J. R. PARKER.

Organ Action.

No. 205,499. Patented July 2, 1878.

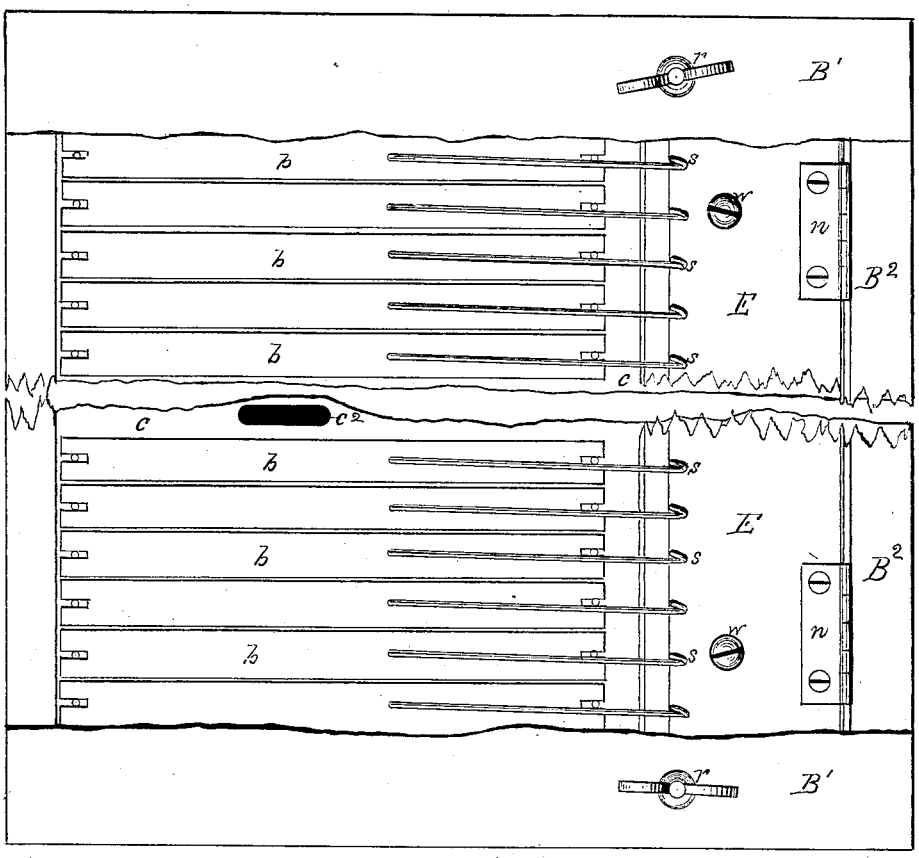

Fig. 1.

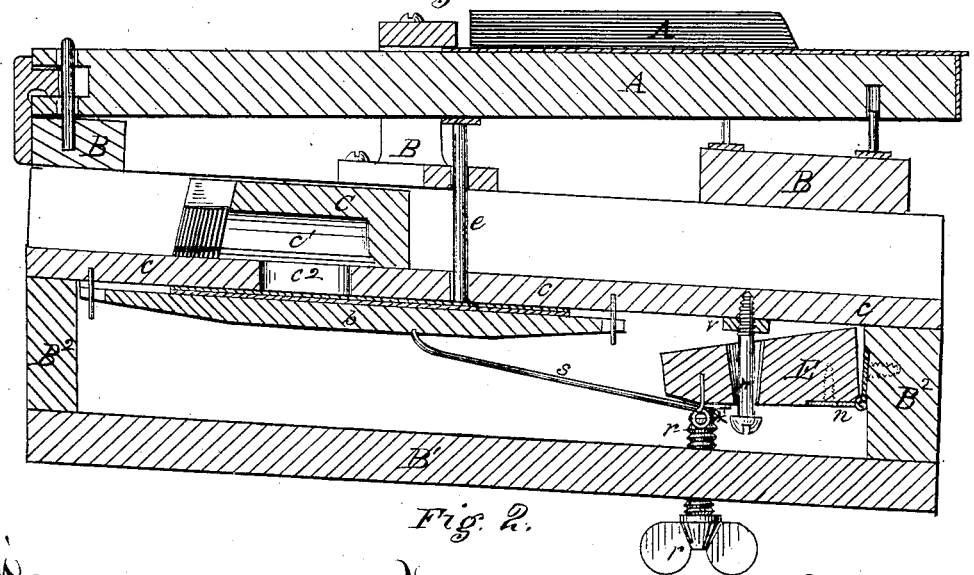

Fig. 2.

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UNITED STATES PATENT OFFICE.

JAMES R. PARKER, OF WAYNE TOWNSHIP, ASHTABULA COUNTY, OHIO.

IMPROVEMENT IN ORGAN-ACTIONS.

Specification forming part of Letters Patent No. **205,499**, dated July 2, 1878; application filed June 14, 1878.

To all whom it may concern:

Be it known that I, JAMES R. PARKER, of Wayne township, county of Ashtabula, State of Ohio, have invented or discovered a new and useful Improvement in Organ-Actions; and I do hereby declare the following to be a full, clear, concise, and exact description thereof, reference being had to the accompanying drawing, making a part of this specification, in which—like letters indicating like parts—

Figure 1 is a bottom-plan view of the two ends of an organ-action illustrative of my improvement, the bottom board of the sounding-box or valve-chamber being broken away in part, so as to expose the interior arrangement, and one of the valves being also removed; and Fig. 2 is a transverse sectional view of an organ-action and valve-chamber, also illustrative of the same improvement.

My improvement relates particularly to the arrangement of the springs which control the reed-valves of organs, melodeons, and other like musical instruments.

It is well known that in instruments of this class the "touch" or "heft" of the action, so called, depends wholly or largely upon the spring or springs which hold the reed-valves to their seats, since it is the power or resistance of these springs which must be overcome in pressing down the keys and opening the valves. As heretofore arranged, one end of these valve-springs has been set in a fixed bar, called a "spring-bar," in such way that the other end of the spring might bear on the proper valve with a fixed force or pressure. This spring-bar has been glued or permanently fixed to the under side of the reed or sounding board, either in front or back of the valves, and, when once placed, was immovable, and the pressure of the spring, when once set, could be changed only by permanently bending the spring, or by resetting it at a different angle or position.

The objections to this construction are that the touch or heft of the action, when once fixed, is practically unchangeable, except as the springs become weakened by use, which itself is an objection; also, in order to remove the valves from their seats in fitting or repairing, the spring which presses upon them must be turned sidewise off the valves, which loosens the setting of the spring in the spring-bar; also, the process of fitting the springs and valves is a tedious one, requiring great care to so set each spring as to secure a uniform and even action through the instrument.

The object of my invention is to overcome these difficulties, and also secure other important advantages never before attained in instruments of this class.

In the drawing, A represents the keys of an ordinary reed-organ, which keys are adjusted on the key-frame B in the usual or any suitable way. C is the reed-board, of ordinary construction, and *c* the upper sounding-board, to which the reed-board is glued. The reeds, which may be of any suitable construction, may be secured in the reed-cells c^1 in the usual way. An air port or passage, c^2, leads from the reed-cells, or from each of them, through the board *c* to the valve-chamber or air-chest below. These ports or passages are covered by valves *b*, of the usual construction, and tracker or push pins *e* lead from the keys to the valves, so that, upon pressing down the keys, the valves will be forced from their seats and their respective air-passages c^2 opened.

The valve-chamber is constructed, in the usual way, of bottom board B^1 and side walls B^2, covered by the board *c*. The usual or any suitable bellows device may be connected with this valve-chamber, for creating a current of air through the reeds when the valves *b* are opened.

The parts thus far mentioned may be constructed in any known or suitable way, and arranged as suits the builder, and, as their functions are well known, they need not be particularly described.

Instead of a spring-bar immovably fixed to some part of the valve-chamber, I employ a movable hinged or adjustable bar, E, which is jointed, by a hinge, *n*, or other suitable joint-connection, to the side wall B^2 of the valve-chamber, the side walls being attached to the board *c*, so as to be removable with it; or the joint-connection may be to the board *c* direct. If hinges are employed, a sufficient number should be used to give the requisite strength, and the spring-bar employed should be of proper size to secure stiffness and strength.

This movable feature of the spring-bar may, however, be secured in other ways than by a hinged joint-connection—as, for example, it may be arranged in guides which will admit of the proper motion; or it may be jointed in other known or suitable ways and to other parts of the valve-chamber, as in the rear instead of in front of the valves; and all such modifications I consider as coming within my improvement and invention, the essential feature being that the bar E, in which the valve-springs *s* are set, may be adjustable or movable, so that the pressure of these springs upon the valves *b* may be varied by the adjustment of the bar. I prefer a hinged connection, however, as shown, for convenience both in construction and in making repairs.

The springs *s* may be of any desired form, and one end is set in the bar E in the usual way, so that when the bar is put in place the other end may rest upon the proper valve at the desired point. When the valve-springs are set as shown in the drawing, a small hole is pierced in the bar in the proper position and direction, and the end of the spring is forced into such hole. In the old construction this setting must be done after the spring-bar is glued in place, when the springs must all be set under tension to secure the desired pressure upon the valves; and it is a matter of considerable difficulty, and calling for no little skill, to determine the proper setting of the springs in this way, while in my improvement the springs may all be set before the bar is hinged or jointed in place, and with the springs free from tension, so that the utmost uniformity may be secured in their setting, as well as convenience and expedition; and when the bar is then put in position and adjusted a uniform and even pressure will be secured through the instrument so far as the setting of the springs can effect the same, and thus an even touch secured. Also, by adjusting the bar E the desired degree of pressure upon the valves may be secured far more readily than when such pressure is determined solely by the angle at which the springs are set in the bar. Also, when it is desired to remove the valves, the springs may all be lifted from them at once by freeing the bar and turning it back on its hinges or joint. These advantages, as secured by my improvement, are of special utility to the manufacturer.

Any suitable device, as screws or blocks, may be employed for retaining the bar E in the desired position of adjustment when once fixed by the maker, these parts being inclosed within the valve-chamber; but by adding an adjusting device, which extends outside the valve-chamber, I bring this adjustable feature within the direction of the user or operator, so that by varying the position of the spring-bar he may vary the touch or heft of the action as he may desire. This is especially desirable in instruments to be used by children as well as adults.

I have shown in the drawings set-screws *r*, which work through the bottom board B′ of the valve-chamber, and press against the under side of the bar E, thus holding it to its position; and a sufficient number should be employed, depending upon the size of the instrument, to hold the bar firmly. The opening for these screws through the board B^1 may be packed in any suitable way to prevent leaking.

When arranged as shown, these adjusting-screws *r* will be of easy access, as they will range along the under side of the valve-chamber in front or outside of the lower case, and on either side of the position usually given the knee-swell, and by turning these screws the operator or user can make the desired change in the pressure of the valve-springs *s*. Other adjusting devices may be employed, however, as, for example, sliding wedges, eccentrics, or a combination of levers, operated either by screws or stops; and they may be made accessible from other parts of the instrument; but such changes I include within my invention. In this adjustment it is sufficient to provide for moving the bar in one direction, since the force or power of the springs *s* will move it in the opposite direction when opportunity is given.

I prefer to employ the adjusting-screws described, both for simplicity and convenience. I also prefer to limit the range of adjustment of the spring-bar, so as to prevent either a too heavy or too light pressure upon the valves, which might otherwise be caused by unskilled adjustment of the bar E.

In order to prevent too heavy pressure, the screws *r* may be limited to the proper length, or the bar E may be so shaped as to leave a limited space in which it can move in that direction before coming against blocks or stops *v*, or some fixed part of the chamber, as the board *c* or side B^2; and in order to prevent too light pressure, and also to prevent the springs from letting up entirely, so that the valves may be held in place with some pressure when the board *c* and action proper is removed, I employ screws *w*, or equivalent stop devices. These screws pass, by preference, through the bar E and into the board *c*, or some part connected with that board, so that, the face of the bar coming against the heads of the stop-screws *w*, the further motion of the bar will be arrested, and further unscrewing of the adjusting-screws *r* can do no harm.

Other stop devices may be used to effect these results; but I prefer to attach them to the board *c*, either directly, as shown, or indirectly, so that when the action is removed from the valve-chamber for any cause the springs may be held upon the valves with some pressure. Thus such stops will be useful both to the manufacturer and user.

If desired, metal or other hard plates *x* may be secured to the under side of the spring-bar, against which the screws *r* work.

I claim herein as my invention—

1. In a musical instrument, the combina-

tion of reed-valves, valve-springs, and an adjustable or movable spring-bar, arranged substantially as described, whereby the pressure of the springs upon the valves may be varied by the adjustment of the spring-bar.

2. The combination of reed-valves, valve-springs, and an adjustable spring-bar, arranged inside the valve-chamber, and an adjusting device extending outside such chamber, substantially as set forth, whereby the pressure of the springs upon the valves may be varied at the will of the user or operator.

3. The combination of an adjustable or movable spring-bar and one or more stop devices, substantially as set forth, whereby the range of motion of the spring-bar is limited.

4. The combination, in a musical instrument, of keys, tracker or push pins, reed-valves, valve-springs, an adjustable or movable spring-bar, an adjusting device to operate the bar, and a stop device or devices to limit the range of adjustment of the bar, substantially as and for the purposes set forth.

In testimony whereof I have hereunto set my hand.

JAMES R. PARKER.

Witnesses:
J. J. McCORMICK,
CLAUDIUS L. PARKER.