

(No Model.)

2 Sheets—Sheet 1.

R. M. SAINT.  
MUSIC WRITING MACHINE.

No. 572,571.

Patented Dec. 8, 1896.

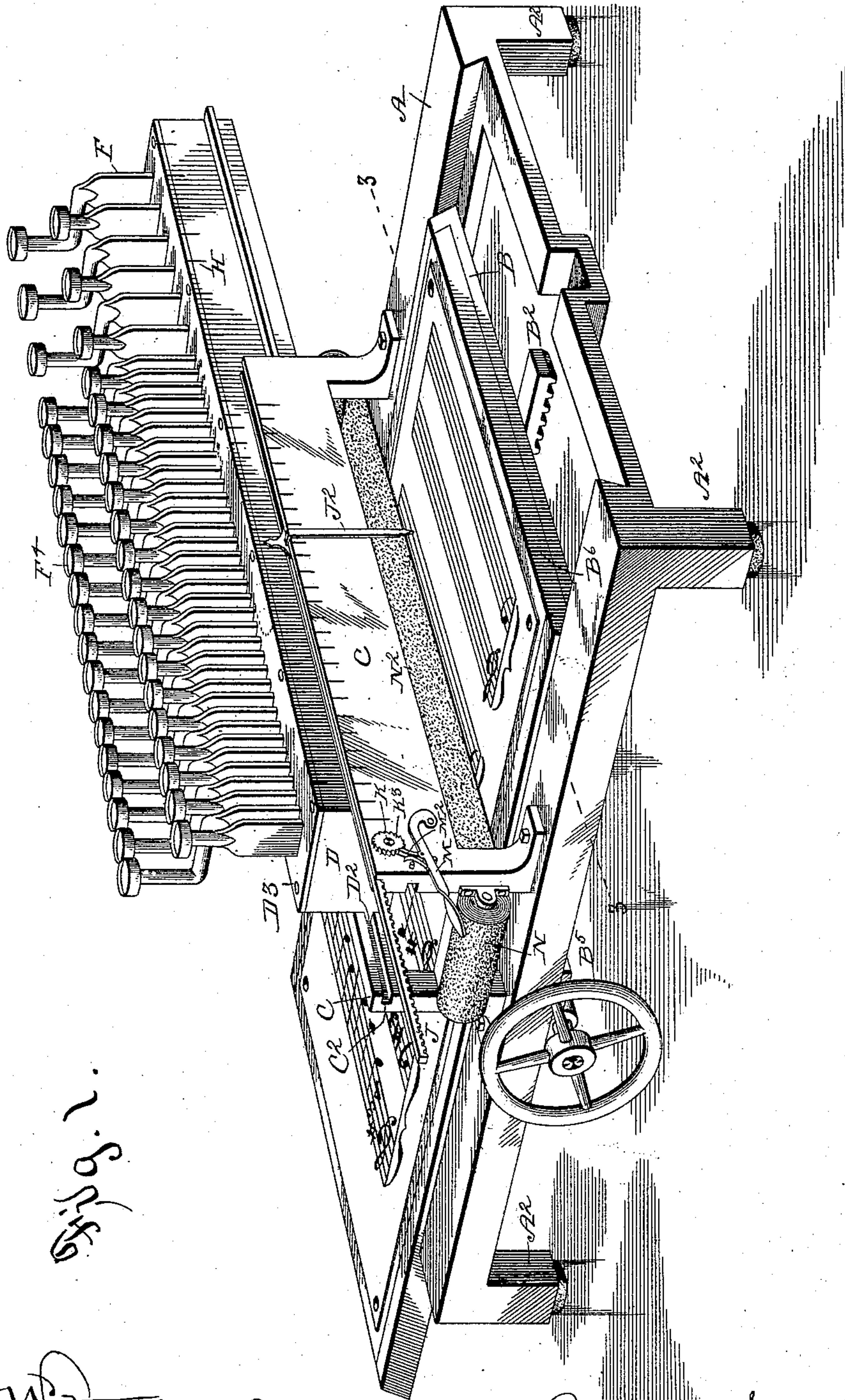


Fig. 1.

Witnesses:  
W. J. Sankey,  
R. S. Orwig.

Inventor: Robert M. Saint,  
By Thomas G. Orwig,  
Attorneys.



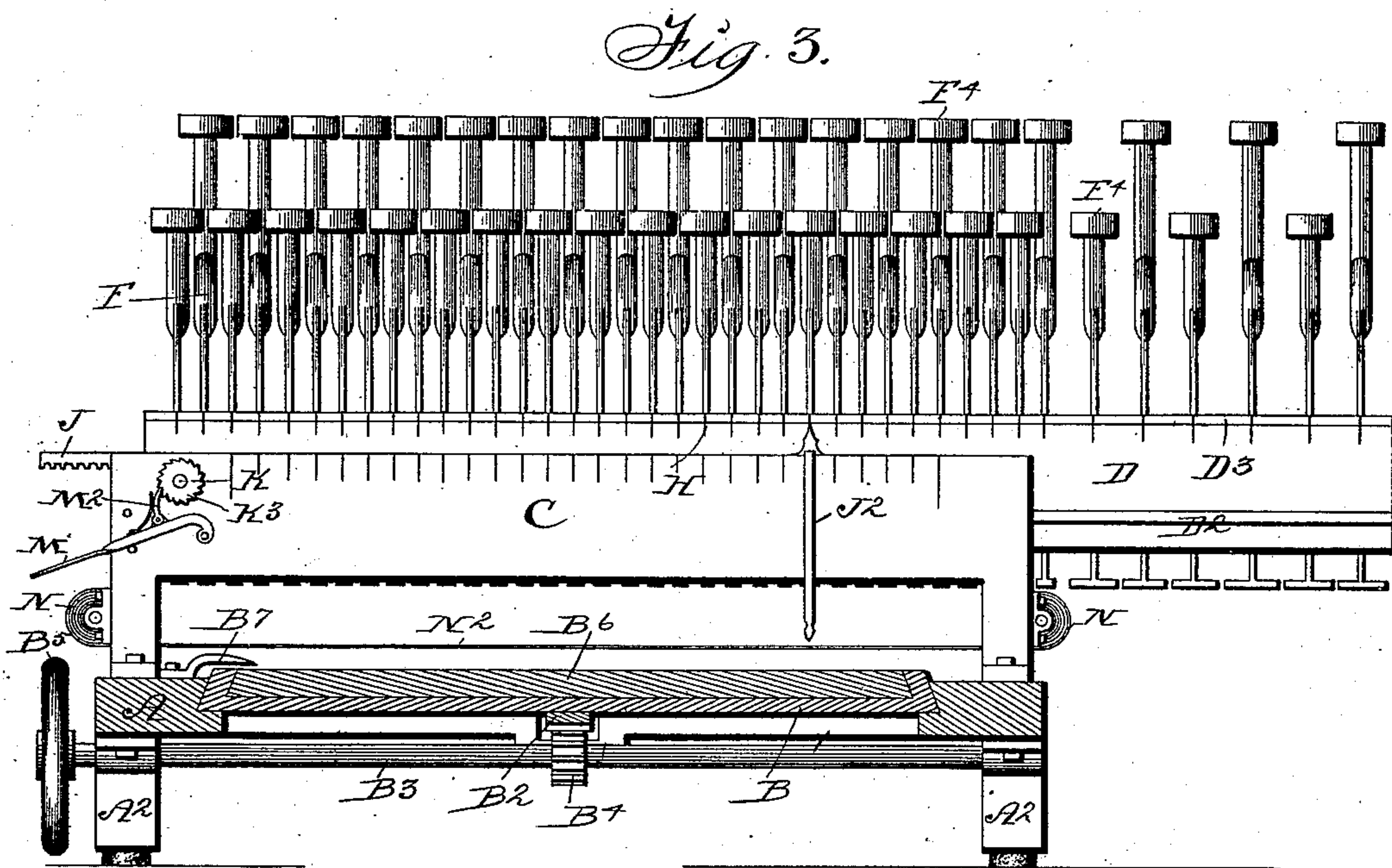
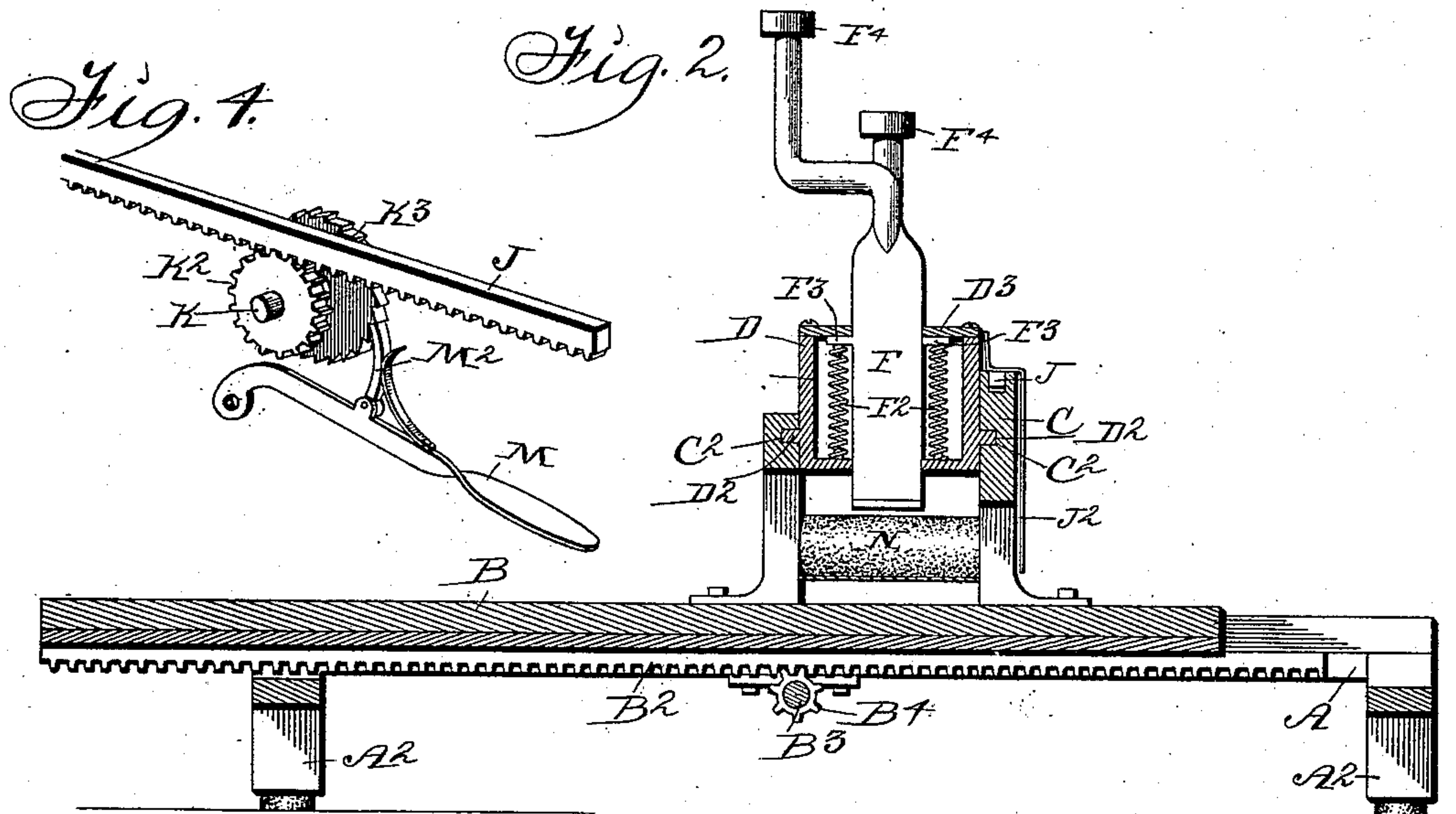
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Witnesses: *W. J. Sankey.* } Inventor: *Robert M. Saint,*  
*R. E. Orwig.* } *By Thomas G. Orwig, J. Ralph Orwig,*  
Attorneys.



# UNITED STATES PATENT OFFICE.

ROBERT M. SAINT, OF DES MOINES, IOWA.

## MUSIC-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 572,571, dated December 8, 1896.

Application filed April 4, 1896. Serial No. 586,185. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT M. SAINT, a citizen of the United States of America, residing at Des Moines, in the county of Polk and State of Iowa, have invented a new and useful Music-Writing Machine, of which the following is a specification.

The object of this invention is to provide a machine of simple, strong, and durable construction that may be easily and rapidly operated to print musical characters upon a printed staff.

My object is, further, to so group, arrange, and construct the various operative parts of the device that the paper bearing the staff and the types may be so operated and moved relative to each other that the types may be conveniently and accurately placed in their proper positions on the staff, both in their vertical and horizontal relation thereto.

My invention consists in certain details of construction, arrangement, and combination of parts, as hereinafter set forth, pointed out in my claims, and illustrated in the accompanying drawings, in which—

Figure 1 shows the complete device in perspective. Fig. 2 shows a central longitudinal section of the same. Fig. 3 shows a transverse section through the line 3 3 of Fig. 1. Fig. 4 shows a detail view of the spacing mechanism.

Referring to the accompanying drawings, the reference-letter A is used to indicate a flat base preferably made of cast metal and having the short legs A<sup>2</sup>. A frame B is slidably mounted in the top of the base A with its top surface slightly above that of the base and its edges dovetailed or beveled, it being capable of a longitudinal movement in the base. On its bottom is a rack B<sup>2</sup>, which extends lengthwise of the base. For moving the said frame in the base I have provided a shaft B<sup>3</sup>, journaled in the base and provided with a pinion B<sup>4</sup> to engage the said rack and a small hand-wheel B<sup>5</sup> on its outer end that may be conveniently grasped by the operator. In this frame B a drawing-board B<sup>6</sup> is placed, and the sheet of paper to be printed upon is placed on this board. I prefer to have the staffs printed upon this sheet. An indicator B<sup>7</sup> is fixed to the stationary base in position to point to the line at which the printing will

take place. In printing music the various characters are placed in different lines, and it is obvious that by this arrangement the musical characters may be readily placed in their proper position relative to the staff.

C indicates a track-frame secured to the base and extended transversely thereof and elevated slightly above the base. Its central portion is open at its top and bottom, and longitudinal grooves C<sup>2</sup> are formed on their inner faces.

The type-bars are mounted in a carriage-body D, that has ribs D<sup>2</sup> on its sides to enter the said grooves C<sup>2</sup>, thus providing a sliding support for the carriage. This body is hollow and its top D<sup>3</sup> is detachable. The type-bars F are rectangular in transverse section and are passed through rectangular openings in the top and bottom of the carriage-body. They are normally held to their upward limit by means of the coil-springs F<sup>2</sup>, engaging the ears F<sup>3</sup> and the bottom of the carriage-body. At the top of the bars are fixed the keys F<sup>4</sup>, each alternate one of which is extended rearwardly, as clearly shown in the drawings. On the lower end of the bar a type of a musical character is placed, and a sufficient number of bars are used to include all of the characters usually employed in printing music.

Upon the top forward surface of the carriage-body I have provided a scale or series of notches H, one notch being in front of each key, and in the top surface of the front edge of the track-frame C is a rack J, slidably mounted to move longitudinally thereof. An indicator J<sup>2</sup> is fixed to this bar and one end thereof extended upwardly into close proximity to the scale or series of notches H, and its other end is extended downwardly over the track-frame into close proximity to the paper. The said rack is moved until the lower end of the indicator is at the point where it is desired to print. Then the carriage is moved until the notch in front of the desired key is at the upper end of the indicator. A depression of the said key will of course print the character thereon at a point in line with the lower end of the indicator. This rack J is moved longitudinally by the following device.

K indicates a shaft rotatably mounted in the frame C and having on one end a pinion



K<sup>2</sup> in mesh with the rack J and a ratchet-wheel K<sup>3</sup> in its outer end.

M indicates a thumb-lever pivoted to the frame C and having a spring-actuated pawl M<sup>2</sup> pivoted to its end to engage the said ratchet. The movement of the lever is limited, so as to move the said pawl over one ratchet-tooth only each time the lever is raised.

N N indicate ribbon-spools located at opposite ends of the frame C and N<sup>2</sup> an inking-ribbon wound thereupon to extend across the frame directly above the paper. Any desirable ribbon adjusting or actuating device may be used in connection with this ribbon.

In practical use it is obvious that the operator has perfect control over the movements of the type-bearing carriage both from top to bottom and from side to side of the paper and that the indicators are so arranged that he may ascertain in advance, with the greatest accuracy, just where the next key depressed will print, and also that when the various symbols or characters are to be placed at equal distances apart, as is frequently the case, the lever M may be operated one or more times after each depression of a key and the indicator moved regular distances. Then the notch on the carriage corresponding to the key which is to be depressed is brought into alinement with the indicator and the line or space on the staff is brought into alinement with the fixed indicator and the key depressed. One hand is occupied in moving the paper in any direction and the other in moving the carriage and depressing the keys.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent of the United States therefor, is—

1. A music-writing machine, comprising a base, a frame mounted therein to move longitudinally of the base, means for moving said frame, a track-frame fixed to the base, a carriage mounted in said track-frame to

freely slide transversely of the base, a number of type-bearing keys mounted in the carriage, an indicator slidingly mounted in the track-frame to point to the key to be used and also to the point where said key will imprint upon the paper, and means for operating said indicator, for the purposes stated.

2. A music-writing machine, comprising a base, a frame mounted therein to move longitudinally of the base, means for moving said frame, a track-frame fixed to the base, a carriage mounted in said track-frame to freely slide transversely of the base, a number of type-bearing keys, mounted in the carriage, a rack-bar slidingly mounted on the track-frame, an indicator fixed thereto with one point adjacent to the keys on the carriage and the other point adjacent to the paper, a shaft mounted in the track-frame, a pinion thereon to engage the rack, a ratchet-wheel on its other end, a thumb-lever bearing a spring-actuated pawl designed to engage the ratchet, and means for limiting the movement of the lever, substantially as and for the purposes stated.

3. In a music-writing machine, the combination of a base, a frame mounted therein, to freely slide longitudinally, a hand-wheel located at the side of the machine and a rack and pinion connected therewith for moving the frame, a track-frame fixed to the base, a type-bearing carriage slidingly mounted thereon free to move laterally of the machine, a bar slidingly mounted in the track-frame, an indicator fixed thereto, and a thumb-lever, pawl, ratchet and pinion connected therewith and with the rack, said thumb-lever being so arranged relative to the aforesaid hand-wheel that the same hand may be used to grasp the hand-wheel and operate the thumb-lever at the same time, substantially as set forth.

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Witnesses:

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