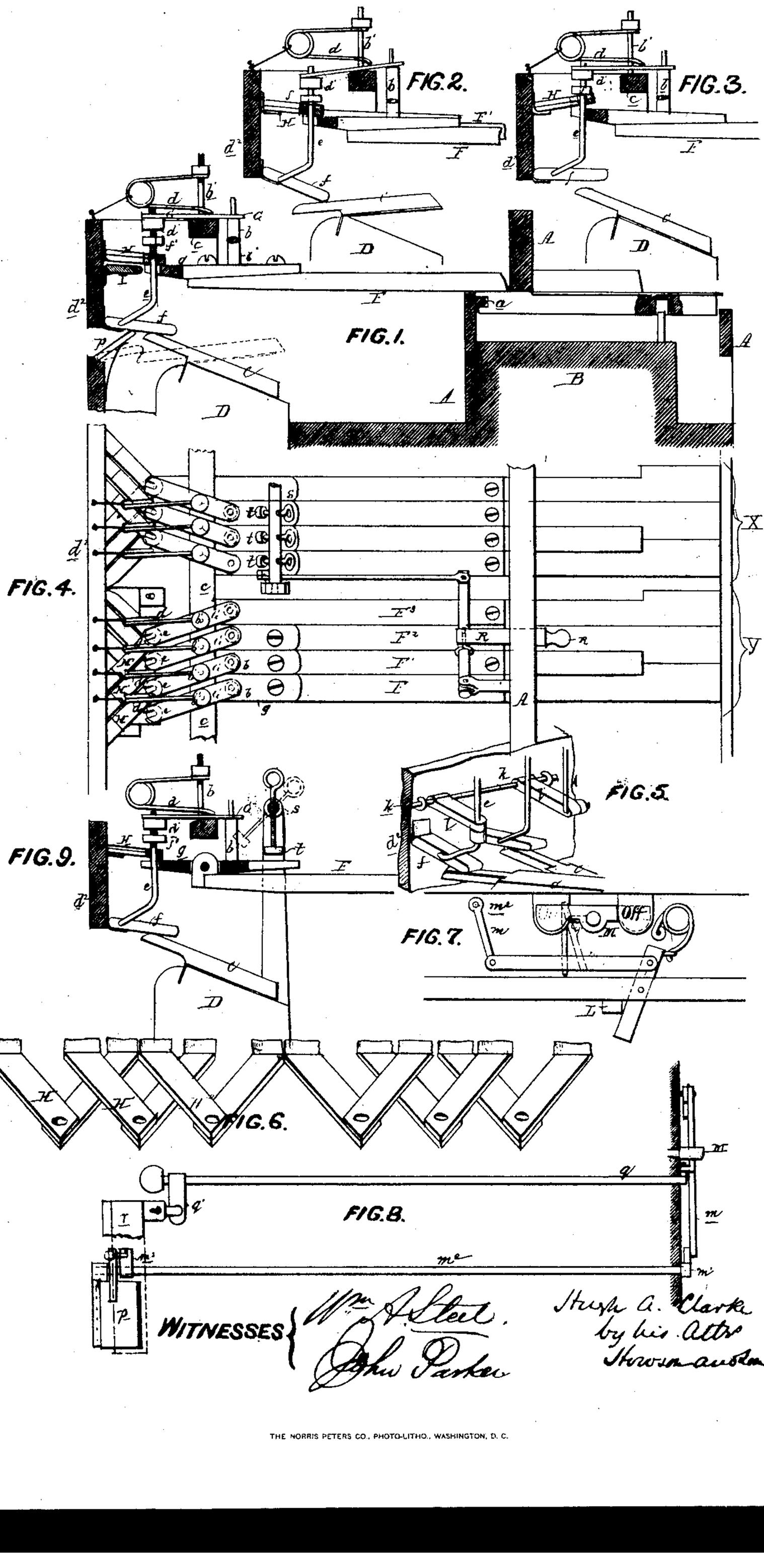
H. A. CLARK.

ORGAN, MELODEON, &c.

No. 105,780. Patented July 26, 1870.



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HUGH ARCHIBALD CLARKE, OF PHILADELPHIA, PENNSYLVANIA.

Letters Patent No. 105,780, *dated July* 26, 1870.

IMPROVEMENT IN ORGANS, MELODEONS, &c.

The Schedule referred to in these Letters Patent and making part of the same

I, HUGH ARCHIBALD CLARKE, of Philadelphia, county of Philadelphia, State of Pennsylvania, have invented certain Improvements in Organs, Melodeons, &c., of which the following is a specification.

Nature and Object of the Invention.

My invention consists principally of the arrangement, in respect to the keys of an organ or melodeon, of a series of diagonal levers, overlapping arms, and other devices fully described hereafter, for so controlling the valves of the pedal-reeds or solo-stop that but one of the said valves, in either the bass or the treble, can be lifted at a time.

The object of my invention is to prevent the discord usually occasioned by the opening of several valves of the pedal-reeds or solo-stop when more than one key is struck

Description of the Accompanying Drawing.

Figure 1 is a sectional view of sufficient of an organ or melodeon to illustrate my improvements;

Figures 2 and 3, views of part of fig. 1 in different positions;

Figure 4, a plan view;

Figures 5 and 6, perspective views of parts of the operating mechanism;

Figures 7 and 8, detached views of other portions of the arrangement; and

Figure 9, a view of a modification adapted especially to the solo-stop.

General Description.

A represents part of an organ or melodeon, having a single row of white and black, or long and short keys hung to a pivot-rail, *a*, in the usual manner.

Each of the keys operate a valve, covering a reed, of the reed-chamber B, as in ordinary instruments of this class, and each key is also connected with a valve, C, which covers one of the reeds of a second reed-chamber, D, arranged at the back of the instrument.

The method of operating these latter valves, and of connecting the keys with the same, both in the treble and bass, represented by X and Y in fig. 4, forms the main peculiarity of my invention, and is as follows:

(The arrangement, as applied to the treble, being merely a reversion of that of the bass, it will suffice to describe the latter.)

Each key has a continuation or added piece, F, close to the rear end of which is a standard, *b*, having a pin which projects through an opening in the front arm of a diagonal lever, G, which is hung to a vertical wire, *b'*, attached to the stationary cross-piece *c* of the instrument. Each lever G is capable of moving vertically upon its fulcrum *b'*, but is held down to the cross-piece by means of a spring, *d*.

The rear forked arm of each lever rests upon a nut, d^1, of a wire, *e*, which is connected at its lower end to an arm, *f*, hung to the fixture d^2, and arranged to bear upon the projecting end or "handle" of one of the valves C.

This method of connecting, as will be understood on reference to fig. 2, enables each valve C to be raised on depressing its key, thereby giving to the note sounded the effect of a pedal-note.

As discord would be produced, however, if, when several keys were struck, each should sound its pedal-note, it is necessary to have, in addition to the above, some arrangement by which each key, when sounded, may stop the action upon the pedal-reeds of every other key to the right, or, if in the treble, to the left.

The arrangement which I have devised for effecting this object consists of a series of overlapping V-shaped arms or levers, H H^1 H^2, &c., of which there are as many as there are keys.

Each of these V-shaped arms or levers is hinged to the fixture d^2, and has an opening at its apex or front end, through which passes one of the wires *e*, the motion of the said arm or lever being limited by a nut, *f'*, on the wire, and by the forked end of an adjustable rod, *g*, one of which is secured to and forms a continuation of the portion F of each key.

Each key, on being depressed, will raise its rod *g*, and consequently that one of the overlapping levers which rests upon the latter, and all to the right of the same. If, for instance, the key controlling the lever H^1 were struck, that lever would be raised, as would also the overlapping lever H^2 at its right, while the lever H to the left would remain at rest. If the latter lever were raised, however, both of the overlapping levers H^1 and H^2, at the right of the same, would also be necessarily raised. (See fig. 6.)

The arrangement shown at the right-hand side of fig. 6 is merely a reversion of that just described, and is intended for the treble, the overlapping levers in this case raising all to the left of them, instead of to the right.

The effect of this rising of the overlapping levers upon all keys to the right of that which sounds its pedal-note, (or to the left in the reversion,) is illustrated in fig. 3, where it will be seen that each overlapping lever, when raised, is brought in contact with the nut *f'* of its wire *e*, thus preventing the descent of the said wire when the next key to the right is depressed, and the consequent opening of the valve C, which is controlled by the said key.

When the wire *e* is thus held by its overlapping lever, the diagonal lever G changes its fulcrum from the wire *b'* to the nut d^1 of the wire *e*, the spring *d* yielding sufficiently, as shown in fig. 3, to permit this movement.

In order to explain more fully the action of the di-

agonal levers and overlapping mechanism, let it be supposed that the key marked F, in fig. 4, is struck so as to sound its pedal-note. The effect will be to also raise the whole series of overlapping levers H H^1 H^2, &c., at the right of the key F, so that, if any of the other keys F^1 F^2 F^3, &c., are struck, while the key F is still held down, their diagonal levers G will merely turn upon the nuts d^1 instead of upon the wires b', so that no pedal-notes will be sounded.

If, while the keys F^1, F^2, and F^3 are held down, the key F is released, the key F^1 will immediately sound pedal-note, or either of the keys F^2 or F^3 will sound their pedal-notes, if no other key or keys to the left of the same are struck or held down.

The same is the case in the reversion or treble, where the highest note only will sound in the solo-stop, which is, in this case, substituted for the pedal or bass-reeds.

When two keys (the corresponding keys in two octaves, for instance,) are to sound the same reed or lift the same valve C, the connection shown in fig. 5 is used. This consists of a rod, k, hung to the fixture d^2, and having two arms, l and l', one of which rests upon a nut of the wire e, which is attached to the arm above the valve, while the other is secured to the wire e of the key from which the connection is to be made.

The objects and advantages of the above arrangement may be briefly summed up as follows:

Every key, when struck, stops the action of every other key to the right, or in the reversion to the left. If to the right, the lowest note only will sound, giving the effect of a pedal-note, without discord. If to the left, the highest note only will sound, and, with a solo-stop substituted for the pedal or bass-reeds, a solo and accompaniment may be played with only one manual or row of keys.

By means of a knee-stop, L, any one of the valves C may be held open at will after being raised, and, when thus held open, none of the other keys can sound.

The knee-stop acts through the medium of a bar, m, and arm m^1, upon a rod, m^2, which extends to the back of the instrument. This rod has an arm, m^3, which is so connected to a hinged strip or flap, p, that the latter, when the knee-stop is turned, will be depressed, and will catch and retain the "handle" of that valve C which is open. (See figs. 7 and 8, and dotted lines, fig. 1.) At the same time another rod, q, also actuated by the knee-stop, and having an arm or cam, q', at its rear end, will lift a hinged strip or flap, r, against the overlapping mechanism, and, by raising the latter, will prevent the action of all the other keys.

By means of an "on-and-off" or lever, M, arranged beneath the front of the key-board, the whole action may be stopped at any time. The "on-and-off" merely acts upon the rod q in such a manner as to raise the strip r and overlapping mechanism.

By means of a slight change in the mechanism at the end of the portion F of each key, (controlled by a draw-stop, R, fig. 4,) the action may be so altered as to admit of any number of notes being sounded on the solo-stop, or on the pedal-reeds, if the arrangement be applied to the latter.

The draw-stop, when pushed in, turns a roller, S, which has projecting pieces t, one for each key. This permits the rods q, which are in this case hinged, to yield, consequently the overlapping mechanism is not raised, and the action of all the wires is allowed.

When the draw-stop is drawn out, the projections t bear upon and prevent any movement of the rods, which then act in precisely the same manner as the fixed rods on the ends of the keys of the pedal arrangement.

Claims.

1. The arrangement, in respect to the keys of an organ or melodeon, of the diagonal levers G, overlapping mechanism H, and the devices connected therewith, or their equivalents, for so controlling the valves C that but one of the latter can be lifted at a time in either the bass or the treble, all substantially as described.

2. The diagonal levers G, lifted by the standards b of the keys, acted upon by springs d, and arranged, as described, to turn upon either of the wires b' or e as a fulcrum.

3. The keys of the instrument, arranged to act upon the diagonal levers, at one end of the same, through the medium of the standards b, and at their opposite ends through the medium of the overlapping mechanism and wires e, substantially as herein set forth.

4. The overlapping mechanism, consisting of a series of V-shaped arms or levers, H H^1, &c., hinged to the fixture d^2, and embracing the wires e at points between the ends of the keys and nuts f' on the said wires.

5. The combination of the arms f and "handles" of the valves C, for transmitting the movement of the wires e to the said valves.

6. The combination of the rods g, hinged to the levers F, and devices substantially as set forth, whereby the movements of the rods may be regulated, as specified.

7. The combination of the flat strip or flap p, operated by a knee-stop, or otherwise, with the valves C, for the purpose of holding any one of the latter open after it has been raised by its key.

8. The combination, with the overlapping mechanism and with the flap p and valves, of a strip or flap, r, operated by the knee-stop L, or by an "on-and-off" lever, M, either in connection with or independently of the flap p, for the purpose specified.

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

HUGH ARCHIBALD CLARKE.

Witnesses:
WM. A. STEEL,
LOUIS BOSWELL.