

(No Model.)

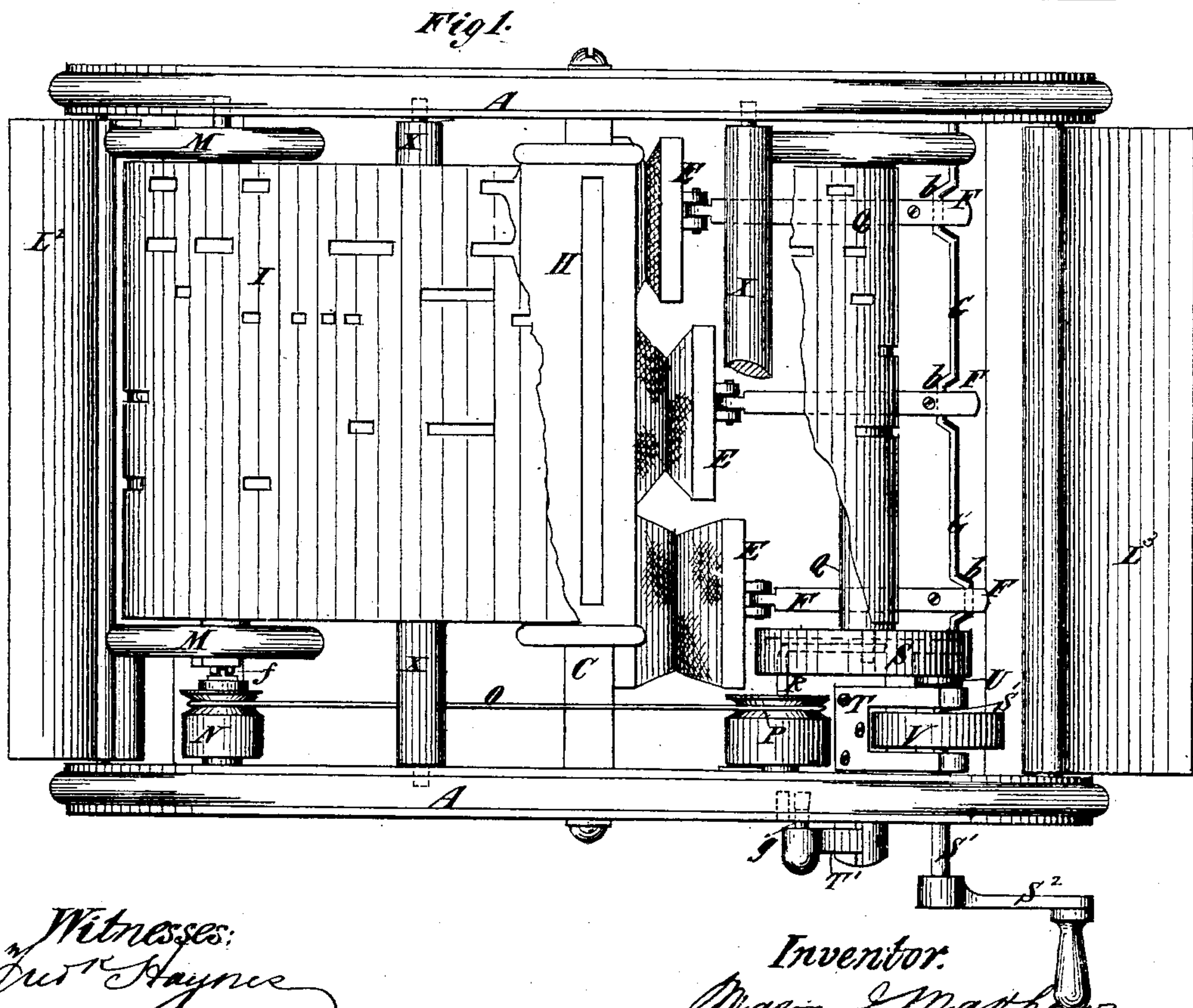
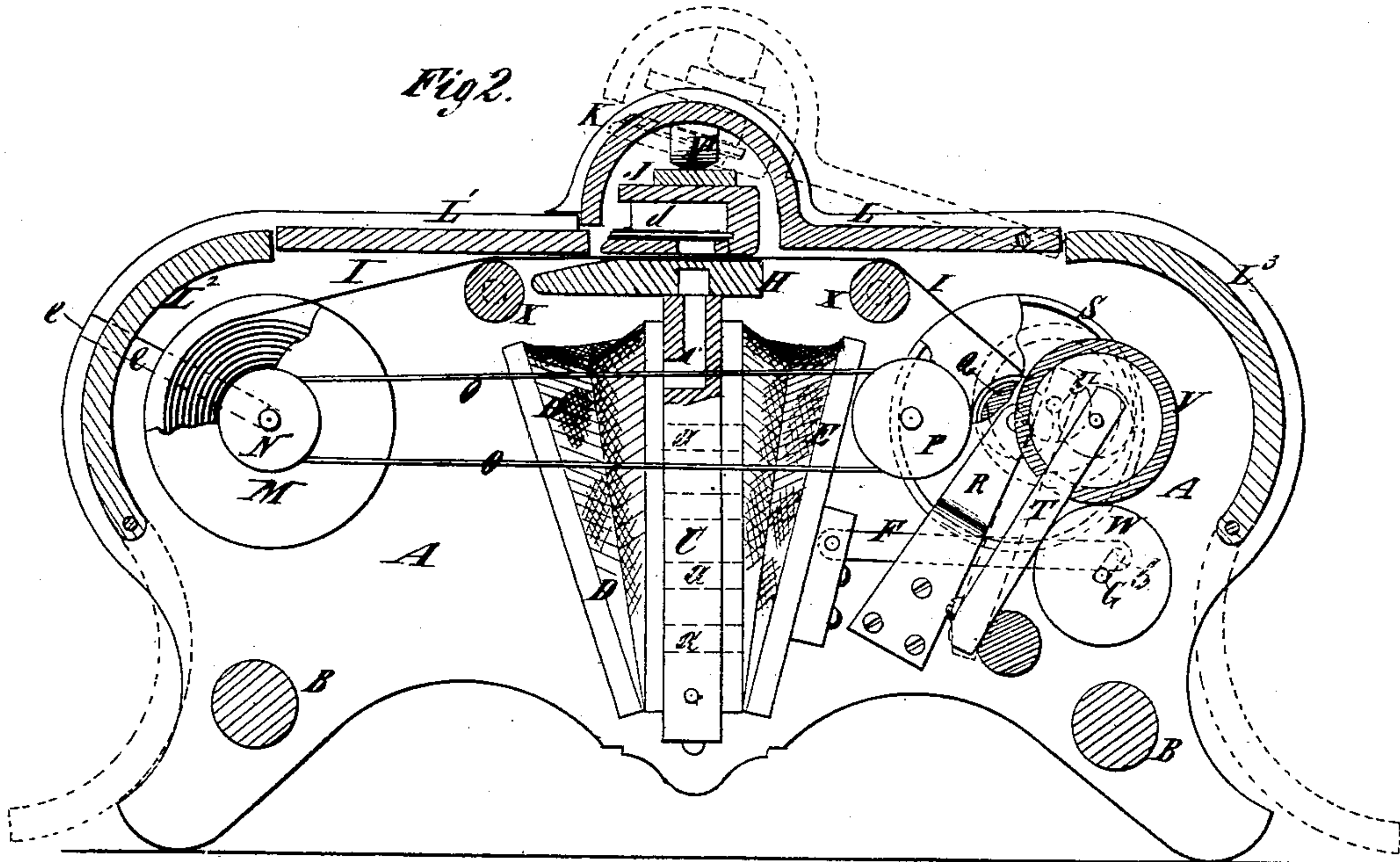
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Mechanical Musical Instrument.

No. 238,138.

Patented Feb. 22, 1881.



Witnesses:  
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# UNITED STATES PATENT OFFICE.

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## MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 238,138, dated February 22, 1881.

Application filed April 22, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, MASON J. MATTHEWS, 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 specification.

These improvements relate particularly to mechanical musical instruments wherein a traveling perforated music-sheet controls the speaking of the reeds or other sound-producing devices, though some may be applicable to other instruments.

One improvement consists in the combination, in a mechanical musical instrument, of a perforated music-sheet and a reed-board pivoted in place so that it may be conveniently raised from the music-sheet at will.

Another improvement consists in the combination, in a musical instrument, of a reed-board and a semi-cylindric or dome-shaped chamber therefor.

Another improvement consists in a novel provision for affording access to the roller termed a "music-roller," on which the music-sheet is kept wound when not in use.

Other improvements consist in the combination, with the music-roller and the roller termed the "take-up" roller, on which the music-sheet is wound in playing, of a swinging driving shaft and wheels, whereby the instrument may be operated or the music-sheet rewound at will.

Another improvement consists in the combination, with such driving-shaft, of means for adjusting it into different positions.

In the accompanying drawings, Figure 1 is a plan of a mechanical musical instrument embodying my improvements, and having the reed-board and certain sections of the cover removed, and Fig. 2 is a central longitudinal section of the same.

Similar letters of reference designate corresponding parts in both figures.

The case of the instrument is shown as consisting, essentially, of side pieces, A, connected by cross rails or stretchers, B, and is provided with a cover composed of several independent sections, which will be fully described, where their respective functions can most easily be understood.

C designates the wind-chest of the instru-

ment; and D designates a receiver, of ordinary or any other suitable construction, mounted on one side thereof in communication therewith, and subjected to the action of suction-bellows E, arranged on the other side of the wind-chest, their communication with the receiver being established by ports or passages *a*. These bellows are shown as three in number, and they are connected, by rods or pitmen F, with cranks *b* on a shaft, G, supported in the sideframes, A, of the case, whereby they are actuated, preferably in succession, so as to combine to produce a continuous suction in the receiver.

H designates a rest or table, over which a perforated music-sheet, I, travels, and which is provided with an air passage or passages, *c*, communicating with reed-ducts *d*, in a superimposed reed-board, J. This perforated music-sheet passes between the rest H and the reed-board J, and controls the communication of the ducts *d* of the latter with the wind-chest to cause the speaking of the reeds, so as to produce desired tunes. The reed-board J, reed-ducts, and reeds may be of the ordinary or any other appropriate style, and are arranged in a semi-cylindric or dome-shaped chamber, K, which is connected with a section, L, of the cover of the instrument for raising the reed-board out of its place when desirable. The chamber K so overhangs the reed-board that air entering the reed-ducts will pursue an upward course and then descend abruptly on the tongues of the reeds, so that it will not drag along the heels of the said tongues and produce the harsh sounds which are ordinarily so prevalent in this class of instruments. The forward or free end of the said chamber rests on a section, L', of the cover of the instrument and is thus supported; or, if preferred, the reed-board may rest with its whole weight and that of the section of the cover L, directly on the perforated music-sheet traveling under it, so as to preclude leakage. The reed-board may be capable of adjustment relatively to this chamber and pressed downward by an elliptic or other spring, V'.

M designates a roller, which may be termed a "music-roller," to which the music-sheet may be permanently attached and upon which it is kept wound when out of the instrument.



L<sup>2</sup> designates a section of the cover of the instrument, here shown as arc-shaped, which is pivoted to the side frames A of the case, so that it may be swung back to permit the removal or insertion of the music-roller M. When closed it conforms approximately to the contour of the music-roller. The music-roller has one of its journals passed through a groove, *e*, in one of the side pieces A, to or from a bearing formed at the inner end of the groove; but the other journal is supported in a bearing arranged at some distance from the opposite side piece A and a clutch, such, for instance, as a tongue-and-groove clutch, *f*, with the shaft of a pulley, N, mounted in bearings in said opposite side piece A, and connected, by a belt, O, with a pulley, P, for the purpose of rewinding the music-sheet after playing.

Q designates a roller, which may be termed a "take-up" roller, to which the other end of the music-sheet is detachably fastened when in use. This roller is supported at one end in a bearing in one of the side pieces A, and at the other end in a standard, R, extending from the opposite side piece A. At or near one end this take-up roller is provided with a large wheel, S, having an open side, so that a wheel, U, may engage with the inner surface of its rim to impart motion thereto. This roller U is mounted in a bifurcated standard, T, extending from a rock-shaft, so that it may be swung forward or backward to carry the roller U into or out of contact with the wheel S. The standard T may be adjusted by a lever, T', affixed to its rock-shaft outside the case, and locked in position by means of a pin, *g*, entering different recesses or holes in the case. The shaft S', on which this wheel U is mounted, constitutes the driving-shaft of the instrument, and extends through a slot in the side piece A to which it is adjacent, so that the latter will not interfere with the adjustment of the standard in the manner above described. At the outer end it is provided with a crank, S<sup>2</sup>, whereby motion may be imparted to it. When the standard T is swung forward the wheel U on the shaft S' is made to engage with the inner surface of the rim of the wheel S on the take-up roller Q, so as to impart a slow motion to the latter and impel the music-sheet forward properly for playing, and at the same time a wheel, V, also mounted on the shaft S', and preferably faced with india-rubber, is made to engage with a wheel, W, on the bellows-operating shaft G, so as to effect the operation of the bellows E. When, however, the standard T is swung backward the wheel U is disengaged from the wheel S on the take-up roller Q, leaving the latter free, and the wheel V is made to engage with the pulley P and impart a rapid motion to it, so as to quickly rewind the music-sheet on the music-roller. An arc-shaped section, L<sup>3</sup>, of the cover, pivoted at the lower end to the side pieces A of the case of the instrument may be swung back to afford access to the take-up roller and its appurtenances. When closed it conforms approxi-

mately to the contour of the take-up roller. The music-sheet at each side of the rest or table H passes over a roller, X, whereby it is prevented from dragging over the edges of the said rest or table.

I am aware that it is old to employ in a mechanical musical instrument a take-up roller provided at or near one end with a wheel, and a wheel for transmitting motion thereto adapted to be swung into engagement with the face or outer periphery of the first said wheel, or to be swung out of engagement therewith.

It will be seen that I thus produce a very simple mechanical musical instrument, wherein the proper speaking of the reeds is attained and the music-sheet may be properly impelled forward or backward by even the least skilled person with little danger of derangement of any of the parts.

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

1. The combination, in a mechanical musical instrument, of a perforated music-sheet and a reed-board pivoted in place as described, whereby it may be swung upward from the music-sheet and disconnected from the instrument when desirable, substantially as specified.

2. The combination, in a musical instrument, of a reed-board and a semi-cylindric or dome-shaped chamber therefor, substantially as specified.

3. The combination, in a mechanical musical instrument, of a perforated music-sheet and a reed-board and semi-cylindric or dome-shaped cover therefor pivoted in place as described, whereby they may together be swung upward from the music-sheet without being disconnected from the instrument, substantially as specified.

4. The combination, in a mechanical musical instrument, of a roller for a music-sheet and an arc-shaped cover, pivoted as described, whereby it can be swung to afford access to the said roller, substantially as specified.

5. The combination, in a mechanical musical instrument, of a music-sheet, a music-roller, and a take-up roller therefor, and a cover or covers which, adjacent to the said rollers, conform approximately to the contour of said rollers, substantially as specified.

6. The combination, in a mechanical musical instrument, of a take-up roller for a music-sheet provided with a wheel at or near one end and a wheel for transmitting motion thereto, adapted to be swung into a position to engage with the inner face of the rim of the wheel on the take-up roller, or into a position out of engagement therewith, substantially as specified.

7. The combination, in a mechanical musical instrument, of a shaft for operating the bellows, a take-up roller for a music-sheet, a wheel for transmitting motion to said shaft for operating the bellows, capable of being swung into position to engage with said shaft, and another wheel for transmitting motion to said take-up roller, capable of being swung simultaneously into a position to engage with said roller, both



of said wheels being also capable of being swung into a position out of engagement with the said shaft and take-up roller, so as to leave them free, substantially as specified.

5 8. The combination, in a mechanical musical instrument, of a driving-shaft, a shaft connected to the bellows, a music and a take-up roller for a music-sheet, wheels for transmitting motion from the driving-shaft to said take-up roller, 10 and the shaft connected to the bellows, and a wheel, pulleys, and a belt for operating the music-roller, said driving-shaft being adapted to be swung into one position to operate the take-up roller and the shaft connected to the 15 bellows, and into another position to operate

the said pulleys and impart motion to the music-roller, substantially as specified.

9. The combination of the wheel S on the take-up roller, the wheel U on the shaft S', for engaging with the inner surface of the rim of 20 said wheel S, the wheel V on the shaft S', and the wheel W on the bellows-operating shaft, substantially as and for the purpose specified.

10. The combination of the swinging driving-shaft and the lever outside the case for ad 25 justing the same, substantially as specified.

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Witnesses:

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