

No. 855,145.

PATENTED MAY 28, 1907.

J. W. SUTTON.

CONTROLLER FOR MECHANICAL MUSICAL INSTRUMENTS.

APPLICATION FILED MAR. 15, 1906.

2 SHEETS—SHEET 1.

Fig: 1.

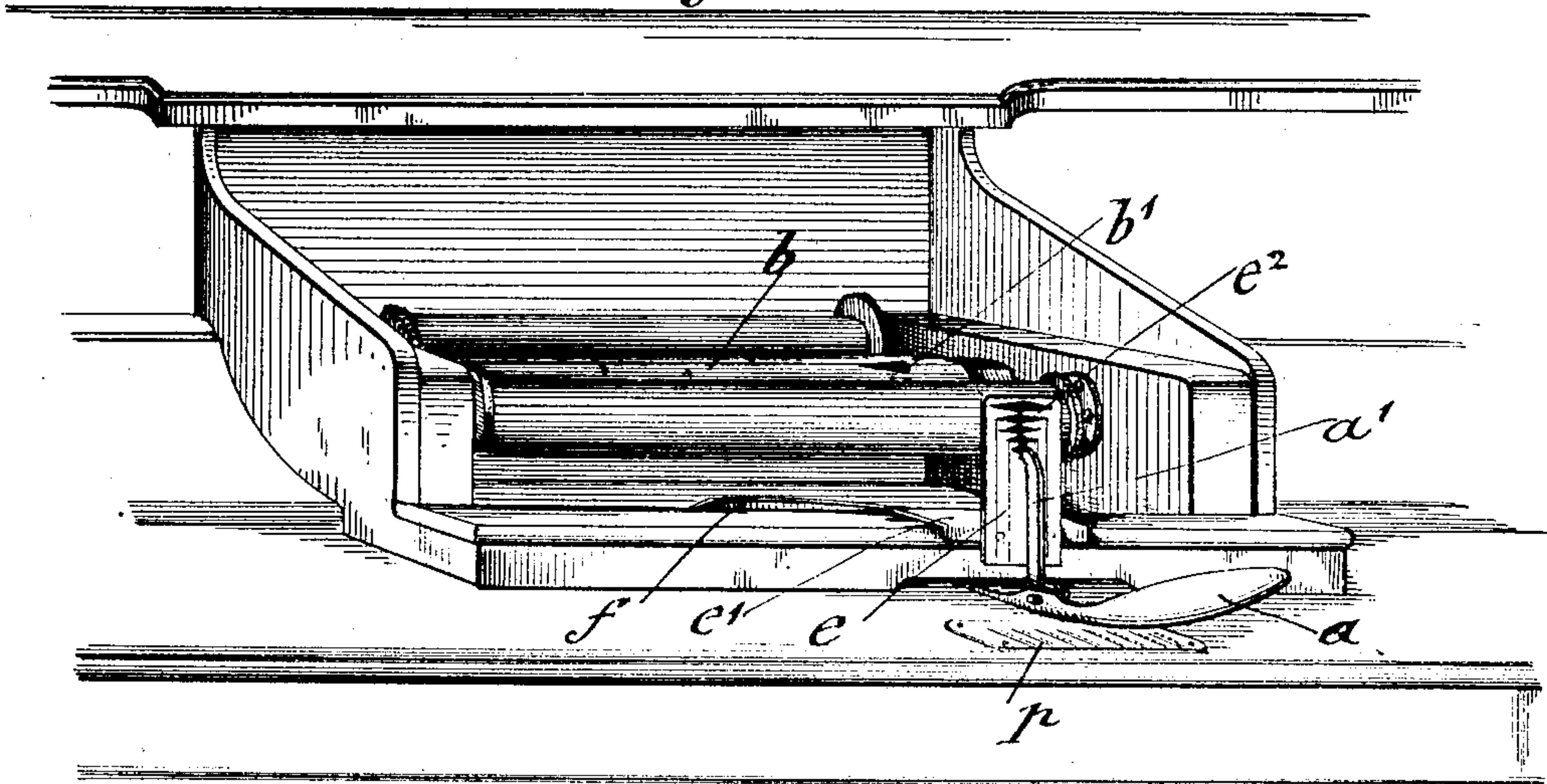


Fig: 2.

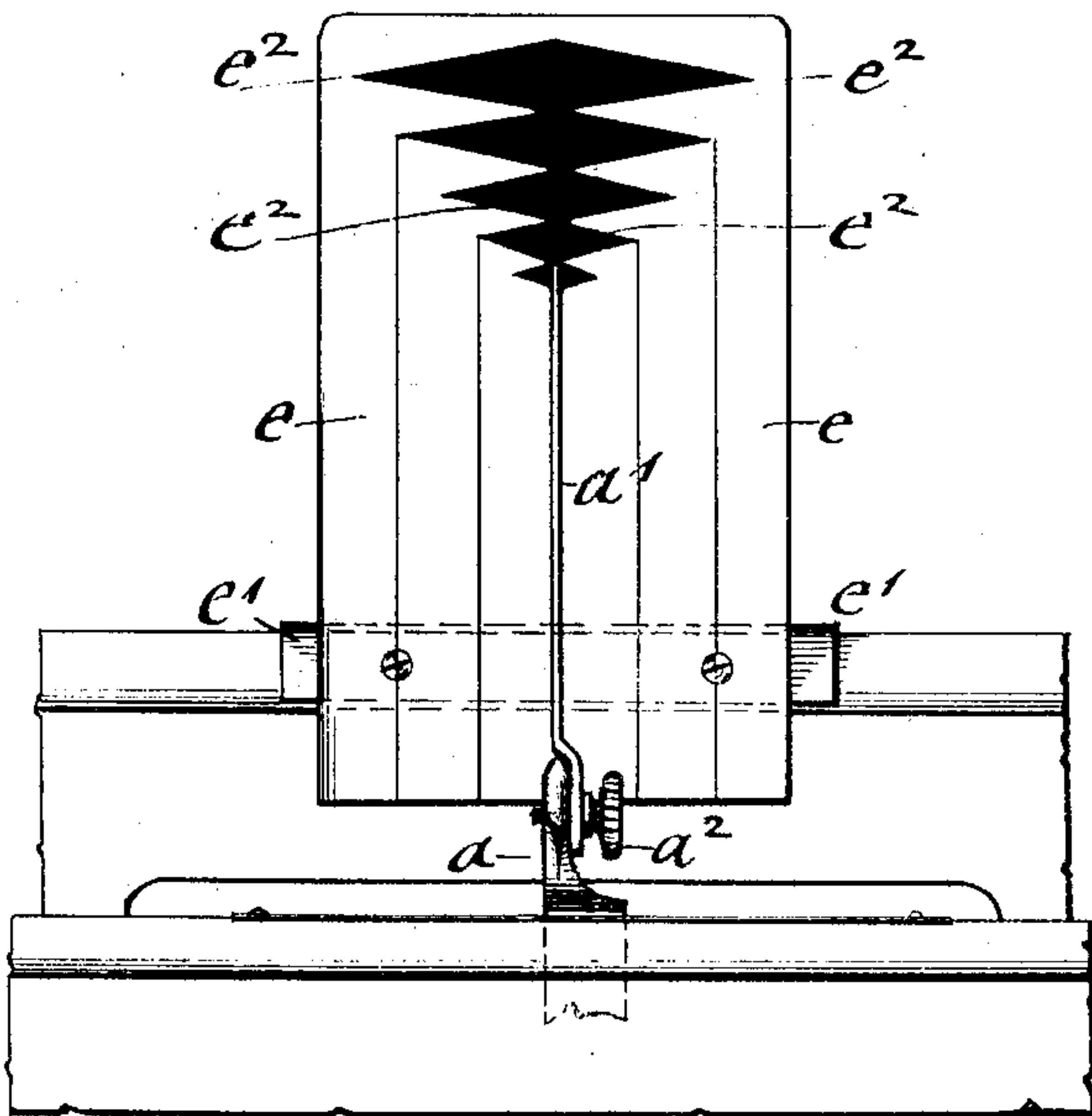
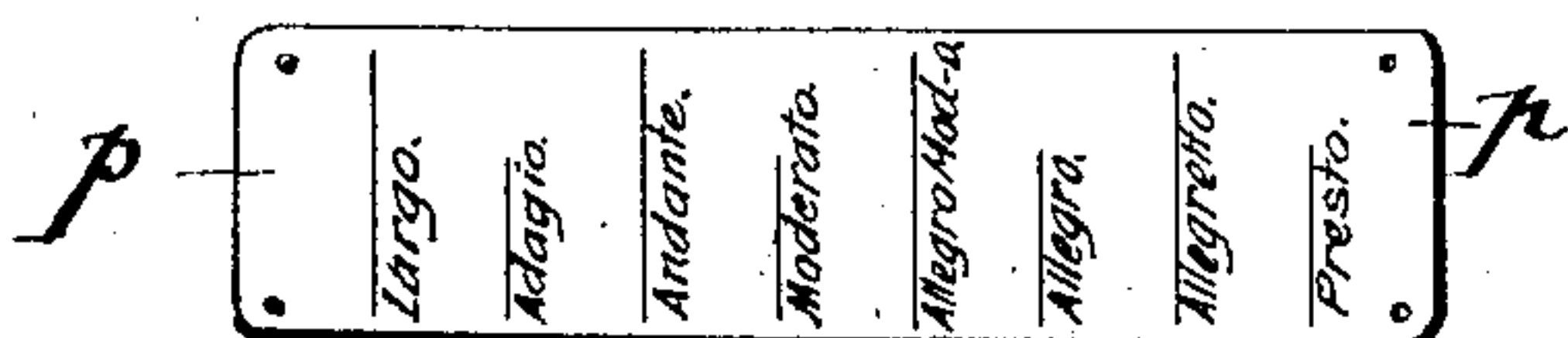
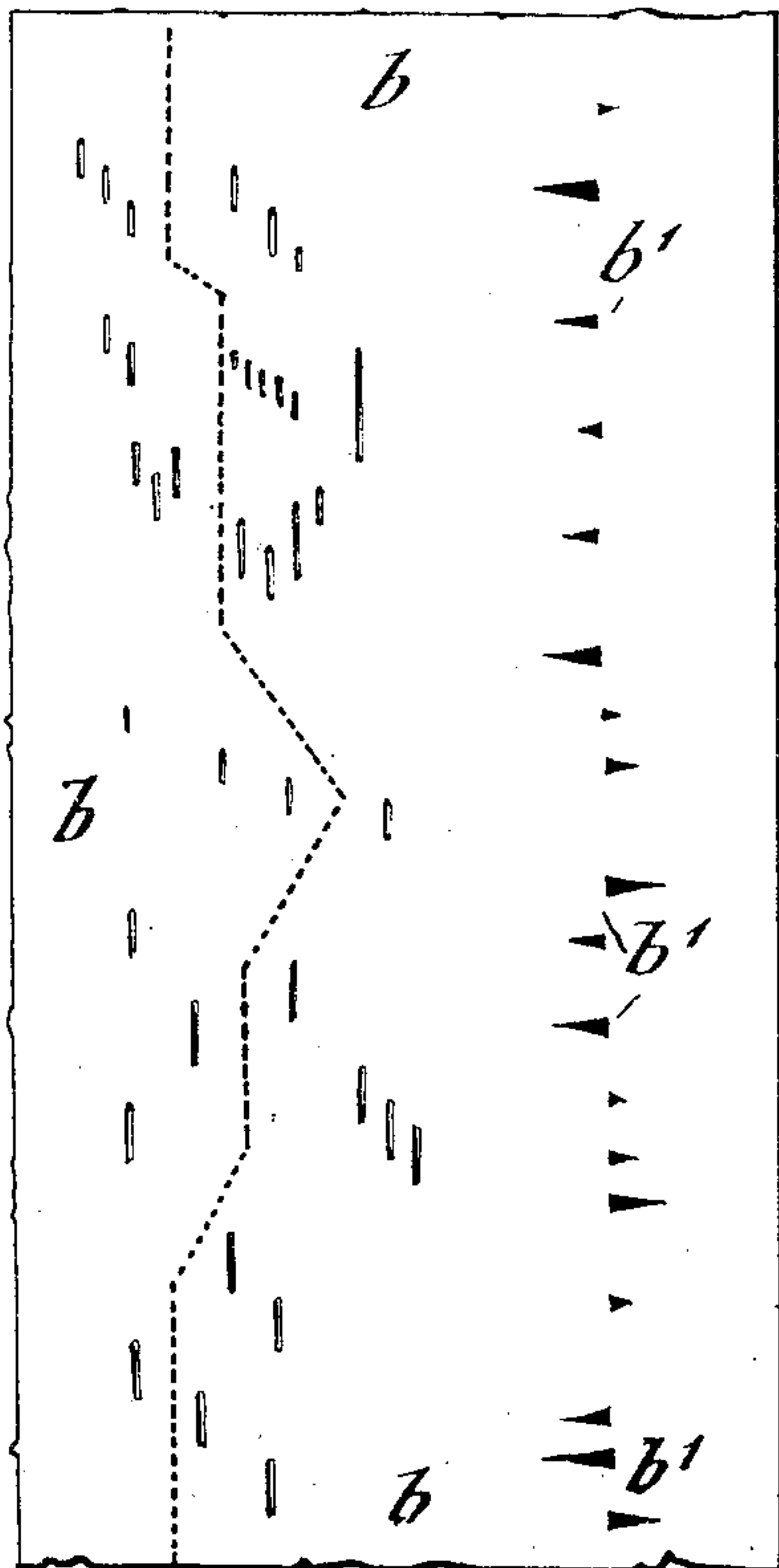


Fig: 3.



Witnesses
Fannie Fish
Edward A. Lee

Fig: 4.



Inventor
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By his Attorney
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2 SHEETS—SHEET 2.

Fig: 5.

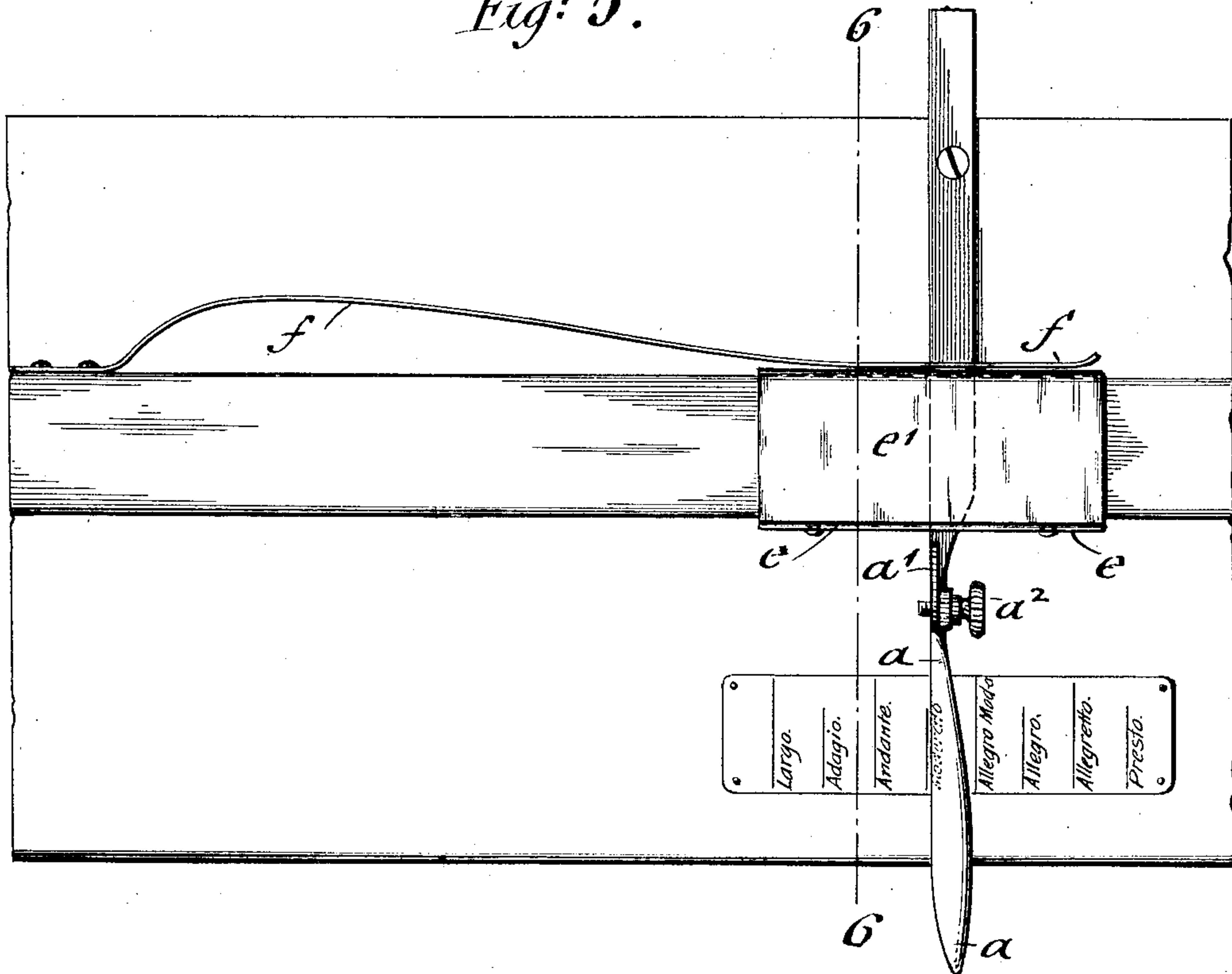
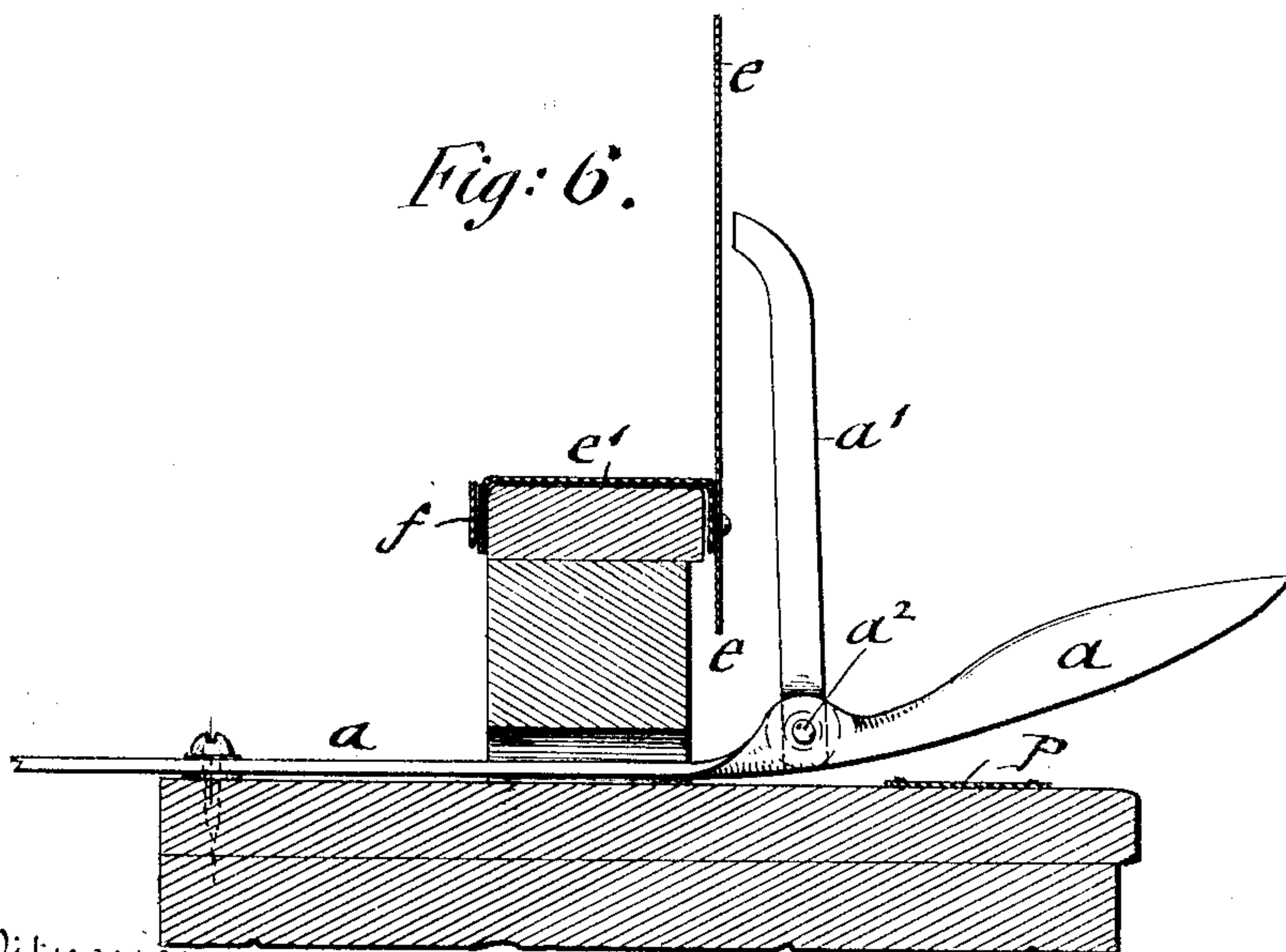


Fig: 6.



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UNITED STATES PATENT OFFICE.

JOHN W. SUTTON, OF NEW YORK, N. Y.

CONTROLLER FOR MECHANICAL MUSICAL INSTRUMENTS.

No. 855,145.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed March 15, 1906. Serial No. 306,107.

To all whom it may concern:

Be it known that I, JOHN W. SUTTON, a citizen of the United States, residing in New York, in the borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Controllers for Mechanical Musical Instruments, of which the following is a specification.

10 The object of this invention is to furnish a tempi-controlling device for piano-players and automatic pianos by which the different tempi of the piece of music to be played, and thereby the expression can be controlled in a simple and effective manner, so that the music can be played by persons but little versed in music in keeping with the intention of the composer.

15 In many constructions of piano-players and automatic pianos the tracker-board and the perforated music-sheet passing over the same are arranged in such a manner that it is impossible to arrange a tempi-controlling device in proximity thereto so as to follow the so-called tempo-lines on the perforated music-sheet, while many of the automatic pianos are constructed in such a manner that the perforated music-sheet is arranged in the upper part of the piano-case at some distance from the place on the keyboard where the usual levers for controlling the expression, tempi, etc., are arranged. In order to accommodate such piano-players and automatic pianos and similar mechanical musical instruments with a tempi-controlling device by which the piece can be played with the tempi arranged for the piece of music by the composer, the handle of the tempo-lever is provided with a pointer and with a shift-able tempo-scale adjacent to the pointer, said tempo-scale being provided with tapering indicating-points of different lengths extending at both sides of the center-line of the tempo-scale and corresponding to the different tempi, and permitting the shifting of the pointer and controller-lever in connection with correspondingly shaped tempi-indicating marks or points arranged on the perforated music-sheet, in line with the center-line of the indicating-points on the tempo-scale, so as to permit the convenient following by the tempo-lever and pointer of the tempi-marks on the music-sheet along the indicating-points of the tempo-scale, so that the prescribed tempi of the piece of music are controlled in playing it on the instrument.

In the accompanying drawing, Figure 1 represents a perspective view of a portion of a mechanical piano-player, showing the mechanism for moving the perforated music-sheet over the tracker, with the improved tempi-controlling device arranged in front of the same, Fig. 2 is a detail front-elevation of the tempo-lever and tempo-scale, Fig. 3 is a tempo-scale arranged below the tempo-lever and showing the different tempi marked thereon, Fig. 4 is a portion of a perforated music-sheet showing the tempi-indicating marks on the same, Fig. 5 is a plan-view of Fig. 2, and Fig. 6 is a vertical transverse section on line 6—6, Fig. 5.

Similar letters of reference indicate corresponding parts in the different figures of the drawing.

Referring to the drawing, *a* represents the tempo-lever of an "Angelus" or similar piano-player, and *b* the perforated music-sheet in position as it passes from the music-roll over the tracker-board to the winding-up roll. The perforated music-sheet *b* is provided, preferably at the right-hand side, with a number of wedge-shaped indicating-marks *b*¹, the bases of which are arranged in a straight line on the music-sheet by being printed or otherwise marked thereon, said indicating-marks being made of different sizes and lengths, and projecting to the left or right of the straight line, according to the different tempi used by musicians in playing a piece of music. There are preferably six different sizes of indicating-marks *b*¹ extending from a common center-line toward the left and six extending from said line toward the right, and corresponding to the tempi between largo and presto, as indicated on the tempo-plate *p*, shown in Fig. 3. By the indicating-marks *b*¹, which become visible as the perforated music-sheet moves over the tracker-board, whether it be arranged near the usual controlling-levers of a piano-player, or whether it be located in the upper part of the case of an automatic piano, the tempi can be controlled. The tempi-indicating marks *b*¹ are printed on the perforated music-sheet *b* at the same time as the words, abbreviations, forte-line, etc., are printed on the same. The mechanical musical instrument is provided with the usual controlling-levers, of which the tempo-lever *a* is provided with an adjustable pointer *a*¹ that is applied by means of a set-screw *a*² to the same. The tempo-plate *p* is arranged, as shown in Fig.

1, in such a manner below the controlling-lever a that the lever may be readily moved over the same for varying the tempi of the piece of music to be played. Adjacent to the pointer a^1 is arranged an upright shiftable tempo-scale e , which is guided by a guide-piece e^1 of inverted U-shape, on the frame of the instrument, and held in position by the friction of a flat spring f which is attached at the opposite end to the frame, as shown in Figs. 1 and 3. On the tempo-scale e are painted or otherwise marked at its upper part indicating-points e^2 , which extend symmetrically from both sides of the center-line of the tempo-scale e , said indicating-points diminishing in size from the largest points e^2 at the upper end to the smallest points e^2 at the lower end, as shown in Fig. 2. The indicating-points e^2 correspond in size and direction to the indicating-marks or points on the perforated music-sheet. Parallel vertical lines are run from the ends of the bars e^2 on the tempo-scale e to the lower edge of the latter. When the music is played, the eye of the player follows the direction and size of the indicating-marks on the music-sheet, while the hand holding the tempo-lever follows simultaneously with the pointer the direction and size of the indicating-bars on the tempo-scale e toward the left or right. In this manner the tempi prescribed by the indicating-marks on the music-sheet are followed, whatever be the position of the music-sheet relatively to the tempo-lever by which the speed of the motor, and thereby the tempi of the piece of music to be played, are controlled. In this manner a very convenient device for controlling the tempi of the piece of music is obtained, which can be applied to any mechanical musical instrument, regardless of the position of the perforated music-sheet and the driving mechanism for the same.

Every perforated music-sheet is printed with the tempo in which it is to be played and the tempo-lever is set at the line on the tempo-plate p which corresponds with the prescribed tempo. The distance of the center or base-line drawn through the widest portions or bases of the tempi-indicating marks on the music-sheet, from the edge of the same, will vary according to the normal standard tempo in which the composition is written and therefore the median line of the tempo-scale e must be adjusted to coincide or to be in alinement with the base-line on the music-sheet. The base-line on the music-sheet, whatever be the prescribed standard tempo, will correspond or be alined with the prescribed tempo-symbol or indicating-mark on the tempo-plate p , whereby the center or median line of the shiftable tempo-scale will also be in alinement with such tempo-symbol or indicating-mark on the tempo-plate. The center-line of the tempo-scale e is placed in

line with the base-line of the marks b^1 by shifting the tempo-scale e either to the right or left, as required. The motor is then started and the music-sheet moved over the tracker-board. The player follows, with the tempi-marks on the music-sheet, by his eyes and moves simultaneously the pointer over the indicating-points of the tempo-scale and thereby the tempo-lever, so that the speed of the motor and thereby the tempi are controlled. Thus even an inexperienced player can play the piece of music as prescribed by the composer. The device can be used on any mechanical piano-player by adapting the tempo-scale to the instrument and making the tempi-indicating points of the proper size for the scale of the same. After some practice, the player can follow with the pointer and tempo-lever the tempi-marks on the music-sheet without using the tempo-scale as the hand follows almost intuitively the size and direction of the tempi-marks on the sheet as they are moved over the tracker without using the points on the tempo-scale.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a mechanical musical instrument, the combination, with a music-sheet provided with a number of tempo-indicating marks extending laterally in opposite directions from a straight base-line and differing in size, of a tempo-lever carrying a pointer, and a tempo-scale over which said pointer is movable and provided with a center-line corresponding to the base-line on the music-sheet and with indicating-marks extending laterally to either side of said center-line and corresponding to those on the music-sheet.

2. In a mechanical musical instrument, the combination, with a tempo-lever and connections to control the speed of the music-sheet, of a pointer carried by said lever, and a laterally-shiftable tempo-scale over which said pointer is movable.

3. In a mechanical musical instrument, in combination, a tempo-lever and connections to control the speed of the music-sheet, a pointer carried by said lever, and a laterally-shiftable tempo-scale provided with a vertical center-line to register with said pointer and with indicating-marks of different lengths extending laterally from said line to either side thereof.

4. In a mechanical musical instrument, in combination, a tempo-lever, a tempo-plate having indicating-marks over which said lever is movable, a pointer carried by said lever, and a laterally-shiftable tempo-scale over which said pointer is movable.

5. In a mechanical musical instrument, the combination of a perforated music-sheet provided with a number of tempi-indicating marks arranged in a line at one side of the same, a tempo-lever controlling the speed of

the music-sheet, a pointer applied to said controlling-lever, a shiftable tempi-scale arranged adjacent to the pointer and provided with a number of indicating-marks extending symmetrically from the center-line and corresponding in size and direction to the tempi-indicating marks on the music-sheet, and means for guiding and retaining the tempo-scale.

6. In a mechanical musical instrument, the combination of a perforated music-sheet provided with tempi-indicating marks along one side of the same, a tempo-plate having division-lines indicating the different tempi, a tempo-lever extending over said plate, a pointer applied to the tempo-lever, and an

upright tempo-scale adjacent to the pointer provided with tempi-indicating points corresponding with the tempi-marks on the music-sheet, said tempo-scale being shiftable until its center-line is in alinement with the prescribed tempo-line on the tempo-plate and the base-line of the tempi-marks on the music-sheet.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

JOHN W. SUTTON.

Witnesses:

PAUL GOEPEL,
HENRY J. SUHRBIER.