(No Model.)

E. H. BROWN.

MECHANICAL MUSICAL INSTRUMENT.

No. 278,771. Patented June 5, 1883.

Fig. 1.

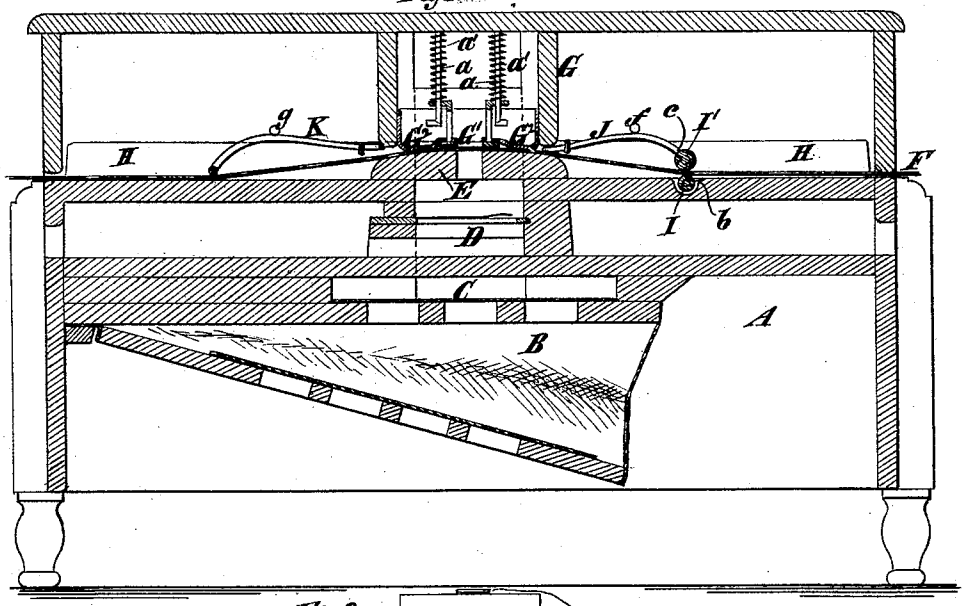


Fig. 2.

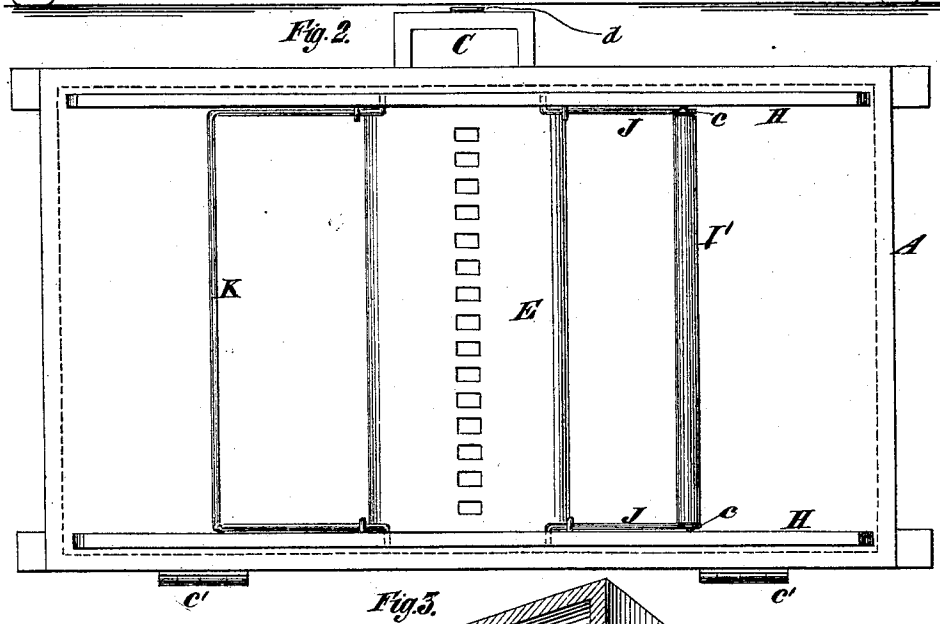
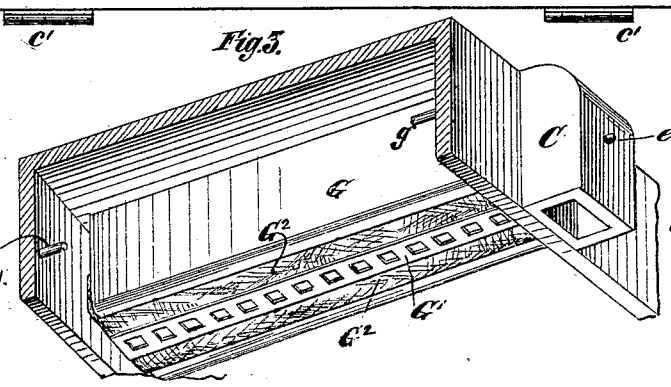


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

EDWIN H. BROWN, OF BROOKLYN, NEW YORK.

MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 278,771, dated June 5, 1883.

Application filed April 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, EDWIN H. BROWN, of Brooklyn, in Kings county, and the State of New York, have invented a certain new and useful Improvement in Mechanical Musical Instruments, of which the following is a specification.

My improvement consists in the combination, in a mechanical musical instrument, of a presser-bar or drag-bar connected to the body of the instrument and designed for use with a traveling music sheet, card, or tablet, springs for raising the presser-bar or drag-bar away from the body of the instrument, and a removable top frame or chamber adapted, when secured in place, to impel and hold the presser-bar or drag-bar down upon the music sheet, card, or tablet. Preferably this removable top frame or chamber will be so combined with the springs aforesaid that when in place it will cause the springs to impel the presser-bar or drag-bar downward with a yielding pressure without impairing the capability of the springs to raise the presser-bar or drag-bar when the top frame or chamber is removed.

The improvement further consists in similar combinations of an upper feed-roller for the music sheet, card, or tablet, the top of the body of the instrument, springs for raising said roller from the latter, and a removable top frame or chamber, which, when in place, impels the said roller toward its fellow, and preferably does so by putting a tension on the springs, so that they will hold said roller toward its fellow with a yielding pressure.

The improvement also consists in the combination, with the body of a musical instrument, having at the top a rest for a traveling perforated music sheet, card, or tablet, of an air-chamber arranged above the rest and serving to contain air for operating the sound-producing devices, a flexible bottom for said chamber, adapted to impinge upon the perforated music sheet, card, or tablet, and a strip of wood, metal, or other suitably-rigid material, attached to the said flexible bottom, and having apertures corresponding with the mouths of the ducts which extend to the said rest. Preferably the air-chamber will be made removable, and in some cases the strip aforesaid may be combined with means for guiding it, and with springs or weights for impelling it downwardly toward the body of the instrument.

In the accompanying drawings, Figure 1 is a central vertical section of the mechanical musical instrument embodying my invention. Fig. 2 is a plan thereof with the upper air-chamber removed, and Fig. 3 is a perspective view of the air-chamber removed.

Similar letters of reference designate corresponding parts in all the figures.

The body A of the instrument may be of any suitable form.

The bellows B, as shown, are ordinary force-bellows, and communicate with an air-trunk, C. They are two in number; but any desired number can be used.

D designates the sound-producing devices, which in this example of my invention consist of reeds arranged in cells which communicate with ducts leading to a rest, E, and controlled by a traveling perforated music-sheet, F, of paper or other suitable material.

G designates an upper air-chamber (here shown as made in the form of a box) adapted to fit snugly upon the rest and the adjacent portion of the top of the body A of the instrument. The air-trunk C leads to the interior of this air-chamber, and hence the bellows B force air into the same. I may employ an equalizer of the usual bellows-like construction, provided with a spring which tends to collapse it against the pressure of air within it, and when such equalizer is employed it may communicate with the air-trunk C, or, if preferable, with the air-chamber G. The air passes from this chamber, under control of the traveling music-sheet, to the sound-producing devices, and escapes from the cells containing the latter. This air-chamber may constitute or form part of a top frame, and its sides may serve to guide the music-sheet; but I prefer to provide stationary guide-rails H upon the top of the body A of the instrument. The sides, ends, and top of the air-chamber are, as here shown, made of rigid material; but the bottom is composed of flexible material G^2, and has attached to it a strip, G′, of wood, metal, or other suitably-rigid material. This flexible bottom G^2 may consist of sheep-skin, rubber cloth, or other suitable material. The strip G′ has through it holes or apertures corresponding with the ducts in the rest E. The object of construct-

ing the bottom of the air-chamber in the manner described is to enable the air within the air-chamber to force and hold the bottom against the music sheet, card, or tablet, and thereby obviate any leakage between the air-chamber and the music sheet, card, or tablet. I employ the strip of rigid material so that the apertures which I desire to produce in the bottom of the air-chamber shall maintain the proper shape, and shall be preserved in proper relation to register with the ducts in the rest E. If desirable, I may combine with this strip of rigid material guides—such, for instance, as rods or pins *a*—for preserving the proper relation between its apertures and the ducts in the rest E. I may, if desirable, also employ, in connection with the strip of rigid material, springs *a'*, or weights, for impelling it toward the rest.

I I' designate feed-rollers for imparting motion to the music-sheet. The lower one, I, may be supported in rigid bearings *b*, attached to the top of the body of the instrument; but the upper one, I', is supported in bearings *c*, which will permit of its movement upward away from the top of the body of the instrument, and it has combined with it springs for impelling it upward. As here shown, I employ springs J, consisting of wires bent at one end to form bearings for the journals of the upper roller, I', and attached at the other end to the upper portion of the guide-rails H, so that they will tend to lift the said roller away from the top of the body of the instrument. The air-chamber may be connected at one side to the body of the instrument by hinges *c'*, and secured at the opposite side by a spring-catch, *d*, engaging with a pin, *e*. When the air-chamber is in place over the top of the body of the instrument, it forces down the springs J, so as to put a downward tension on them, or, in other words, so as to impart to them a tendency to impel and hold the roller downward on the top of the body of the instrument. As here shown, it has pins *f*, which bear on the springs to produce this result. Of course, in order to cause the springs J to themselves impel the said roller downward against the top of the body of the instrument, the pins *f* must force that portion of the springs on which they bear farther toward the top of the body than would be necessary to cause the said roller to merely touch the top of the body.

K designates a presser-bar or drag-bar for holding the music-sheet to the rest E. It bears on the top of the body of the instrument at one side of the said rest, and is fastened to the guide-rails H. It may be supported in slotted plates affixed to the top of the body of the instrument, and then springs will be employed to impel it upward; but preferably it will be formed of wire in the same piece with spring-arms which will be combined with the guide-rails H in the same manner as the springs J. It will thus be raised from the top of the body of the instrument when the air-chamber is thrown back or open, and pins *g* on the air-chamber will, when the latter is closed, put a tension on the spring-arms and cause them to impel the bar downward in the same way as the pins *f* act in conjunction with the springs J. The pins *f* and *g* may work in slots in the guide-rails H, if necessary.

To insert a music sheet, card, or tablet, the air-chamber is thrown back, and as the upper feed-roller and presser-bar will then rise, the music-sheet can then easily be inserted under them. After the music-sheet is fed beyond the rollers it may be pulled from the instrument. Then the air-chamber is shut down into place, and the said roller and bar impinge on the music-sheet. It is obvious that the functions of the air-chamber, in connection with this roller and the presser-bar, would be the same as a mere top frame similarly connected. A top frame or air-chamber adapted to slide on and off may be used, if preferable, in some cases.

The bellows B may be operated by any suitable mechanism—as, for instance, by cranks on the lower feed-roller, I, and suitable pitman-rods or other devices connecting them to the movable boards of the bellows.

I do not wish to be restricted to making the strip G' of absolutely rigid material, as it is only necessary that it should be suitably rigid to maintain its shape and position. It may, therefore, be made of extra thick rubber cloth, of a double thickness of leather, or of any other semi-rigid material.

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

1. In a mechanical musical instrument, the combination, with a presser-bar or drag-bar connected to the body of the instrument and designed for use with a traveling music sheet, card, or tablet, of springs for raising the presser-bar or drag-bar away from the body of the instrument, and a removable top frame or chamber adapted, when in place, to impel and hold the presser-bar or drag-bar down upon the music sheet, card, or tablet, substantially as specified.

2. In a mechanical musical instrument, the combination, with a presser-bar or drag-bar connected by spring-arms to the body of the instrument and designed for use with a traveling music sheet, card, or tablet, of a removable top frame or chamber adapted, when in place, to put a tension on the spring-arms, so as to cause them to impel and hold the presser-bar or drag-bar down upon the music sheet, card, or tablet, substantially as specified.

3. In a mechanical musical instrument, the combination, with an upper feed-roller connected to the body of the instrument and designed for use with a traveling music sheet, card, or tablet, of springs for raising the said roller away from the body of the instrument, and a removable top frame or chamber adapted, when in place, to impel and hold the said roller down upon the music-sheet, substantially as specified.

4. In a mechanical musical instrument, the

combination, with an upper feed-roller connected by springs or spring-arms to the body of the instrument and designed for use with a traveling music sheet, card, or tablet, of a removable top frame or chamber adapted, when in place, to put a tension on the springs or spring-arms, so as to cause them to impel and hold the said roller down upon the music sheet, card, or tablet, substantially as specified.

5. The combination, with the body of a musical instrument, having at the top a rest for a traveling perforated music sheet, card, or tablet, of an air-chamber arranged above the rest and serving to contain air for operating the sound-producing devices, a flexible bottom for said air-chamber, adapted to impinge upon the perforated music sheet, card, or tablet, and a strip of wood, metal, or other suitably-rigid material, attached to the said flexible bottom, and having apertures corresponding with the mouths of the ducts which extend to said rest, substantially as specified.

6. In a mechanical musical instrument, the combination, with a body having at the top a rest for a traveling perforated music sheet, card, or tablet, of an upper air-chamber, whence the air for operating the sound-producing devices proceeds to the said body, a strip of wood, metal, or other suitably-rigid material, having apertures corresponding with ducts in the said body leading to the sound-producing devices, a flexible connection between the same and the walls of the air-chamber, and springs for acting on the said strip, substantially as specified.

7. In a mechanical musical instrument, the combination, with a body having at the top a rest for a traveling perforated music sheet, card, or tablet, of an upper air-chamber, whence the air for operating the sound-producing devices proceeds to the said body, a strip of wood, metal, or other suitably-rigid material, having apertures corresponding with ducts in the said body leading to the sound-producing devices, a flexible connection between the said strip and the walls of the said air-chamber, and guides and springs for the said strip, substantially as specified.

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Witnesses:
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