

(No Model.)

L. F. DEMING.  
REPETITION ACTION FOR UPRIGHT PIANOS.

No. 326,278.

Patented Sept. 15, 1885.

Fig. 2.

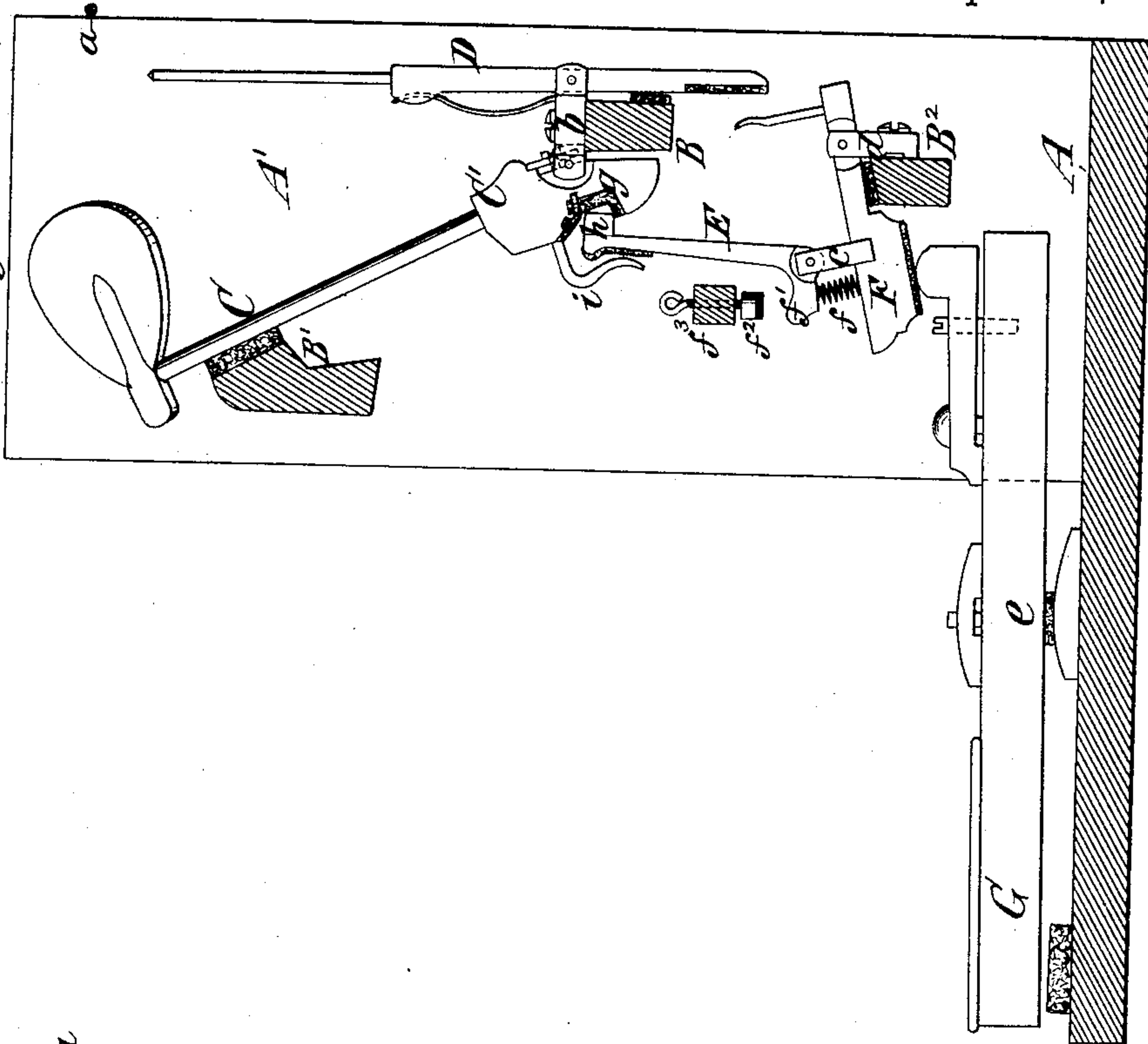
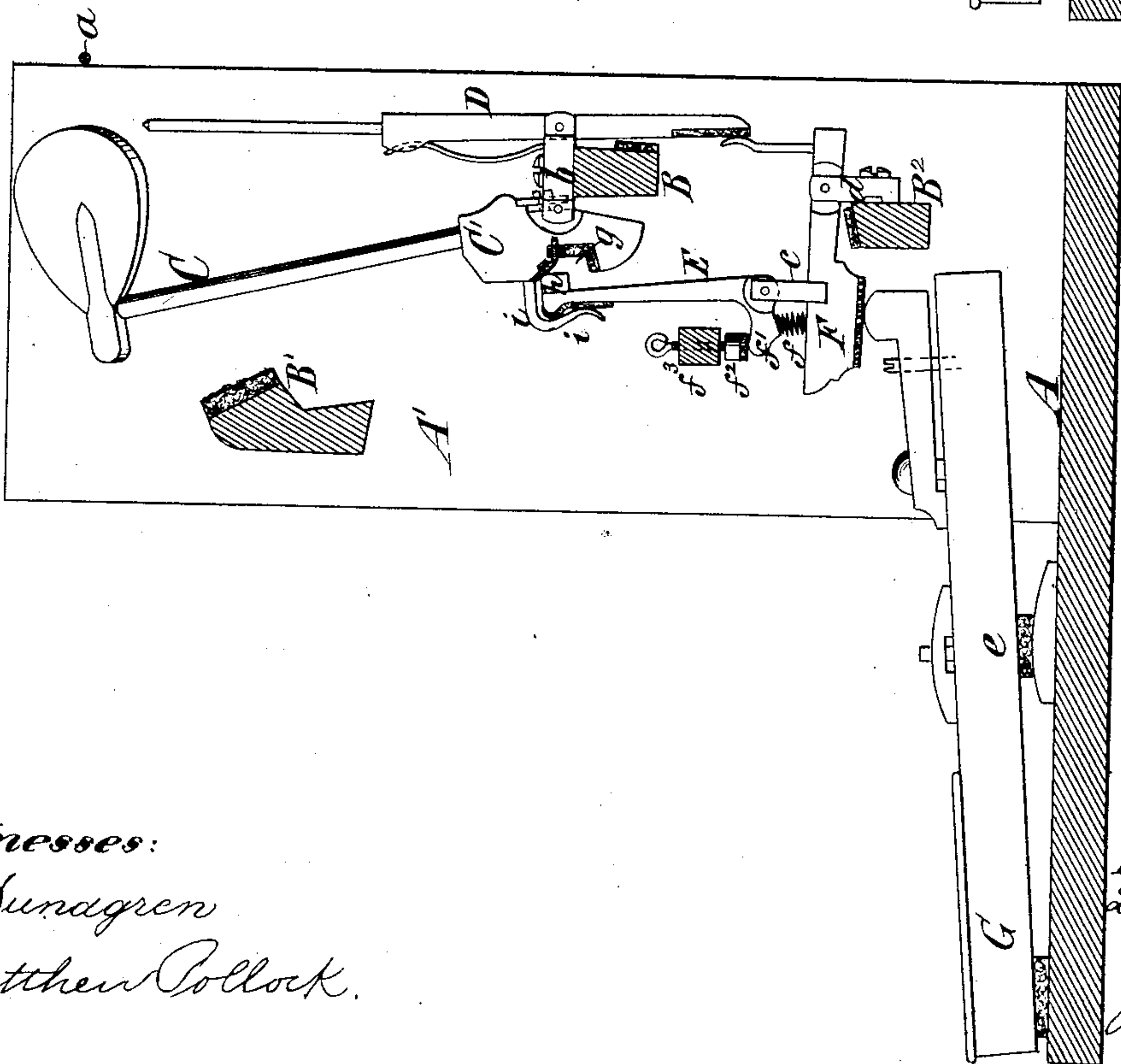


Fig. 1.



Witnesses:

O. Sundgren  
Matthew Pollock.

Inventor:  
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# UNITED STATES PATENT OFFICE.

LYSANDER F. DEMING, OF NEW YORK, N. Y.

## REPETITION-ACTION FOR UPRIGHT PIANOS.

SPECIFICATION forming part of Letters Patent No. 326,278, dated September 15, 1885.

Application filed November 19, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, LYSANDER F. DEMING, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Upright-Piano Actions, of which the following is a specification.

My invention relates to what are known as "repetition-actions," which are constructed so as to hold the hammer, after striking, in position for repetition without falling back on the hammer-rest rail.

The object of my invention is to provide an action simple in its parts and having provision for extremely rapid repetition.

My invention is an improvement on that class of repetition-actions in which the hammer-butt has in it a notch with which engages a tooth on the jack; and the invention consists in novel features in the construction of the jack, and in the combination of other parts therewith, as hereinafter fully described, and pointed out in the claim.

In the accompanying drawings, Figure 1 is a partly sectional elevation of an action embodying my invention, the parts being held in position for repetition; and Fig. 2 is a similar view with parts at rest, the hammer being in a position of rest on the hammer-rest rail.

Similar letters of reference designate corresponding parts in both figures.

The parts of the frame for supporting the action are shown in the simplest manner possible, as they constitute no part of my invention.

A designates the board, and A' the uprights (one only being shown) at the ends thereof, which support the action.

B designates a rail, which serves in this example of the invention both to support the hammers and dampers. B' designates the hammer-rest rail, and B<sup>2</sup> designates the rail which supports the jack-operating levers.

C designates the hammer, (only one of which is shown,) which is intended to strike upon a string, *a*, and the butt C' of which is secured by a flange, *b*, to the rail B. These flanges *b* are or may be double, each supporting at opposite ends a hammer and a damper-lever, D, which forms no part of my invention, the damper not being shown.

E designates the jack for actuating the hammer C C'. It is fulcrumed to a flange, *c*, carried

by a jack-supporting and jack-operating lever, F, which is in turn supported by a flange, *d*, on the rail B<sup>2</sup>.

G designates the key which is fulcrumed at *e*, and acts, with its end portion upon the jack-supporting and jack-operating lever F, to elevate said lever, and through the jack to actuate the hammer.

The jack E is held against the face or edge of the hammer-butt C' by a spring, *f*, applied between a projection, *f'*, and the lever F; and it is to be limited in its movement by a check or let-off screw, *f*<sup>2</sup>, inserted through a rail, *f*<sup>3</sup>, and against which the projection *f'* is brought by the upward movement of the jack and lever E F.

In the face of the hammer-butt C', with which the jack E engages, is a notch, *g*, and at the upper end of the jack is a hook or tooth, *h*, adapted to rest in and engage with the notch, as seen in Fig. 2. The hammer-butt C', is also furnished with a back-check, *i*, which is made of flat metal or wire, and which is elastic so as to exert a spring-like action on the jack E when the latter strikes it. This back-check *i* extends outward from the hammer-butt C' and thence downward and inward toward the butt, the back-check being curved or bent, as shown. The jack has on its outer side and opposite the hook or tooth *h* an outward swell or projection, under which the curved back-check *i* comes to a bearing. The back-check *i* acts as a spring to throw the jack forward into engagement with the notch *g*, and hence quickens the operation of the jack in repeating.

It will also be seen that the construction of the jack with an outward swell or projection opposite the tooth or hook *h*, and the formation of the back-check *i* with a return-bend extending toward the hammer-butt and adapted to come under the swell or projection on the jack, holds the hammer most effectually from falling forward prematurely in repeating rapidly.

Suppose, for example, that the hammer is in the position shown in Fig. 2—that is, at rest upon the rest-rail B'. If the key G is now struck the top of the hook or tooth *h* on the jack E, acting against the top or upper side of the notch *g*, throws the hammer forward and strikes the string. As the hammer strikes



the string the tooth or hook *h* leaves the notch *g*, owing to the shape of the latter, and slips forward and upward out of the notch and against the back-check *i*, thereby bringing 5 the hammer, jack, and other parts to the position shown in Fig. 1, where they remain ready for repetition so long as there is pressure upon the key.

When the key *G* is wholly released, the 10 tooth or hook *h* passes into the notch *g*, and the parts come to the state of rest shown in Fig. 2, with the hammer against the rest-rail *B'*.

In my application for Letters Patent, Serial No. 152,828, filed January 14, 1885, I have 15 shown and described and claimed a hammer provided on the front of its butt with an elastic hook or hook-like back-check, in combination with a jack having on its front a projection to engage with the said hook. I do not, 20 therefore, claim this combination, broadly, in my present invention, but desire to limit this invention to a hammer-butt having a notch in

its front in addition to the elastic hook or hook-like back-check, and to a jack having a hook or tooth for engaging with the notch 25 in the hammer-butt, as well as an outward projection on its front for engaging the elastic hook-like back-check on the hammer-butt.

What I claim as my invention, and desire to secure by Letters Patent, is— 30

In an upright-piano action, the combination, with the hammer-butt *C'*, having the notch *g*, of the jack *E*, having the hook or tooth *h*, and opposite said hook or tooth an outward swell or projection, and a back-check, *i*, consisting 35 of an elastic piece fixed in the hammer-butt and having its lower end portion curved inward toward the hammer-butt, so as to come below the outward swell or projection on the jack, substantially as herein described.

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Witnesses:

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