

**No. 649,561.**

**Patented May 15, 1900.**

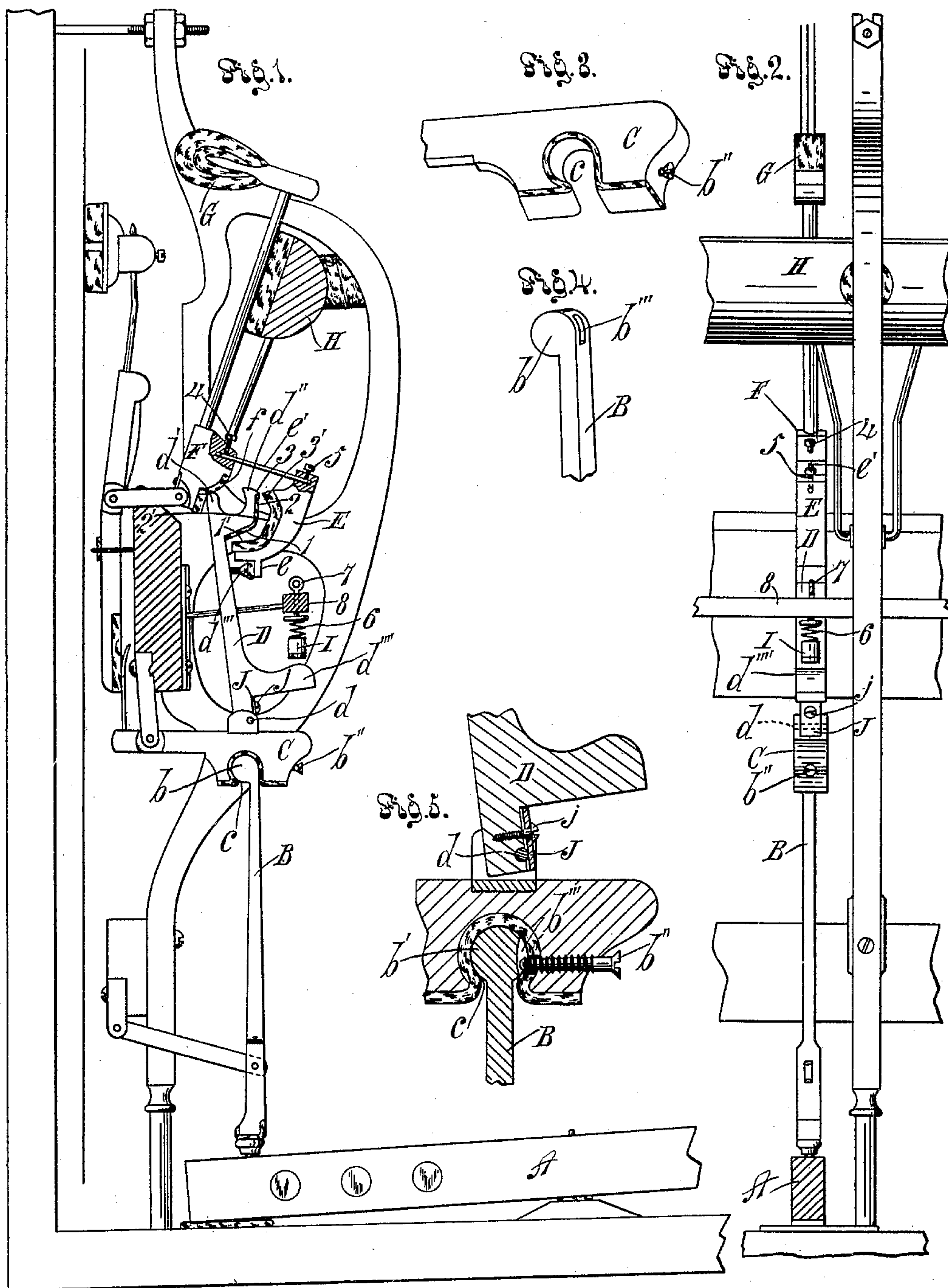
**J. L. WILSON.**

REPEATING UPRIGHT PIANO ACTION.

(Application filed Apr. 18, 1899.)

(No Model.)

**2 Sheets—Sheet 1.**



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E. Townsend.

Joseph L. Wilson  
by Townsend Bros.  
his atty.

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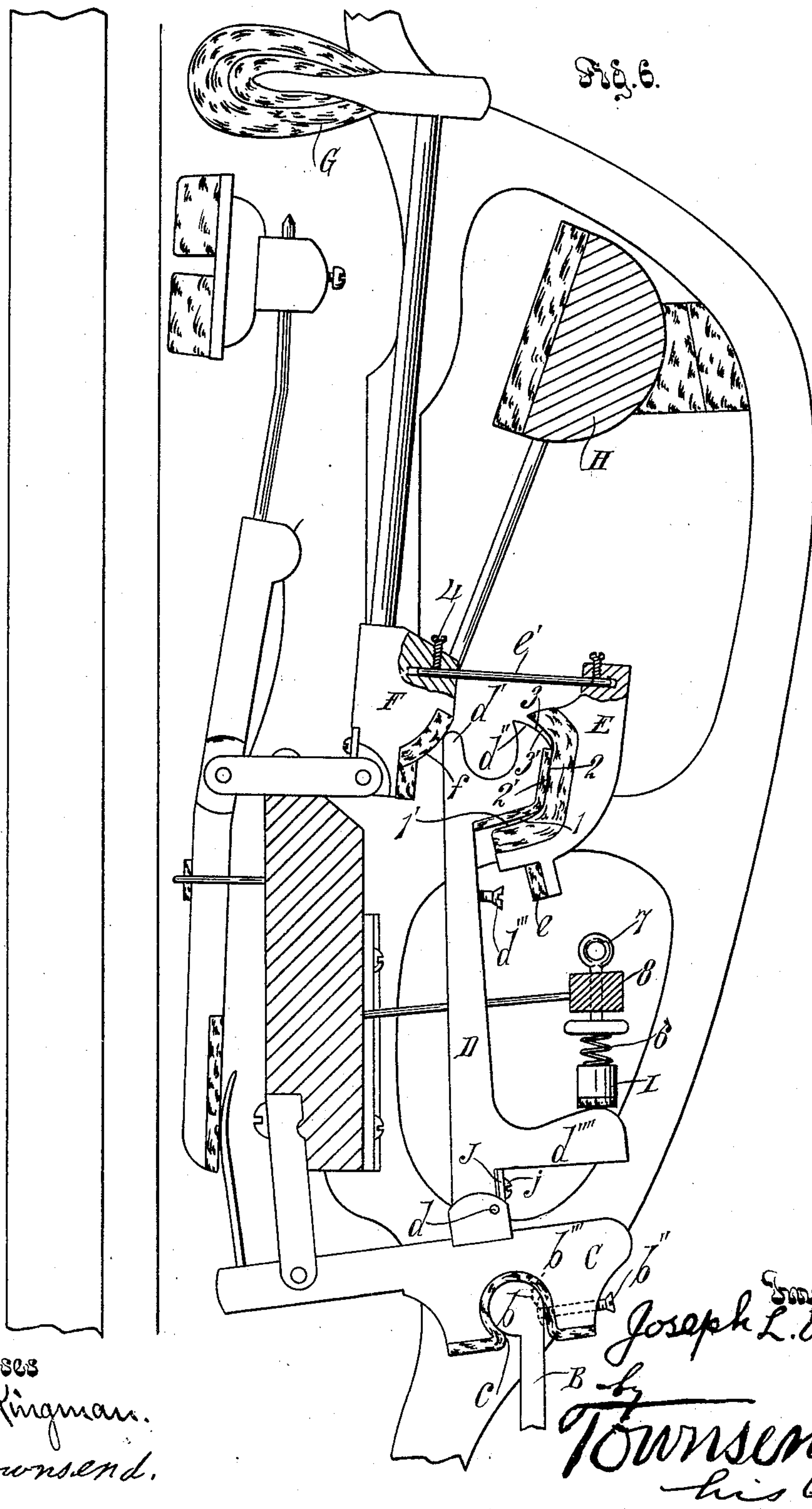
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**2 Sheets—Sheet 2.**



Witnesses  
Beverly Kingman.  
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# UNITED STATES PATENT OFFICE.

JOSEPH L. WILSON, OF LOS ANGELES, CALIFORNIA.

## REPEATING UPRIGHT-PIANO ACTION.

SPECIFICATION forming part of Letters Patent No. 649,561, dated May 15, 1900.

Application filed April 18, 1899. Serial No. 713,526. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH L. WILSON, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Repeating Upright-Piano Action, of which the following is a specification.

One object of this invention is to provide an upright-piano action of simple construction which will operate to throw the hammer at any position of the key, so that the performer can repeat rapidly with any position of the key.

Another object of my invention is to provide a piano-action which will be less liable to wear out than former actions.

Another object is to provide superior means for retracting the hammer.

Another object of my invention is to provide direct-acting mechanism for operating the hammer in both directions.

Another object is to provide means for readily adjusting the back-stop with relation to the hammer-butt and jack; also, to provide an allowance for a deeper stroke of the key, which may result in case the key-punches become worn.

In my improved action the riser is provided at its top with a hook-shaped head, and the jack-carrying lever is provided on its under side with a notch which conforms to the head of the riser, the lips of the notch being wide enough apart to allow the necessary play of the stem of the riser. I also provide simple means for retaining the riser-head in the jack-lever.

In my invention I provide the jack with a forward-extending arm, being a projection, having an oblique face, and the back-stop is provided with an oblique face to engage the face of the arm, and I provide an adjustable device at the lower part of the back-stop, below the above-mentioned engaging faces, for regulating the contact of the back-stop with the jack below said arm. Said adjustable device, which is arranged at the lower part of the back-stop, is preferably carried by the jack, and in the simple form shown consists of a screw set into the jack to engage a shoulder at the lower end of the back-stop.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation of my newly-in-

vented repeating upright-piano action in place. A fragment of the piano-key is shown. Fig. 2 is a view at right angles to Fig. 1. Fig. 3 is a fragmental perspective detail of the jack-supporting lever shown in Fig. 1. Fig. 4 is a fragmental perspective view of the upper portion of the riser shown in Fig. 1, showing the cylindrical head which forms the hook for fitting the notch in the jack-supporting lever. Fig. 5 is a fragmental vertical mid-sectional detail showing the connection between the riser, jack-arm, and jack. A modified form of head for the riser is shown. Fig. 6 is an enlarged fragmental side elevation, partly in section, of my newly-invented action with the parts in the position they assume when the key is struck and the riser is held up after the rebound of the hammer.

A indicates the key.

B indicates the riser, hung in the ordinary manner, but provided at the top with a hook-head, as *b* or *b'*, which is of a cylindrical form and is fitted into a notch *c* of corresponding form in the jack-carrying lever *C*. The mouth of the notch is sufficiently open to allow play between its lips and the riser to permit the necessary movement of the jack-carrying lever when operated by the riser.

*b''* indicates a retaining-pin, being a screw screwed through the jack-carrying lever into a groove *b'''* in the front face or edge of the hook-head of the riser.

In Figs. 1, 4, and 6 the head *b* is mainly on one side of the axis of the stem of the riser, thus to give a more positive hook form to the head; but in Fig. 5 the stem is shown arranged centrally of the head *b'*.

D indicates the jack, pivoted to the jack-carrying lever at *d* and having its upper end *d'* arranged to act upon the hammer-butt in the ordinary manner. The jack is provided at its upper end with an arm *d''*, which is formed with three angling faces 1 2 3, and the back-stop is provided with three angling faces 1' 2' 3' to embrace the angling faces of the jack-arm. The lower face 1 of the jack-arm is arranged to engage with the lower face 1' of the back-stop to retract the hammer from the string after the key is struck. The middle face 2 of the jack-arm is to engage the middle face 2' of the back-stop to catch



the hammer one-fourth of an inch from the string after the key is struck. The faces 3 and 3' of the jack-arm projection and back-stop engage to prevent the jack from being forced up beyond the heel of the hammer-butt. I am aware that a jack has been made with a bulge at the top to engage with the hammer back-stop, but in no case do I know of a jack-arm which will stop the hammer and retract it from the string. In order to provide an adjustable device for regulating the contact of the back-stop with the jack, the back-stop is provided at its lower end with a shoulder *e* to contact with a regulating-screw *d'''* in the jack, and the jack is thereby carried firmly into position under the hammer-butt, as shown in Fig. 1. The point at which the contact occurs can be regulated by adjusting the screw. The jack-stop face *f* of the hammer-butt allows the jack to take the hammer in any position in which the hammer may stand. I am aware that heretofore the outer side of the jack of the piano-action has been provided with an outward swell or projection under which a curved back-catch comes to a bearing to throw the jack forward when the jack descends, and my invention is to be distinguished therefrom in that the lower face 1 forms a catch to hold the jack-arm and prevent it from descending without pulling down upon the back-stop and thereby throwing the hammer back from the string. So far as I am aware my invention is the first instance in which the jack has been made to operate upon the back-stop to positively pull the hammer back. I am aware that heretofore the jack has been provided on the inner side with a hook to catch upon the shoulder on the hammer-butt, but it does not serve the purpose of my invention, for the reason that by my construction a greater leverage is produced to throw the hammer back and the action of the jack upon the back-stop catch is instantaneous the moment the key is released and without the necessity of the jack changing its position except by moving downward to reach the catch—that is to say, the first downward movement of the jack causes the jack-arm to catch the back-stop and positively draw the hammer back. It is thus seen that the back-stop operates to keep the jack entirely in operative position underneath the hammer-butt during almost the entire retracting movement of the hammer, so that if at any instant the jack is thrown upward after the hammer has rebounded from the string the jack will thereupon operate the hammer to throw it against the string. The shoulder *e* engaging the back-stop-regulating screw *d'''* in the jack will force the jack firmly back under the hammer into its starting position when the key is at rest. The stop formed by the screw *d'''* is ordinarily regulated to position to be engaged by the shoulder *e* when the jack is fully under the hammer-butt and the hammer *G* is resting against the back rail *H*. The back-stop *E* is connected with the hammer-butt *F* by a metal

bar *e'*, which is adjustably held in place preferably by two set-screws 4 5—one in the hammer-butt and the other in the back-stop. Preferably this bar is sufficiently bendable to allow the back-stop to be raised or lowered by bending the bar. The set-screws 4 and 5 allow the adjustment of the back-stop toward and from the hammer-butt and prevent the back-stop from accidentally turning upon the bar. The bar *e'* is preferably angular in cross-section to hold the back-stop from turning.

I indicates a resilient jack-regulating button.

6 indicates a spring which carries the button proper and is carried by a screw 7, which screws through a support 8 to adjust the spring and its button toward and from the jack let-off arm *d''''*, so that the button *I* will catch the let-off arm *d''''* to retract the jack from beneath the hammer-butt at the close of the stroke.

J indicates a clamp-piece fastened to the jack by a screw *j* to clamp the pivot-pin *l*, which carries the jack. I am aware that this clamp and screw have been applied to other parts of actions; but in no case heretofore do I find it applied to the jack.

In practical operation the movement of the key throws the riser up and the jack throws the hammer against the string in the ordinary manner. At the close of the stroke the regulating-button *I* catches the let-off arm *d''''* and throws the jack from beneath the hammer, allowing the hammer to rebound. The face 2' of the back-stop *E* then engages the face 2 of the jack-arm, and if the key is released to any extent the back-stop instantly forces the jack into operative position against the jack-receiving face of the hammer-butt, so that the stroke can be immediately repeated. When the hammer is fully retracted, the shoulder *e* presses on the adjusting-screw *d'''* and holds the jack in position for the next stroke.

In case the hammer should become tight in the joint, so as to need to be pulled back, the face 1 of the jack-arm will pull down upon the face 1' of the back-stop and pull the hammer back. The weight of the riser and jack-carrying lever is also exerted for this purpose.

In case the key-punches become worn and the stroke of the key thereby becomes deeper than normal the spring 6 allows the jack-let-off arm *d''''* to be thrown higher than normal without undue strain upon the jack-joint *l* or any other part.

Now, having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a piano-action, the combination of a jack-carrying lever having a notch in its under side and the riser provided at the top with a head which is of a cylindrical form and which fits the notch, the notch being sufficiently open to allow play between its lips and the riser.

2. In a piano-action, the combination of a



riser having at its top a hook-shaped head; and a jack-carrying lever provided in its under side with a notch which conforms to the head of the riser.

5 3. In a piano-action, the combination of a jack-carrying lever having a notch in its under side; a riser provided at the top with a head which is of a cylindrical form and which fits the notch; the notch being sufficiently  
10 open to allow play between its lips and the riser, and a groove being provided in the edge of the head; and a pin in the jack-lever and extending into the groove.

15 4. An upright-piano action having its hammer-butt back-stop adjustably connected with the hammer-butt by a bendable bar with set-screws substantially as set forth.

20 5. An upright-piano action provided with a spring-actuated jack-regulating button to engage the jack let-off arm.

25 6. In an upright-piano action, a jack provided with a regulating-screw; and a back-stop provided with a downwardly-projecting shoulder to engage said screw.

30 7. In a piano-action, a jack provided with a projection having an oblique face thereon; a back-stop with an oblique face to engage the face of the projection and provided with a downwardly-extending shoulder; and a  
regulating-screw set in the jack and arranged to engage the shoulder.

35 8. In a piano-action, the combination of a jack provided with a projection having an oblique face; a back-stop provided with an oblique face to engage the face of the projection and an adjustable device at the lower

part of the back-stop for regulating the contact of the back-stop with the jack below said projection.

9. The combination of a key; a riser provided at the top with a head which is of cylindrical form and is fitted into a notch of corresponding form in the jack-carrying lever, said jack-carrying lever provided with said notch, the mouth of which is sufficiently  
45 open to allow play between its lips and the riser to permit the necessary movement of the jack-carrying lever when operated by the riser; the jack pivoted at one end to the jack-carrying lever and having its other end arranged to act upon the hammer-butt and provided at the upper end with a jack-operating  
50 projection which has an oblique face, the said jack being provided at its lower end with the jack let-off arm; the hammer-butt having its  
55 back-stop provided with an oblique face to be engaged by the said projection; an adjusting device for regulating the contact of the back-stop and jack below the said face; and a  
60 spring-actuated regulating-button to engage the jack let-off arm.

10. An upright-piano action having its jack provided with a projection and the hammer-butt having its back-stop provided with a catch extending underneath the said projection in the path of the said projection to be  
65 caught by said projection to positively retract the hammer substantially as set forth.

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Witnesses:

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