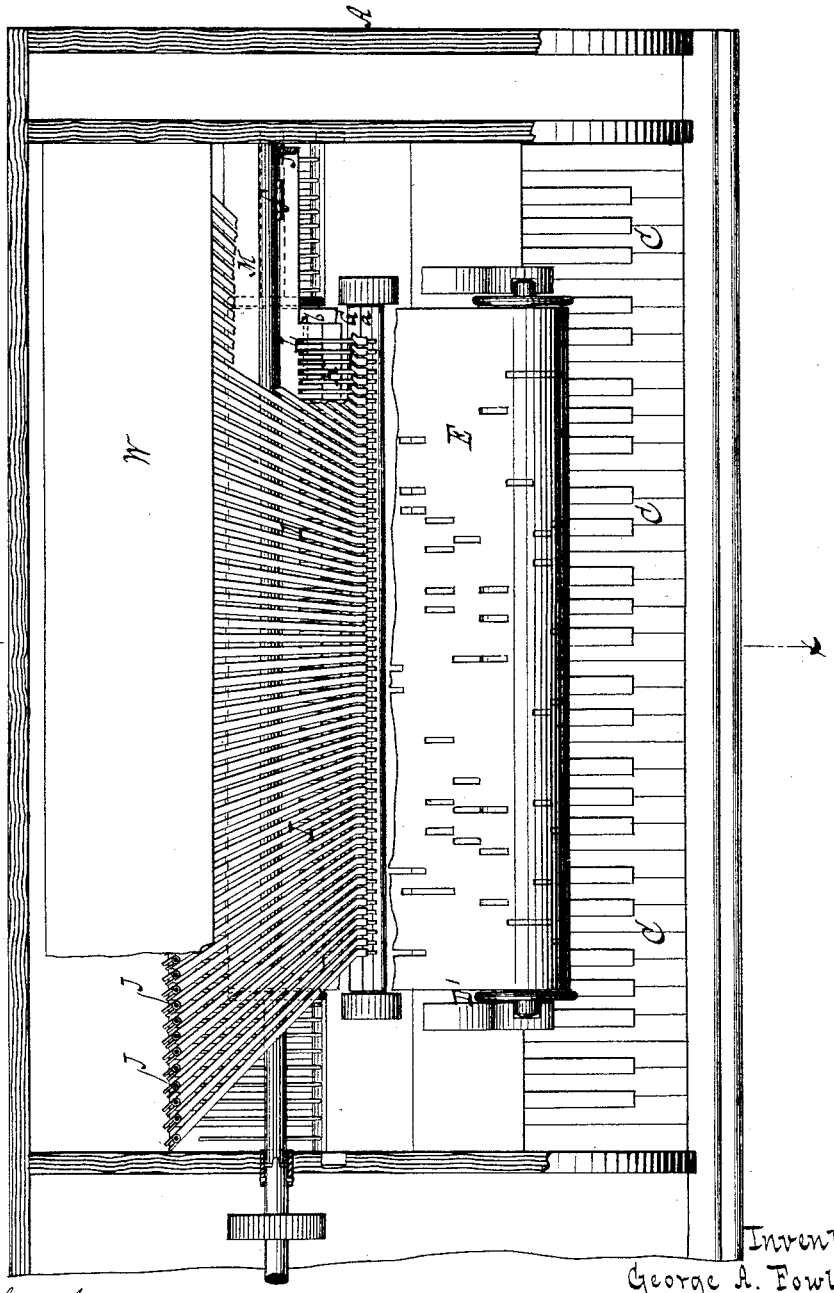
(No Model.) 3 Sheets—Sheet 1.

G. A. FOWLER.

MECHANICAL MUSICAL INSTRUMENT.

No. 263,503. Patented Aug. 29, 1882.



Witnesses
Otto Hufeland
William Miller

Inventor
George A. Fowler.
by Van Santvoord & Hauff
his attys.

(No Model.) 3 Sheets—Sheet 2.

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Fig. 2.

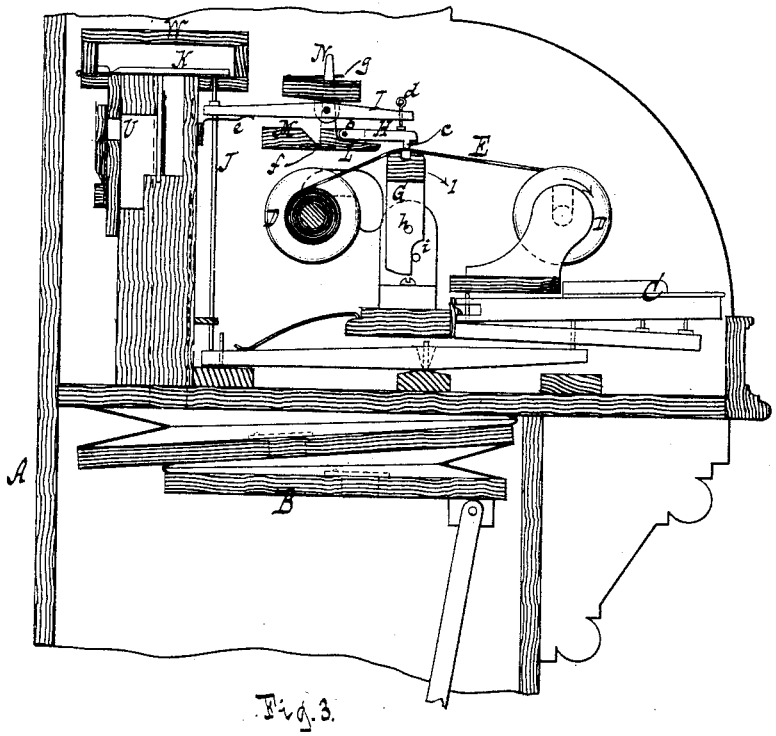
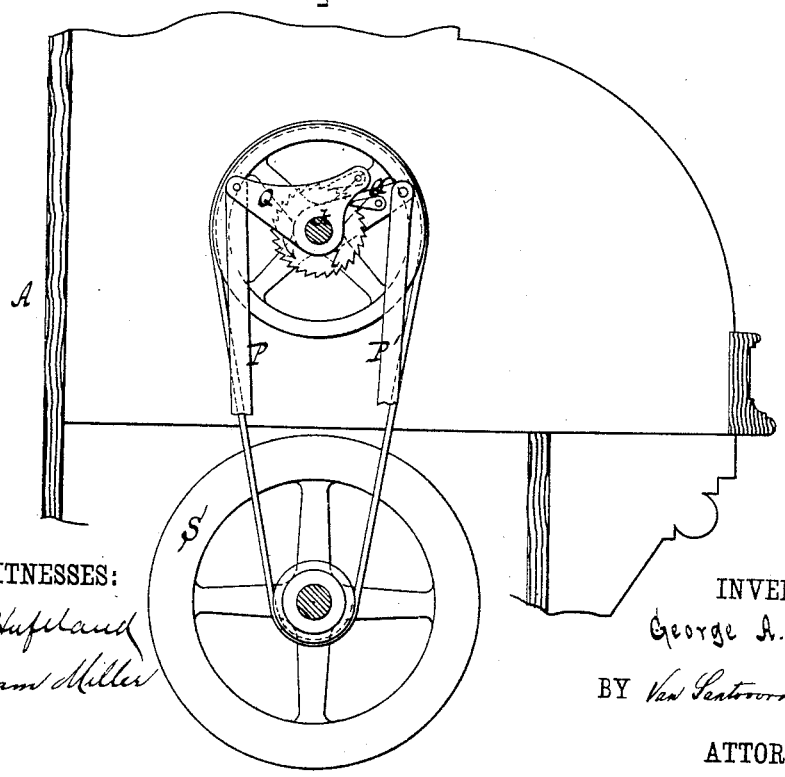


Fig. 3.



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ATTORNEYS

(No Model.) 3 Sheets—Sheet 3.

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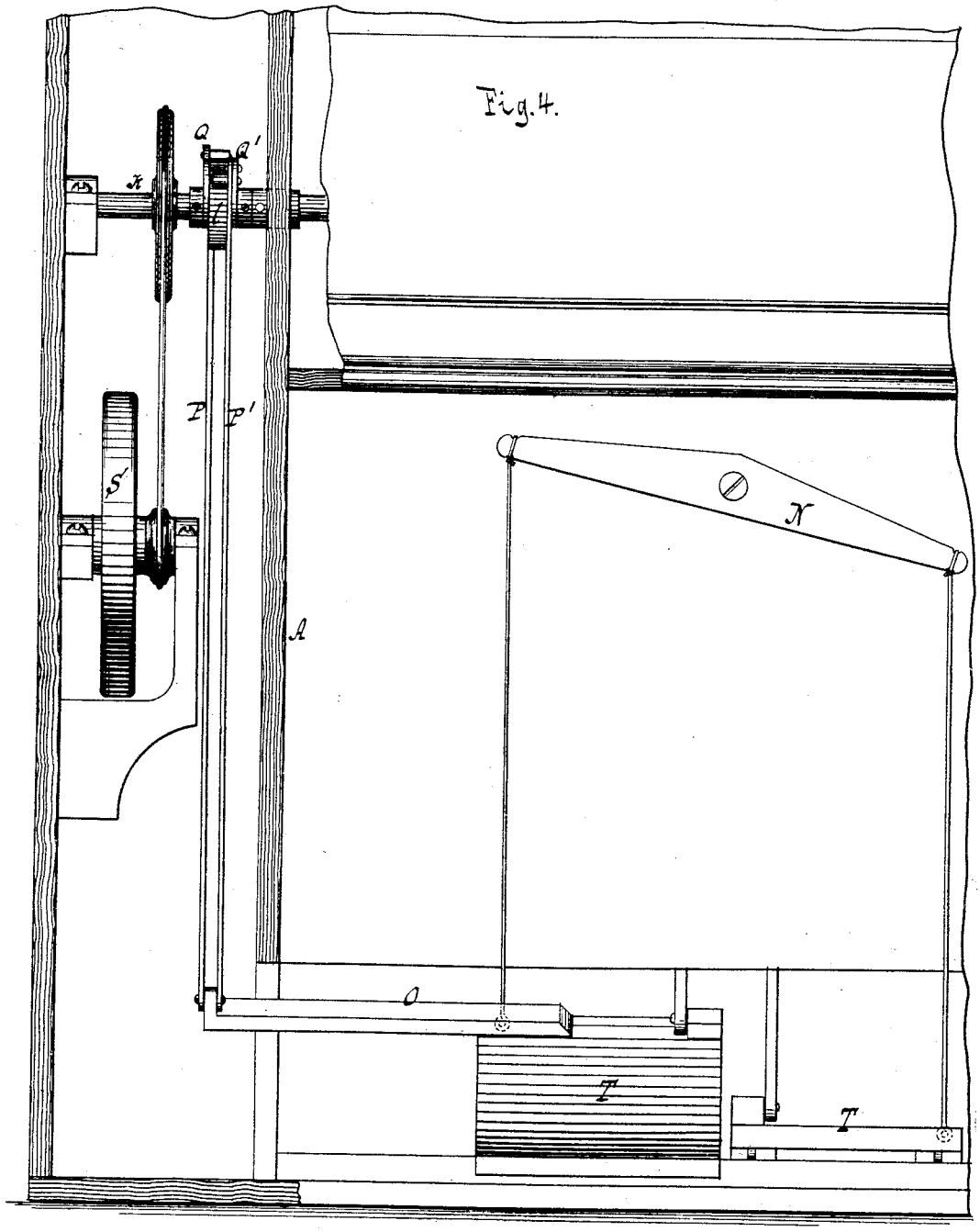
Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE A. FOWLER, OF MOUNT VERNON, NEW YORK.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 263,503, dated August 29, 1882.

Application filed April 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, GEORGE A. FOWLER, a citizen of the United States, residing at Mount Vernon, in the county of Westchester and State of New York, have invented new and useful Improvements in Musical Instruments, of which the following is a specification.

This invention relates to a musical instrument in which the sound-producing devices are controlled by the manual keys, as well as by a prepared music-sheet, so that while the automatic playing is going on the keys can be manipulated at the same time.

The particular construction of my musical instrument is pointed out in the following specification.

In the accompanying drawings, Figure 1 represents a plan or top view, partly in section. Fig. 2 is a transverse vertical section in the plane *x x*, Fig. 1. Fig. 3 is a sectional end view. Fig. 4 is a sectional front view.

Similar letters indicate corresponding parts.

In the drawings, the letter A designates the case, in the lower portion of which are contained the bellows B and the mechanism for imparting motion to the same and to the prepared music-sheet, while in its upper portion are situated the manual keys C, the rollers D D′, which carry the prepared music-sheet E, the wind-chest W, and the reed-box U, together with the mechanism for controlling the action of the wind upon the reeds.

The prepared music-sheet, which may either be provided with perforations, as shown in the drawings, or which may be provided with elevations, passes from the roller D′ over a support, G, to the roller D, so that by imparting to the roller D a revolving motion said music-sheet unwinds from the roller D′ and winds upon the roller D. If the music-sheet is perforated, the support G is provided with a groove, *a*, and over said support are situated a series of intermediate levers, H, which swing on a common rod, *b*, and which are provided with noses *c*, which rest upon the music-sheet and drop into the perforations therein as the same advances beneath the levers H. Above the intermediate levers are situated the radiating levers or push-pin levers I, one for each intermediate lever. Each of the radiating levers carries in its outer end a foot, *d*, and its inner end is exposed to the action of a spring, *e*, which serves to depress the foot *d* upon the corresponding intermediate lever, thereby causing the nose *c* of this lever to bear down upon the music-sheet. The inner ends of the radiating levers are bifurcated, and they act upon the push-pins J, which control the wind-valves K. When the nose *c* of the intermediate lever, H, Fig. 2, bears upon the solid surface of the music-sheet the radiating lever I is held up against the action of its spring *e*, and the wind-valve K remains closed by the pressure of the air in the wind-chest; but when the nose *c* of the intermediate lever drops into a perforation of the music-sheet the inner end of the radiating lever I is forced up by the action of its spring *e*, the valve K is opened, and the corresponding reed is caused to speak.

The rod *b*, which forms the fulcrum for all the intermediate levers, is mounted in a bar, L, which is connected to the fixed rail M, Fig. 2, and to one end of the bar L is firmly secured a lever, N, by means of which said bar can be turned on its hinges, a suitable latch, *g*, being provided to retain the lever N and bar L in the required position. When said bar is swung up on its hinges all the intermediate levers, H, are raised so as to clear the music-sheet and allow of rewinding the same without obstruction; or if the manual-keys alone are to be used, the bar L may also be swung up.

The support G is mounted on a rod, *h*, and it can swing on this rod in the direction of arrow 1, Fig. 2; but it is prevented from swinging in the opposite direction by a stop, *i*. In rewinding the music-sheet the bar L is turned up, and as soon as the roller D′ is rotated in the direction of the arrow marked on it in Fig. 2 the support G turns down in the direction of arrow 1, and the operation of rewinding can be performed without exposing the music-sheet to a useless strain. When the music-sheet is being drawn from the roller D′ and wound upon the roller D the support G is maintained in its upright position by the friction of the music-sheet and by the stop *i*.

The manual keys C act, by means of intermediate levers, (see Fig. 2,) upon the push-pins J, so that by depressing one of these keys the

corresponding wind-valve, K, is opened. This operation can be effected without interfering with the action of the radiating levers I, and consequently the keys can be manipulated while the automatic playing by means of the music-sheet progresses. A skillful musician is thus enabled to improve materially the effect usually produced by automatic musical instruments, or, if desired, the automatic mechanism may be thrown out of action, as already stated, and the manual keys can then be used alone.

By referring to Fig. 1 it will be seen that the inner ends of the radiating levers must necessarily stand directly over the inner ends of the corresponding key-levers, while their outer ends must be situated over the intermediate levers, H, which are placed close enough together so as not to exceed the width of the music-sheet. For this reason the levers I must be radiating, as shown in the drawings.

The bellows B are actuated by treadles T T, which are connected by a balance-lever, N, Fig. 4, so that one treadle is compelled to rise, when the other is depressed, and vice versa, and one of said treadles is provided with an extension, O, from which extend two rods, P P, to lever-pawls Q Q′, Fig. 3, which swing loosely upon the shaft *k* of the roller D, and the pawls of which engage with a ratchet-wheel, *l*, mounted firmly on the shaft *k*. When the treadle, with the extension O, is depressed both rods P P′ move down, the lever-pawl Q′ produces no action, but the pawl Q turns the ratchet-wheel in the direction of the arrow marked on it in Fig. 3, and if the treadle rises the pawl Q′ turns the ratchet-wheel in the same direction, while the pawl Q produces no action. By these means a continuous revolving motion is imparted to the shaft *k*, and in order to render this motion uniform a fly-wheel, S, is provided, which is mounted on a counter-shaft and geared together with the shaft *k* by a belt and pulleys or otherwise in such a manner that it makes a number of revolutions to each revolution of the shaft *k*. By these means the required motion is imparted to the bellows, and also to the music-sheet.

It is obvious that the mechanism hereinbefore described can be used with exhausting-bellows, as well as with forcing-bellows, and that instead of reeds other sound-producing devices can be substituted, such as are generally used in musical wind instruments.

My invention is also applicable to reed-organs in which the reeds are situated beneath the manual keys.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, substantially as hereinbefore described, of the manual keys, the sound-producing devices, the push-pins for operating the latter, the radiating levers connected with the push-pins, the intermediate levers connected with the radiating levers, and a music-sheet operating and controlling the intermediate levers to actuate the radiating levers and the push-pins.

2. The combination, substantially as hereinbefore described, of the hinged bar L, the intermediate levers, the radiating or push-pin levers, and mechanism for raising the hinged bar.

3. The combination, substantially as hereinbefore described, of the swinging support G, the mechanism for moving the music-sheet, and the stop for retaining said support in position while the music-sheet advances.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

GEORGE A. FOWLER. [L. S.]

Witnesses:
W. HAUFF,
E. F. KASTENHUBER.