

Draftsman.

127. TYPEWRITING MACHINES.

No. 846,443.

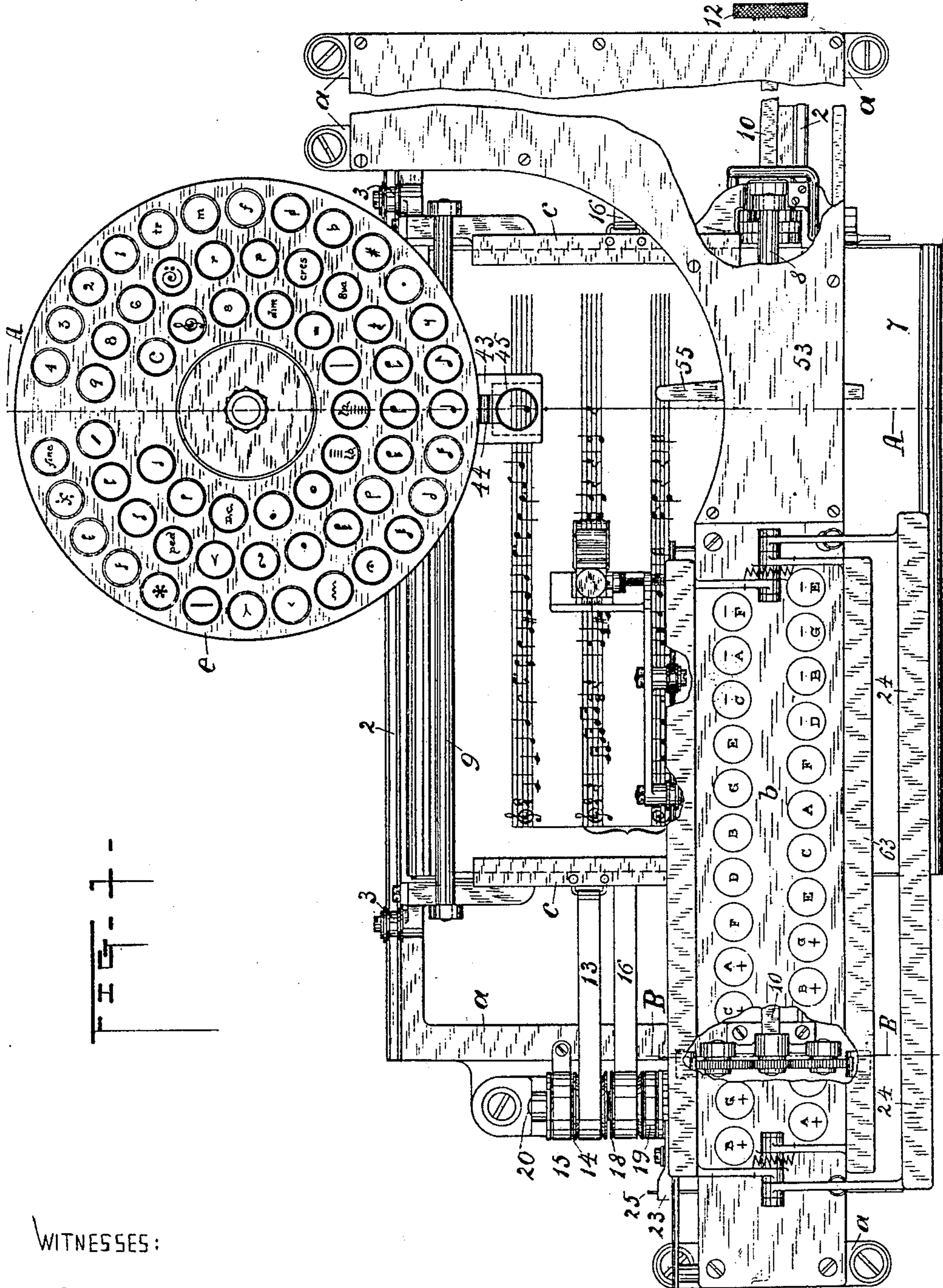
PATENTED MAR. 12, 1907.

L. C. & I. F. BADEAU.

MUSIC TYPE WRITER.

APPLICATION FILED SEPT. 19, 1905.

4 SHEETS—SHEET 1.



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MUSIC TYPEWRITING MACHINES

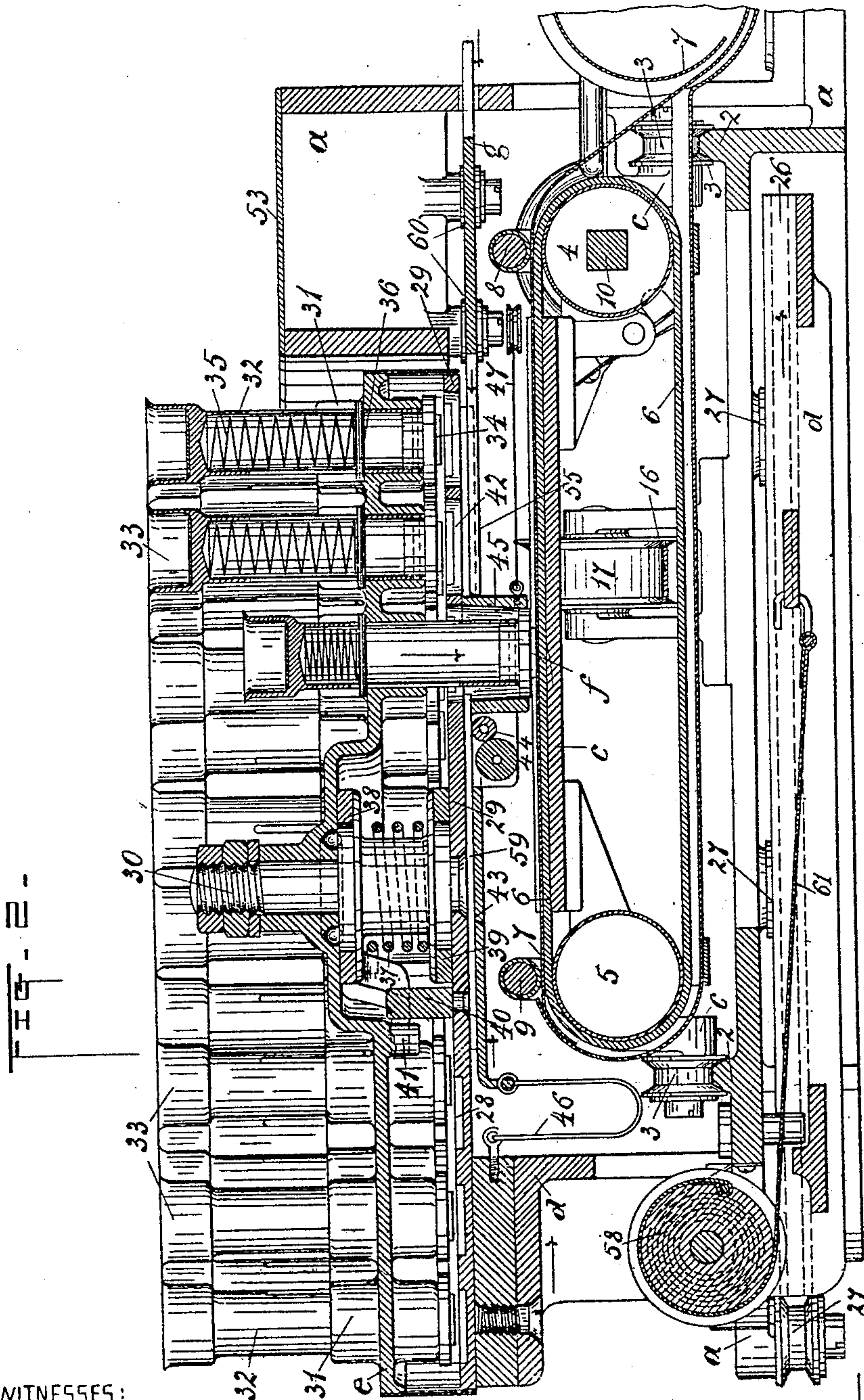
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4 SHEETS—SHEET 2.



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1ST. TYPEWRITING MACHINED.

5th. MUSIC

No. 846,443.

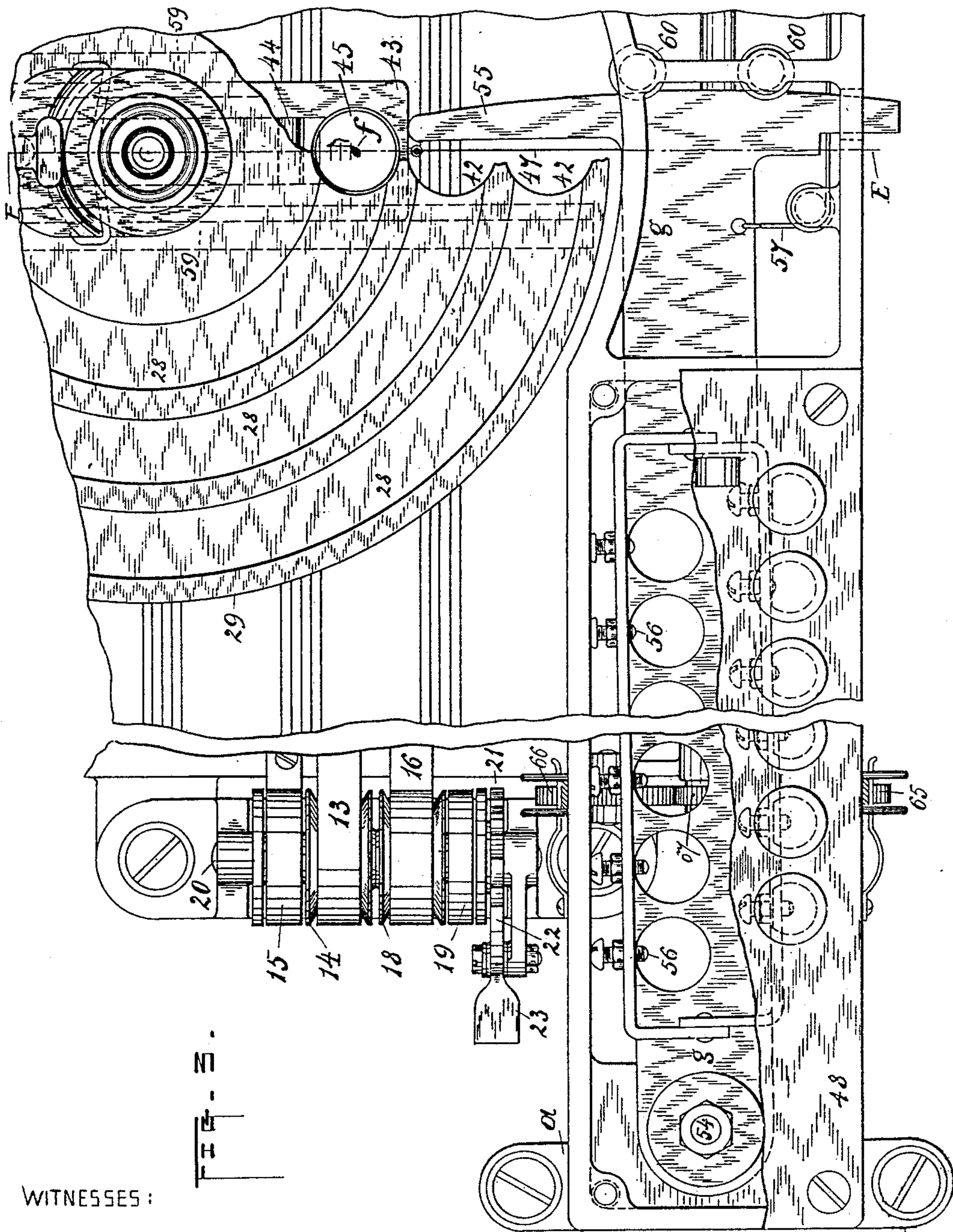
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4 SHEETS—SHEET 3.



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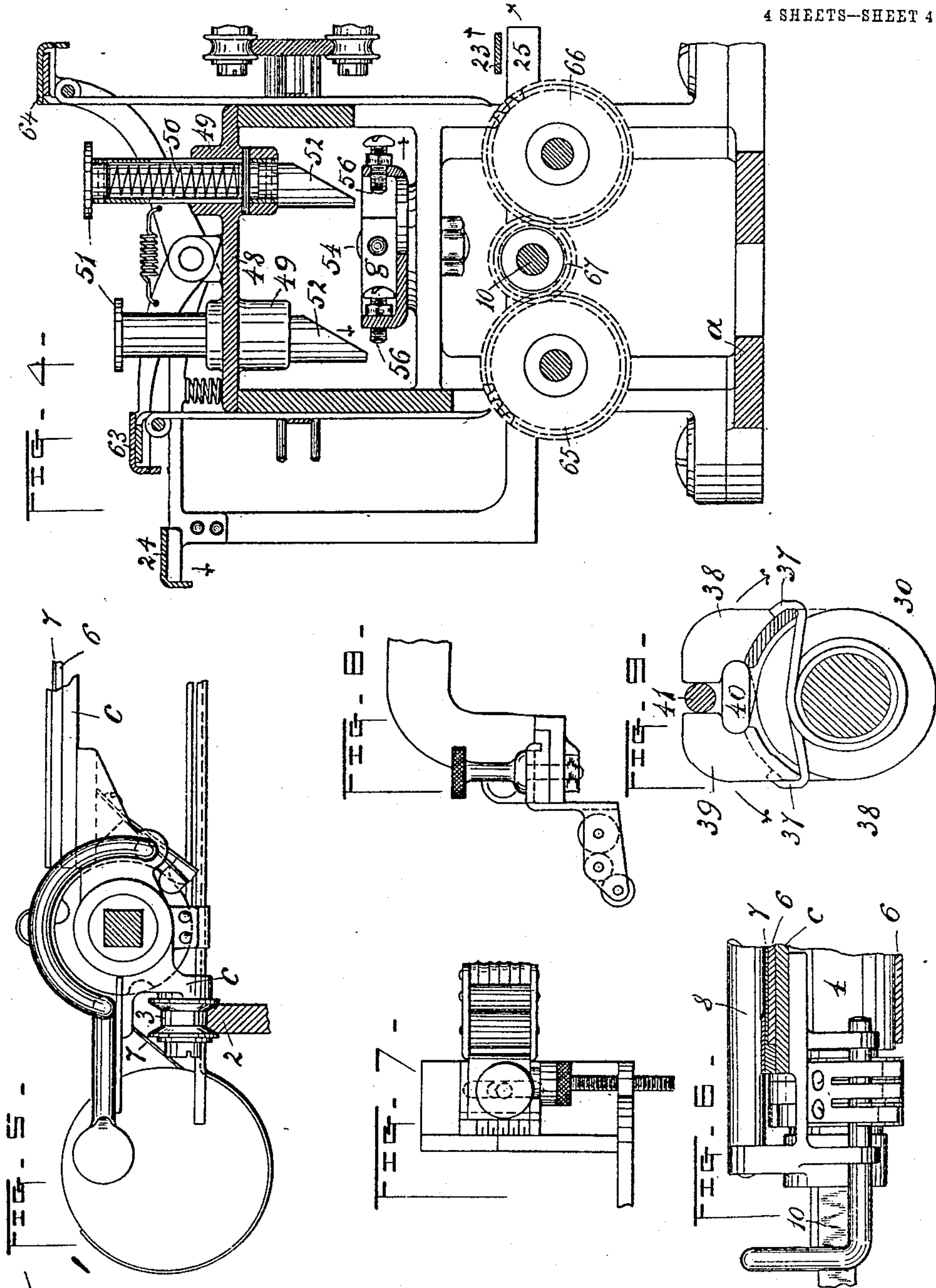
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MUSIC TYPE WRITER.

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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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MUSIC TYPE-WRITER.

No. 846,443.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed September 19, 1905. Serial No. 279,122.

To all whom it may concern:

Be it known that we, LOUIS C. BADEAU and ISAAC F. BADEAU, citizens of the United States, residing at Mahopac, Putnam county, and State of New York, have invented certain new and useful Improvements in Music Type-Writers; and we do hereby declare that the following is a full, clear, and exact description of the same, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide a comparatively simple and easily-operated machine for writing musical composition quickly, as well as correctly and attractively, which is capable of placing all the notes, signs, and characters of suitable nature on a music-staff in as many positions as is customary or may be required to record and present a piece of music, with all the notations employed in this art, in such a complete and finished state as to readily enable true and artistic rendition therefrom.

One way in which our invention may be carried out is shown in the accompanying four sheets of drawings, forming part of this specification, in which like letters and numerals indicate like parts in all the figures and views.

Figure 1 is a plan view with parts shown broken off. Fig. 2 is an enlarged vertical sectional view on line A A of Fig. 1. Fig. 3 is an enlarged plan view of the stop-lever and connecting parts, partly broken off and type-disk removed. Fig. 4 is a vertical sectional view on line B B of Fig. 1, showing details of stop-lever and keys actuating the same, as well as of the means for shifting the paper-carriage. Fig. 5 is an end view, and Fig. 6 a side view, of details of the paper-carriage. Fig. 7 is a plan view, and Fig. 8 a side view, of the device for tracing a music-staff; and Fig. 9 shows the arrangement of the spring for returning the type-disk to its position of rest.

While in ordinary type-writing machines the letters and characters are usually printed side by side on a single continuous printing-line, in music type-writers it becomes essential that each note or sign represented on the type-keyboard can successively be placed on any one or a number of twenty-six, more or less, parallel continuous printing-lines comprising a music-staff at their points of intersection with a line imagined at right angles

to the former, which we term the "angular" or "selective" printing-line.

To accomplish our object, we have provided a preferably horizontally oscillating or swinging disk carrying the positively-actuated types and the type-keyboard therefor, said disk adapted to move first by a circular or similar motion and to place any one type onto and over the selective printing-line A A, Fig. 1, after which the type-disk, together with its supporting-frame, is moved, also preferably horizontally and in a straight line, along and over this angular printing-line until the selected type is directly over and above the selected printing position on the angular printing-line A A, when the type may be printed on the printing-surface at the printing-point *f* in a most direct manner by depression of its key. The exact printing position on this angular printing-line is determined by the aid of a stop-lever adapted to limit the movement of the selected type to the selected printing position or point, the stop-lever being controlled in its movement by the staff-keys on the stationary staff-keyboard.

Referring now to the drawings, our machine consists in the main of five parts—the base *a*, which supports; the stationary staff-keyboard *b*, operating the stop-lever mechanism; the paper-carriage *c*; the movable frame *d*, and the movable type-disk *e* with the type-keyboard, which is carried by frame *d*.

The base *a* is provided with two rails or runways 2 for the wheels 3 of the paper-carriage *c*, allowing the latter to move horizontally and laterally or parallel to the music-staffs on the printing-surface. To the lower part of the base grooved wheels 27 are secured, their axles being shown vertically disposed and carrying the reciprocating frame *d*, with the oscillating type-disk *e*, which it supports, permitting said frame and type-disk to also move horizontally, but at right angles to the direction of motion of the paper-carriage *c*.

The stationary staff-keyboard *b*, preferably located to be operated by the left hand, consists of a plate 48, with a plurality of sockets 49, in which the tubular keys 52 may slide vertically. Springs 50, resting on pins 62 and pressing against key tops or pockets 51, cause the keys to return after having been depressed, longitudinal slots forming paths

for pins 62. The lower ends of these staff-keys present inclined surfaces to the ends of the screws 56 on the stop-lever with which they engage, causing the latter to swing horizontally a predetermined distance when a certain key is depressed to a predetermined extent. The stop-lever *g* is pivoted at 54, and its free end 55, guided by rollers 60, is adapted to engage with the slide 43, that is movably secured to frame-disk 29, to limit its action predeterminedly, Fig. 3. In this manner any one of the sixty-one types shown carried on the type-disk *e* may be printed on any one of the twenty-six continuous printing-lines shown provided for at their intersections with the imaginary angular printing-line A A by means of the twenty-six staff-keys, cord 57, tensioned by a spring, (not shown,) returning the stop-lever to its position of rest.

The paper-carriage *c*, mounted on wheels 3, which travel on rails 2, carries parallel to rails 2 rollers 4 and 5, over which a broad endless leather or rubber band 6 passes, on which the sheet 7, the printing-surface, rests. Two smaller rollers 8 and 9 press against rollers 4 and 5, respectively, causing sheet 7 to move with band 6 whenever square axle 10 of roller 4 is turned by means of knob 12 or by depressing either one of keys 63 and 64, in the latter instances through the intermediary of gears 65 and 66, respectively, both of which mesh with gear 67, that is secured to axle 10. Axle 10 is journaled in the sides of the base, and its square part passes loosely through roller 4, thereby permitting paper-carriage *c* to freely move laterally—that is, parallel to axle 10. A drum 14 is loosely mounted on shaft 20, preferably journaled at the left side of the base, on which drum is wound a spiral spring 15, and in opposite direction thereto is wound a narrow leather band 13, one end of each being secured to the drum. While the outer end of the spring is secured to the base and the outer end of the band is fastened to the paper-carriage, the tension of the spring is so adjusted as to continually exert a pull, tending to move the paper-carriage *c* to the left. Shaft 20 also carries drum 18, on which are wound, also in opposite directions, spring 19 and band 16. The inner and outer ends of spring 19 are connected to the drum and base, respectively, while the inner and outer ends of band 16 are connected to the drum and paper-carriage, respectively, the band, however, passing over pulley 17, attached to the right side of the base. Spring 19 tends to continually pull the paper-carriage to the right, but is considerably weaker than spring 15 and is mainly provided to maintain band 16 taut when the paper-carriage is moved to the right. A toothed wheel 21, rigidly mounted on shaft 20, is engaged by escapement-lever 22, which may be actuated from its arm 23 and a spring. (Not shown.) By

depressing key 24 the end of its extension 25 forces up arm 23 of the escapement-lever, thus causing a step-by-step motion of the paper-carriage to the left in a manner well known to the art. To begin a new line, the paper-carriage is returned to the starting-point by moving it to the right by hand.

Frame *d*, the lower part of which is supported and guided in its horizontal reciprocating motion by rollers or pulleys 27, is adapted to move at right angles to the motion of the paper-carriage *c*, a spring 58, suitably mounted on base *a*, and cord 61, whose outer end is connected to frame *d*, tending continually to return the latter to its position of rest—that is, rearward away from the operator, Fig. 1. Disk 29 of frame *d* projects in the direction of stop-lever *g* sufficiently for the paper-carriage *c* to pass thereunder freely during operation and carries in the center an upright post or stud 30 for pivotally supporting and guiding type-disk *e* in its circular or partly-circular motion, around which center post washers 38 and 39 are situated. The latter have extensions reaching downward and upward, respectively, which are caused to press against both the downward projection 41 of type-disk *e* and the upward projection 40 of frame-disk 29 by spring 37, the two ends of which are secured to the said washers, Figs. 2 and 9. From this position of rest the type-disk can be turned to the left or to the right against the force of spring 37, the latter therefore returning type-disk *e* to the normal position (shown in Figs. 1, 3, and 9) on being released. Type-disk *e* is provided with a plurality of sockets 31, in which tubular keys 32 may slide, springs 35 resting on pins 36 and pressing against key-tops 33, returning the keys to their normal positions after having been depressed and released. Longitudinal slots in the key-tubes form paths for the pins 36, the type-keys being similar in construction and operation to the staff-keys. The lower ends of key-tubes 32 carry the types 34. Below frame-disk 29, movably secured thereto on each sides by guides 59, is a slide 43, cord 46 limiting its motion in the direction toward the operator, while cord 47, tensioned by a spring (not shown) which is considerably weaker than spring 58, tends to maintain cord 46 taut whenever frame *d* returns to its normal position. This slide 43 has at one end a gage or gate 45, adapted to receive during the printing the lower parts of the type-key tubes 32, and adjacent to and rearward of this gate 45 are inking-rollers 44.

We have omitted to describe the remaining details as not being essential to the operation of the new features and construction of this type-writing machine and for the sake of clearness and brevity.

The operation of our machine is as follows: The paper-carriage *c*, with the sheet to be

printed in proper position, is moved to the right by hand sufficiently to begin the line. Fig. 1 shows the normal position of the type-disk *e* and of the slide 43. To print, for example, the number 1, shown on the right half of the type-disk opposite the arrow, the operator's finger is inserted into the cup-shaped top 33 of the key which carries at its lower end the type 1, and the type-disk is turned or swung around its center 30 in the direction indicated by an arrow until the center of the type-key is over the angular printing-line A A. During this circular motion the type-key is depressed sufficiently to cause the outer edge or rim of the type 34 to slide on frame-disk 29. To prevent, however, contact of the type proper with any part of the machine except the inking-roller and the printing-surface, concentric channels 28 of sufficient depth and width are provided on frame-disk 29. Each of these channels 28 communicates with a hole 42 on disk 29, one for each, of such size that the type-keys may enter the same. Consequently when the selected type arrives over the angular printing-line A A it can be further depressed until the said rim of the type rests on the slide 43, a slot in the middle of the slide preventing any damage to the type. While the selected type is thus brought over the angular printing-line one of the staff-keys 52 is depressed, thereby causing the stop-lever *g* to swing toward the type-disk *e* a predetermined distance, after which the type-disk, together with frame *d*, is moved in a straight line over and along the angular printing-line A A until the gate 45, the top of which the type had entered during the straight-line motion of the type-disk and carried with it, is stopped in its motion by the extension 55 of stop-lever *g*, when the selected type will have arrived over the selected printing position on line A A and the printing-point *f*. The printing can now be effected by depressing the selected type-key until it strikes the printing-surface. When the type-key is subsequently released, springs 35, 37, and 58 will return the type-key, the type-disk, and the frame *d*, respectively, to their positions of rest, while the spring-tensioned cords 47 and 57 will return the slide 43 and stop-lever *g*, respectively, to their normal positions. Spring 50 returns the staff-key.

From the above it is obvious that any one of the types carried by the type-disk after having been turned or swung to a position over the angular printing-line, so as to rest on the slide 43, can then be stopped in its straight-line motion over and along this angular printing-line toward the stop-lever by the latter at any one of the points of intersection of the said angular printing-line with the lines of the music-staff, as represented by the staff-keys, without moving the paper.

As seen from Fig. 2, the top of gate 45 is higher at the side facing the stop-lever than at the opposite side, and thereby enables the type-keys to compel the slide to move with the former during the straight-line motion to the printing-point.

Before reaching gate 45 the types pass over inking-rollers 44, from which they take off the required amount of printing substance. To print any one of the types located on the left half of the type-disk, the latter is turned or swung to the left, as indicated by an arrow, spring 37 returning the type-disk *e* to its normal position, whether moving to the right or to the left, on the selected key being released.

We do not wish to confine ourselves to the particular manner of and means for determining the exact printing position on the angular printing-line and the arresting of the motion of the type-keys over the same at the printing-point by a single key-actuated stop-lever, but broadly claim the same in this application, while we have claimed in a separate application filed simultaneously the herein-described manner of and construction for moving the direct-actuated types from the position of rest on to and over the angular printing-line.

In place of a swinging stop-lever, as shown, we may prefer to employ a key-actuated sliding bar or a key-actuated revolving or swinging cam.

Having now particularly described and ascertained the nature of our invention and in what manner the same may be performed, what we claim as new, and desire to secure by Letters Patent in the United States, is—

1. In a music type-writer, a horizontal type-carrier having type and keys therefor, and means for moving a type toward the printing position, including a number of staff-keys, a single moving body, and means upon said moving body whereby each of said staff-keys is enabled to actuate it differently, to localize a desired type.

2. In a music type-writer, a horizontal type-carrier having type and keys therefor, and means for moving a type toward the printing position, including a number of staff-keys, a horizontally-moving body, and means upon said moving body whereby each of said staff-keys is enabled to actuate it differently, to localize a desired type.

In testimony whereof we have hereunto set our hands, this 31st day of August, 1905, A. D., in the presence of two subscribing witnesses.

LOUIS C. BADEAU.
ISAAC F. BADEAU.

Witnesses:

GEORGE INGLIS,
JOHN A. CARNEY.