July 31, 1923.

F. T. INGERSOLL

1,463,509

FOOT OPERATED MUSICAL INSTRUMENT

Filed Nov. 15, 1921

2 Sheets-Sheet 1

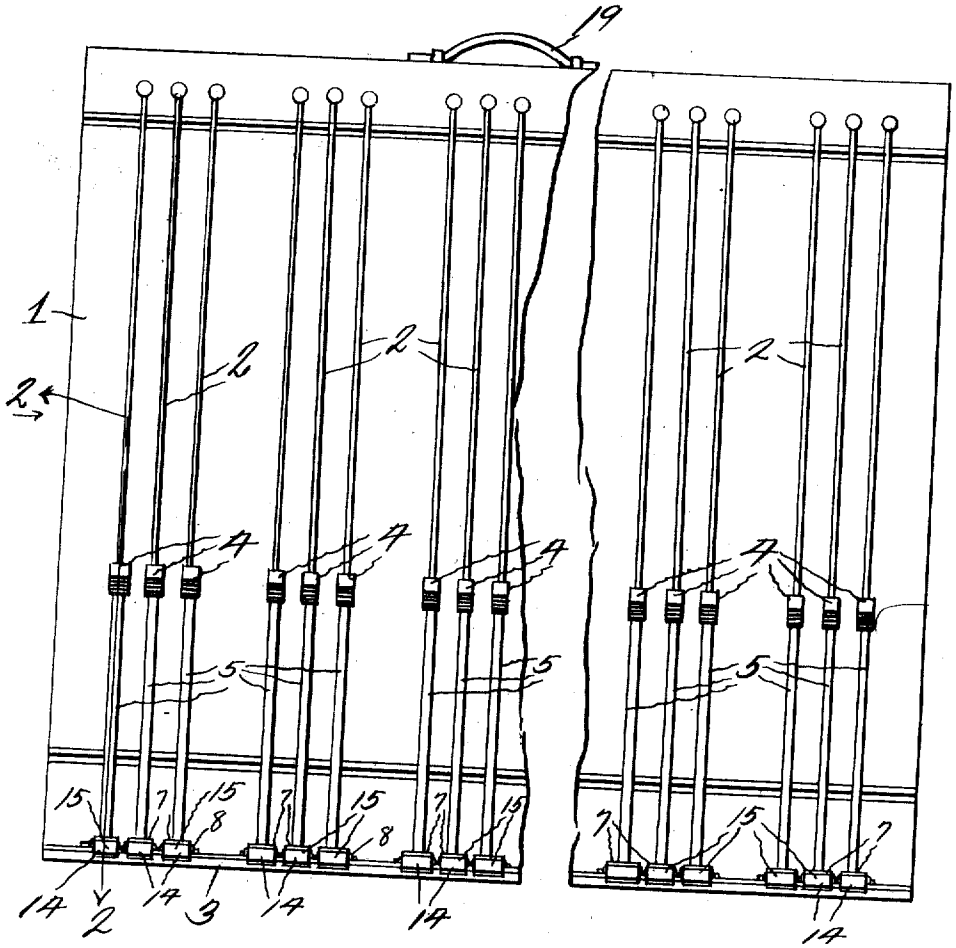


Fig. 1.

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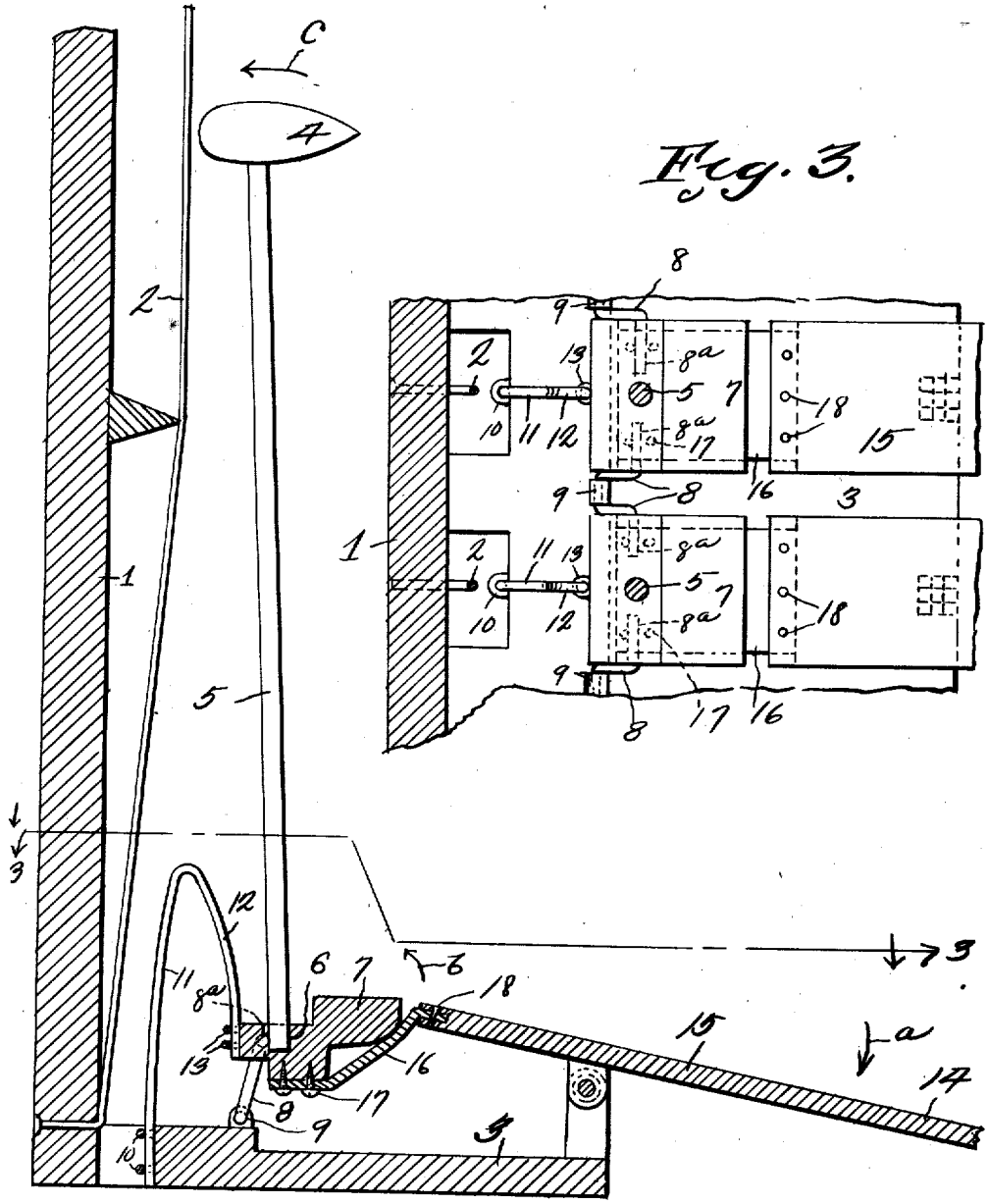


Fig. 2.

Fig. 3.

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UNITED STATES PATENT OFFICE.

FREDERICK T. INGERSOLL, OF OMAHA, NEBRASKA.

FOOT-OPERATED MUSICAL INSTRUMENT.

Application filed November 15, 1921. Serial No. 515,213.

To all whom it may concern:

Be it known that FREDERICK T. INGERSOLL, citizen of the United States, residing at Omaha, in the county of Douglas and State of Nebraska, has invented certain new and useful Improvements in Foot-Operated Musical Instruments, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to musical instruments and has for its object to provide a stringed instrument adapted to be operated by the foot of the player and particularly adapted for use in orchestras and the like, for instance by a drummer.

A further object is to provide a foot operated key mechanism for a string instrument, said string instrument having its strings substantially vertically disposed, said key comprising a vertically disposed hammer carrying shaft in the same vertical plane as the string, the lower end of the shaft being disposed in a counterweight, which is rockably mounted on a pivoted bracket. Also to provide a bowed spring for normally forcing the counterweight outwardly and holding the hammer of the hammer shaft out of engagement with the string, said counterweight being movable against the action of the spring by means of a rockable pedal having a flexible connection with the underface of the counterweight.

With the above and other objects in view the invention resides in the combination and arrangement of parts as hereinafter set forth, shown in the drawings, described and claimed, it being understood that changes in the precise embodiment of the invention may be made within the scope of what is claimed without departing from the spirit of the invention.

In the drawings:—

Figure 1 is a front elevation of the musical instrument.

Figure 2 is a vertical sectional view through the musical instrument taken on line 2—2 of Figure 1.

Figure 3 is a horizontal sectional view looking down on adjacent counterweights and pedals and taken on line 3—3 of Figure 2.

Referring to the drawings the numeral 1 designates a vertically disposed sound board over which vertically disposed piano wires 2 are stretched. The piano wires 2 are spaced from the inner side of the sounding board and are adapted to be vibrated when playing the instrument, for instance by a drummer. The sounding board 1 is supported on a base 3 which rests upon the floor and not only supporting means for the sounding board 1 but also for the key actuating mechanism. The key actuating mechanism comprises a plurality of hammers 4 located adjacent the wires 2. Each hammer 4 is supported on a staff 5 spaced from the wire 2 and its lower end is secured in a socket 6 of the counterweight 7. The counterweight 7 is supported on and secured to downwardly extending arms 8, the lower ends of which are rockably mounted in bearings 9 carried by the base 3. Secured to the base 3 as at 10 at a point between the counterweight 7 and the sounding board 1 is an upwardly and outwardly and downwardly extending bowed leaf spring 11, the arm 12 of which is secured at 13 to the rear end of the counterweight 7. The spring 11 in conjunction with the counterweight 7 holds the hammer 4 out of engagement with the string 2, and also holds the foot engaging end 14 of the rockable foot pedal 15 in upper position as shown in Figure 2 through the medium of the flexible connection 16, one end of which is secured at 17 to the under face of the counterweight 7, and the other end at 18 to the inner end of the rockable pedal 15. It will be seen that when the operator presses downwardly in the direction of the arrow *a* on the end 14 of the rockable pedal 15 that the counterweight 7 will be forced upwardly in the direction of the arrow *b* against the action of the spring 11, thereby forcing the hammer 4 inwardly in the direction of the arrow *c* and into engagement with the cord 2. The upper ends of the arms 8 are pivotally connected at 8^a to the counterweight 7, therefore it will be seen that the counterweight has a pivotal action which allows rotation within limits of the spring 11 and consequently allows a stroke of uniform power to be applied. The counterweight 7 and the spring after each operation returns the mechanism to normal position.

From the above it will be seen that a foot operated musical instrument is provided, which is simple in construction and one particularly adapted for use by drummers and the like. It will also be seen that the parts forming the key mechanism are reduced to a minimum thereby allowing the device to be cheaply constructed. When transporting

the device from place to place the operator grasps the handle 19.

The invention having been set forth what is claimed as new and useful is:—

A foot operated key mechanism for sounding the vertically disposed string carried by a sounding board and a base, said key mechanism comprising a counterweight, said counterweight being pivotally mounted on an upwardly extending pivoted U-shaped member, a U-shaped spring upwardly bowed and having one of its vertically disposed arms anchored to the inner face of the counterweight adjacent the pivotal point thereof and its other arm anchored to the base below the pivotal point, a staff extending upwardly from the counterweight, a hammer carried by the upper end of said staff, a pivoted foot actuated lever disposed forwardly of the counterweight and pivoted at a point spaced from its ends, the inner end of said pivoted foot actuated lever terminating in substantially the same horizontal plane as the pivotal point of the counterweight, a flexible connection with the under side of the counterweight and the inner end of the foot lever, said flexible connection engaging the outer end of the counterweight intermediate the ends of the flexible connection.

In testimony whereof I hereunto affix my signature.

FREDERICK T. INGERSOLL.