



# UNITED STATES PATENT OFFICE.

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KEY-LOCKING MECHANISM FOR AUTOMATIC MUSICAL INSTRUMENTS.

No. 841,114.

Specification of Letters Patent.

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*To all whom it may concern.*

Be it known that I, THEODORE P. BROWN, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Key-Locking Mechanism for Automatic Musical Instruments, of which the following is a specification.

This invention relates to that class of automatic musical instruments which are played by air tension.

The especial object of this invention is to provide a simple and direct pneumatically-operated means for locking the keys of an automatic musical instrument while the instrument is being played mechanically.

To this end this invention consists of the pneumatic key-locking mechanism and the combinations of parts therewith, as herein-after described, and more particularly pointed out in the claims at the end of this specification.

In the accompanying drawings, Figure 1 is a perspective view, partly in section, of sufficient parts of an automatic piano or similar instrument to illustrate the application of this invention thereto; and Fig. 2 is a fragmentary view of the lock-bar and part of a key-lever.

In the use of an automatic musical instrument—such, for example, as an automatic piano which is adapted to be played either mechanically or from a keyboard—it is desirable to hold the keys stationary during mechanical playing. In an instrument equipped according to this invention I have accomplished this purpose by a pneumatic key-lock, which automatically engages and holds the keys whenever the bellows or other wind-inducing apparatus is operated to produce air tension.

Referring to the accompanying drawings and in detail, W designates the wind-chest or one of the storage-chambers from which air is exhausted by any ordinary pumping apparatus or in which tension may be obtained in the usual or ordinary manner. Extending down from the wind-chest W is a pipe 11, which connects to the base part of an operating-pneumatic 12. The operating-pneumatic 12 is normally expanded in the ordinary way. The movable section of the pneumatic 12, which is drawn down when the pneumatic is connected to air tension, is provided with an upwardly-extending rod 13.

The pneumatic 12 is located substantially under one side of the keyboard of the instrument. Extending from the base part of the pneumatic 12 is a pipe 14, which connects to the base part of a second pneumatic 15 at the opposite side of the instrument. The pneumatic 15 is of the same construction as the pneumatic 12, and the movable section of the pneumatic 15 is connected to an upwardly-extending operating-rod 16. The operating-rods 13 and 16 are connected at their upper ends to a transverse locking-bar 17, which is arranged over the ends of the key-levers K and is provided with a bottom layer of felt 18. Owing to the location of the pneumatics 12 and 15 in substantially vertical alinement with the keyboard, these connections are direct and very simple.

By means of this construction when the parts are in normal condition the locking-bar 17 will be raised, as illustrated in Fig. 1, so that the key-levers K can be played by hand. Whenever air tension is generated to play the instrument automatically, the pneumatics will be collapsed to hold the lock-bar down in the position illustrated in Fig. 2, locking the keys K and holding the same from moving so long as the air-pressure is maintained.

I am aware that numerous changes may be made in applying my invention to different types of automatic musical instruments within the scope of my claims, and I do not wish, therefore, to be limited to the particular construction I have herein shown and described; but

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In an automatic musical instrument, the combination with the keys, of a lock-bar for engaging the keys, a pneumatic having its moving member substantially in vertical alinement with the lock-bar, and a vertical rod directly connected with the bar and with the movable member of the pneumatic.

2. In an automatic musical instrument, the combination with the keys, of a lock-bar above the keys for engaging them, a pneumatic having the free end of its movable member located directly below said bar, and a vertical rod directly connected with the bar and with the free end of the movable member of the pneumatic.

3. In an automatic musical instrument, the combination with the keys, of a lock-bar

for engaging the keys, a rod rigidly connect-  
ed with the lock-bar, the bar and rod being  
movable in a direction parallel to the length  
of the rod, and a pneumatic, the free end of  
5 the movable end of which is connected with  
the end of said rod for operating it.

In testimony whereof I have hereunto set

my hand in the presence of two subscribing  
witnesses.

**THEODORE P. BROWN.**

Witnesses:

PHILIP W. SOUTHGATE,  
MARY E. REGAN.