

(No Model.)

3 Sheets—Sheet 1.

J. B. HAMILTON.

REED FOR MUSICAL INSTRUMENTS.

No. 263,899.

Patented Sept. 5, 1882.

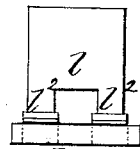


FIG. 1.

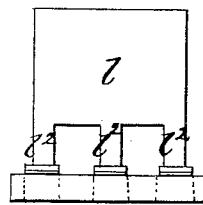
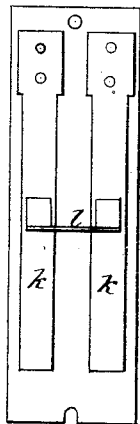


FIG. 2

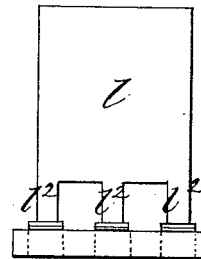
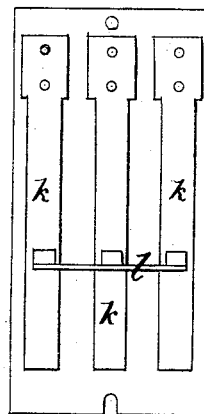


FIG. 3

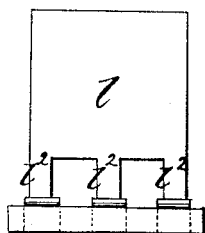
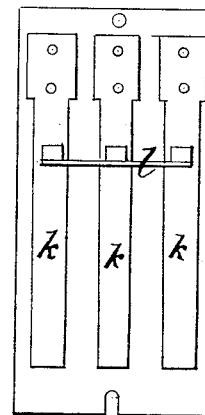


FIG. 4

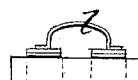
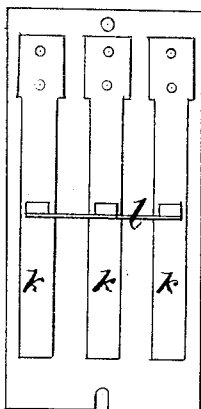


FIG. 5

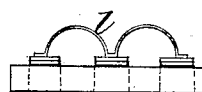
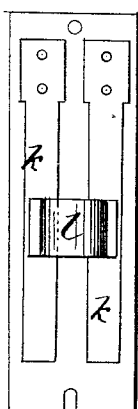


FIG. 6

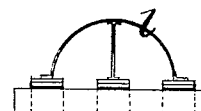
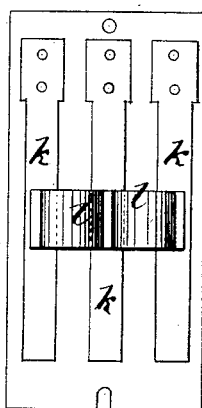
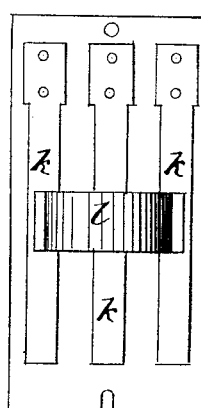


FIG. 7



Witnesses:
James F. Tobin
Harry B. Murphy

Inventor
James B. Hamilton
by his Attorneys,
Howell and Jones

J. B. HAMILTON.

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FIG. 8.

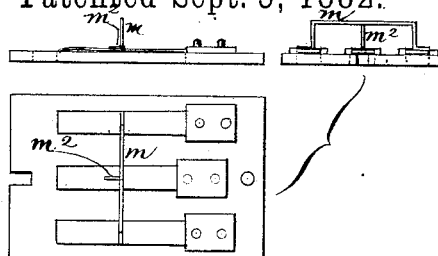


FIG. 9.

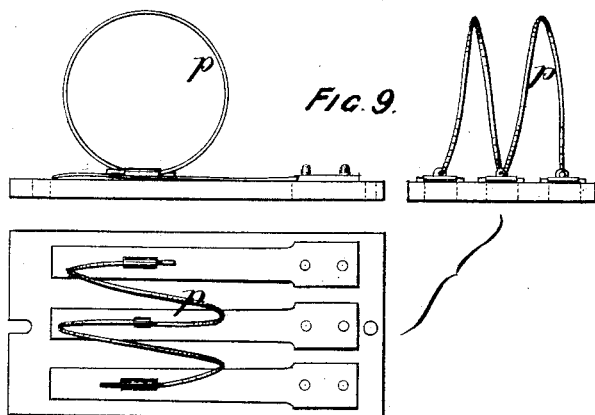


FIG. 10.

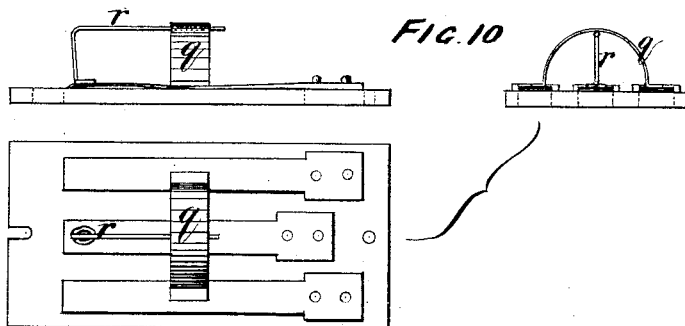
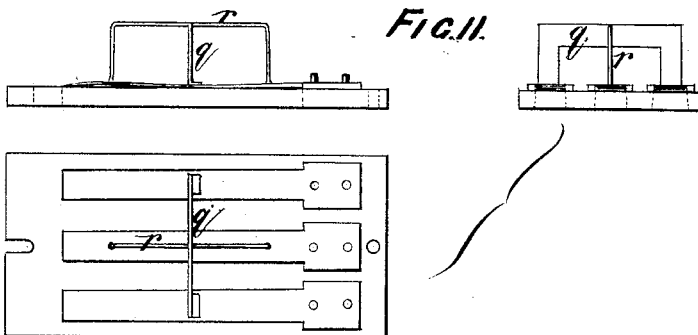


FIG. 11.



Witnesses:
James F. Tobin
Harry Drury

Inventor:
James B. Hamilton
By his attorneys
Howson and Ford

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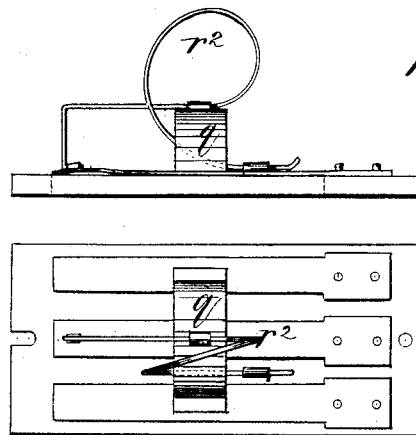


FIG. 13.

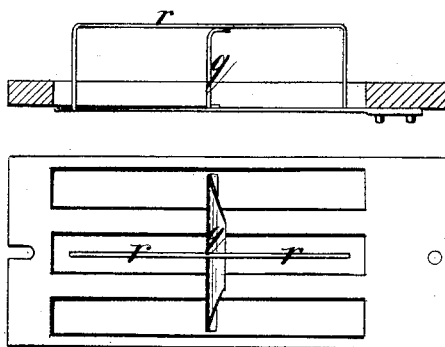
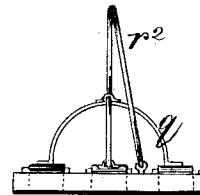


FIG. 12

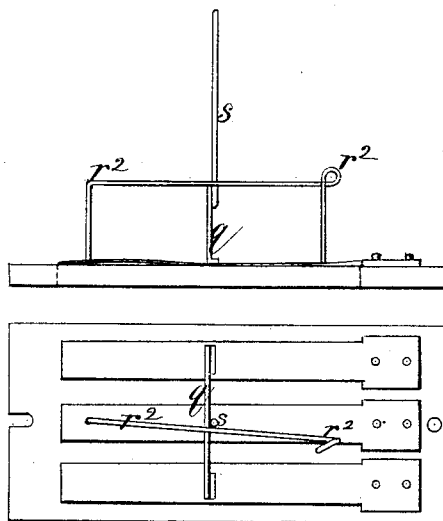
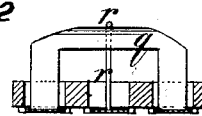
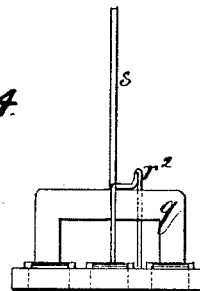


FIG. 14.



Witnesses:
James J. Tobin
Harry Drury

Inventor
James B. Hamilton
by his Attorneys
Howson and Ford

UNITED STATES PATENT OFFICE.

JAMES BAILLIE HAMILTON, OF DOWN STREET, PICCADILLY, COUNTY OF MIDDLESEX, ENGLAND.

REED FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 263,899, dated September 5, 1882.

Application filed May 15, 1882. (No model.) Patented in England December 30, 1881, No. 5,630.

To all whom it may concern:

Be it known that I, JAMES BAILLIE HAMILTON, a subject of the Queen of Great Britain, and residing at Down Street, Piccadilly, in the county of Middlesex, England, have invented certain Improvements in Harmoniums, Organs, and Like Instruments, (for which I have obtained a patent in Great Britain, No. 5,630, dated December 30, 1881,) of which the following is a specification.

My invention has for its object to combine for each note of harmoniums, organs, and like instruments two, three, or more tongues in one reed, the said tongues being so connected or combined together as to cause them to vibrate in unison, so that they mutually govern each other and correct any difference of pitch or variation of quality which would or might otherwise exist in the individual tongues. This object I attain by arranging the two or more tongues of each reed side by side and connecting their vibrating portions by a rigid or elastic connection, which I term a "unison-bar," so as to attain the desired vibration of all the tongues in unison.

In order that my said invention may be fully understood, I shall now proceed more particularly to describe the same, and for that purpose shall refer to the several figures on the annexed sheet of drawings, the same letters of reference indicating corresponding parts in all the figures.

Figure 1 represents in plan and end elevation a reed consisting of two tongues, *k k*, connected by the plate-like unison-bar *l*, which is soldered or otherwise fixed to each tongue by a leg or projecting portion, *l'*. The quantity of metal in this bar *l* will be in proportion to the distance from the tips or free ends of the tongues at which the said bar is fixed. The greater the distance from the said free ends the greater will be the quantity of metal in the said bar, and the less the distance the less will be the quantity of metal in the said bar.

Figs. 2, 3, and 4 each represent in plan and end elevation three tongues combined in each reed and connected together by the unison-bar *l*, which is provided with three legs or projections, *l'*, each one of which is soldered or otherwise fixed to one of the said tongues, so that

all of the tongues, being thus connected together, are compelled to vibrate in unison. Fig. 2 shows the unison-bar as being fixed to the tongues near to the free ends thereof. Fig. 3 shows it fixed to the said tongues near to the root or fixed end thereof, and Fig. 4 shows it in a mid-position. On reference to the end elevations of these figures it will readily be seen that the quantity of metal in the bar increases in proportion as the distance of the bar from the free ends of the tongues increases. The nearer to the root or fixed end of the tongues at which the unison-bar is fixed the more soft and sympathetic will the tone be, while the nearer to the tip or free end at which the said unison-bar is fixed the stronger and heavier will be the tone.

Fig. 5 shows in plan and end elevation a reed with two tongues compelled to vibrate in unison by the bow-shaped unison-bar *l*. This bar has a considerable surface of attachment to the tongues, and as this portion of the tongues is thereby rendered rigid this extended surface of attachment constrains the tone. Fig. 6 shows this form of unison-bar *l* as applied to three tongues, *k*, combined in one reed; or the connection of three or more reeds in this manner may be effected by a saddle-piece of a bow form connected to the end tongues, the other tongue being connected therewith by rigid connecting-strips, as shown with regard to three reeds in Fig. 7. Where the tongues are connected near to the free ends the unison-bar may consist of a stout wire connecting two tongues; or, in the case of more than two tongues being combined in one, the outer tongues are connected by the said wire unison-bar, as shown with regard to a reed of three tongues in Fig. 8, where *m* is the wire unison-bar, a small wire, *m'*, forming the connection between the unison-bar *m* and the middle tongue. These modes of connection give what I call a "rigid mutual restraint of the tongues."

Fig. 9 represents a compound reed consisting of three tongues connected together by a spring-connection, forming an elastic unison-bar, it consisting of the coil *p*, fastened by soldering or otherwise to each tongue. This mode of connection gives what I call an "elastic mutual restraint of tongues."

Fig. 10 represents a combined reed of three tongues, the two outer ones being connected by the rigid-connection saddle-piece or "ligature" *q*, and the central or governing tongue being connected by the separate wire or strip *r* to the said ligature *q*. In this figure the wire *r* is shown attached to the middle tongue near to its free end.

Fig. 11 represents an arrangement like that of Fig. 10; but in order to give a greater restraint the wire or strip *r*, connected to the ligature *q*, extends on both sides thereof, and is attached to the middle or governing tongue at one end, near to the free end of the said tongue, and at the other end to near the confined end of the said tongue. Fig. 12 is a similar arrangement applied to the inner side of the tongues in place of to the outer side. Any of the arrangements described may be applied to the inner in place of to the outer side, if desired.

Figs. 13 and 14 represent an arrangement by giving a still greater restraint. This is effected by connecting the outer tongues by a ligature, *q*, as before described; but the wire or strip *r*², which connects the ligature to the middle or governing tongue, is fixed at one end to the said tongue, near to the free end thereof, while the other end of the said strip or wire *r*² is continued back, being preferably bowed, as shown, and fastened to the rigid reed-frame.

In Fig. 14 is shown a wire or strip, *s*, which is of soft metal, and is attached to the ligature *q*. By bending this wire to a greater or less angle the pitch of the sound emitted by the reed may be adjusted. This wire or strip may be used with other reeds.

Where the plate-like unison-bar, Figs. 1, 2, 3, and 4, is employed, the "tuning" of the tongues may be effected by bending the said plate-like unison-bar toward or away from the free ends of the tongues.

Although I have shown but a group of two and three tongues in the reeds, yet it will be understood that a greater number of tongues may be so combined, if found desirable.

I claim as my invention—

A reed provided with two or more tongues, arranged side by side, and having their vibrating portions connected together by a unison-bar, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES BAILLIE HAMILTON.

Witnesses:

JOHN JAMES,
47 *Lincoln's Inn Fields, London.*
WILLIAM GORTON,
47 *Lincoln's Inn Fields.*