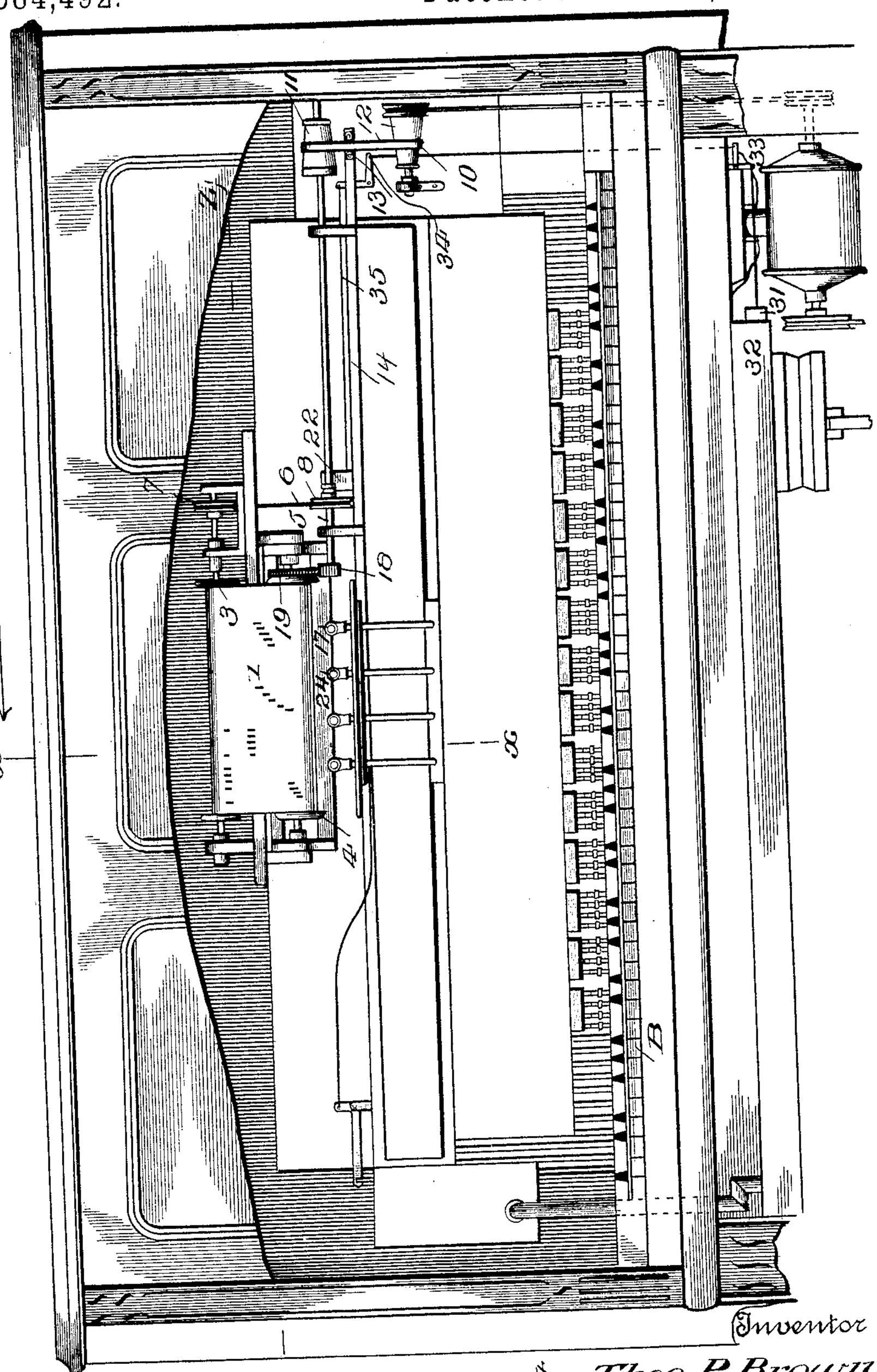
(No Model.) 2 Sheets—Sheet 1.

T. P. BROWN.

AUTOMATIC MUSICAL INSTRUMENT.

No. 584,492. Patented June 15, 1897.



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(No Model.) 2 Sheets—Sheet 2.

T. P. BROWN.

AUTOMATIC MUSICAL INSTRUMENT.

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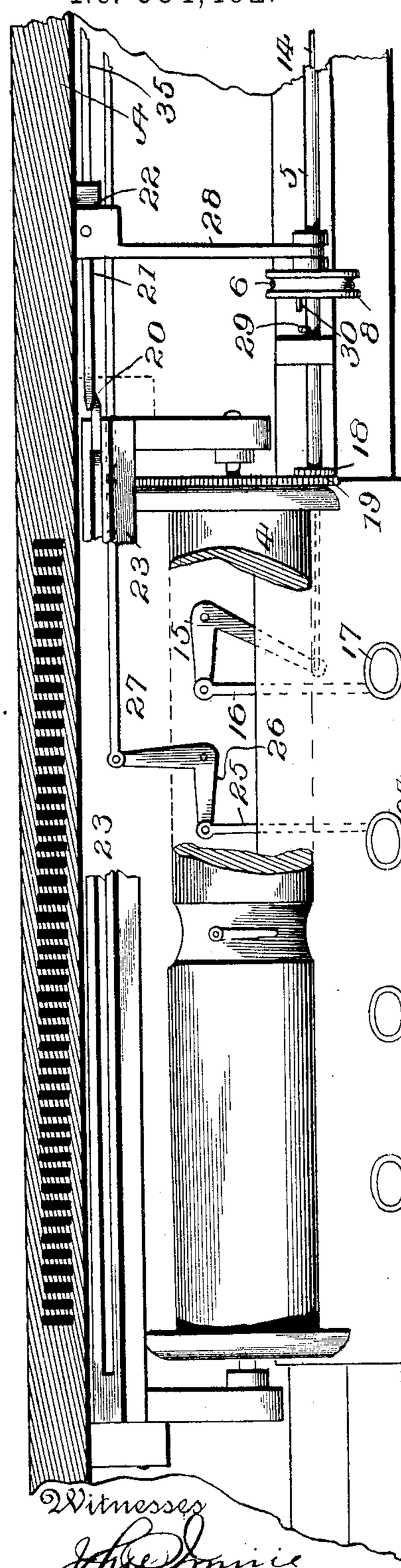

Fig. 3.

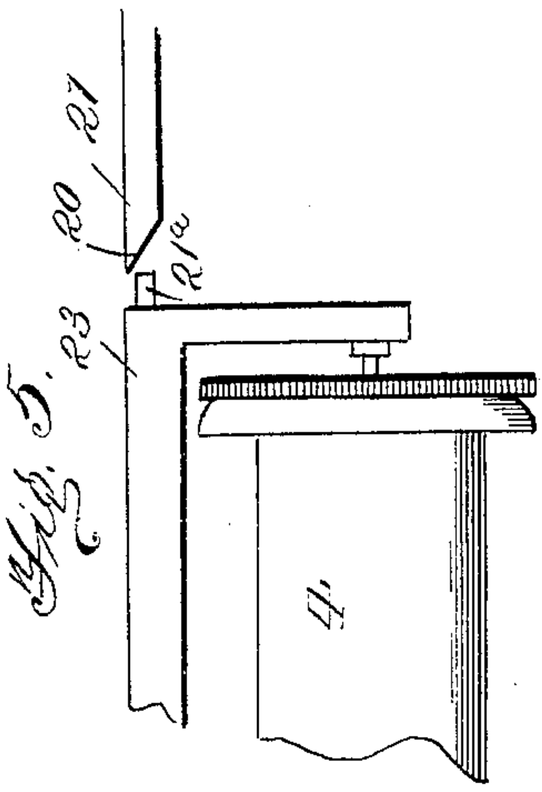

Fig. 5.

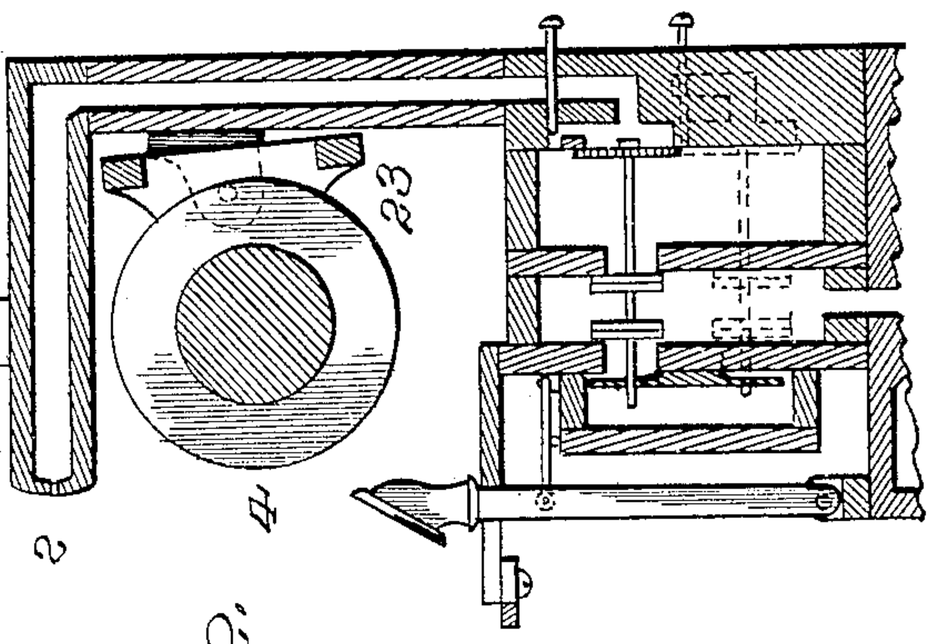

Fig. 2.

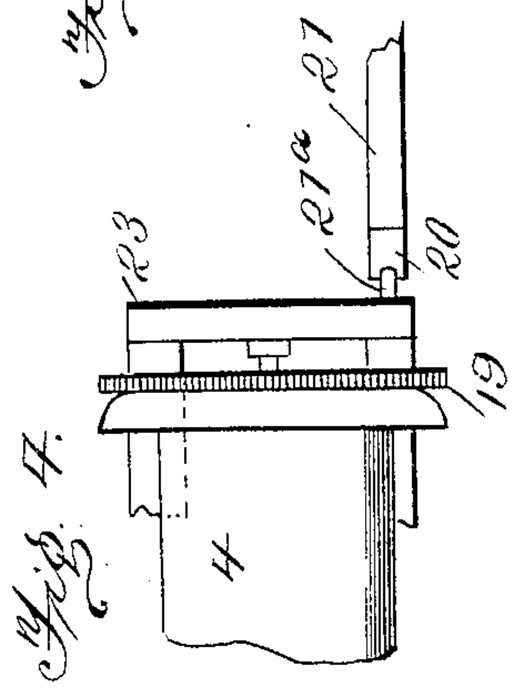

Fig. 4.

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UNITED STATES PATENT OFFICE.

THEODORE P. BROWN, OF WORCESTER, MASSACHUSETTS.

AUTOMATIC MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 584,492, dated June 15, 1897.

Application filed February 3, 1897. Serial No. 621,867. (No model.)

To all whom it may concern:

Be it known that I, THEODORE P. BROWN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a certain new, useful, and valuable Improvement in Automatic Musical Instruments, of which the following is a clear, full, and exact description.

This invention relates to automatic musical instruments, and particularly to that class wherein the pneumatic action thereof is controlled by a perforated note-sheet commonly called a "music-sheet."

The special object of this invention is to provide improved means for controlling said note-sheet, and to which mechanism I will confine myself as exclusively as possible in this application, referring for a full description of other parts herein shown and briefly mentioned to my application for improvements in automatic musical instruments filed April 28, 1896, and given Serial No. 588,996.

In the accompanying drawings, which form a part of this specification, Figure 1 is a front elevation of the upper portion of a musical instrument embodying my improvements, the lower front part and a portion of the upper part of the front board of the case being removed to expose the interiorly-located mechanism. Fig. 2 is a transverse vertical section taken through the line X X of Fig. 1 from the direction indicated by the arrow at the top of latter figure. Fig. 3 is a horizontal sectional view taken through line Z Z of Fig. 1. Figs. 4 and 5 are detail views of one end of the roll-frame and receiving-roller and the mechanism for rocking said frame.

In the following detailed description I shall employ letters and numerals of reference to indicate parts having corresponding letters and numerals placed upon or near them in the accompanying drawings.

The case A of the instrument—in this instance a piano—and B, the keyboard, have keys which are connected with the sound-producing devices and may be operated manually in the ordinary way.

Combined with the keyboard to play the keys mechanically and automatically is a perforated music-sheet attachment, which is located within the case above the keyboard. The system of bellows for exhausting the air from the pneumatics of the perforated music-sheet attachment is located in the lower part of the case below the keyboard, said bellows not being shown, as such mechanism forms no part of this invention as claimed.

The perforated music-sheet 1 extends in front of the tracker-board 2 and is adapted to be wound from one roll, as 3, onto another roll, as 4. Said rolls are journaled in bearings, and the upper roll is belted to a shaft 5 by an endless belt 6, passing around grooved pulleys 7 and 8. The shaft 5 is provided with a cone-pulley 11. Said cone-pulley 11 is belted by a belt 10 to a second pulley 12, which latter is in turn belted to a pulley on the shaft of a motor, in this instance an electric motor, which may be of any ordinary construction and located under the keyboard in the lower part of the case, as shown.

By means of the reverse cones 11 and 12 and the shifting of the belt 10 by a slide 13 and rod 14, angle-lever 15, and link 16 (see Fig. 3) to the stop 17, pivoted at its lower end and adapted to move out or in at its upper end, the speed of the shaft 5, and consequently of the roll 4, may be varied according as it is desired to have the perforated music-sheet 1 move fast or slow in front of the tracker-board 2.

On the opposite end of the shaft 5 from the cone 11 is a pinion 18, which is adapted to mesh into a gear 19 on the end of the lower roll 4. Said roll 4 is mounted in a frame 23, which is pivotally supported, as shown in Fig. 2, and adapted to be thrown out at its lower part to disengage the gear 19 from a pinion 18 by the bevel end 20 of a rod 21, secured in a slide-block 22. In operation the beveled end 20 of said rod 21 engages a projection 21^a on the frame 23 below its pivotal support, whereby when said rod is moved forward in contact with the projection on the frame the latter will be thrown outward at its lower end, disengaging the gear 19 from the pinion 18.

A stop 24 through link 25, angle-lever 26, and rod 27 operates the rod 21 to move the lower end of the frame, and with it the gear 19, out of engagement with the pinion 18, and at the same time moves the loose pulley 8 on the shaft 5 through the arm 28 to the left in Fig. 3, which arm is carried by the

slide-block 22, and causes the pin 29 on said pulley to engage a pin 29 on the shaft 5 and cause the said pulley to revolve with the shaft to operate through the belt 6 the pulley 7 and the roll 3 to rewind the music-sheet 27 thereon in the usual way.

At the same time that the pulley 8 is moved on the shaft 5, as above described, a valve 31 on the end of the air-box 32 is opened to release the air through connections 33, 34, and 35 to the arm 28. (See Figs. 1 and 3.)

What I claim is—

1. In a mechanical musical instrument, the combination with the horizontally-arranged and forwardly-projecting tracker-board, of a music-sheet roll journaled in bearings above the tracker-board and carrying a pulley at one end, a rocking frame mounted below the projecting tracker-board, a music-roll journaled in said rocking frame and provided with a gear-wheel at one end, a power-shaft having a pinion lying in a line with said gear-wheel, a loose pulley on the power-shaft adapted when moved laterally to clutch said shaft, a belt connecting the music-roll pulley and loose pulley, and means for simultaneously rocking the roll-frame, and moving the loose pulley into and out of its clutching position, substantially as described.

2. In a mechanical musical instrument, the combination with the perforated music-sheet, of the rolls onto which said sheet is wound and unwound, a rocking frame, one of said rolls being mounted in said rocking frame, and provided with a gear-wheel at one end, a power-shaft having a pinion lying in a line with the said gear-wheel, and means for rocking the said roll-frame whereby its gear-wheel will be brought into and out of mesh with the pinion, substantially as described.

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

THEODORE P. BROWN.

Witnesses:

OWEN WARD,

G. H. DAVIS.