(No Model.) 3 Sheets—Sheet 1.

H. GEORGE, T. D. TURNBULL & A. H. COYLE.

PIANOFORTE ACTION.

No. 598,367. Patented Feb. 1, 1898.

Fig: 1.

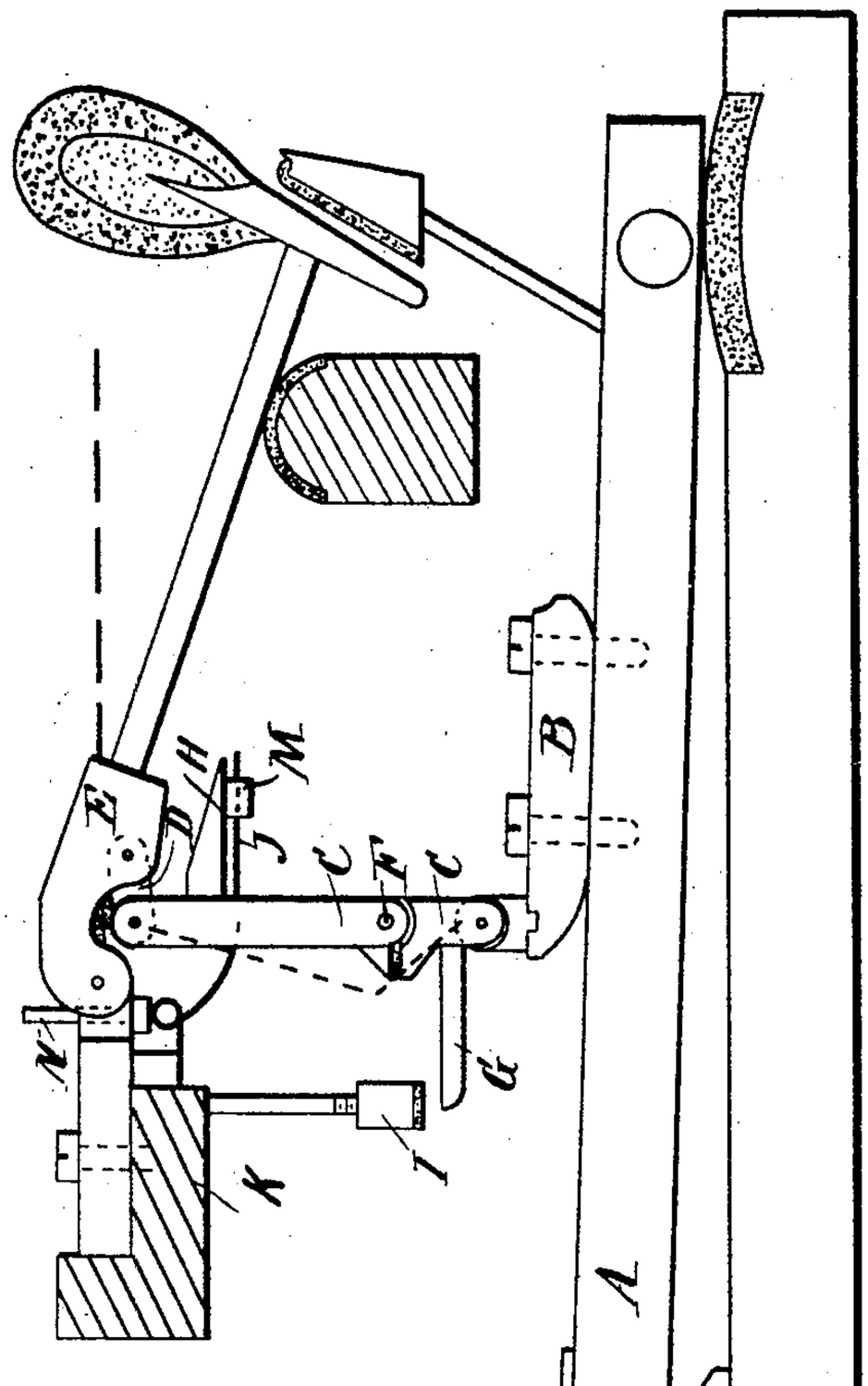

Fig: 2.

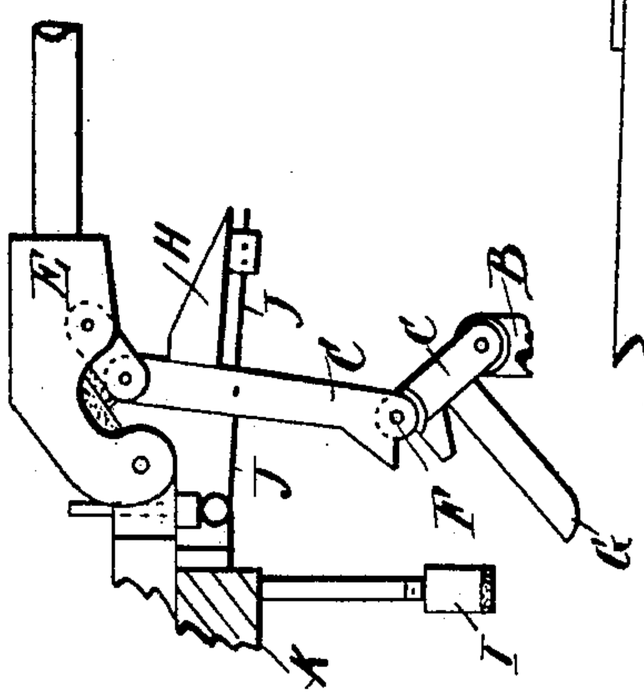

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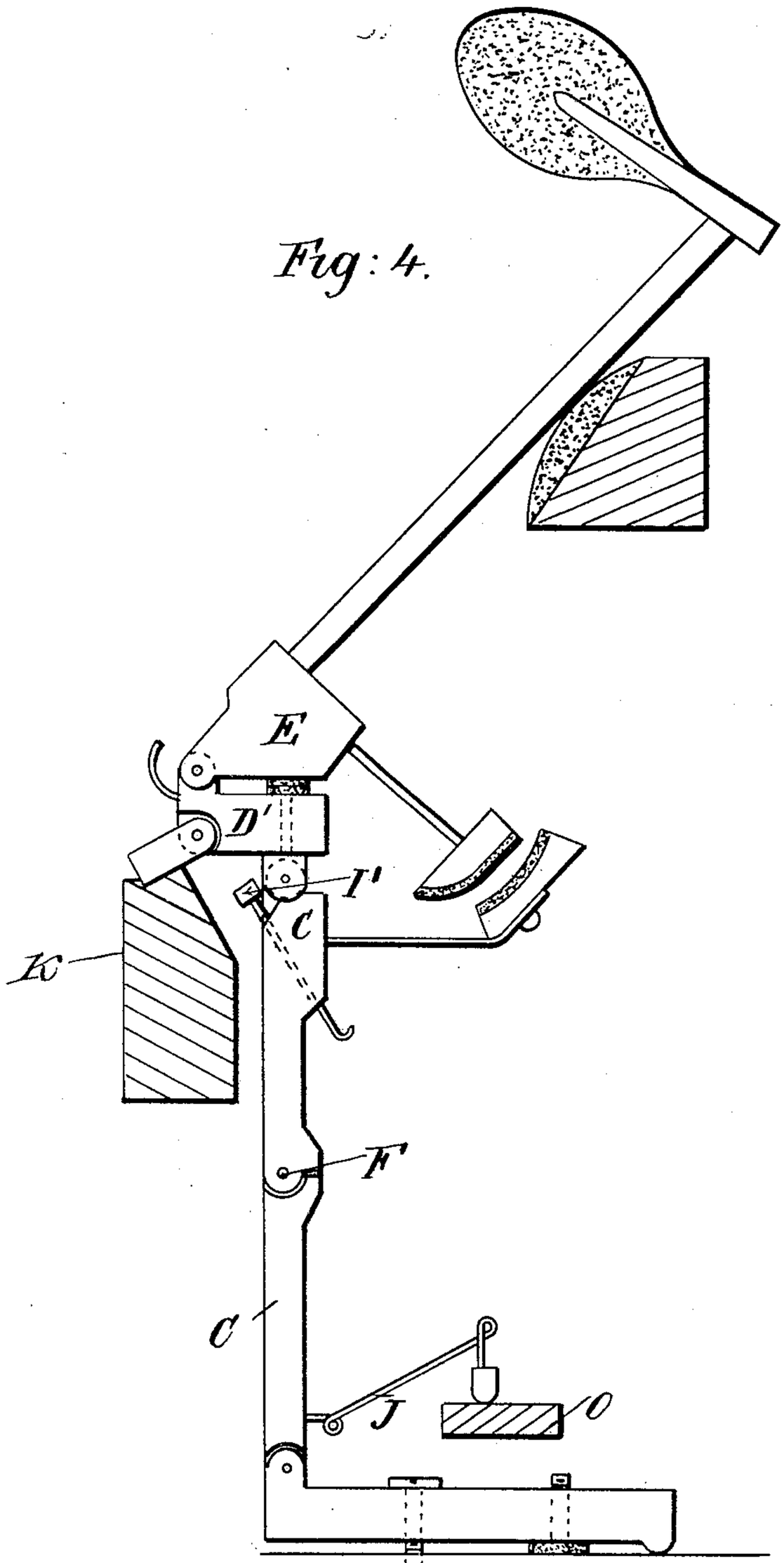
Fig: 4.



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(No Model.) 3 Sheets—Sheet 2.

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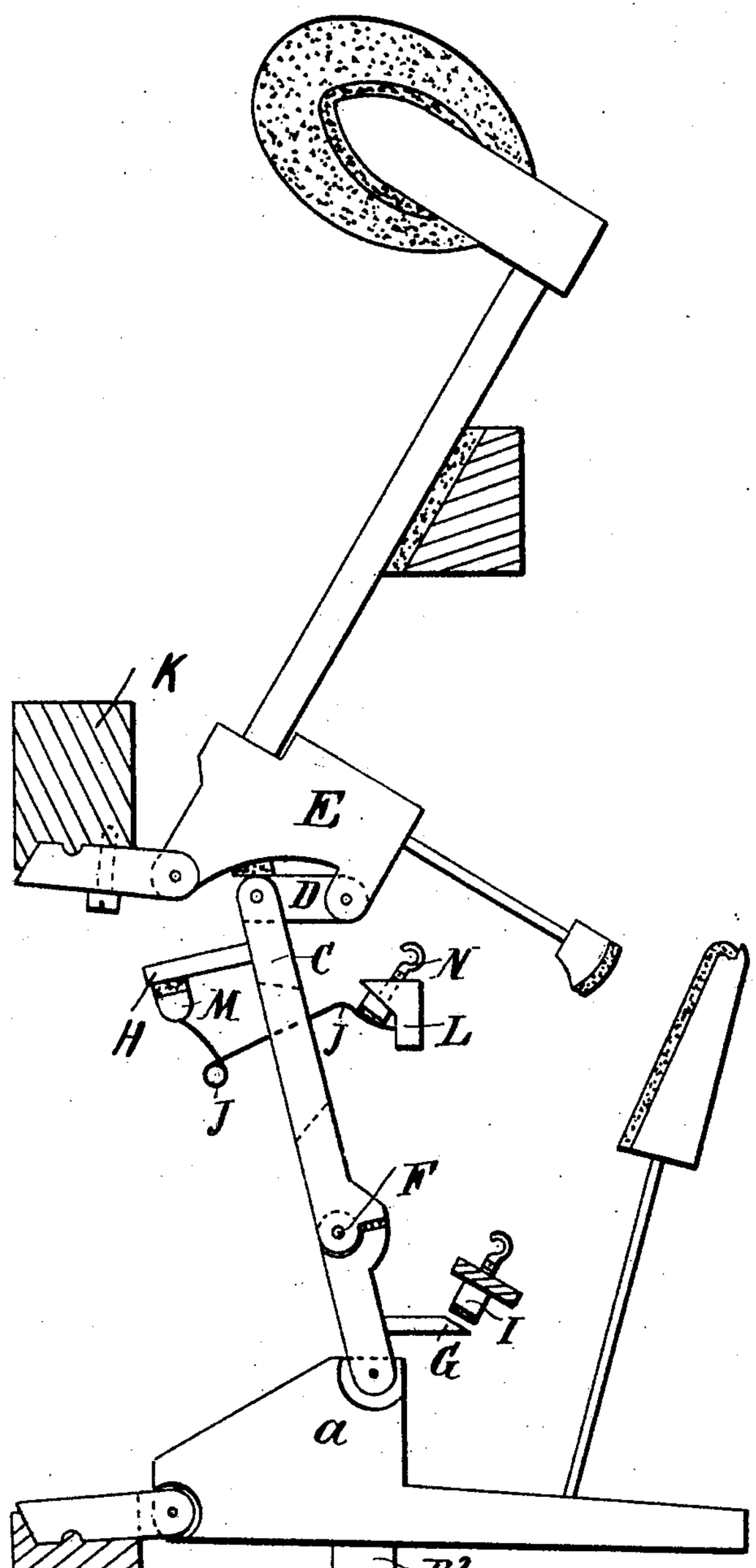
PIANOFORTE ACTION.

No. 598,367. Patented Feb. 1, 1898.

Fig: 3.



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UNITED STATES PATENT OFFICE.

HARRY GEORGE, THOMAS DAVIDSON TURNBULL, AND ALFRED HERBERT COYLE, OF LONDON, ENGLAND.

PIANOFORTE-ACTION.

SPECIFICATION forming part of Letters Patent No. 598,367, dated February 1, 1898.

Application filed July 26, 1897. Serial No. 645,900. (No model.) Patented in England December 19, 1896, No. 25,217.

To all whom it may concern:

Be it known that we, HARRY GEORGE, of 25 Whitehall Parade, THOMAS DAVIDSON TURNBULL, of 8 Dartmouth Park Road, and ALFRED HERBERT COYLE, of 10 John Street, Adelphi, London, England, subjects of the Queen of Great Britain and Ireland, have invented certain new and useful Improvements in Pianoforte-Actions, (for which we have obtained a patent in Great Britain, No. 25,217, bearing date December 19, 1896,) of which the following is a specification.

This invention relates to improvements in pianoforte-actions, and is more particularly applicable to those actions in which the hammer is caused to recede from the string, after striking the same, by means of a hinged jack instead of an escapement-jack, and also to simplify the construction of such movement.

In carrying the invention into effect a jack which is hinged or jointed at or near the center of its length is centered or attached to the rocker upon the inner end of the key. The upper end of the jack is centered to a link, which in turn is centered to the butt of the hammer. Upon the hinged jack are two arms or projecting pieces, placed near the ends of the jack, the lower situated in such a manner as to come into contact with a set-off button and cause the jack to collapse when the piano is played, and the other has bearing against its under side a suitable button carried by a spring attached to the hammer-rail, or a suitable rail may be provided for the purpose. An adjustment is provided to regulate the pressure of the spring upon the arm.

In order that this invention may be the better understood, reference is made to the accompanying drawings, in which—

Figure 1 is a side elevational view showing the movement applied to a grand piano. Fig. 2 is a view showing approximately the position of the parts when striking the strings. Fig. 3 is a side elevational view showing the movement applied to an upright piano. Fig. 4 is a view showing a modified form of arrangement.

Like letters of reference denote like or corresponding parts throughout the drawings.

A is the key, to which is secured the ordinary carrier or rocker B, to which is centered the end of the jack C, the upper end of the said jack being centered to the piece or link D. The jack C is provided with a hinge F and has upon it two arms or projections G H, the lower one, G, arranged to come into contact with the button I upon the key being depressed and cause the jack to collapse. The jack is slotted at its upper end to allow of the passage of a spring J. This spring is or may be attached to the hammer-rail K, as shown in Fig. 1, or a suitable rail may be provided for it, as indicated in Fig. 2 at L. The end of the spring carries an adjustable button M, which may be regulated to vary the strength of touch required by being screwed near to or away from the point where the spring is attached to the rail. The button M is in contact but not attached to the under side of the arm H on the jack. A further means of adjustment is provided for the spring, consisting of a button N, which will regulate the strength of the spring.

It will be seen from the foregoing that the spring acting against the weight of the hammer and the use and arrangement of the link D prevent the energy imparted to the hammer on striking the key being in any way decreased by having to lift the jack, which must occur if the jack is centered directly to the hammer-butt. With the note at rest the spring J in supporting the jack, &c., greatly assists in starting the upward movement of the hammer when the key is struck. This spring J, gradually weakening as the jack rises, becomes dead as the hammer reaches the striking-point, thus allowing the jack to collapse easily, giving the necessary drop to the hammer after striking the string. The spring immediately the jack has collapsed and in proportion to the strength of the blow recovers its power over the jack and compels it to assume its normal position immediately on the release of the key. It will thus be seen that the arrangement and construction of the parts in the manner indicated gives a perfect repetition and the labor of the performer is much less than is the case in other movements of this description.

Referring to Fig. 3, in which the movement is shown adapted to an upright piano, the arrangement and operation of parts will be

found to be substantially the same as in the preceding case. The jack C, however, instead of being directly operated by the key A, is actuated by the piece *a*, to which it is centered, as shown, the piece itself being centered to an arm upon the rail *b*. The carriage $B^{\times}$ is provided with a padded or felted projection B′, which comes into contact with a similar projection B^2 upon the under side of the piece *a*. The position of the jack with the arms G H in this case is reversed and the spring J is placed upon the opposite side of the jack, and the position of the button I is also altered, as shown.

The action is as follows: Upon the key A being struck the end is raised, carrying with it the jack C until the projecting piece G upon the jack comes into contact with the button I, when the jack will collapse, as shown in Fig. 2, and the hammer recede from the string. Upon the key being released the spring J causes the jack to resume its normal position. To prevent jarring, the various parts are provided with pieces of felt where necessary.

Referring to Fig. 4, in which is shown a modified form of movement, the lower end of the jack C is secured to the key A, as shown, and the upper end is centered to the link D′, which is centered to the rail K. The butt of the hammer E is centered to the link. The spring J in this case is attached to the jack itself, at the lower end thereof, and bears upon the rail O, and the piece G is dispensed with and an adjustable stop I′ is secured to the top of the jack, so that upon the upward movement of the jack the said stop will come into contact with the under hammer and cause the jack to collapse. The stop I′ is so adjusted as to effect this just as the hammer strikes the string.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is—

1. In a pianoforte-movement of the kind herein referred to the combination with a hinged jack of a link connected to the jack and centered to the butt of the hammer and an adjustable spring J, provided with an adjustable button M, acting upon, but not attached to, the projection H, and an adjustable button N, to regulate the strength of the spring, all substantially as herein described and set forth and shown by the drawings.

2. In combination in a pianoforte-action, the jack, the rail, the hammer, the link connecting the jack and hammer and a spring between the jack and rail atttached at one end to one of said parts while its free end is in contact with the other of said parts, substantially as described.

3. In combination, in a pianoforte-action, a hammer, a key, a collapsible jack connected with the key and a link connected with the jack and pivoted to the butt of the main hammer and a spring connected with the collapsible jack, substantially as described.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 13th day of July, 1897.

HARRY GEORGE.
THOMAS DAVIDSON TURNBULL.
ALFRED HERBERT COYLE.

Witnesses:
JOHN M. KIPPEN,
MATTHEW MEADS.