

H. O. CLARK.
PIANO ACTION.

APPLICATION FILED AUG. 29, 1908.

Patented Mar. 15, 1910.

2 SHEETS—SHEET 1.

952,417.

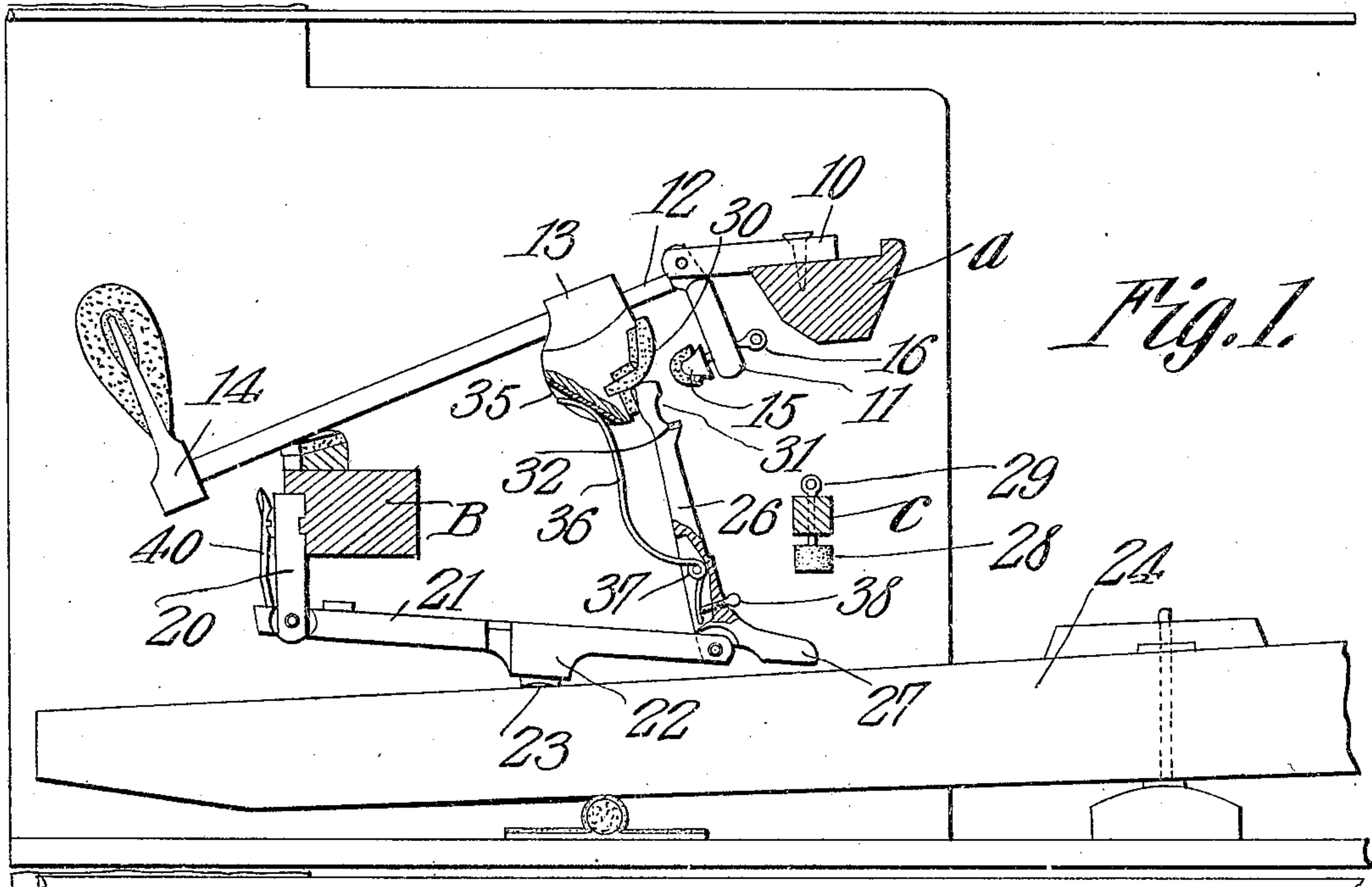


Fig. 1.

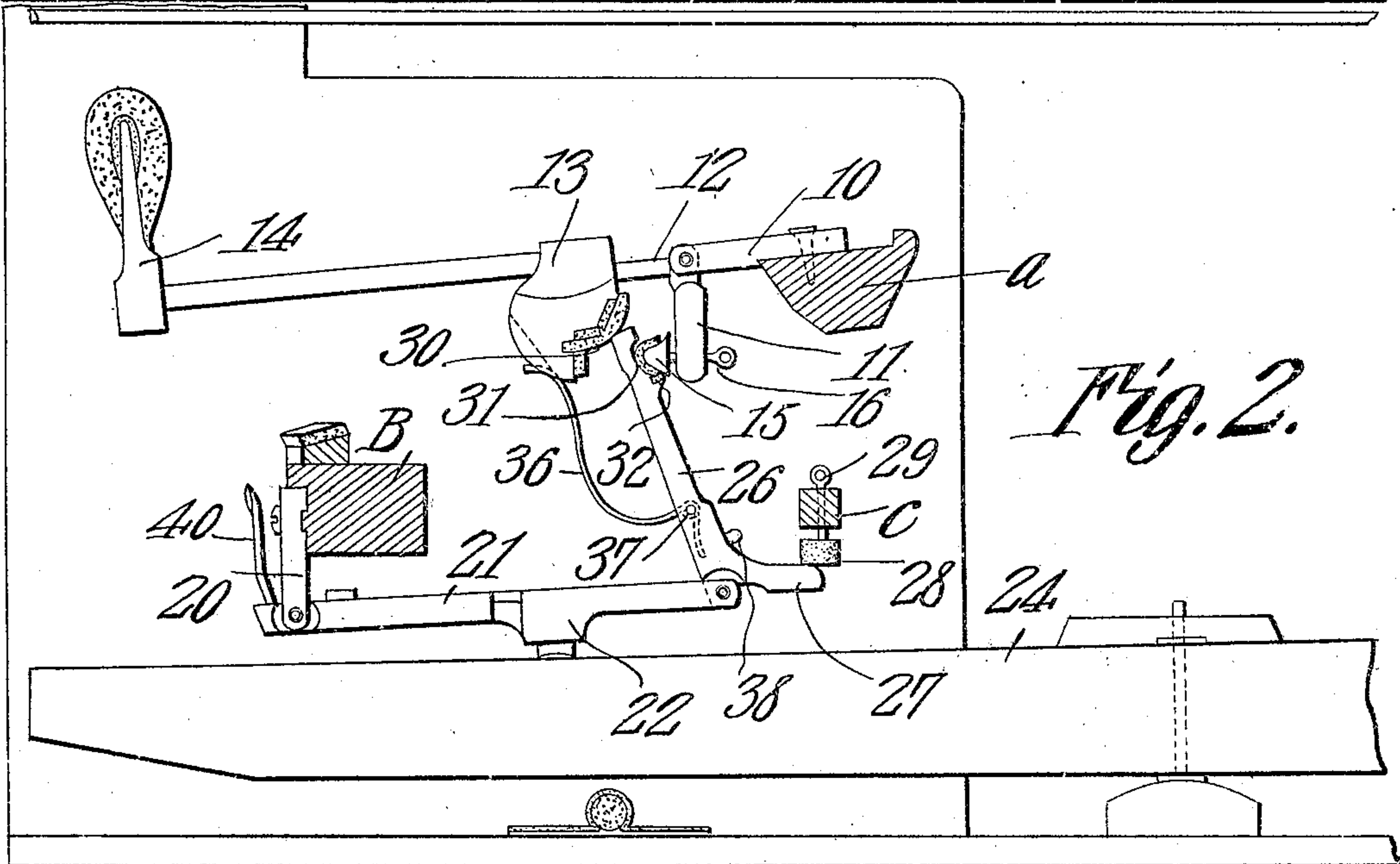


Fig. 2.

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2 SHEETS—SHEET 2.

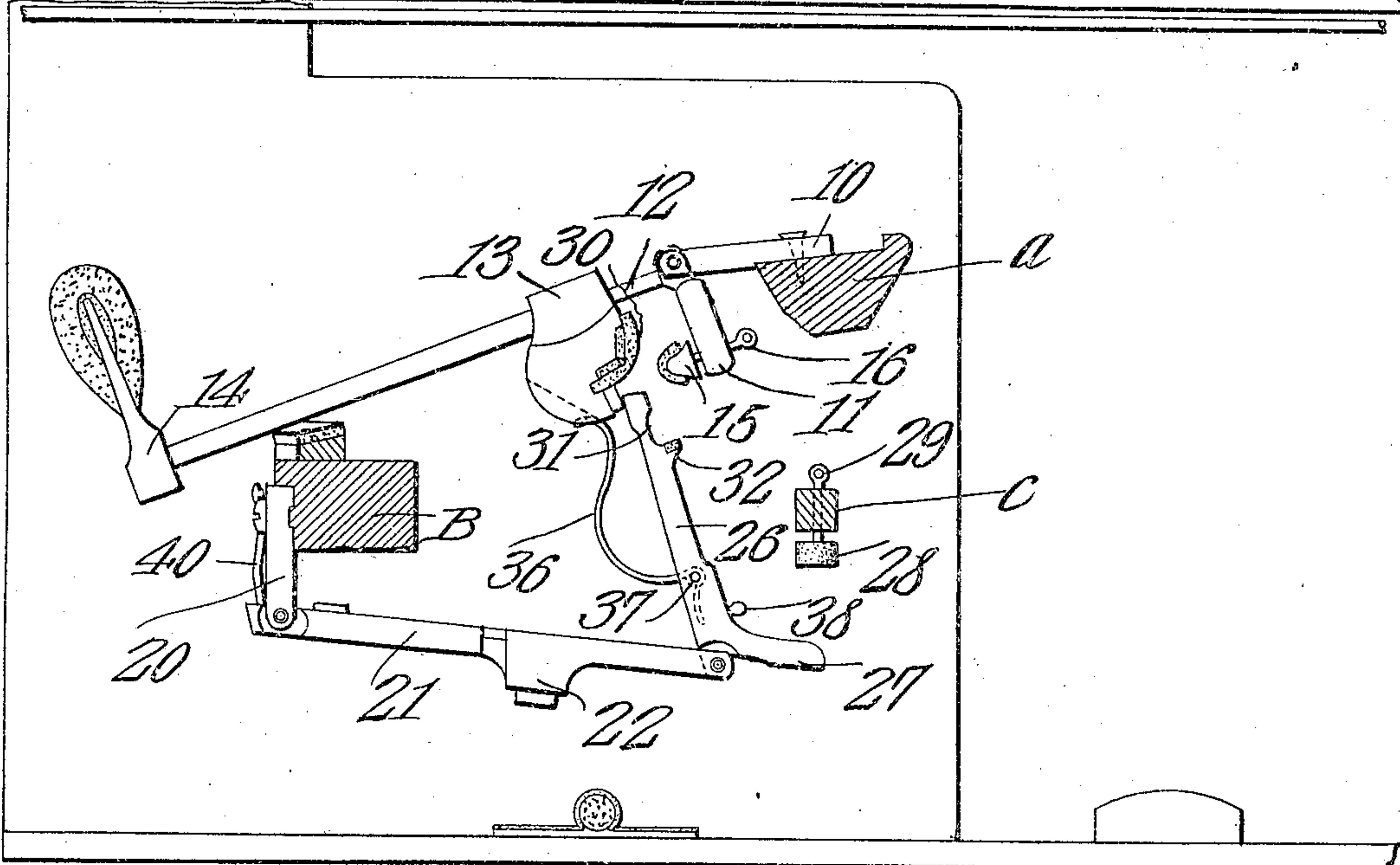
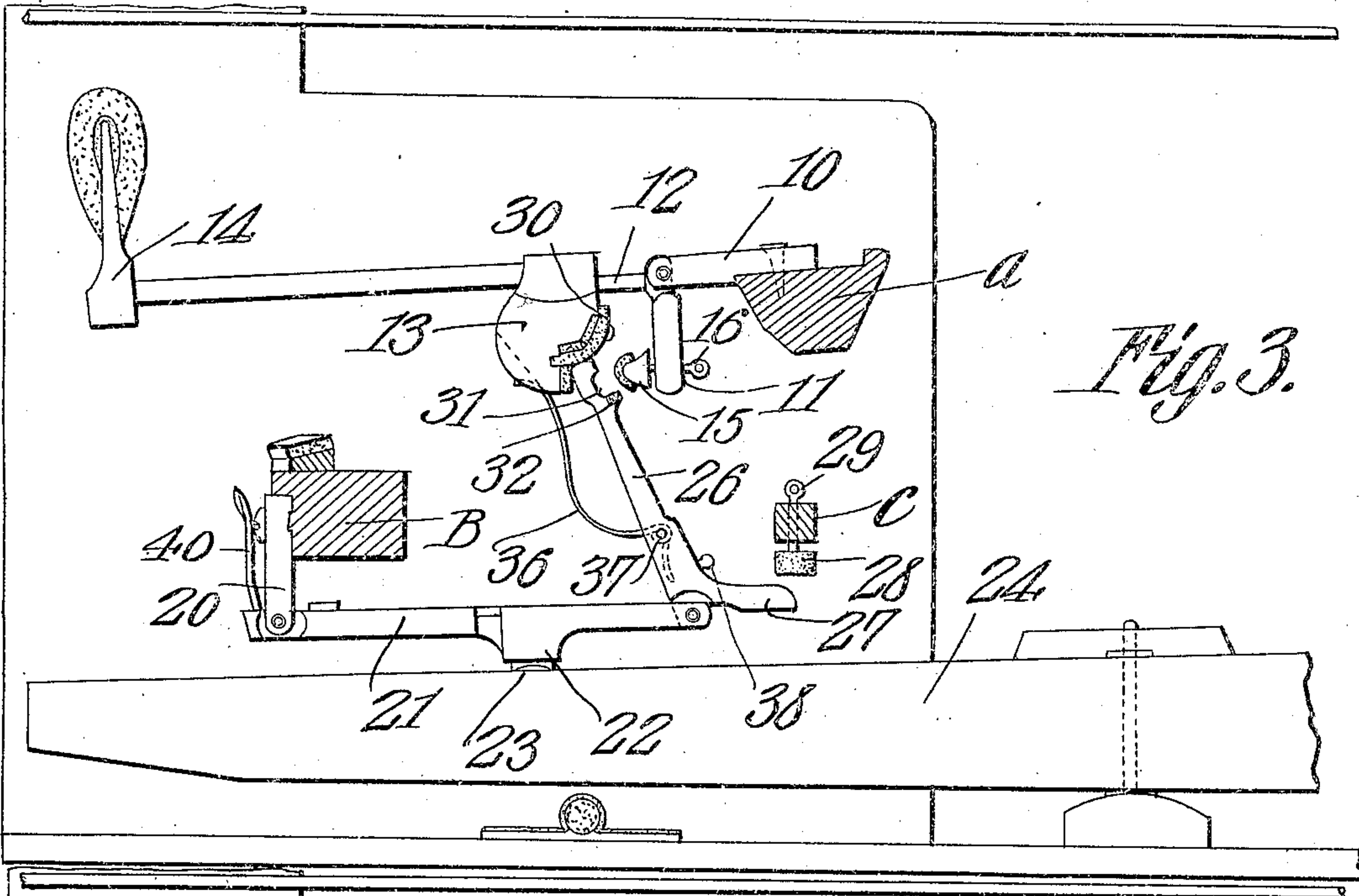


Fig. 4.

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UNITED STATES PATENT OFFICE.

HORACE O. CLARK, OF NEW YORK, N. Y.

PIANO-ACTION.

952,417.

Specification of Letters Patent.

Patented Mar. 15, 1910.

Application filed August 29, 1908. Serial No. 450,827.

To all whom it may concern:

Be it known that I, HORACE O. CLARK, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a new and useful Piano-Action, of which the following is a specification.

This invention relates to piano actions and especially to action of that class used in grand pianos.

One of the principal objects of the present invention is to provide an action of very simple construction having but few parts and which may be readily regulated without removal from the piano casing.

A further object of the invention is to provide an action in which the jack carries a spring bearing against the hammer butt and so arranged as to hold the hammer in elevated position, and restore the jack to operative position immediately after the parts are released from the back check.

A still further object of the invention is to provide an action in which the jack carries a hammer butt engaging a spring which is placed under stress during the forward movement of the jack under the action of the throw-off, and is retained under stress until the action is released so that the force of the spring may then be utilized in slightly raising the hammer butt, and in drawing the jack promptly to place.

In the accompanying drawings:—Figure 1 is a cross sectional view showing the parts of the action in elevation and in the normal position of rest. Fig. 2 is a similar view, showing the position assumed by the parts after the depression of the keys and before the release of the pressure. Fig. 3 is a similar view showing the position assumed by the jack and hammer butt in readiness for the repetition of a note, and before full release of the key. Fig. 4 is a similar view showing the manner in which the action is supported after the removal of the key lever.

Similar characters of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The action is mounted on a hammer rail A, a hammer rest rail B and a throw-off rail C. On the hammer rail are secured the flanges 10 to each of which is pivoted a back check arm 11, from the rear face of which projects a shank 12 carrying a hammer butt 13 and the hammer butt carries a

hammer 14 of the ordinary construction. The back check arm 11 carries a cushioned check block 15 that is mounted on a screw 16 passing through a threaded opening in the lower portion of the arm and so arranged as to be readily accessible for regulating or adjusting the action. To the hammer rest rail B are secured depending flanges 20, and to each of these is pivoted the rear end of a wippen 21 that has a depending lug 22 on its lower face arranged to rest on a screw 23 carried by the key lever 24, the key lever being of the ordinary construction. At the front of the wippen is pivoted a jack 26 having at its lower end a forwardly extended arm 27 which is arranged to come into contact with a cushioned throw-off block 28 carried by a screw 29 that passes through a threaded opening in the throw-off rail C, and the block may be readily adjusted in order to engage the foot of the jack at the proper time.

The head of the jack is arranged to engage in a cushioned recess 30 formed in the lower rear face of the hammer butt, and the upper wall of this recess is arranged on a curved line presenting a convex face which the top of the jack follows during the movement of the hammer in both directions. The forward face of the jack is provided with a recess 31 that is arranged to receive the back check block 15, and immediately below and forming a continuation of the lower wall of the recess 31 is a forwardly projecting cushioned lug 32, which by engagement with the lower face of the back check block will prevent any excessive upward movement of the jack in case of a violent key stroke.

In the lower rear face of the butt is formed a slot 35, the face of this slot being perpendicular to a line drawn from the pivot of the back check arm 11, and in this slot slides the upper curved end of a spring 36. The lower portion of this spring is coiled around a pin 37 arranged in the lower portion of the jack, and the end of the spring continues down through the central portion of the jack, and is engaged by the rear end of a screw 38 which may be turned for the purpose of adjusting the stress of the spring. This screw is so located as to be readily accessible for adjusting purposes without the removal of the action from the casing of the instrument.

With the parts in normal position a down

stroke on the key will result in an upward movement of the wippen, and this movement is transmitted to the jack. The upper end of the jack being in engagement with the hammer butt forces the hammer to move against the string. As the movement continues the foot of the jack comes into engagement with the throw-off block 28 and the top of the jack is swung forward still riding in engagement with the convex face of the hammer butt until the back check block 15 is fully entered in the recess 31 of the jack, the parts being in the position shown in Fig. 2, and the hammer being firmly locked so as to prevent movement in either direction. One of the results of this movement is to bend the spring and place the same under greater stress than when in the normal position as will be evident on a comparison of Figs. 1 and 2 and at the same time the upper end of the spring riding in the slotted hammer butt will move down toward the lower end of the slot in a position where it will tend to exercise a greater and more direct upward lift than when in the position shown in Fig. 1. As soon, however, as the key pressure is relieved and the wippen and jack moved down to the slightest extent the spring exercises a momentary upward force tending to lift the hammer butt and to hold the same up so that the jack may move from the position shown in Fig. 2 to that illustrated in Fig. 3. The spring thus exercises force in two directions, one tending to throw the hammer butt upward, and the other to draw the jack back and its strength is so adjusted that the jack will slide quickly into place and be ready for a repeat before the key lever can assume the normal position.

One of the principal difficulties of ordinary grand actions is that the entire action must be removed from the casing of the in-

strument for regulating and adjusting purposes. In the present instance all of the parts are readily accessible and may be adjusted without removal. Aside from this, the keys may be readily taken out and the parts will then move to the position shown in Fig. 4 and will be supported in this position by a spoon 40 carried by the rear end of the wippen and arranged to rest against the upper portion of the flange 20, the spoon serving to hold all of the parts in such position that the key may be readily restored to place. Owing to the construction of the jack and its relation to the back check block it becomes impossible to block the hammer, that is to say, to force the hammer against the string, the lug 32 and the jack forming a lock to prevent the hammer returning to string after being released.

What is claimed is:—

In a piano action, a pivoted hammer having a grooved butt, a jack for operating the same, a spring pivoted near one end to the jack and having its other end engaging the butt within the groove, said spring being constantly under stress and exerting a continuous pressure against the butt upwardly and in the direction of the pivot thereof, said spring constituting means for lifting the hammer and for holding the jack in contact with the butt, an adjusting screw extending into the jack and engaging the spring near the pivot thereof, said jack being recessed to receive the pivot end of the spring and that portion thereof contacted by the screw.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

HORACE O. CLARK.

Witnesses:

JNO. E. PARKER,
W. J. DILLON.