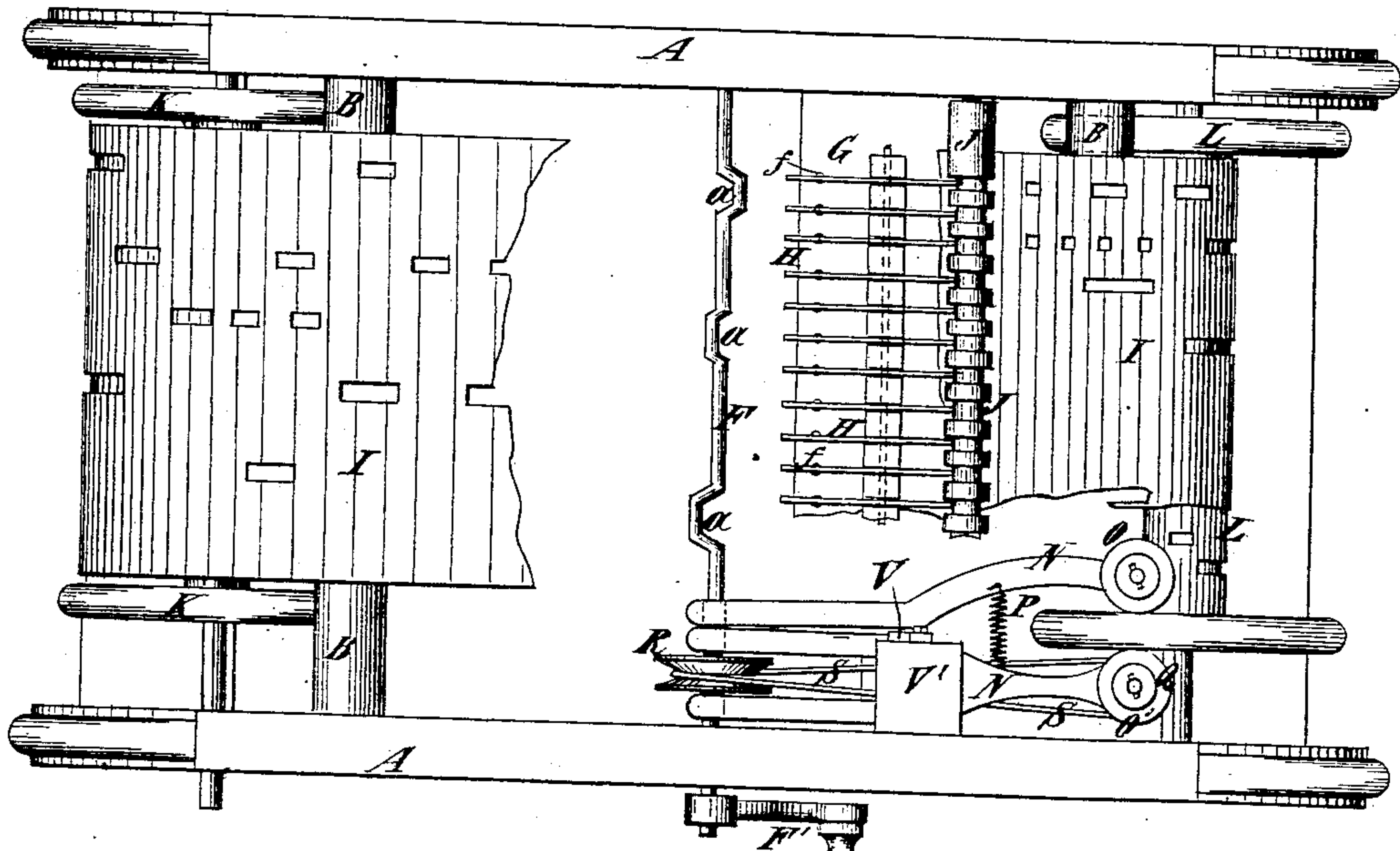


Fig 2.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

JOHN P. RICHARDSON, OF WORCESTER, MASSACHUSETTS.

## MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 238,156, dated February 22, 1881.

Application filed April 21, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN P. RICHARDSON, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain  
5 new and useful Improvements in Mechanical Musical Instruments, of which the following is a specification.

These improvements are particularly designed for use with mechanical musical instruments wherein a traveling perforated music-sheet controls the passage of air to reeds or  
10 other sound-producing devices to effect the playing of different tunes.

One improvement consists in the combination, in a mechanical musical instrument, of a reed-board, a series of fingers or jacks pivoted between their ends and arranged above said reed-board, a music-sheet controlling the operation of the same, a roller under which the  
15 music-sheet passes, valves arranged below the said reed-board, push-pins through which said valves are actuated by said fingers or jacks, and springs for said fingers or jacks, whereby I produce a very compact and desirable instrument.  
25

Other improvements consist in novel combinations of parts whereby a roller acting on the sides of the flange of a take-up roller for the music or other sheet to impart motion thereto is gradually shifted nearer to the periphery of the flange as the diameter of the sheet wound on the take-up roller increases, whereby a uniform motion is imparted to the music-sheet; also in such combinations of parts as provide  
30 for releasing the driving-roller from the flange of the take-up roller when it is desirable so to do.

In the accompanying drawings, Figure 1 is a partial side view and partial longitudinal  
40 section of a musical instrument embodying these improvements; and Fig. 2 is a plan of the same with the music-sheet and other parts broken away, the better to reveal the improvements.

45 Similar letters of reference designate corresponding parts in both figures.

The case or frame-work of this instrument is shown as consisting of two side pieces, A, connected by cross-rails or stretchers B.

50 C designates a wind-chest, shown as arranged obliquely between the side pieces, A,

and having on one side a receiver, D, of ordinary construction, and on the other side bellows E, of any suitable number, connected to cranks  
55 a on a shaft, F, journaled in the said side pieces, A, and constituting the driving-shaft of the instrument, a crank, F', on one end serving as a means for operating it.

G designates a reed-board, mounted on the wind-chest, and having ducts b, establishing  
60 communication between it and said wind-chest, under control of pallet-valves c, arranged below said ducts and pressed upward against them by springs d.

H designates fingers or jacks, pivoted between their ends to supports here shown as extending from the top of the reed-board. At one end they are furnished with nose-pieces, which, when permitted by perforations in a perforated music-sheet, I, are impelled upward  
65 by springs e, into grooves arranged opposite them in a roller, J, journaled in the side pieces, A. The opposite ends of these fingers or jacks bear against push-pins or tracker-pins f, which extend through the reed-board and impinge  
70 against the pallet-valves c, so that when the nose-pieces rise into the perforations of the music-sheet the opposite ends of the fingers or jacks depress the push-pins f, and, opening the pallet-valves c, cause the reeds to speak.  
75 The fingers or jacks may be made of metal or other suitable material.

The music-sheet may be permanently secured at one end to a removable roller, K, termed a "music-roller," and detachably secured to a roller, L, termed a "take-up roller."  
80 Between the two rollers it passes over guide-rollers M, whereby it is caused to travel in the proper direction.

From the driving-shaft F extend two arms, N, carrying at their outer ends rollers O O',  
90 which bear on opposite sides of one of the flanges of the take-up roller L, so as to be in frictional engagement therewith. The roller O, which bears against the inner side of the flange of the take-up roller rests against the  
95 portion of the music-sheet which is wound on the take-up roller, and is shifted nearer and nearer to the periphery of the flange as the diameter of the sheet increases. The two arms, N, are drawn together by a spring, P, so that  
100 the rollers O O' will embrace the flange of the



take-up roller tightly, and can be separated by means of a set-screw or other device, so as to release the flange. There is shown for this purpose a lever, V, pivoted to a block, V', so that its lower end may be forced between the arms N to wedge them apart. The roller O', which bears against the outer side of the flange, is provided with a pulley, Q, which derives motion from a pulley, R, on the driving-shaft F through a connecting-belt, S. Hence as the driving-shaft is rotated a rotary motion is imparted to the take-up roller. As the motion is transmitted to the flange of the take-up roller nearer and nearer to its periphery as the diameter of the portion of the music-sheet which is rolled on the take-up roller increases, the motion imparted to the take-up roller becomes gradually slower, and a practically uniform motion is imparted to the music-sheet. Of course it is not absolutely necessary to use more than the one arm, N, carrying the roller O', providing it be held with sufficient force against the flange of the take-up roller to enable it to impart motion thereto. When the roller O' is released from the take-up roller the music-sheet may be rewound on the music-roller without operating the bellows.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the reed-board G, the fingers or jacks H, pivoted between their ends and arranged above the reed-board, the music-sheet I, the roller J, the pallet-valves c, arranged below the said reed-board, the push pins f, and the springs e, for said fingers or jacks, substantially as specified.

2. The combination, with a roller and a sheet

wound thereon, of a roller arranged to act upon the side of the flange of the first said roller for imparting motion thereto, and a device whereby the said roller is adjusted toward the periphery of said flange as the diameter of the sheet on the roller increases, substantially as specified.

3. The combination, with a music-sheet and a take-up roller therefor, of a roller for imparting motion thereto bearing against its flange, and an arm bearing upon the music-sheet as it is wound up, and adjusting the roller relatively to the periphery of the flange of the first said roller, substantially as specified.

4. The combination, in a mechanical musical instrument, of a driving-shaft, a music-sheet, a take-up roller for the latter, arms extending from the driving-shaft, and carrying rollers which bear on opposite sides of the flange of the first said roller, and one of said arms bearing on the music-sheet as it is wound on the take-up roller, substantially as specified.

5. The combination, in a mechanical musical instrument, of the driving-shaft F, the music-sheet I, take-up roller L, arms N, spring P, rollers O O', and means for imparting motion to the roller O', substantially as specified.

6. The combination, in a mechanical musical instrument, of the driving-shaft F, music-sheet I, take-up roller L, arms N, roller O', means for holding the latter in contact with the flange of the take-up roller L, pulleys Q and R, and belt S, substantially as specified.

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Witnesses:

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