

portion of this arm is a lever 35 having a lower end 35a of reduced diameter, which extends through the recess 20 in the lever 19. Extending downwardly from the arm 34, in spaced relation to and parallel with the lever 35 is a second lever 36, which is somewhat longer than the lever 35, and has a lower end 36a of reduced diameter.

A wire spring 37, having its lower end secured to the post 17, bears at its upper end against a projecting ear 38 on the key 32, and acts to move the latter to open position, in a manner to be presently described.

The lower end 36a of the lever 36 lies in contact with a lever 39, which extends from a sleeve 40, which is mounted for rocking movement about a shaft 41, the upper end of which is rigidly secured in a bracket or post 42, and which passes through a bracket or post 43, below the post 42. The sleeve 40 is interposed between the posts 42 and 43.

Extending from the sleeve 40, adjacent the lower end of the latter, is an arm 44, the outer end of which is rigidly secured to a lever 45, which is rockable about the shaft 41 by means of a finger-piece 46 which extends from the lever 45. The lever 45, and consequently the finger-piece 46, are normally maintained in the position shown in Figs. 1, 2, 6 and 7, by means of a wire spring (not shown) which is similar to the spring 29.

When it is desired to open the octave key 5, the thumb-piece 28 is depressed against the action of the spring 29, causing the arm 24 to be rocked in a clockwise direction, as viewed in Fig. 5, about the shaft 25a. This causes the sleeve 21 to move away from the pipe 2, and causes the upper end of the lever 19, as viewed in Fig. 5, to be moved away from the pipe 2, the lever 19 being, at the same time, swung in a counterclockwise direction about the shaft 21 due to the fact that the lower end of the lever 19 is maintained against such swinging movement by the presence of the end 35a of the lever 35 in the recess 20 of the lever 19. The lever 19, in fact, swings about two pivotal points, one represented by the shaft 21, and the other by the end 35a of the lever 35.

As the lever 19 is thus swung away from the pipe 2, the lever 11 is also swung away from the pipe 2, the pivotal movement being about the shaft 15, so that the upper end of the lever 11 engages the element 10, causing the octave key 5 to be swung about its pivot 6, opening the valve 3. This movement of the key 5 is against the tension of the spring 7.

Due to the fact that the ends 11a and 35a of the respective levers 11 and 35 are free to slide in the recesses or slots, the opening of the octave key 5 is effected in a smooth, rapid manner, providing an extremely light action which is necessary for fast execution in the playing of the saxophone.

When it is desired to open the octave key 32, while the thumb-piece 28 is depressed, the finger-button 46 is depressed, causing the lever 39 to be rocked about the shaft 41, in a counterclockwise direction, as viewed in Figs. 4, 5 and 6, and away from the lever 36; permitting the spring 37 to swing the key 32 to open position. At the same time, the lever 11 is swung inwardly toward the main pipe 2, permitting the spring 7 to move the octave key 5 to closed position.

The octave key operating mechanism which has been described, is especially advantageous in that it insures positive closing and opening of the

octave keys, and eliminates any and all possibilities of a break in tone when the two octave keys function automatically in changing from one register to the other.

The mechanism is extremely simple in construction and eliminates the need for the large number of parts, found in existing instruments. This simplification of the octave key operating mechanism enables the mechanism to function properly and effectively over long periods, reduces repairs to a minimum, and enables repairs and adjustments, when necessary, to be made quickly and easily.

It is to be understood that the form of my invention, herewith shown and described, is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of my invention, or the scope of the subjoined claims.

Having thus described my invention, I claim:

1. In a musical instrument of the character described, an octave key, a second octave key, means for opening said first octave key, said means comprising a lever movable about a fixed axis, a second lever, means communicating the movement of the second lever to the first lever, said last-named means comprising a third lever having recesses in its opposite ends, said first lever extending through one of said recesses, said second octave key being movable about said fixed axis and having a post extending therefrom disposed in the other of said recesses.

2. A musical instrument, as defined in claim 1, in which said post constitutes a fulcrum about which said third lever pivots upon movement of the second lever.

3. A musical instrument, as defined in claim 1, including spring means for moving the second octave key to open position, and means for releasing said second octave key for opening movement by said spring means, after said first lever has been actuated.

4. In a musical instrument of the character described, means for effecting sequential operation of two octave keys, said means comprising parallel spaced levers, a fixed shaft common to said levers, said levers being adapted to rock about said shaft, means connecting one of said levers to one of said octave keys, means connecting the other of said levers to the other of said octave keys, spring means normally maintaining said levers in closed position, a pivot arm common to both of said levers and engaging one end of each of said levers, means for causing rocking movement of said pivot arm, means for shifting the fulcrum of said pivot arm from the axis of one lever to the axis of the other, spring means normally maintaining one octave key in the closed position, and spring means normally urging the other octave key to the open position, whereby movement of said rocking means is adapted to cause movement of one or the other of said levers in cooperating with said shifting means and, similarly, movement of said shifting means is adapted to cause alternate movement of both of said levers in cooperation with said rocking means.

5. In a musical instrument of the character described, an octave key, a second octave key, means for opening said first octave key, said means comprising a lever movable about a fixed axis, a second lever and means for operating the same, means connecting the movement of the second lever to the first lever, said last named