M. L. SEVERY & G. B. SINCLAIR.

SOSTENUTO DEVICE FOR MUSICAL INSTRUMENTS.

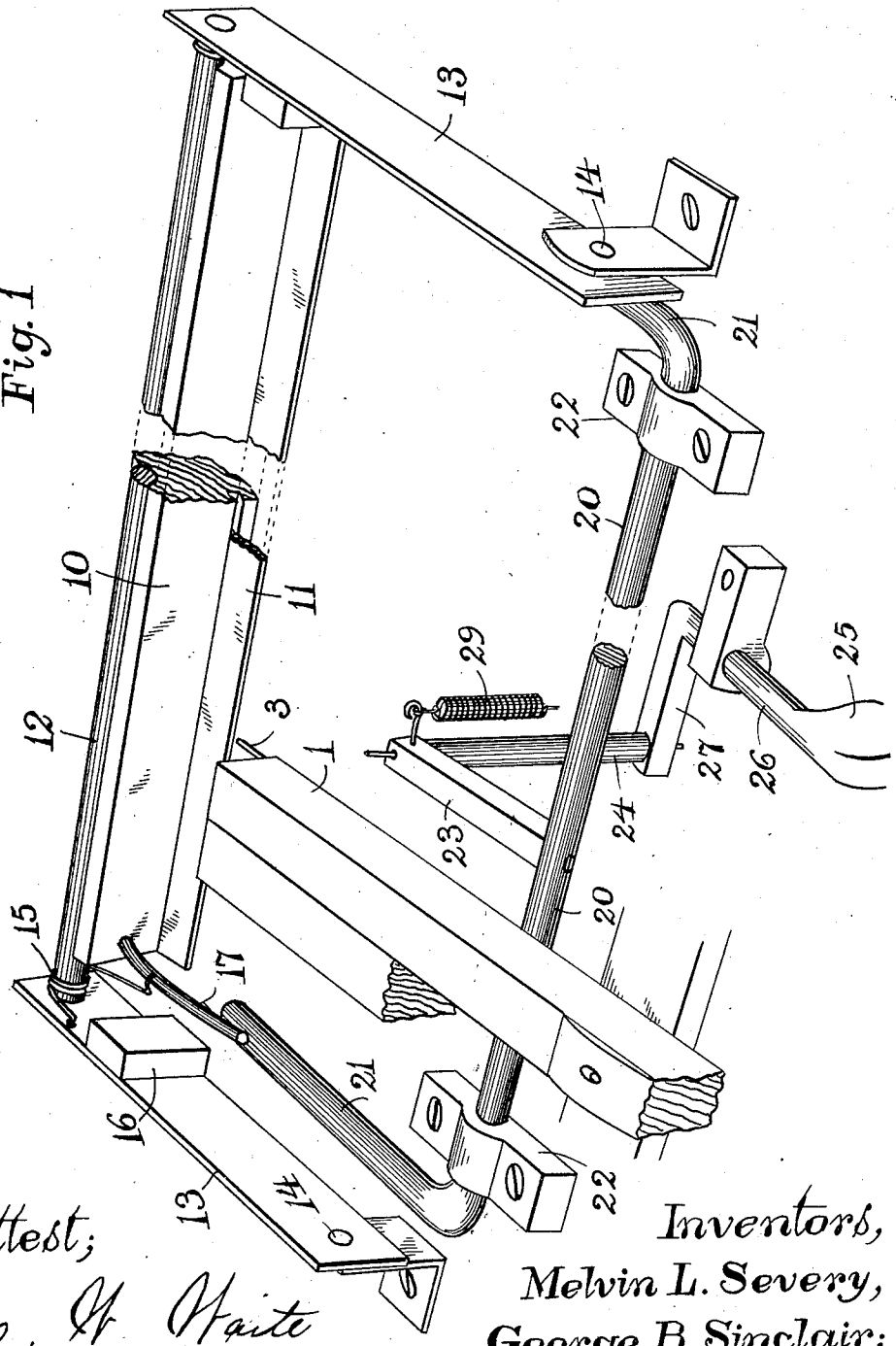
APPLICATION FILED MAY 3, 1907.

1,068,010.

Patented July 22, 1913.

3 SHEETS—SHEET 1.

Fig. 1



Attest;

E. H. Waite

L. P. Winship.

Inventors,

Melvin L. Severy,

George B. Sinclair;

A. B. Upham.

Attorney.

M. L. SEVERY & G. B. SINCLAIR.

SOSTENUTO DEVICE FOR MUSICAL INSTRUMENTS.

APPLICATION FILED MAY 3, 1907.

1,068,010.

Patented July 22, 1913.

3 SHEETS—SHEET 2.

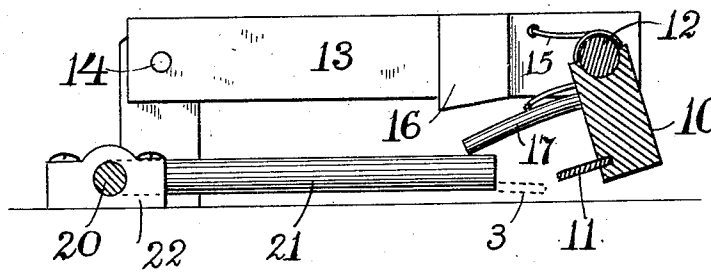


Fig. 2

Fig. 3

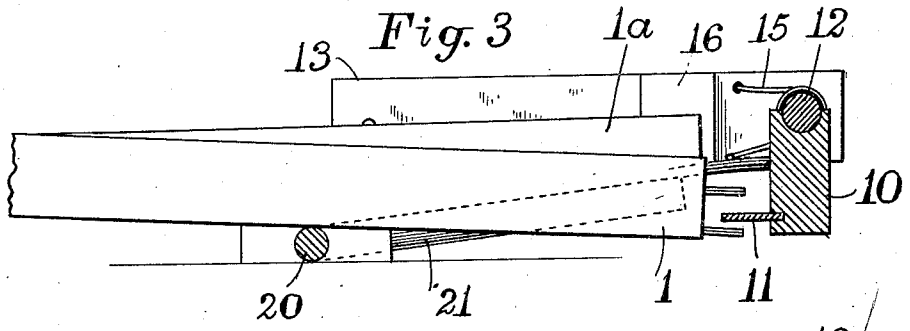


Fig. 4

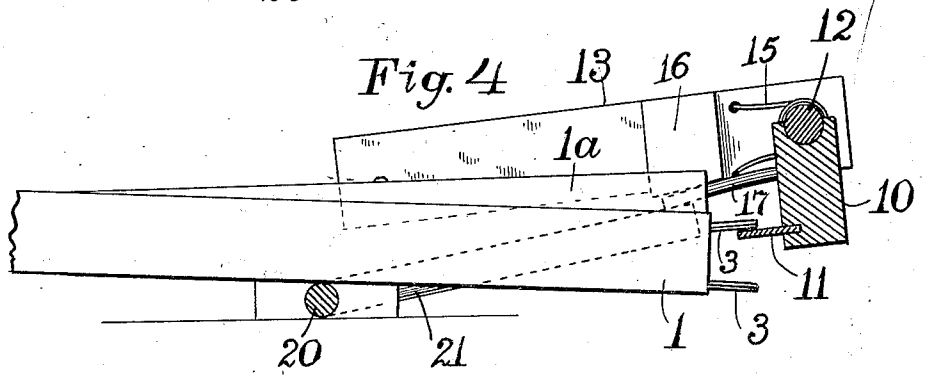


Fig. 5

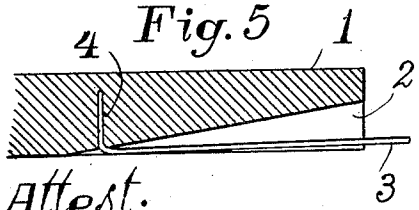
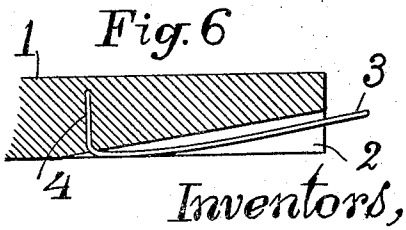


Fig. 6



Attest;

L. P. Winship.

E. H. Waite

Inventors,

Melvin L. Severy,

George B. Sinclair;

A. B. Upham,

Attorney.

M. L. SEVERY & G. B. SINCLAIR.

SOSTENUTO DEVICE FOR MUSICAL INSTRUMENTS.

APPLICATION FILED MAY 3, 1907.

1,068,010.

Patented July 22, 1913.

3 SHEETS—SHEET 3.

Fig. 7.

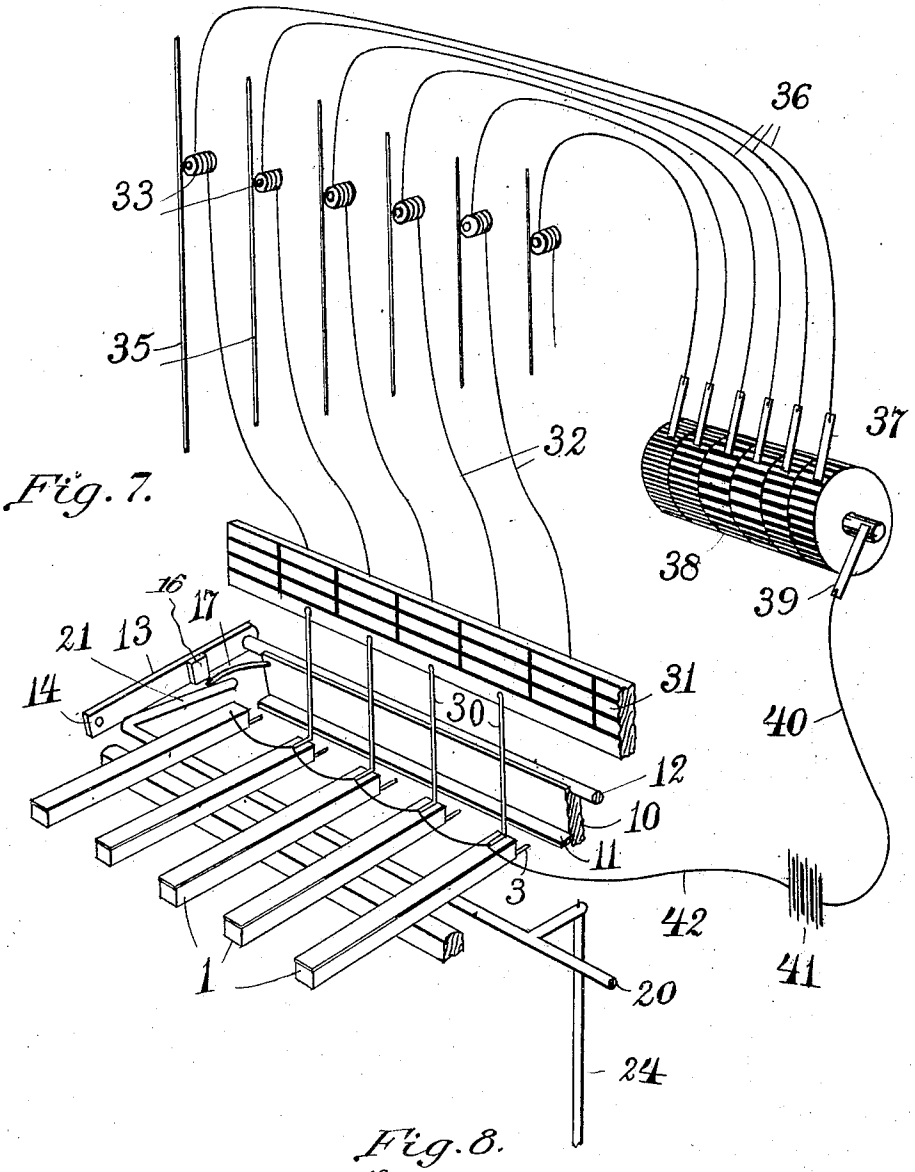
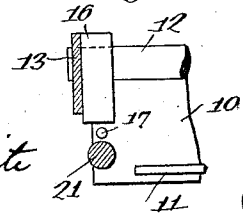


Fig. 8.



Attest;

E. H. Hart

J. E. Rummells

Inventors,

Melvin L. Severy,

George B. Sinclair;

By A. B. Upham,

Their Attorney.

UNITED STATES PATENT OFFICE.

MELVIN L. SEVERY, OF ARLINGTON HEIGHTS, AND GEORGE B. SINCLAIR, OF WINTHROP, MASSACHUSETTS.

SOSTENUTO DEVICE FOR MUSICAL INSTRUMENTS.

1,068,010. Specification of Letters Patent. Patented July 22, 1913.

Application filed May 3, 1907. Serial No. 371,764.

To all whom it may concern:

Be it known that we, MELVIN L. SEVERY, of Arlington Heights, in the county of Middlesex and State of Massachusetts, and GEORGE B. SINCLAIR, of Winthrop, in the county of Suffolk, in said State, have invented certain new and useful Improvements in Sostenuto Devices for Musical Instruments, of which the following is a full, clear, and exact description.

The object of this invention is the construction of an improved mechanical device for enabling any one or more actuated strings of a piano or similar instrument to remain sounding so long as desired, without interfering with the playing of the remainder of the instrument.

Referring to the drawings forming part of this specification, Figure 1 is a perspective view, more or less broken away, showing the mechanism embodying our invention. Fig. 2 is a transverse sectional view of the same in its position of rest. Fig. 3 is a similar view, with a portion of the keys in place, showing the same in the first step of its operation. Fig. 4 is a view of the same in its second step. Fig. 5 is a longitudinal section of the rear portion of a key showing the resilient finger in its normal position. Fig. 6 is a similar view but showing said finger pressed upward. Fig. 7 is a diagram of our musical instrument complete. Fig. 8 is a cross section of an arm forming part of th sostenuto device and of certain related members.

Each piano key 1 has its inner or rear end slotted longitudinally, as shown at 2 in Fig. 5, and in each slot is fixed a resilient finger 3 held in place by an elbow-bend 4 driven up into the key. The normal position of this finger is substantially level with the under surface of the key, as shown in Fig. 5, but it can readily be raised to the position shown in Fig. 6, springing back by its own resilience when allowed so to do.

Behind the rear ends of the keys 1 is located a bar 10 swinging on or with a rod 12 along its upper edge, and having a thin lip 11 fixed to its lower edge and projecting toward the key-ends. One or wo springs 15 hold this bar swung back far enough to bring its lip 11 out of reach of the fingers 3.

The design is to first depress such keys as it is desired to have continue sounding, thereby elevating their inner ends,—then swing the bar 10 forward to bring its lip in beneath the fingers 3 of such keys, and then to raise said bar in order to bring its lip out of possible contact with the fingers of the other keys, while at the same time thereby holding the first-mentioned keys in their depressed positions. To do this, the rod 12 is terminally supported by the arms 13 pivotally held at 14, and each having a block 16 fixed to its inner face.

Bent at right angles to the rock-shaft 20 are the elbows 21 having their free ends close beneath the extremities of the fingers 17 and also beneath the blocks 16; said rock-shaft being operated by means of the knee-lever 25 acting through its shaft 26, arm 27, connection 24 and the lever arm 23 rigid with the rock-shaft; a spring 29 insuring the return of said parts to their normal position, and preventing too free actuation. By giving a left-hand pressure against the knee-lever 25, the elbows 21 first raise the fingers 17 thereby swinging the bar 10 forward and bringing the lip 11 into the field of engagement of the resilient fingers 3. Then, as the knee pressure continues, the rising elbows 21 acting either directly against the blocks 16 or against the fingers 17 which are shown in some of the figures as coming between said parts, elevate the latter and the arms 13, thereby raising the bar 10 and its lip 11. Hence, all the keys which had been depressed just before the actuation of the knee lever 25, have their resilient fingers 3 engaged and elevated by the lip 11; thereby holding depressed all such keys so long as said knee lever is retained in its operated position. As shown in Fig. 4, the other keys are in no way interfered with, as there is ample room for the inner key-ends to rise without their resilient fingers striking the under surface of the lip 11.

By permitting the knee-lever 25 to return partially to its normal position, sufficient to allow the bar 10 to descend to its lowermost point, but not enough to swing backward, the same strings can be again sounded by another left-hand thrust against the knee-lever and a consequent actuating movement of the

controlled keys; and the same movement repeated and the strings sounded as many times as desired.

Where the sostenuto is used in instruments where the loudness of the tone depends upon the degree of depression of the keys, as in the electric musical instrument set forth in our companion application Serial No. 273,199, it will be seen that the performer may control at will the loudness of the notes held by the sostenuto; swelling or diminishing them as the musical expression may demand.

A very little practice enables the performer to accurately determine the point between the descent of the bar and its rearward swing, and so gives him practically a pedal-operated sub-bass.

As shown in Fig. 7, the depression of a key 1 brings its brush 30 into touch with the contacts of the rheostat board 31, and so closes the circuit from the source of current 41, through the wire 42, brush 30, rheostat contact 31, wire 32, electromagnet 33, wire 36, brush 37, make-and-break disk 38, brush 39, and wire 40 back to the source of current 41.

What we claim as our invention and for which we desire Letters Patent is as follows, to wit:—

1. In a key-operated musical instrument, the combination of keys and a sostenuto device comprising projections extending longitudinally from said keys and operatively connected therewith, a movable member, and means under the control of the player for moving said movable member into engagement with certain of said projections and also for raising and lowering it while maintaining such engagement, whereby the keys connected with said engaged projections are operated each time said member is raised and lowered.

2. In a key-operated musical instrument, the combination of keys and a sostenuto device comprising projections extending longitudinally from said keys and operatively connected therewith, a movable member, and means under the control of the player for moving said movable member into engagement with certain of said projections and also for raising it, together with the keys operated thereby, with degrees of energy controllable at will.

3. In a key-operated musical instrument, the combination of keys and a sostenuto device comprising engaging means carried by said keys and individual thereto, a movable member, and means for moving said movable member into engagement with said engaging means and also for raising it to heights under the control of the player.

4. In a key-operated musical instrument, the combination of keys and a sostenuto device comprising means for holding said keys when depressed, said means being controllable by the operator to repeatedly operate such depressed keys.

5. The combination with a key-operated musical instrument, of a sostenuto device movable at will into control of depressed keys, and means for raising and lowering said device at will while remaining in control of such depressed keys, and thereby repeatedly depressing the latter.

6. The combination with a key-operated musical instrument, of a sostenuto device movable at will into control of depressed keys, and means for moving, raising and lowering said device at will; said means embracing a movable member under the control of the operator whereby such engaged keys can be repeatedly operated, while the player is actuating other keys.

7. The combination with a key-operated musical instrument, of a projection on each key, a device adapted to be put into engagement with the projections of the keys which are depressed, and means operative at will for raising and lowering said device and thereby causing the last-named keys to repeatedly operate the portion of the instrument controlled by them.

8. The combination with a key-operated musical instrument, of a resilient projection longitudinally extended from the inner end of each key, and a member adapted to be moved into engagement with the projections of any depressed keys, and then to be raised for the purpose set forth.

9. The combination with a key-operated musical instrument the inner end of each of whose keys is formed with a vertical longitudinally extended slot, a resiliently flexible finger projecting longitudinally from each slot, a member having a lip, and means for causing said lip to be swung forward beneath the fingers of any depressed keys and then to be raised for the purpose of moving such fingers upward and with them the keys connected therewith.

10. The combination with a key-operated musical instrument, of a resilient projection longitudinally extended from the inner end of each key, a pair of pivoted arms substantially parallel with the keys, a bar supported at the free ends of said arms, a lip at the lower edge of said bar adapted to come above said projections when swung forward and when the keys are in their normal positions, and means for swinging said arms upward.

11. The combination with a key-operated musical instrument, of a pair of pivoted arms substantially parallel with said keys, a rod joining the free ends of said arms, a bar having its upper edge held by said rod to permit its lower edge to swing concentric with said rod, members projecting from said keys, a lip carried by the lower edge of said

bar, resilient means between said arms and bar normally holding said lip out of the path of said members, projections rigid with said bar, a rock shaft having lever arms engaging said projections, and a pedal and connections for operating said rock-shaft.

In testimony that we claim the foregoing invention, we have hereunto set our hands this 24th day of Dec., 1906.

MELVIN L. SEVERY.
GEORGE B. SINCLAIR.

Witnesses:
WILBER E. FARRINGTON,
A. B. UPHAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."