

(No Model.)

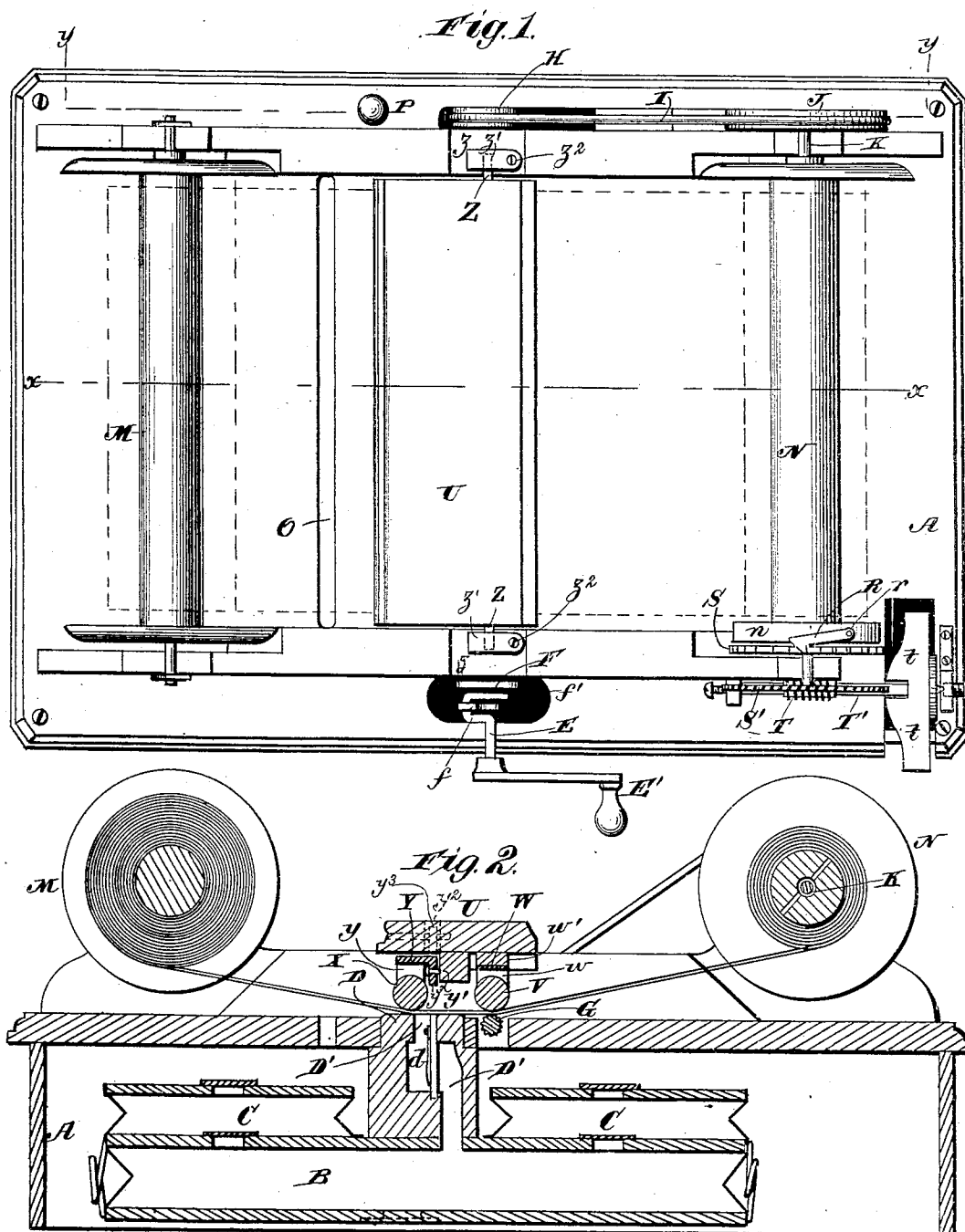
2 Sheets—Sheet 1.

J. McTAMMANY, Jr.

AUTOMATIC MUSICAL INSTRUMENT.

No. 292,671.

Patented Jan. 29, 1884.



WITNESSES
Robert Everett
George Tilghman

INVENTOR
John McTammany Jr.
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Attorney

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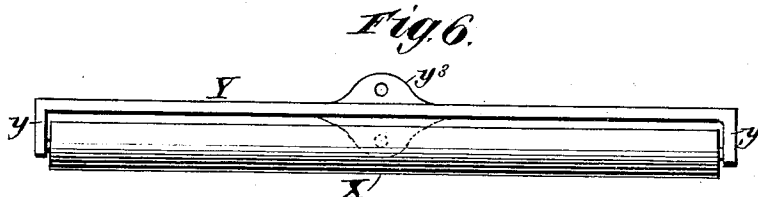
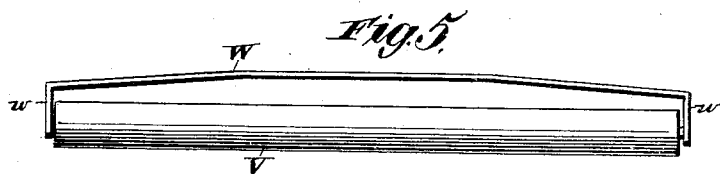
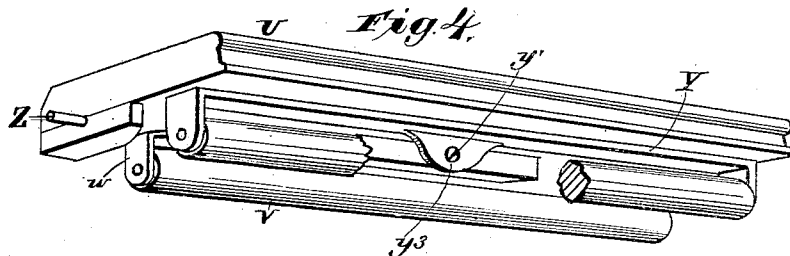
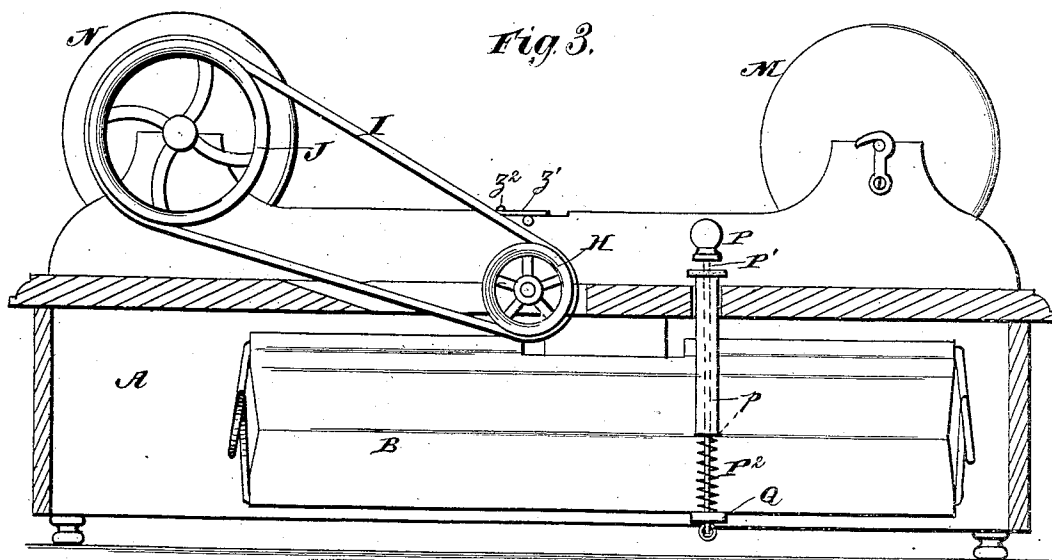
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WITNESSES
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UNITED STATES PATENT OFFICE.

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

AUTOMATIC MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 292,671, dated January 29, 1884.

Application filed June 20, 1883. (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, partly, in the combination of a spring bearing against an attachment of the bellows with a push-button and stem bearing directly against said spring, to vary its resistance and control the tone; partly in a pivoted rack carrying a spring-pressed upper feed-roll or idler, and a pressure-roll for holding the music-sheet against a fixed part of the instrument, in combination with a lower feed-roll having its axis in the same transverse vertical plane with that of the upper feed-roll and the rack itself when the pressure-roll is in its normal position for operation; partly in a pressure-roll, a pivoted rack, and an upper feed-roll, the latter having its axis vertically under the axis of said rack, in combination with a plate-spring attached to said rack, the ends of said spring forming bearings for said feed-roll, substantially as herein-
after set forth; partly in an upper feed-roll or idler, in combination with a spring-plate, in the ends of which said roll is journaled, a pivoted rack, to which said spring-plate is attached, and a lower or inner feed-roll, against which said upper feed-roll normally bears, substantially as set forth; and partly in a pressure-roll, in combination with a plate or bar having downwardly-extended ends, which form bearings for said roll, a perforated lug extending upward from its middle portion, a pivoted rack recessed to receive said lug, and a pivot-screw which extends through the front of said rack and through said lug, leaving the latter free to rock thereon in said recess, substantially as hereinafter set forth.

In the accompanying drawings, Figure 1 represents a plan view of a musical instrument embodying my invention. Fig. 2 represents a longitudinal vertical section through the same on line *x x*, Fig. 1. Fig. 3 represents another longitudinal vertical section on the line *y y* of Fig. 1, showing the devices for governing the pressure of the bellows. Fig. 4 represents a detail perspective view of the rack and its attachments, taken from below. Fig. 5 represents a detail view of the upper feed-roll or idler and the spring-plate in which it has its bearings, and Fig. 6 represents a detail view of the pressure-roll and its pivoted bearing plate or frame.

A designates the case of the instrument; B, the reservoir-bellows arranged within the same; C, the two feeders or pump-bellows above the reservoir-bellows; D, the reed-board, having reeds *d* and reed-ducts *D'*, which communicate with said reservoir-bellows; E, the driving-shaft of the instrument, which is operated by crank-handle *E'*; F, the two pitmen whereby the double cranks *f f'* of said shaft operate bellows C, and G the lower feed-roll, which turns in a transverse slot in the top of the case A. A pulley, H, on shaft E is geared by an endless belt, I, to a larger pulley, J, on the winding-roller shaft K. Both of the above shafts turn in bearings on the top of said case, and the construction and arrangement of them and the foregoing parts, so far as already described, present nothing new.

The music-sheet, in passing from the rewinding-roller M to the winding-roller N, (which is sleeved on shaft K,) naturally carries with it a certain amount of dust and debris, including fragments of paper which are worn or torn off from the music-sheet, and these sometimes pass down into the reed-ducts, and tend to interfere with the proper action of the reeds, or choke said ducts. To guard against this I make in the top of case A a broad transverse slot or opening, O, which allows all such injurious substances to fall through into the interior of the case, where they can cause very little inconvenience. As this slot or opening extends quite across the top of said case, and is located in front of the reed-board with reference to the approach of any particular part

of the music-sheet, it necessarily constitutes an effectual protection against the annoyance referred to.

P designates a push-button provided with a stem, P' , that extends downward through the top of said casing, at one side thereof, and is provided with a shoulder, p , that bears against a helical spring, P^2 , surrounding the lower part of said rod. This spring rests on a plate, Q, attached to the lower board of the reservoir-bellows. In proportion as the said push-button is pressed down the resistance of this spring to the rising of said lower board is increased. This varies the pressure on said bellows, and consequently the power of the tone. The lower end of stem P' plays through an opening in plate Q, and is guided thereby.

The winding-roll N is provided with a pawl, R, which is pivoted by pivot-screw r on the periphery of one of the heads n of said roll, so that it may be thrown at will into or out of engagement with a ratchet-wheel, S, carried by shaft K. When thus in engagement the roll N turns with said shaft, so that it may receive and wind the music-sheet. When the said roll is out of engagement with said shaft, the said roll will turn freely on the latter, thus allowing said sheet to be rewound on the rewinding-roll M with great facility. Shaft K also carries a worm-wheel, S' , which gears with a worm, T, on a horizontal shaft, T' , provided with fan-blades t . As the rapidity of rotation of said fan increases, of course the resistance increases also, and when this passes a certain point the shaft K, instead of turning, will allow the endless belt I to slip on pulley J. This will compensate for the increasing strain on the music-sheet and the undue rapidity of motion that would otherwise be imparted to it by the accumulation of the music-sheet on said winding-roll and the consequent increase of leverage.

U designates the rack which carries the upper feed-roll or idler, V, that bears against the lower feed-roll, G, aforesaid. This upper feed-roll is not directly secured to said rack, but has its bearings in the downwardly-bent ends w of a spring-plate, W, which is secured at its middle part to the bottom of said rack, onto a block, w' , attached thereto. When said rack is in the normal position for the operation of the instrument, the axial lines of said feed-rolls and of the said rack are all in the same transverse vertical plane, the term "transverse" being used with relation to the instrument.

X designates the pressure-roll, which normally bears against the top of the reed-board, just in front of the reed-ducts aforesaid. It is pivoted in the downwardly-extending ends y of a rigid bar or plate, Y, which is pivotally attached at its middle to the forward part of the rack U by means of a pivot-screw, y' , which passes through the front face of said rack and an opening or mortise, y^2 , formed in said rack back of said face. A lug, y^3 , formed

on the top of said bar Y, near its middle, is perforated to fit loosely on said pivot-screw and allow said bar to rock thereon. Said lug is located within said mortise when the parts are put together, and is adapted to have motion therein, as stated. As the music-sheet moves forward between the lower feed-roll and the upper feed-roll, (so called,) it tends to raise the upper feed-roll, V, and to resist the rising of the pressure-roll X; hence the latter is held down against the music-sheet in proximity to the reed-ducts, but not by spring-pressure, the spring-plate W having no other function than to hold the upper feed-roll, V, against the music-sheet. When the latter is drawn back for rewinding, it automatically raises the pressure-roll, so as to avoid all danger of being torn thereby. In spring-pressed pressure-bars, rolls, or drags the pressure is constant, and when the music-sheet is drawn backward for rewinding it is frequently torn. This objection obviously applies to instruments in which the axial or pivotal line of the rack is arranged farther forward than the transverse vertical plane of the axis of the upper feed-roll, a spring or springs being employed to force the latter directly downward, and also to force the pressure-roll downward by turning the rack on its axis or pivotal line. It will be observed that my present improvement operates on a totally different principle and avoids the chief defects heretofore experienced. The pivots Z, which form the axis of the said rack, turn in bearings z on top of case A, these bearings being closed at top by plates z' , which are pivoted at z^2 , so that they may be turned aside at will to allow the removal of said rack. The pivotal attachment of bar Y to said rack allows it to adjust itself to any inequalities of the music-sheet.

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

1. In combination with the bellows of an automatic musical instrument, a spring bearing against an attachment thereof, and a push-button and stem bearing directly against said spring, whereby the resistance of said spring may be varied and the tone correspondingly affected.

2. A pivoted rack carrying a spring-pressed upper feed-roll or idler, and a pressure-roll for holding the music-sheet against a fixed part of the instrument, in combination with the lower feed-roll of a musical instrument, the axes of the upper and the lower feed-roll being in the same transverse vertical plane with that of the rack when said pressure-roll is in its normal position for operation.

3. An upper feed-roll or idler, in combination with a spring-plate, in the ends of which said roll is journaled, a pivoted rack, to which said spring-plate is attached, and a lower or inner feed-roll, against which said upper feed-roll normally bears, substantially as set forth.

4. A pressure-roll, a pivoted rack, and an

upper feed-roll, the latter having its axis vertically under the axis of said rack, in combination with a plate-spring attached to said rack, the ends of said spring forming bearings for said feed-roll, substantially as set forth.

5 5. A pressure-roll, in combination with a plate or bar having downwardly-extended ends, which form bearings for said roll, a perforated lug extending upward from its middle portion, a pivoted rack recessed to receive

said lug, and a pivot-screw which extends through the front of said rack and through said lug, leaving the latter free to rock thereon in said recess, substantially as set forth.

In testimony whereof I affix my signature 15 in presence of two witnesses.

JOHN McTAMMANY, JR.

Witnesses:

DAVID MANNING, Jr.,

ALEX. BIGELOW.