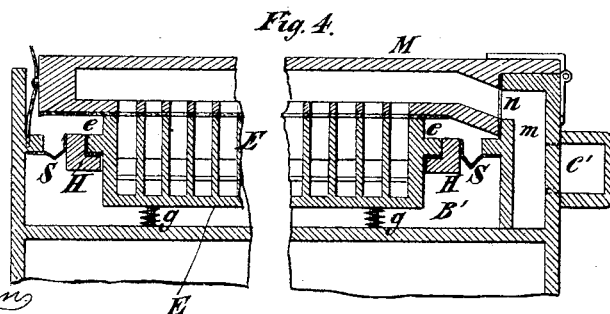
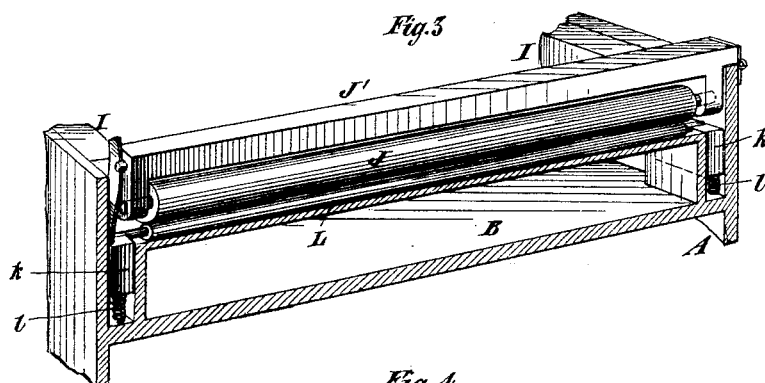
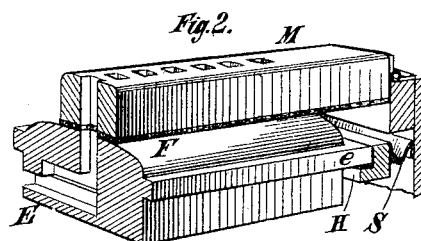
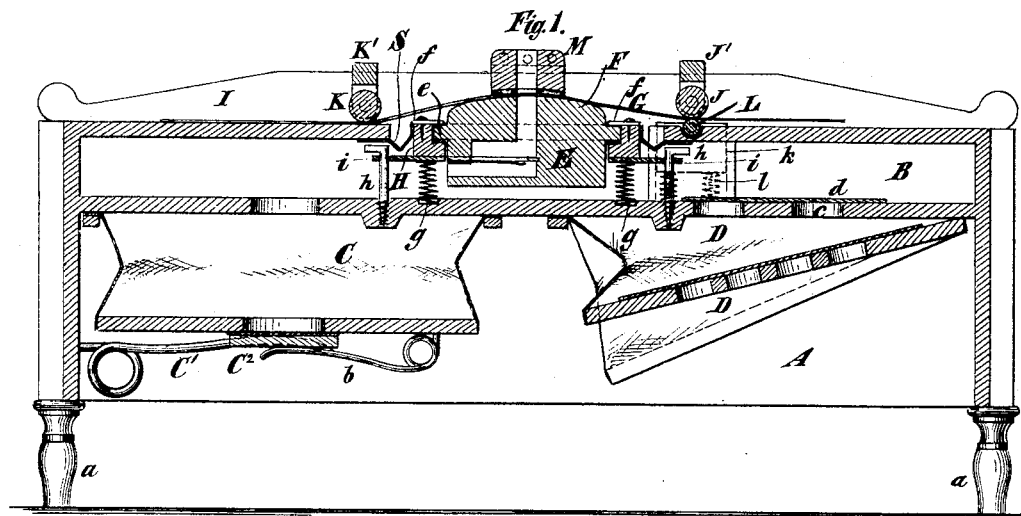


E. H. BROWN.

MECHANICAL MUSICAL INSTRUMENT.

No. 263,282.

Patented Aug. 22, 1882.



Witnesses  
*J. H. Kane*  
*James R. Bowen*

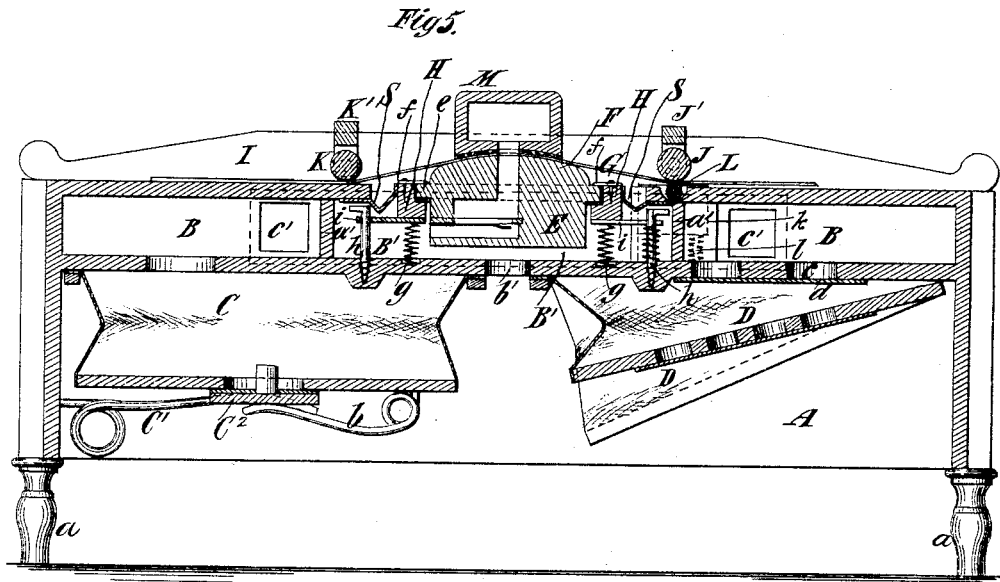
Inventor  
*Edwin H. Brown*

E. H. BROWN.

MECHANICAL MUSICAL INSTRUMENT.

No. 263,282.

Patented Aug. 22, 1882.



Witnesses:

Chandler Hall.  
@ Sundgren

Inventor:

Edwin H. Brown.

# UNITED STATES PATENT OFFICE.

EDWIN H. BROWN, OF BROOKLYN, NEW YORK, ASSIGNOR TO THE TOURNA-  
PHONE MUSIC COMPANY, OF WORCESTER, MASSACHUSETTS.

## MECHANICAL MUSICAL INSTRUMENT.

SPECIFICATION forming part of Letters Patent No. 263,282, dated August 22, 1882.

Application filed April 3, 1882. (No model.)

*To all whom it may concern:*

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

My improvement consists in the combination, in a mechanical musical instrument operated by bellows, of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind chest, a rest at the top of the reed-board for a traveling music-sheet, means for impelling the rest upward or outward, and means for holding the music-sheet downward or inward against the rest.

The improvement also consists in the combination, in a mechanical musical instrument operated by bellows, of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind-chest, a rest for a traveling music-sheet at the top of the reed-board, rigidly connected thereto, means for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instrument operated by bellows, of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind-chest, a rest for a traveling music-sheet at the top of the reed-board, a spring or springs for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instrument, of a reed-board, a rest for a traveling music-sheet at the top of the reed-board, guides for the reed-board, a spring or springs for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instrument, of a reed-board, a rest for a traveling music-sheet at the top of the reed-board, guides

and stops for the reed-board, a spring or springs for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instrument, of a wind-chest, a reed-board arranged in and communicating with the wind-chest, a flexible connection between the reed-board and wind-chest, a rest at the top of the reed-board for a traveling music-sheet, means for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instrument, of a wind-chest, a reed-board, a frame in which it is detachably arranged, a rest for a traveling music-sheet at the top of the reed-board, a flexible connection between the frame and the wind-chest, means acting on the frame for impelling the reed-board and rest upward or outward, and means for holding the traveling music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instrument, of a wind-chest, a reed-board, a frame in which the reed-board is detachably arranged, a rest for a traveling music-sheet at the top of the reed-board, a flexible connection between the wind-chest and the said frame, means acting on the frame for impelling the reed-board and rest upward or outward, stops for limiting the movement of the said frame, and means for holding the music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instrument operated by bellows, of a wind-chest into which air is caused to pass by the bellows, a movable reed-board extending into the wind-chest, and having at the top a rest for a traveling music-sheet, means for impelling it upward or outward, and a bar or a roller or rollers for holding the music-sheet downward or inward against the rest.

The improvement further consists in the combination, in a mechanical musical instru-

ment operated by bellows, of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind-chest, a rest for a traveling music-sheet at the top of the reed-board, means for impelling the rest upward or outward, means for holding the music-sheet downward or inward against the rest, and bellows for causing air to pass through the said reed-board in such direction that it will leave it at the top or outer side.

The improvement further consists in the combination, in a mechanical musical instrument, of a reed-board, a rest at the top of the reed-board for a traveling music-sheet, means for impelling the reed-board and rest upward or outward, a hollow bar hinged to a support at one end and adapted to bear on the music-sheet over the rest, suction-bellows arranged below the reed-board, and means establishing communication between the bellows and the said bar.

In the accompanying drawings, Figure 1 is a vertical longitudinal section of a mechanical musical instrument embodying my improvement. Fig. 2 is a sectional perspective view of the reed-board and other parts adjacent thereto. Fig. 3 is a perspective view of the feed-rollers and certain parts adjacent thereto. Fig. 4 is a transverse section of a mechanical musical instrument of modified form embodying the improvement, and Fig. 5 is a vertical longitudinal section of such instrument.

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

A designates the body of the instrument. It may be mounted on legs *a*, and it comprises a wind-chest, B, into which air is caused to pass by the bellows.

C designates a receiver or equalizer, of bellows-like construction, arranged on the under side of the instrument and communicating therewith. A spring, *C'*, tends to collapse it in this example of my invention. Preferably it has a relief-valve, *C''*, applied to its exterior, so that in case an excessive pressure of air is created it will have a vent without doing any damage or producing any undesirable results. This valve may be hinged in place and kept closed by a spring, *b*.

D designates bellows, which in this example of my invention are three in number, and are of the kind known as "force-bellows." They are arranged below the wind-chest, and communicate therewith through holes *c* under control of valves *d*, which preclude air forced into the wind-chest from returning to the bellows. These bellows may be operated by any suitable means—as, for instance, by a shaft provided with cranks connected directly or by links to the bellows, and operated by a pitman rod or rods extending to a crank or cranks on it from a crank or cranks on one of the feed-rollers, presently to be described. This method of operating bellows is in common use, and so well known that I deem it unnecessary to illustrate it or further describe it here.

E is the reed-board, which extends into the wind-chest. It may be of the usual or any othersuitableform, provided with separate and independent cells for several reeds communicating with a rest, F, for a traveling music-sheet, G, by means of suitable apertures or ducts. As here shown, the reeds occupy horizontal positions; but obviously they may be arranged in vertical positions, with their heels close to the rest F, if desirable. The reed-cells communicate with the interior of the wind-chest B.

The reed-chest, as here shown, is arranged in a frame, H. Preferably it has all around it a lip, *e*, faced on the under side with a packing of leather, felt, or other suitable material, and fitting within a recess in the top of the frame H, as then leakage between it and the frame will be avoided, or, to say the least, reduced to a minimum. The reed-board is secured in place in the frame H by any suitable means—as, for instance, by metal buttons *f*, pivoted to the frame and adapted to overlap the lip *e*. The frame H is connected to the top of the wind-chest B by means of any suitably flexible material S, which is practically impervious to air. Sheep-skin or india-rubber cloth will serve the purpose well. The flexible connection enables the reed-board to move upward or outward and downward or inward. Any suitable means may be employed to press or force the reed-board constantly upward or outward. I have shown for this purpose springs *g*, acting on the frame H. These springs may, however, act directly on the reed-board, and the frame H may be dispensed with if a flexible connection between the reed-board and the top of the wind-chest is made. Indeed, such a connection is in effect made in this example of my invention, although not directly, and the springs in reality here act on the reed-board, although indirectly.

The principal object of employing the frame H is to enable the reed-board to be readily and easily removed when desirable for any reason—as, for instance, to obtain access to the reeds. Preferably I employ, in conjunction with the frame H, stops for limiting its movements, so that such movements will entail no strain on the flexible connection. As here shown, the bottom of the wind-chest forms a stop whereby the downward movement is limited. Its upward movement is limited by hooks *h*, inserted in the bottom of the wind-chest, and on which work metal plates *i*, attached to the frame H. These hooks *h* and plates *i* also guide the reed-board in its movements.

The traveling music-sheet G consists of a strip of perforated paper or other suitable material, and it is guided over the rest F by means of guide-rails *l*, which preferably are set inward of the sides of the body of the instrument, so as to lap over the flexible connection between the ends of the frame H and the wind-chest, for then the music-sheet can be materially narrowed. The rest F is at the apex of the reed-board, and is preferably slightly con-

vex. It will be observed that it projects considerably above the top of the wind-chest. This is especially desirable when the means for holding the music-sheet down against the rest consist of rollers or bars arranged over the top of the wind-chest. I have shown two rollers, J K, for this purpose. They are arranged in frames or supports J' K', which are hinged at one end to one of the guide-rails I and fastened at the other end by catches *j* on the other guide-rail. The roller J is one of the feed-rollers, and its fellow feed-roller, L, is arranged below it and supported in bearing-blocks *k*, which are susceptible of an up and down movement. Springs *l*, acting on the bearing-block *k*, impel the roller up against the roller J, so that the two will grip the music-sheet properly. Preferably these rollers will be covered with india-rubber or like material. The rollers J K could of course be arranged over the rest F near the side edges, and in this case the roller L, could be supported in bearings rigidly attached to the rest or to the frame H, for the springs *g* would then raise the roller toward the roller J.

M designates a bar, which is at one end hinged to one of the guide-rails I, and at the other is fastened by a spring-catch similar to those employed to fasten the free ends of the frames J' K', which carry the rollers J K. This bar serves as a means for holding the music-sheet against the rest, and has through it ducts corresponding to the apertures or ducts in the rest F.

In Figs. 4 and 5 I have shown the reed-board E as arranged in a separate wind-chest, B', formed by partitions *a'* in the wind-chest B, and communicating by holes *b'* with the atmosphere. The two parts of the wind-chest B are connected by a trunk or passage, *c'*, so that they form one chest. The bar M is shown as having a single cavity or passage communicating through a passage, *m*, with the trunk or passage *c'* and through the latter with the wind-chest B. At the hinged end of the bar M there is a packing, *n*, of leather, felt, or other suitable material to obviate leakage. This modification of the invention is designed for use with suction-bellows. All the changes that will be necessary in the other parts of the instrument will be to put the valves of the bellows on their outside instead of their inside, to arrange the valves *d* on the under side of the bottom of the wind-chest instead of on the upper side, and to adapt the spring C' to pull the equalizer C outward instead of to force it inward. Obviously the air will pass through the reed-board and rest in the same direction as before; but the air enters the reed-board from the wind-chest B'.

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

1. In a mechanical musical instrument operated by bellows, the combination of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind-chest, a rest at the top of the reed-board for

a traveling music-sheet, means for impelling the rest upward or outward, and means for holding the music-sheet downward or inward against the rest, substantially as specified.

2. In a mechanical musical instrument operated by bellows, the combination of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind-chest a rest for a traveling music-sheet at the top of the reed-board, rigidly connected thereto, means for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest, substantially as specified.

3. In a mechanical musical instrument operated by bellows, the combination of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind-chest, a rest for a traveling music-sheet at the top of the reed-board, a spring or springs for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest, substantially as specified.

4. In a mechanical musical instrument, the combination of a reed-board, a rest for a traveling music-sheet at the top of the reed-board, guides for the reed-board, a spring or springs for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest, substantially as specified.

5. In a mechanical musical instrument, the combination of a reed-board, a rest for a traveling music-sheet at the top of the reed-board, guides and stops for the reed-board, a spring or springs for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest, substantially as specified.

6. In a mechanical musical instrument, the combination of a wind-chest, a reed-board arranged in and communicating with the wind-chest, a flexible connection between the reed-board and wind-chest, a rest at the top of the reed-board for a traveling music-sheet, means for impelling the reed-board and rest upward or outward, and means for holding the music-sheet downward or inward against the rest, substantially as specified.

7. In a mechanical musical instrument, the combination of a wind-chest, a reed-board, a frame in which it is detachably arranged, a rest for a traveling music-sheet at the top of the reed-board, a flexible connection between the frame and the wind-chest, means acting on the frame for impelling the reed-board and rest upward or outward, and means for holding the traveling music-sheet downward or inward against the rest, substantially as specified.

8. In a mechanical musical instrument, the combination of a wind-chest, a reed-board, a frame in which the reed-board is detachably arranged, a rest for a traveling music-sheet at the top of the reed-board, a flexible connection between the wind-chest and the said frame, means acting on the frame for impelling the

reed-board and rest upward or outward, stops for limiting the movement of the said frame, and means for holding the music-sheet downward or inward against the rest, substantially as specified.

9. In a mechanical musical instrument operated by bellows, the combination of a wind-chest into which air is caused to pass by the bellows, a movable reed-board extending into the wind-chest, and having at the top a rest for a traveling music-sheet, means for impelling it upward or outward, and a bar or a roller or rollers for holding the music-sheet downward or inward against the rest, substantially as specified.

10. In a mechanical musical instrument operated by bellows, the combination of a wind-chest into which air is caused to pass by the bellows, a reed-board extending into the wind-chest, a rest for a traveling music-sheet at the top of the reed-board, means for impelling the

rest upward or outward, means for holding the music-sheet downward or inward against the rest, and bellows for causing air to pass through the said reed-board in such direction that it will leave it at the top or outer side, substantially as specified.

11. In a mechanical musical instrument, the combination of a reed-board, a rest at the top of the reed-board for a traveling music-sheet, means for impelling the reed-board and rest upward or outward, a hollow bar hinged to a support at one end and adapted to bear on the music-sheet over the rest, suction-bellows arranged below the reed-board, and means establishing communication between the bellows and the said bar, substantially as specified.

EDWIN H. BROWN.

Witnesses:

T. J. KEANE,

JAMES R. BOWEN.