

(No Model.)

2 Sheets—Sheet 1.

J. H. CHASE.

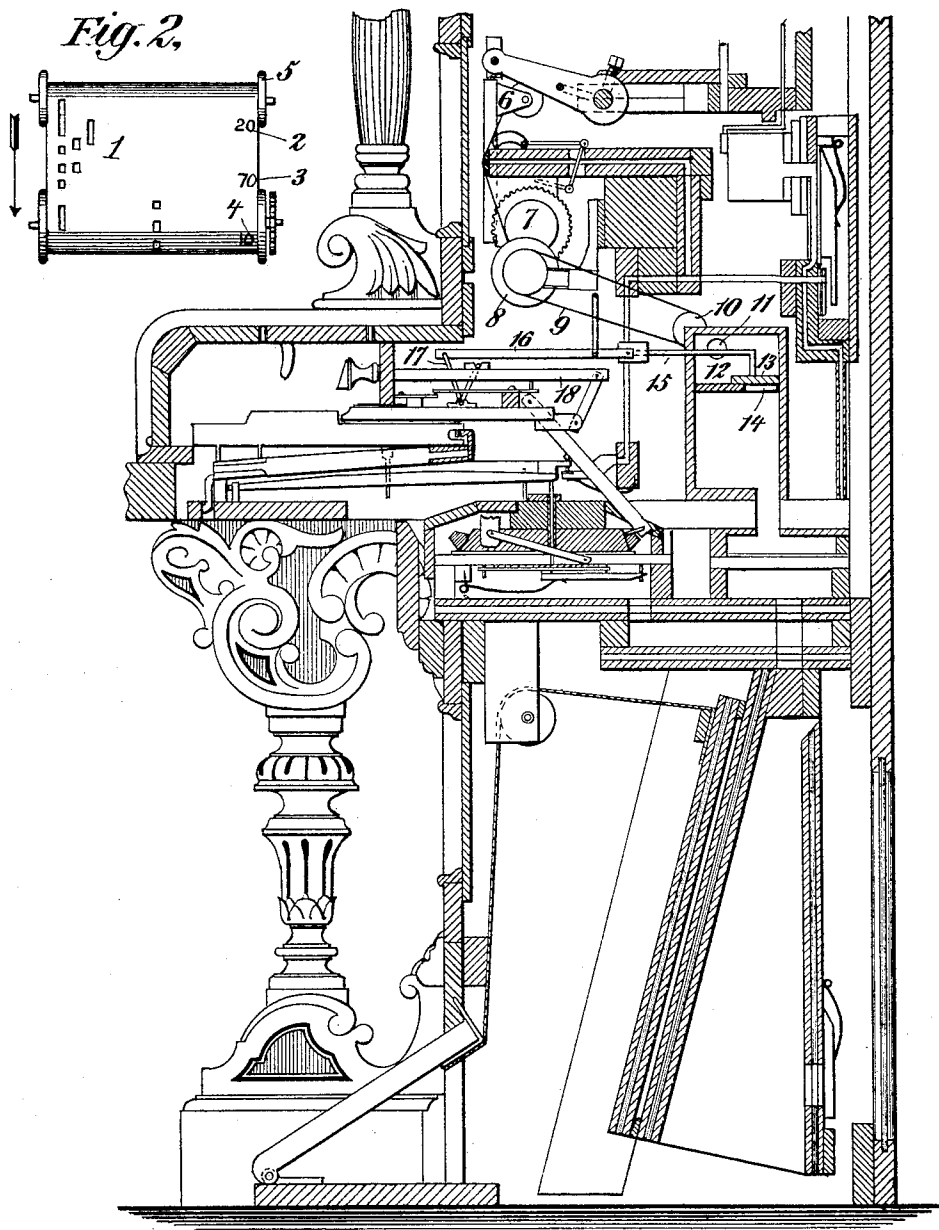
TEMPO INDICATOR AND GOVERNOR FOR MUSICAL INSTRUMENTS.

No. 571,746.

Patented Nov. 24, 1896.

Fig. 1,

Fig. 2,



WITNESSES:

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ATTORNEY

(No Model.)

2 Sheets—Sheet 2.

J. H. CHASE.

TEMPO INDICATOR AND GOVERNOR FOR MUSICAL INSTRUMENTS.

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Fig. 3,

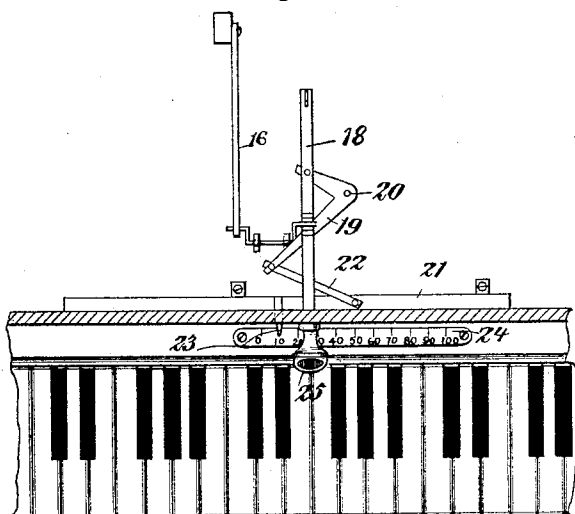


Fig. 4,

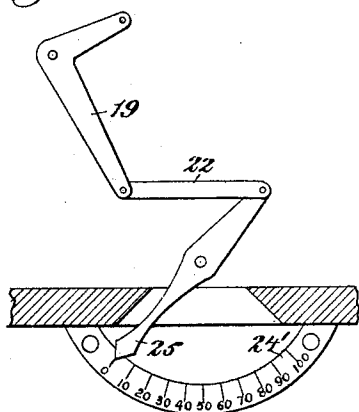


Fig. 5,

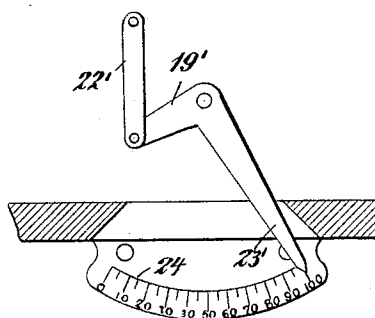
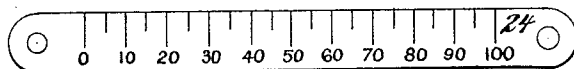


Fig. 6,

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UNITED STATES PATENT OFFICE.

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TEMPO INDICATOR AND GOVERNOR FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 571,746, dated November 24, 1896.

Application filed May 27, 1896. Serial No. 593,357. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH HERBERT CHASE, a citizen of the United States, residing at Meriden, in the county of New Haven and State of Connecticut, have invented a certain new, useful, and valuable Improvement in Tempo Indicators and Governors for Musical Instruments, of which the following is a full, clear, and exact description.

This invention relates to an improved tempo indicator and governor for musical instruments, and has for its object to provide the combination and arrangement of parts such as will be hereinafter fully described.

In the accompanying drawings, forming a part of this specification, Figure 1 is a transverse vertical section of a musical instrument, showing my improvements in operative position and the relative arrangement of the several parts. Fig. 2 shows a music-sheet with index characters printed upon its right-hand edge. Fig. 3 is a detailed top view of my tempo-stop, its levers, and other directly co-operating parts. Fig. 4 is a detailed top view of a modified form of indicator, and Fig. 5 is a similar view of another modification. Fig. 6 shows a detail view of my scale.

Any parts occurring in two or more views are indicated by the same numerals of reference.

Before proceeding with a detailed description of my invention I would first invite attention to the fact that the application of my improvements extends to all forms of pneumatic musical instruments, such as the æolian, wherein the sounding devices are controlled automatically by a perforated music-sheet acting as a valve to said sounding devices, the rate of travel of said music-sheet determining the tempo of the music, and while a skilled musician or performer has heretofore been able to regulate the travel of the sheet with the ordinary motor-governor so as to properly change the tempo of the piece at the right time or place, yet no simple, practical, and adequate means has heretofore been provided, whereby a novice or unskilled performer could properly change and control the tempo of any piece with such accuracy as to render the music with artistic correctness and spirit.

To these ends my invention consists in the features of construction and new combination of parts hereinafter pointed out, and more clearly defined in the claims which follow this specification.

Primarily the invention consists in the combination of an air-supply chamber having a suitable air-opening, a governing-valve controlling said opening, a stop or pull rod, a movable pointer and stationary scale, and independent connections between the stop-rod and valve and movable pointer and stop-rod, whereby a single movement of the said stop-rod will cause a simultaneous movement of both the valve and pointer.

One end of the music-sheet 1 is permanently secured to its spool 5, and when placed in the music-holder 6 the free end of the sheet is detachably secured or hooked to the take-up roller 7, which is engaged by a gear upon pulley 8, driven by belt 9 from pulley 10 upon the pneumatic motor, which latter is supplied with air or exhausted through the opening 11 of the upper supply-chamber 12, the sliding cover 13 working over the opening 14 and thereby regulating the amount of air passing or exhausted through said opening, and thereby governing the speed of said pneumatic motor, which in turn, through its system of pulleys, belts, and gears 10 9 8 7, regulates the speed of the music-sheet. The governing-slide 13 is connected by the connecting-rods 15 16 and crank-lever 17 to the stop-rod 18, as shown, and partakes of the slightest movement of the latter. In order to indicate the exact position of the governing-slide or the relative speed of the motor and music-sheet, which latter, as heretofore explained, is governed by the position of the said slide 13, I provide the following connections: Pivotaly connected to the said stop-rod 18 is a bell-crank 19, pivoted at point 20 to a fixed part and connected to the sliding rod 21 by the arm 22, thereby causing the said sliding rod 21 to partake of the slightest movement of the stop-rod 18 and its pointer 23 to move over the scale 24 and indicate by its position the relative speed of the pneumatic motor or the rate of travel of the music-sheet, and as these are governed by the extent the performer draws the stop 25 or stop-rod 18

the pointer may also be said to indicate the position of the stop which governs it as well as the motor. This double movement or result is accomplished by the single movement of the stop-rod 18, which has a connection with both the sliding rod or pointer and the governing-slide.

The operations of my improvements are substantially as follows: Suppose the music-sheet to have the prearranged numerals "10," "70," "20" marked upon its right-hand edge, as shown in Fig. 2, and that the music-sheet is properly placed in the instrument. Then the performer, to start the piece at the proper tempo, draws the tempo-stop 25 until the pointer 23 rests over "10" of its scale and the motor is left to run at this speed, which in this instance would be quite slow, until the next numeral "70" appears, when the performer draws out the tempo-stop still farther until the pointer rests upon "70" on its scale, and in these positions of the stop and pointer the motor and music-sheet would be made to travel at a comparatively fast rate until the next numeral "20" appeared, when the governing-stop 25 would again be changed, and so on throughout the continuation of the piece, the heretofore difficult task of mastering the "tempo" of various pieces being, through the means herein disclosed, rendered obviously easy even to a novice.

In Fig. 4 I have shown a slight modification in the construction of pointer. In this arrangement I provide a pivoted pointer 25 instead of the sliding rod 21, said pointer working in conjunction with a curved scale 24'.

In Fig. 5 I have shown still another modification, in which instance the pointer 23' is in the form of a pivoted bell-crank lever, having its short arm 19' connected to a link 22', which in turn is pivoted to the stop-rod 18 and operated by said rod in the same manner as the other connections heretofore described are operated.

Many other minor changes or modifications may be made without avoiding the spirit of my invention, as

What I claim is—

1. In a tempo indicator and governor for pneumatic musical instruments, the combination with the air-supply chamber having a suitable opening, a governing-valve controlling said opening, an operating-rod connected to the valve, a stop-rod arranged parallel with the valve-rod, a cranked arm arranged between and having its ends connected to the

valve-rod, and stop-rod respectively so that the movement of one will operate the other, a stationary scale, a movable pointer, and a suitable connection between the pointer and stop-rod, whereby a movement of the stop-rod will cause a similar movement of the valve and pointer.

2. In a tempo indicator and governor for pneumatic musical instruments, the combination with the air-supply chamber having a suitable exit-opening, a sliding governor-valve for said opening, a rod connected to the valve, a sliding stop-rod, a pointer arranged parallel with the valve-rod and scale, and connections between the stop-rod, sliding valve and pointer whereby these two latter-named devices are operated by the single movement of the stop-rod, substantially as described.

3. In a tempo indicator and governor for pneumatic musical instruments, the combination with the air-supply chamber having a suitable exit-opening, a sliding valve operating over said opening, a sliding stop-rod, a pointer and scale, a cranked arm having its opposite ends connected to the sliding valve and sliding stop-rod respectively, and a connection between the pointer and sliding-rod, as and for the purpose set forth.

4. In a tempo indicator and governor for pneumatic musical instruments, the combination with the air-supply chamber having a suitable exit-opening, a sliding valve operating over said opening, a sliding stop-rod, a crank-arm having a connection with the valve and stop-rod, a pointer and scale, and a bell-crank lever having one end connected to the stop-rod, and the other end arranged to operate the pointer, substantially as described.

5. In a tempo indicator and governor for musical instruments, the combination with the air-supply chamber having a suitable exit-opening, a valve for said opening, an operating-rod connected to the valve, a stop-rod, a pointer pivoted intermediate its ends, a stationary scale over which latter said pointer moves, and independent connections between the valve-operating rod and stop-rod and pointer and stop-rod whereby these parts are moved simultaneously.

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

J. HERBERT CHASE.

Witnesses:

W. K. BRIGHAM,
A. C. BUMPUS.