2 Sheets—Sheet 1.

W. D. PARKER.

OCTAVE AND MANUAL COUPLERS FOR ORGANS.

No. 188,175. Patented March 6, 1377.

Fig. 1.

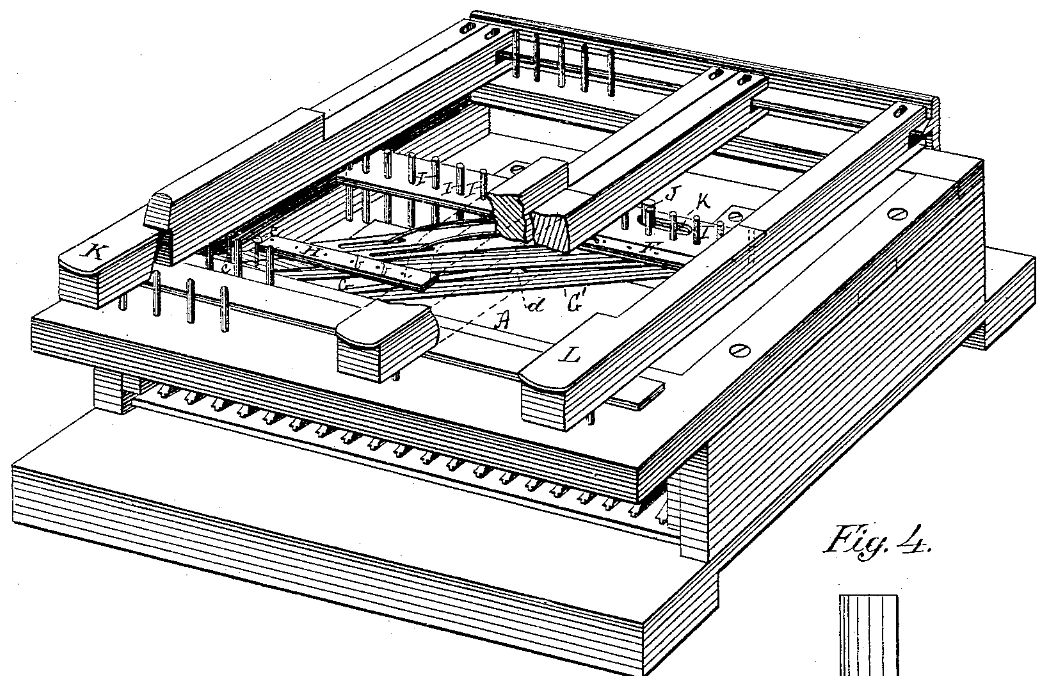


Fig. 2.

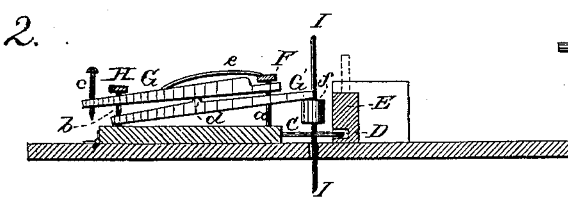


Fig. 3.

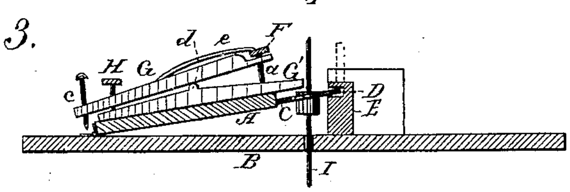
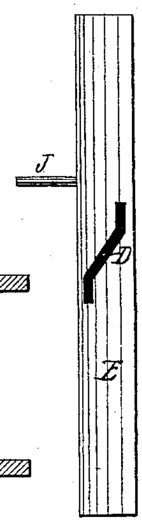


Fig. 4.



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2 Sheets—Sheet 2.

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OCTAVE AND MANUAL COUPLERS FOR ORGANS.

No. 188,175. Patented March 6, 1877.

Fig. 5.

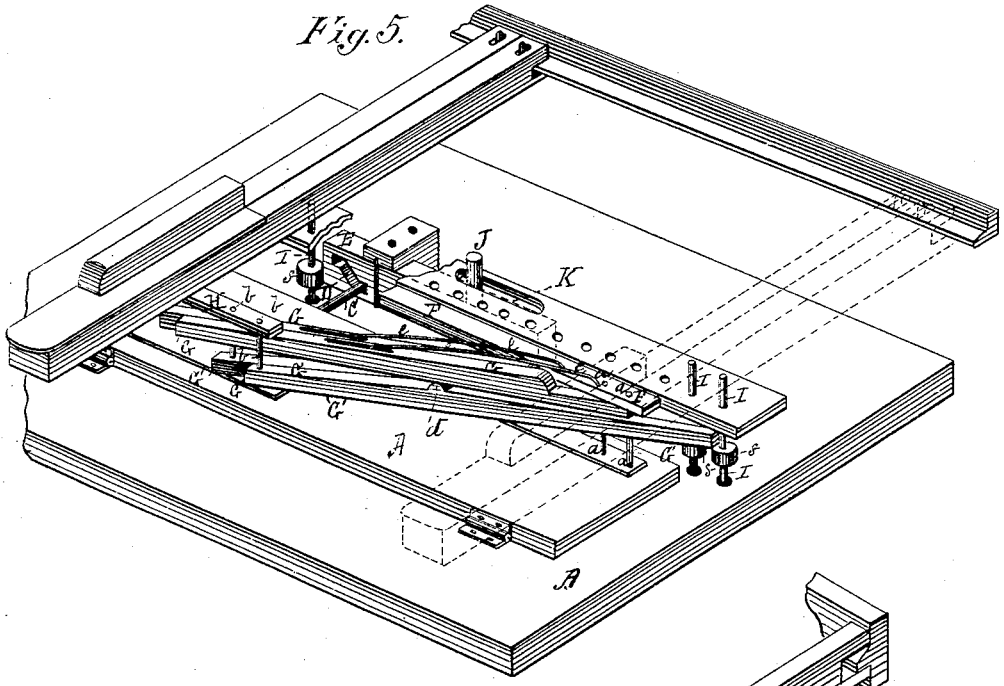
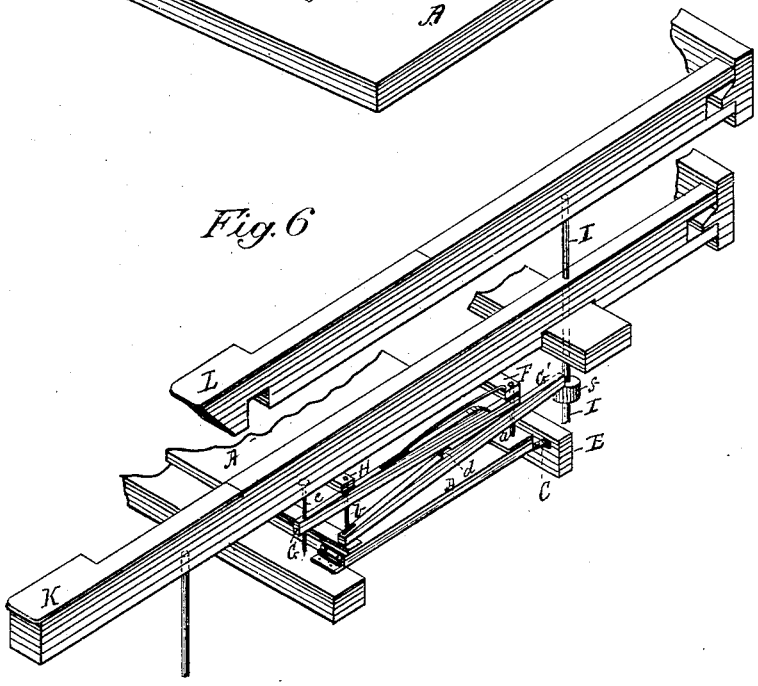


Fig. 6



Attest:
D. G. Stuart
L. Van Riswick

Inventor:
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per R. Hannay
Atty.

UNITED STATES PATENT OFFICE.

WILLIAM D. PARKER, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN OCTAVE AND MANUAL COUPLERS FOR ORGANS.

Specification forming part of Letters Patent No. **188,175**, dated March 6, 1877; application filed December 27, 1876.

To all whom it may concern:

Be it known that I, WILLIAM D. PARKER, of Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Octave and Manual Coupler for Organs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification, in which—

Figure 1 represents a view in perspective of the key-board mechanism of an organ to which my improved coupler has been applied, many of the keys, valve-pitmen, and coupler-levers being removed or broken off in order to more clearly illustrate the working of the device. Figs. 2 and 3 represent detail sectional views taken through the coupler-platform and its supporting-board in a diagonal line parallel with the coupler-levers, Fig. 2, illustrating the position of the coupler-platform and couplers when "on"—*i. e.*, ready to produce two notes an octave apart by the "touch" of a single key; and Fig. 3, the same device when the coupler is "off." Fig. 4 represents a detached view of the cam-slotted slide-bar which throws the coupler on or off; and Fig. 5, a view in perspective of the coupler mechanism with the key-board, reed-board, and sounding-board removed, in order to illustrate the internal construction and arrangement of parts. Fig. 6 represents a view in perspective of my improved coupler applied as a manual coupler to two keys of a double-bank organ.

Heretofore several kinds of octave-couplers have been used for the purpose of causing, by the simple touch of a single key, a note an octave from the key struck to be sounded simultaneously with the note of the key struck; but these are so constructed and arranged as to leave the weight of the wire or lever constantly resting upon the button of the pitman, and hence rising and falling with it even when off.

The main objects of my invention are: first, to give complete relief to the action when off; secondly, to keep all points of contact close and ready to move without slack or jarring; and, thirdly, to automatically assist in the opening of the valves in order to make the necessary touch lighter than in other couplers.

My invention for these purposes consists, first, in the use of two coupling-levers running diagonally between the key of one note and the pitman of the corresponding note an octave apart; secondly, in combining a spring with these levers in such manner that, as the slide-bar is moved in which the cam-groove is formed that operates the cam-pin of the swinging platform in order to throw the coupler on, it will gradually depress the levers, so as to cause the inner end of the lower one to rest or bear firmly on the button of the pitman before the coupler is fairly on, and hence ready to move the latter without any slack the moment the key is touched and depressed, it by its pressure also lessening the power required to move the key; and, thirdly, in a novel arrangement and combination of the platform with respect to the levers and to the pitmen and their buttons, whereby, when the coupler is off the inner ends of the levers are kept raised above and free of the pitmen-buttons by the platform, and the pitmen thereby left free to rise and fall without being trammeled by the weight of the end of the levers. Thus the organ is made lighter of touch and free from jarring or other disagreeable noise.

To enable others skilled in the art to make, construct, and use my invention, I will describe its parts in detail.

The keys, key-board, or key-boards, as used in double-bank organs, valves, pitmen, and the construction of the different parts of reed-organs generally, are the same as those in general use, and, therefore, require no particular description, as this invention relates to none of these individually, but is confined solely to the coupler and its adjuncts.

In Figs. 1 and 5 my improved coupler is represented as being applied as an octave-coupler, and in Fig. 6 as a manual coupler—*i. e.*, key-board coupler.

The coupler devices consist of a platform, A, hinged at its front side instead of at its rear to the board B, as in other couplers, and which is provided with a pin, C, which takes

into the cam-slot D, (see Fig. 5,) formed in the sliding bar E, and which may be operated in any suitable way known to organ-builders.

On the upper side of the rear end of the platform A, near its rear edge, are secured the lower ends of a series of stud-pins, *a*, the upper ends of which are secured to and carry a cap-strip, F, there being one stud-pin for each pair of coupler-levers G G′.

Near the front edge and upper side of the platform A are secured a corresponding series of stud-pins, *b*, the upper ends of which carry another cap-strip, H.

Upon these stud-pins *a* and *b* are mounted, in pairs, the respective ends of the coupler-levers G G′ in the following manner: The front ends of one pair of levers G G′ are upon one of the stud-pins *b*, and the rear ends of the same pair upon that one of the stud-pins *a* which corresponds to the key of a pitman and valve an octave apart. For this purpose a slot is cut near the front end of the upper lever G, and a simple hole through the lower one G′, for the reception of the stud-pin *b*, these openings being reversed at their rear ends—that is to say, a simple opening in the upper one G, and an elongated opening for the lower one G′, so as to allow free play on the stud-pins to the moving ends of both levers. These levers are arranged upon these guide-pins between the hinged platform A and the cap-strips F and H.

To the front end of each of the upper levers G is applied a regulating-screw, *c*, it being so arranged as to stand in a line with the center of its corresponding key.

Each of the lower levers G′ on its upper side is made to gradually taper from near its middle toward each of its ends, and is provided with a raised portion, *d*, at or near the middle, to form a fulcrum, upon which the upper lever G bears.

To the upper side of cap-strip F is secured one end of a series of springs, *e*, there being one for each pair of levers G G′, the free ends of each of which bear upon the upper side of its corresponding lever G, there being a depression formed on the upper side of each of these levers for their reception, so as to keep them constantly in place.

These springs are made sufficiently long to bear upon the levers G at a point in front of the fulcrum D, thereby exerting a constant pressure upon the rear end of lever G′, so that the latter shall always tend, when free to do so, to bear upon its corresponding pitman-button *f*.

I represents the pitmen, which operate the valves that admit the air to the reeds, and may be constructed, arranged, and operated in the ordinary way. *f* represents the buttons secured thereto, through which motion is imparted to the pitmen and valves by the coupler-levers G′, whenever it is desired to connect two octave notes together, as represented in Fig. 2.

The slide-bar E, which, through its cam-slot D and the pin C, raises or lowers, as desired, the platform A, may be operated in any known and suitable manner. A plan of doing this is illustrated in the drawing, Fig. 5, wherein a pin, J, is represented as being applied to its upper side, and working in a slot, K, for that purpose. In that figure, and also in Fig. 2, the coupler is represented as being on, and the levers G and G′, ready to receive motion from their corresponding keys through the regulating-screws *c*, and to impart that motion to that one of the pitmen I which is an octave higher or apart.

In Fig. 1 the two keys K and L, with their respective pitmen I, are arranged so as to be an octave apart, and the operation is that when key K is touched or depressed it not only depresses its own pitman I, and which stands in a line with and under it, but at the same time, through its corresponding regulating-screw *c*, depresses its corresponding diagonally-arranged lever G, and through it depresses the rear end of its corresponding lever G′, which, in turn acting on the button *f* of the pitman I of the key L, opens its valve, thus sounding the two notes simultaneously (and which, as before stated, are an octave apart) by the simple depression of the single key K.

In Fig. 3 the coupler is represented as being off—that is to say, the platform A has been raised by its pin C being forced, by the movement of slide-bar E, into the upper end of its cam-slot D, the effect of which is to force up the rear and tip down the front ends of the levers G and G′, and in so doing removing the regulating-screws *c* from the sphere of action of the keys. This movement also holds the rear end of the lower levers G′ in a plane above the normal position of the buttons *f* of their corresponding pitmen I, thereby leaving the latter free to rise and fall according as the action of their keys and valves may impel them—a point of great practical importance, as it entirely removes all the jarring and other disagreeable noises incident to the instrument from the use of other styles of couplers.

The great practical importance of the springs *e* in this connection, as arranged, will also be apparent, as the moment the sliding bar commences to move, and the platform A to descend in order to throw the coupler on, the springs *e*, acting on the levers G, cause the latter, as the platform yields, to depress the rear ends of levers G′, until they rest firmly upon the buttons *f* of the pitmen, and which is accomplished before the coupler has been fully thrown on. For this reason there is never any slack to take up when any of the keys begin to move, but on the contrary both notes commence and end simultaneously with every touch of a key.

In Fig. 6 my improved coupler is represented as being applied as a manual or keyboard coupler, where two banks of keys are used, as in double-bank organs. The only

difference between the two plans is that the levers G and G′ instead of running diagonally across from the key of one note to the pitman of a key an octave apart, as in the one case, in this case run parallel with the key, their construction and the mode of operating them in all other respects being the same—that is to say, the front end of the upper lever G is operated by its key acting on the screw *c*. Lever G in turn acts upon lever G′, depressing its rear end, and causing it to depress the pitman I through its button *f* of the corresponding note of the key of the bank of keys immediately above it.

Various modes of arranging the springs *e*, so as to act on the levers G, could be described, as, for instance, by securing them at one end to the cap-strip H, but it is not deemed necessary so long as they are made to produce the effect, substantially as hereinbefore described.

The regulating-screws *c*, if desired, may be secured to the under side of the keys, instead of to levers G, but the latter mode is preferred; and so with the levers G and G′. They may be modified in various ways, so far as their peculiar construction, arrangement, and mode of applying them is concerned; but, as such would not change the principle of my invention, these modes are not deemed unprotected by this patent, so long as the pitmen of the valves, when the couplers are off, are left entirely free and untrammeled from the action of the couplers. And when the couplers are on, all points of contact between the levers and the pitman-buttons are kept close—that is to say, without slack—and, lastly, so that the touch required to operate the instrument may be lessened by the aid of automatic pressure brought to bear upon the pitmen through levers when the coupler is on.

Having described my invention, what I claim as new in octave or manual couplers of organs, and desire to secure by Letters Patent, is—

1. The combination of two levers, G and G′, arranged to operate in the manner substantially as and for the purposes set forth.

2. The combination of a spring, *e*, with two levers, G and G′, arranged to operate in the manner substantially as and for the purpose set forth.

3. The combination of two levers, G and G′, arranged to operate substantially as described, with a platform, A, hinged at its front side, for the purpose set forth.

4. The combination and arrangement, substantially as described, of two levers, G G′, with a valve-pitman, I, and a platform, A, hinged at its front side, so as to act on the ends of said levers which adjoin the pitman, for the purpose set forth.

5. The combination and arrangement, substantially as set forth, of levers G and G′ with a pitman, I, button *f*, or equivalent device, and a platform, A, hinged at its front side, so as to operate in the manner and for the purposes set forth.

6. The combination of a spring, *e*, and levers G and G′, arranged to operate substantially as described, with a pitman, I, and its button *f*, for the purposes set forth.

7. The combination of a spring, *e*, two levers, G and G′, and a platform, A, all arranged to operate in the manner substantially as described, with a pitman, I, and its tappet or button, *f*, for the purposes set forth.

8. The combination of the levers G and G′ with a platform, A, and actuating slide-bar E, the whole being arranged to operate in the manner substantially as described.

9. The combination of a spring, *e*, levers G and G′, with a platform, A, and actuating slide-bar, all being arranged to operate in the manner substantially as set forth.

10. The combination of two levers, G and G′, arranged to operate substantially as described, a platform, A, hinged at its front side, and its actuating slide-bar with a pitman, I, for the purposes set forth.

11. The combination of a spring, *e*, and levers G and G′, arranged to operate as described, with a pitman, I and a platform, A, hinged at its front side, and its actuating slide-bar E, for the purposes set forth.

12. In combination with levers G and G′, arranged to operate as described, the regulating-screw *c*, pitman I, slide-bar E, and platform A, hinged at its front side, for the purpose set forth.

13. The combination of a key, *k*, and its pitman I, with a stud or pin, *c*, and two levers, G G′, arranged to operate upon the pitman I of another key, as L, located an octave apart from the other, in the manner substantially as described.

14. In an octave or manual coupler for an organ, the combination of the following instrumentalities: A key, K, and its pitman, I; two levers, G G′, arranged to operate substantially as described; a stud, *c*, through which the latter are acted upon by the key; a spring, *e*, so arranged as to constantly tend to depress the lever G′ upon the tappet or button of its corresponding pitman; a frame or platform, A, hinged on its front side; an actuating slide-bar, E, arranged to operate platform A in such manner that the latter acts on the rear instead of the front end of lever G′; and lastly, a pitman, I, of a key, L, an octave apart from the former or actuating-key, K, substantially as set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

WILLIAM D. PARKER.

Witnesses:

G. W. INGALLS,

DAVID MANNING, Jr.