2 Sheets—Sheet 1.

M. J. MATTHEWS.

Mechanical Musical-Instrument.

No. 211,636. Patented Jan. 28, 1879.

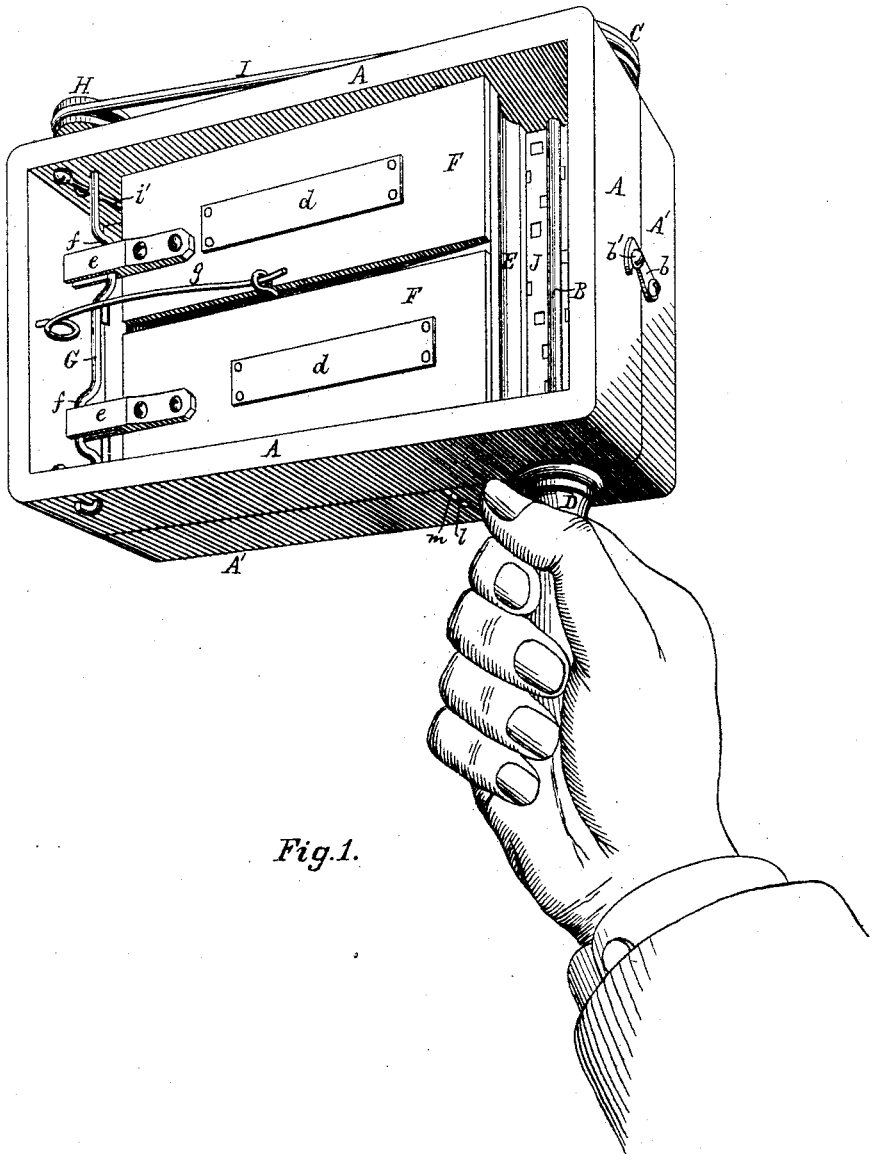

Fig. 1.

WITNESSES:

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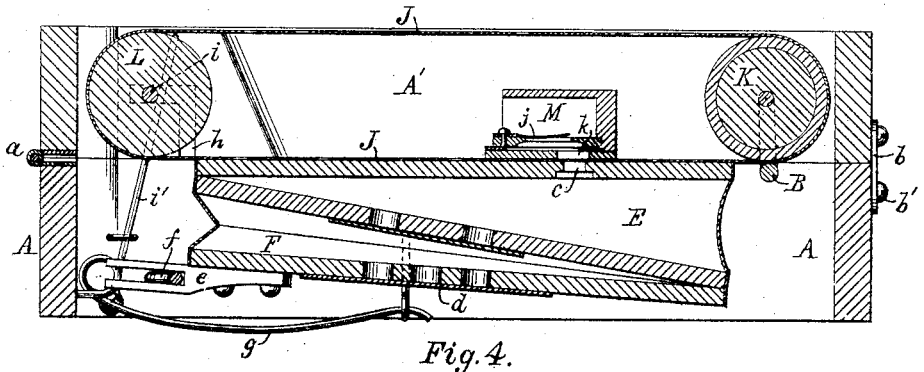

Fig. 4.

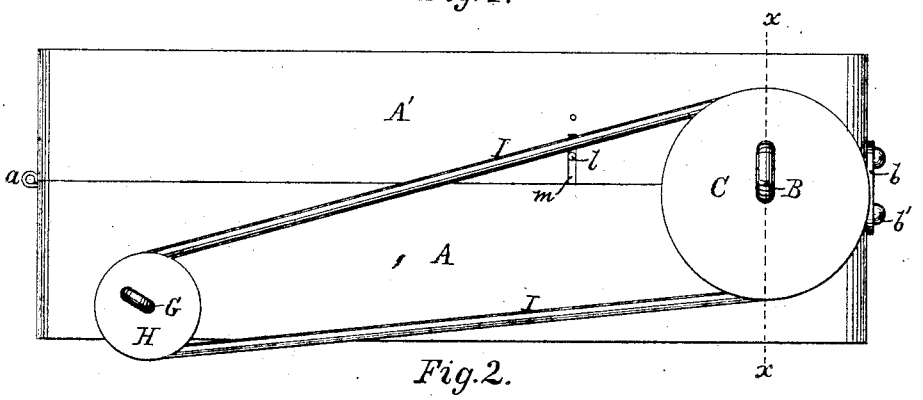

Fig. 2.

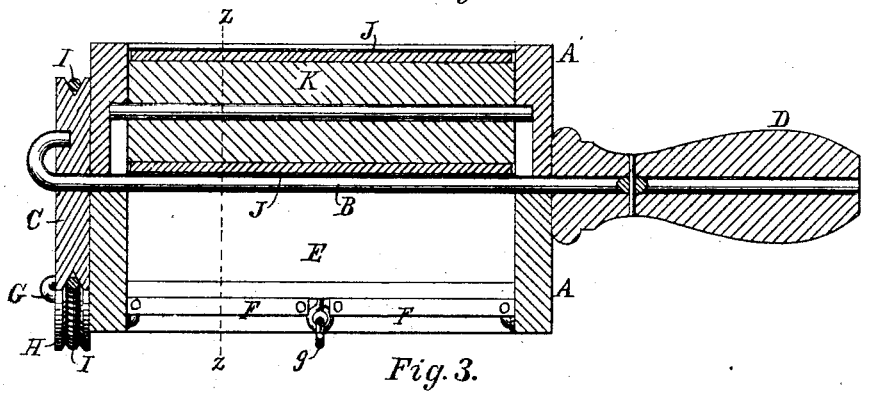

Fig. 3.

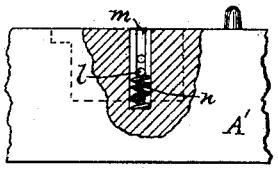

Fig. 6.

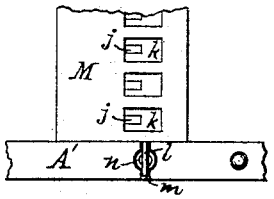

Fig. 5.

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UNITED STATES PATENT OFFICE.

MASON J. MATTHEWS, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN MECHANICAL MUSICAL INSTRUMENTS.

Specification forming part of Letters Patent No. **211,636,** dated January 28, 1879; application filed August 19, 1878.

To all whom it may concern:

Be it known that I, MASON J. MATTHEWS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Musical Instruments or Toys, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention relates to a musical instrument which I term a "phuniphone;" and it consists, first, in the method of operating musical instruments by holding the driving-shaft firmly in the hand, and causing the body of the instrument to revolve about said shaft, as will be described.

My invention further consists in the combination of suitable wind-moving bellows; a vacuum or reservoir chamber provided with a series of wind-passages; an endless band of perforated paper resting upon and covering said wind-passages, and passing around, carrying rolls or drums at either end of the instrument; a reed-chamber provided with wind-passages corresponding to those in the vacuum or reservoir chamber, and with suitable reeds, and placed upon the opposite side of said paper band, all mounted within a suitable frame or casing; and a shaft or rod passing through said casing at or near one end, in position to press upon the paper band where it passes around one of the carrying rolls or drums, and provided with an enlarged prolongation thereof beyond the exterior of the frame, in the form of a handle, to be grasped by the hand of the operator and held from revolving about its axis, while the body of the instrument is made to revolve about said shaft, and thereby cause the endless band of paper to be moved along between the reed and vacuum chambers, and cause musical tones to be produced as the perforations in the paper are successively brought to coincide with the wind-passages in the vacuum and reed chambers.

My invention further consists in a casing or frame made in two parts, hinged together at one end and detachably secured together at the other end, in combination with a driving or operating shaft provided with an enlarged prolongation beyond the frame in the form of a handle; suitable wind-moving bellows, connecting with a series of wind-passages, and mechanism for operating said bellows, all mounted in one portion of the casing or frame, and a reed-chamber provided with a series of reeds and wind-passages; a pair of rolls or drums, and an endless band of perforated paper stretched around said rolls or drums, all detachably mounted in the other portion of the casing or frame, in such a manner that when the frame is closed and secured together the paper shall rest upon and cover the wind-passages leading from the bellows, and pass between such passages and the reed-chamber, and when the casing or frame is opened the endless band of paper may be readily removed and another put in its place when it is desired to change the tune.

My invention further consists in a novel method of operating the wind-bellows of a musical instrument by causing said bellows to be revolved about a stationary pulley, as will be further described.

My invention further consists in so mounting one of the removable paper-carrying rolls or drums in one portion of the divided frame or casing that when said casing is opened said roll or drum is free to be moved toward the other paper-carrying roll to loosen the endless band of paper, in combination with a pair of springs secured to the other portion of the casing, and adapted to engage with the shaft of said roll or drum when the casing is closed, and force said roll away from the other paper-carrying roll and into the bight of the endless band of perforated paper.

It further consists in so mounting the reed-chamber in the casing or frame that it may be readily removed therefrom when the casing is open, and be movable therein in a direction at right angles to the line of movement of the paper band when the casing is closed, in combination with springs adapted to force said reed-chamber onto the endless paper band, as will be further described.

Figure 1 of the drawings is a perspective view of my musical instrument, illustrating the manner of holding and operating it. Fig. 2 is a plan; Fig. 3, a transverse section on line *x x* on Fig. 2. Fig. 4 is a longitudinal section on line *z z* on Fig. 3; and Figs. 5 and 6 are, respectively, a plan and sectional elevation of a portion of the reed-chamber and the casing.

A and A′ are the two parts of the casing or frame of the instrument, hinged together at *a*, and secured together at the opposite end by the hook *b* and pin *b′*. B is the operating or driving shaft, mounted in bearings in the portion A of the frame, and having firmly secured upon one end, outside of the casing, the pulley C, and upon the other end the handle D, to be grasped in the hand of the operator, as shown in Fig. 1, and thus held in a fixed position or prevented from revolving about its axis, while the body of the instrument is made to revolve about said shaft. E is the vacuum-chamber or reservoir, attached permanently to the portion A of the frame or casing, and provided upon one side with a series of wind-passages, *c*, and having secured to its opposite side two or more wind-moving bellows, F F, each provided with a suitable valve, *d*, and a forked arm, *e*, as shown in Figs. 1 and 4.

G is a shaft, having formed therein two cranks, *f f*, set opposite to each other, and each fitted to and working in the fork of one of the arms *e* to impart motion to the bellows. The shaft G has its bearings in the frame A, and has secured to its upper end the pulley H, connected by the endless belt I with the pulley C on the upper end of the shaft B.

The reservoir or vacuum-chamber E is kept expanded by the spring *g*.

J is an endless band of paper, having formed therein a series of perforations, so arranged as to produce a tune in passing over the wind-passages between the reservoir and the reed-chamber, said band being mounted upon the carrying rolls or drums K and L, removably mounted in bearings in the portion A′ of the casing or frame, one near each end thereof, in such position that the inner portion of said band of paper, when the two parts of the casing are secured together, shall rest upon and move in contact with the wall of the reservoir E, through which the wind-passages *c* are made.

The roll K has its periphery covered with rubber, and its journals rest in slots cut in the inner faces of the sides of casing A′, in such a position as to press the paper band between it and the shaft B, around which it revolves when the instrument is in operation, and by frictional contact therewith cause said paper band to be moved continuously around the carrying-rolls and the several perforations therein to be brought successively over the wind-passages *c c*. The roll L is also provided with journals *i*, which fit into the angular slots *h h*, (shown mostly in dotted lines in Fig. 4,) and is forced toward the end of the casing or frame A′, and into the bight of the endless band of paper J, by the tension of the springs *i′ i′*, attached to the portion A of the frame, and adapted to engage with the journals *i i* when the two portions A and A′ of the frame are closed together.

M is the reed chest or chamber, provided with a series of reeds, *j*, and wind-passages *k*, corresponding in number with and directly over the wind-passages *c*, and also provided at each end with a projecting pin or lug, *l*, which fits into the slot *m*, made through the side bar of the casing A′, and bears upon the spring *n*, inserted in a chamber formed in said side bar, said spring being adapted to force the reed-chest toward the reservoir and press the paper band thereon when the two parts of the casing are secured together in position for operation.

The reeds shown are adapted to be operated by suction, and the bellows, F F, shown in the drawings are suction-bellows; but it is obvious that a blast-bellows and reeds adapted to be operated thereby may be used without in the least affecting the principles of my invention.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. A musical instrument provided with a series of reeds, a wind-moving bellows, and an operating-shaft having its bearings in and extending beyond the case of the instrument in the form of a handle, all arranged and adapted to be operated to produce chords and tunes by causing the body of the instrument to revolve about said operating-shaft, while said shaft is kept from revolving, substantially as described.

2. In combination with the shaft B, provided with the axial handle D, adapted to be grasped by the hand of the operator, one or more wind-moving bellows, F, a vacuum or reservoir chamber, E, provided with a series of wind-passages, *c*, a reed-chamber, M, provided with a series of reeds and wind-passages, and an endless band of perforated paper, J, stretched around the two carrying-rolls K and L, and passing between said reservoir and reed-chambers, all arranged within a frame, A A′, and adapted to be revolved therewith around the shaft B, substantially as and for the purposes described.

3. A frame or casing made in two parts, A and A′, hinged together and secured as set forth, in combination with the shaft B, provided with the axial handle D, suitable wind-moving bellows F, connecting with a series of wind-passages, *c*, and mechanism for operating said bellows, all mounted in the portion A of said frame, and an endless band of perforated paper stretched around two carrying rolls or drums, and a reed-chamber provided with a series of reeds and wind-passages detachably mounted in the portion A′ of the frame, substantially as and for the purposes described.

4. The combination of the non-rotating shaft B, provided with the axial handle D and pulley C, one or more wind-moving bellows, F, each provided with a forked arm, *e*, the shaft G, having formed therein one or more cranks, *f*, the pulley H, and an endless belt, I, all arranged as set forth, and adapted to operate substantially as and for the purposes described.

5. The combination of the paper-carrying roll L, mounted in the angular slots *h h* in the

side bars of the portion A′ of the frame, and the springs *i′ i′*, attached to the portion A of the frame, and adapted to engage with the journals of said roll and force it toward the end of the frame when the two parts of the frame are secured together, substantially as and for the purposes described.

6. The reed-chamber M, provided at each end with a lug or pin, *l*, in combination with slots *m* and springs *n* in the side bars of frame A′, substantially as described.

MASON J. MATTHEWS.

Witnesses:
N. C. LOMBARD,
E. A. HEMMENWAY.