No. 638,439. Patented Dec. 5, 1899.

R. S. BOWEN.

LOCK.

(Application filed Mar. 2, 1899.)

(No Model.)

Fig. 3.

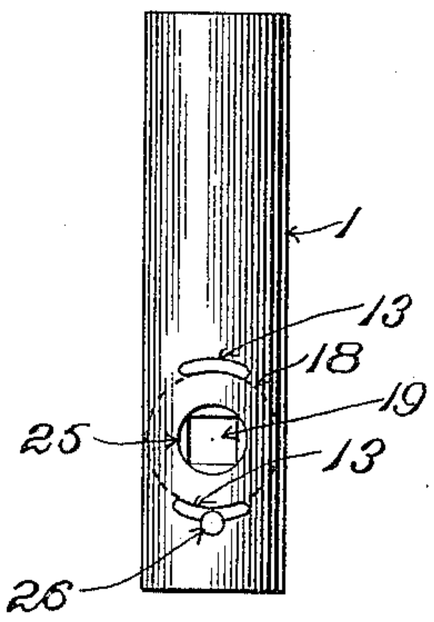

Fig. 4.

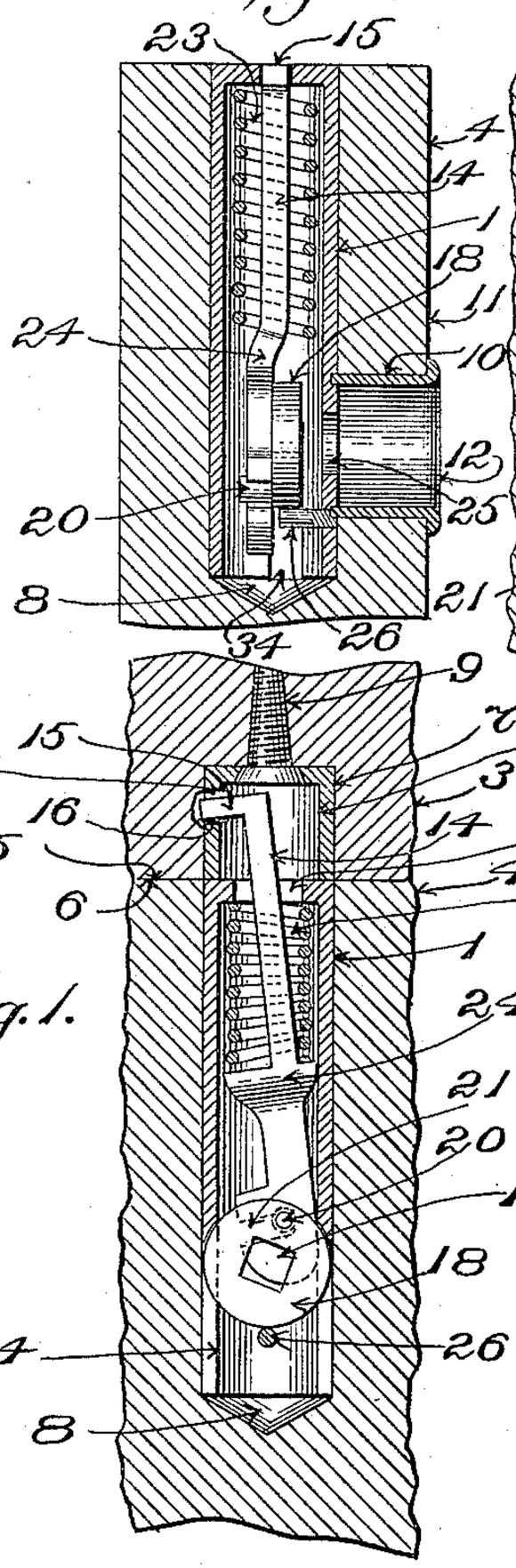

Fig. 5.

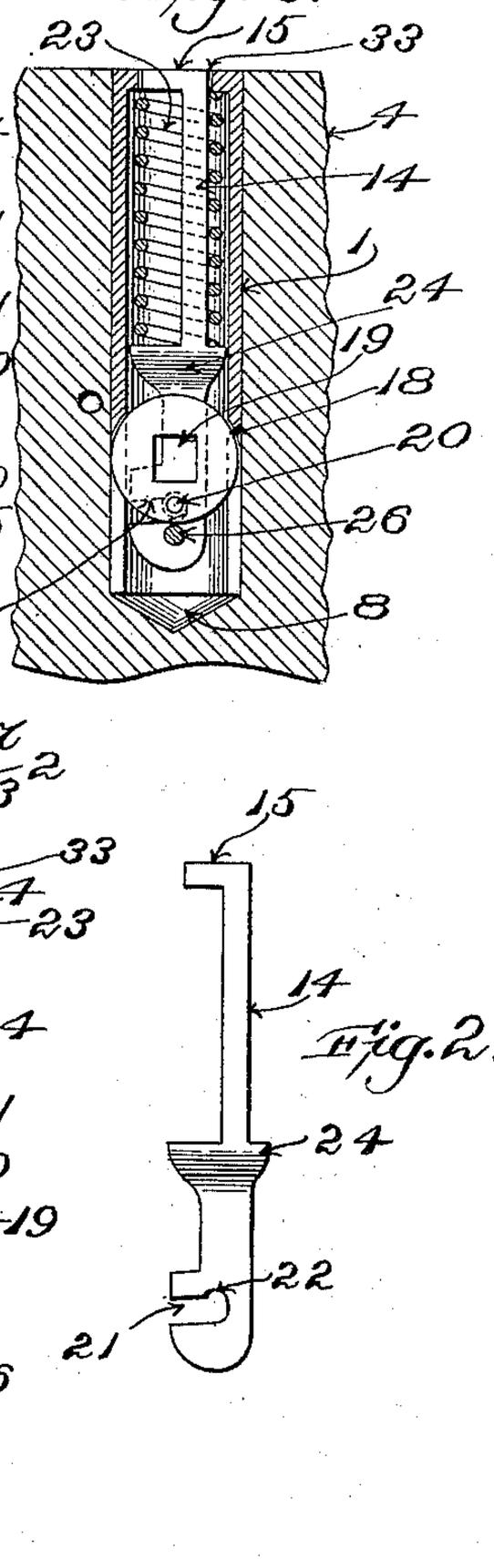

Fig. 1.

Fig. 2.

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UNITED STATES PATENT OFFICE.

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LOCK.

SPECIFICATION forming part of Letters Patent No. 638,439, dated December 5, 1899.

Application filed March 2, 1899. Serial No. 707,422. (No model.)

To all whom it may concern:

Be it known that I, ROBERT S. BOWEN, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Locks for Pianos, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

The main object of my invention is to produce a piano-lock that shall be capable of being fitted to a piano more easily than are the locks now in use and without the danger of marring the finish of the piano which at present attends this step in its manufacture.

It will be understood that in the making of a piano the lock is fitted thereto in practice after the woodwork of the piano has received its finish, and it results that the slightest slip or displacement of the workman's tools in preparing the woodwork to receive the lock or in inserting and securing the latter therein will cause very serious damage. For this reason in the case of the piano-locks with which I am familiar great care and time are required to be taken for their application to the piano. My aim is to produce an effective lock of such character that the lid and body of the piano-case may be prepared for its reception expeditiously and without substantial danger of mistake or damage, the same facility and safety attaching also to the act of inserting and securing the lock. To this end I have produced the construction that I now shall proceed to describe in connection with the accompanying drawings, wherein is shown the best embodiment of the invention hitherto devised by me, and afterward I shall define the essential characteristics of the invention in the claims at the close of this specification.

In the drawings, Figure 1 is a middle vertical section, on a greatly-enlarged scale, through the lock and keeper, showing them attached, respectively, to the body and lid or cover of a piano-case. Fig. 2 is an elevation of the catch or bolt detached from the rest of the lock. Fig. 3 is an elevation of the lock. Fig. 4 is a middle vertical section of the same and of the portion of the piano-case in which it is inserted, taken at right-angles to the section in Fig. 1. Fig. 5 is a like section taken on the same plane as Fig. 1, but showing the catch of the lock in its retracted position.

The case 1 of the lock is cylindrical. The keeper 2 is also cylindrical, forming, when the lid 3 is closed upon the body 4 of the piano-case, a continuation of the lock-casing 1. For the reception of the lock-casing and keeper the abutting faces 5 6 of the lid 3 and body 4, respectively, simply require to have formed therein the cylindrical cavities 7 and 8. These cavities may be bored with an auger, and, as will be immediately perceived, the operation is very expeditious and of a nature to insure accuracy and to preclude the liability of scratching or marring the finish of the piano, a danger that has always been serious in this work, so far as my experience goes. The keeper 2 has a partially-closed upper or inner end, as shown, and it is secured in its cavity by a wood-screw 9, which is passed through a hole in the said upper or inner end of the keeper and is screwed into the lid of the piano-case. The operation of screwing in this single screw is rapid and quite free from danger, inasmuch as in case the screw-driver slips it comes into contact only with the interior surface of the keeper. In some cases, however, I contemplate securing the keeper in place otherwise.

In my use of the terms "lid" and "body" I am aiming at clearness and conciseness and do not mean to confine myself to a construction in which the lock is located in the body and the striker in the lid, as obviously this arrangement may be reversed or otherwise modified without going beyond the scope of my invention.

Before the lock is inserted in its cavity a second cavity 10, constituting a keyhole, is bored transversely inward from the outer face 11 of the piano-case until it intersects the cavity 8. The same expedition and safety that characterize the performance of the preceding steps obtain with respect to this one. After the insertion of the lock a bush-

ing or escutcheon 12 is pushed into the cavity 10, where it is held by friction, or it may be provided exteriorly with a screw-thread, thereby enabling it to be screwed firmly into place in said cavity 10. The bushing is made of a length to project slightly into the cavity 8, the lock-casing being recessed, as at 13 13, to receive its edge. When this operation has been performed, the lock is solidly secured in its place.

14 is the catch or bolt of the lock. It moves both longitudinally and transversely within the lock-casing, its extruded position being shown in Fig. 1 and its retracted position in Figs. 4 and 5. In the latter position the head 15 of the catch lies flush with the surface 6 of the piano-case and within the slot 33, which is formed in the partially-closed upper or outer end of the lock-casing. In the fully-extruded position of the catch or bolt its head 15, which is hook-shaped, (it then having been swung transversely, as to the left in Fig. 1,) engages with a shoulder 16, formed in any convenient manner on the keeper 2, as by cutting away a portion of the shell of the keeper at 17. In this position of the catch or bolt the piano-lid is securely locked. The extrusion and retraction of the catch is effected by the rotation of a key-piece 18, in the shape of a disk, which has a central square hole 19 in it to receive the square pin of a key inserted into the lock through the bushing 12. There is of course a hole 25 in the lock-casing to admit the key to the key-piece. On the key-piece is a pin 20, which projects into a slot 21 in the lower end of the catch or bolt. Rotation of the key-piece in the direction of the arrow in Fig. 5 from its position in Fig. 5 to its position in Fig. 1 extrudes the catch or bolt, while the reverse motion retracts it. The slot 21 has an upward enlargement or notch 22 at its right-hand end in which the pin 20 rests at each extreme of its motion. At one point in its length the catch is enlarged, as at 24, to nearly the size of the interior of the lock-casing, this enlargement 24 serving as a sliding bearing and making contact with the interior surface of the shell of the lock-case. When the key-piece is rotated by means of a key inserted into its central opening, the pin 20 first moves from the position which it occupies in Fig. 5 toward the left and upward, thereby occasioning an upward movement of the catch and extruding the head 15 of the catch above the upper end of the lock-casing. The catch is lifted nearly vertically until the pin 20 reaches the closed end of slot 21 in the catch and seats itself in notch 22, after which the remaining portion of the movement of the pin operates to carry the lower end of the catch transversely, and by swinging the catch on its enlarged bearing 24 throws the upper end of the catch to the left, so as to cause it to engage with the shoulder 16 on the keeper 2. When the disk or key-piece is rotated in the opposite direction, the catch first is swung transversely to disengage its outer end from the shoulder 16 of the keeper 2, and then the catch is retracted longitudinally into the lock-case.

23 is a spiral spring confined between the upper end of the lock-casing 1 and the enlargement 24 on the catch. While this spring is not absolutely essential to the working of the lock, it insures the complete retraction of the catch and causes it to lie flush with the surface 6 when the piano is open. The disk or key-piece 18 is fitted loosely in a slot 34, that is cut through the lower end of the lock-case. The said disk or key-piece is supported beneath by a pin 26, which is inserted through a small hole in the lock-casing after the parts of the lock have been assembled and which projects beneath the key-piece. The lateral portions of the disk or key-piece work in the said slot, while above the edge of the disk or key-piece takes bearing at two points, as shown in Figs. 1 and 5, against the upper end of the slot, thereby preventing either the rise or the lateral escape of the disk or key-piece.

As will be clear, my improved lock herein described may be advantageously employed in many kinds of cabinet-work other than the cases of pianos.

What I claim is—

1. The improved lock comprising the lock-case, a catch or bolt movable longitudinally and transversely in the lock-case, having at an intermediate point in the length of the same an enlargement nearly filling the interior of the lock-case, and also having in the inner end thereof the transverse slot 21 and notch 22, and a rotating key-piece having a pin working in said slot and notch and operating to extrude the engaging end of the catch or bolt and then move it laterally to cause its engagement with the keeper, substantially as described.

2. In a piano-lock, the combination with the lid and body of a piano-case, having corresponding cylindrical cavities in their abutting faces, of a cylindrical lock fitting and secured in one cavity, and a cylindrical keeper fitting and secured in the other cavity, the operative parts of the lock comprising a catch or bolt movable longitudinally and transversely in the lock-case, having at an intermediate point in the length of the same an enlargement nearly filling the interior of the lock-case, and also having in the inner end thereof the transverse slot 21 and notch 22, and a rotating key-piece having a pin working in said slot and notch and operating to extrude the engaging end of the catch or bolt and then move it laterally to cause its engagement with the keeper, substantially as described.

3. The lock comprising the case slotted at its lower end, the catch or bolt placed within

the case and having the transverse slot in its lower end and the enlarged bearing at an intermediate point in its length, the spring acting to depress the said catch, and the disk or key-piece fitting loosely in the slot of the case and having the pin entering the slot of the catch to operate the said catch, whereby to occasion both a longitudinal and a transverse movement of the catch, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ROBERT S. BOWEN.

Witnesses:

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