W. C. STEPHENSON.

LOCKING DEVICE FOR AUTOMATIC PLAYER PIANOS.

APPLICATION FILED AUG. 28, 1911.

1,071,366. Patented Aug. 26, 1913.

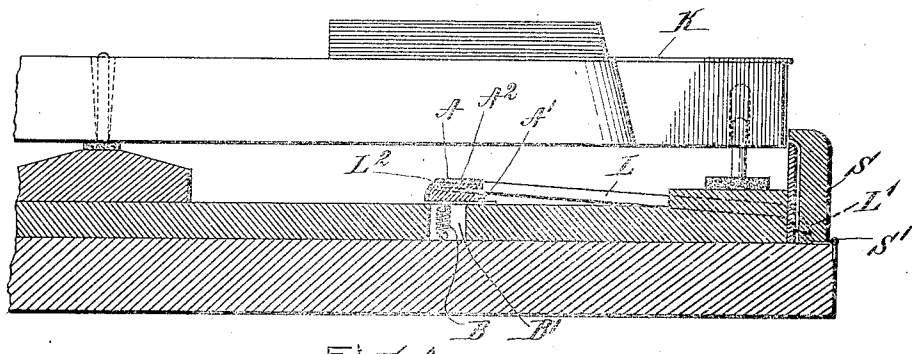

Fig. 1.

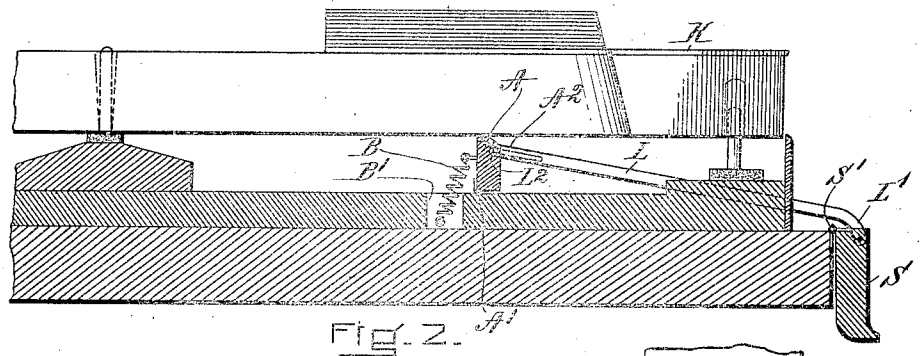

Fig. 2.

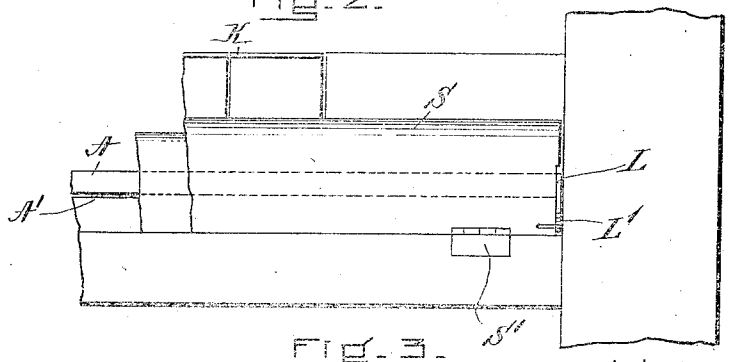

Fig. 3.

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UNITED STATES PATENT OFFICE.

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LOCKING DEVICE FOR AUTOMATIC PLAYER-PIANOS.

1,071,366. Specification of Letters Patent. Patented Aug. 26, 1913.

Application filed August 28, 1911. Serial No. 646,520.

To all whom it may concern:

Be it known that I, WILLIAM C. STEPHENSON, a citizen of the United States, and resident of Woburn, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Locking Devices for Automatic Player-Pianos, of which the following is a specification.

My invention relates to the construction of automatic player pianos, organs, and like instruments and consists in a locking device for holding the keys in inoperative position, the device being so constructed that the keys can be locked or released at will, by the simple movement of the key slip in exposing or covering the usual control levers.

In the drawings hereto annexed which illustrate an example of my invention,—Figure 1 shows a cross section of portions of the framework of the piano below the keys with my key locking device in its inoperative position; Fig. 2 is a similar view showing my locking device in operative position; and Fig. 3 is a front elevation, showing a portion of the key board and the hinged slip which coöperates with other factors in my key locking device.

Referring to Fig. 1, the piano keys K are shown in their normal inactive position; the key slip S which extends across and below the front of the key board is hinged at S′ in the usual manner so that it can easily be turned from the raised position shown in Fig. 1 to the lowered position shown in Fig. 2, for the purpose of exposing or covering the usual control levers.

Immediately beneath the keys and extending transversely across the entire bank there is a stop or locking strip A pivoted at A′ and provided with a pin L^2 at either end. A spring B housed in a pocket B′ exerts its tension so as normally to hold the stop strip A in its lowered position shown in Fig. 1. A link L, is provided at either end of the key slip S and extends from its pivot L′ back to the stop strip A where the pin L^2 secured to the strip A enters the slot A^2 in the link.

In order to lock the keys K against accidental movement the key slip S is turned downward from its raised position to its lowered position. The slots A^2 then engage with the pins L^2 to pull the stop strip A into its raised position as shown in Fig. 2, in which position the strip A bears against the under sides of the keys K effectively stopping them against movement. The spring B is extended by the above described operation so that it exerts tension on the strip A which however is effectively resisted by the link connection between the stop strip and the key slip. The key slip S is hinged at its bottom so as to swing below its pivotal axis S′ when turned down or lowered. The pivot L′ of the link L will, by this movement of the key slip also be carried below the pivotal axis so that the tension of the spring B acting on the key slip will be along a straight line between the pivots A^2 and L′ of the link beneath the pivotal axis S′. The force of the spring therefore tending to lower the stop strip A will be resisted and made ineffectual by the key slip which bears against the front of the instrument as clearly illustrated in Fig. 2. This same force also serves to hold the key slip in its lowered position. When the key slip S is raised to its upright position shown in Fig. 1 the link with its slot and pin connection, and the spring B, coöperate to release and depress the stop strip A thus placing the piano keys in their normal operative position.

As will appear by reference to Fig. 2, when the stop strip A is raised to key locking position, it stands vertical, at substantially right angles to the keys and therefore on a dead center with relation to any downward movement of the keys K, and rests upon and is solidly supported by the frame or key bed of the instrument. With this construction the stop strip A and the instrument frame receive all the thrust of any downward force exerted on the keys, while no tension is exerted on the link L, such as would exist if the stop strip A did not rise to a dead center and rest solidly on the key bed, but stood at an angle therewith; under such circumstances the stop strip would tend to slip on the bottoms of the keys and swing downward under pressure of the keys and thereby pull the link and raise the key slip. With the present structure the keys cannot possibly come unlocked until the key slip is manually operated.

What I claim and desire to secure by Letters Patent is:

1. In a locking device for automatic player pianos and the like, the combination of a stop strip located below the keys and pivoted to the instrument frame, a spring for normally holding said stop strip in inactive position, a key slip hinged at the front of the instrument to swing below its pivotal axis and bear against said front, and a link pivoted at one end to the stop strip and at its other end to the key slip to swing the stop strip into or out of key locking position when the key slip is manipulated, the pivotal axis of said link with the key slip being so placed as to swing below the axis of rotation of the key slip when the latter is lowered.

2. In a locking device for automatic player pianos and the like, the combination of a stop strip located below the keys and pivoted to the instrument frame, a spring for normally holding said stop strip in inactive position, a key slip hinged at the front of the instrument to swing below its pivotal axis and bear against said front, a link pivoted at one end to the stop strip and at the other end to the key slip to swing the stop strip into locking position against the tension of said spring when the key slip is lowered and permit said stop strip to be drawn down by said spring when the key slip is raised, the pivotal connection of said link with the key slip being so related to the axis of rotation of said key slip as to swing below said axis when the key slip is lowered, and bearing on the front of the instrument lock the stop strip in elevated position against the tension of said spring.

Signed by me at Boston, Massachusetts, this twenty-second day of August, 1911.

WILLIAM C. STEPHENSON.

Witnesses:

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