

UNITED STATES PATENT OFFICE.

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REBOUND-CHECKING MECHANISM FOR PIANO-ACTIONS.

1,126,931.

Specification of Letters Patent.

Patented Feb. 2, 1915.

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To all whom it may concern:

Be it known that we, GEORGE F. ABENDSCHEIN and ALBERT STAIB, citizens of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Rebound-Checking Mechanism for Piano-Actions, of which the following is a specification.

Our invention relates to piano actions and particularly to means for checking the rebound of the hammer.

The object of our invention is the provision of yieldable means on the fly or jack adapted to be engaged by a catcher mounted upon the hammer-butt upon the rebound of the hammer from the strings.

A further object of the invention is to so construct the catcher and the jack that there may be a yielding engagement between the catcher and jack upon the rebound of the hammer whereby to accommodate over stroke.

Other objects will appear in the course of the following description.

Our invention is illustrated in the accompanying drawings wherein:

Figure 1 is a side view of a piano action constructed in accordance with our invention with the parts at rest, the main rail, the tripping rail and the hammer rest rail being shown in section. Fig. 2 is a like view to Fig. 1 but showing the parts in the position taken after the hammer has rebounded by the strings and is caught by the catcher. Fig. 3 is a detail view of the catcher detached from the jack.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

Referring to these drawings, 2 designates the action rail of an upright piano of any desired type and 3 the wippen attached to the action rail by means of the wippen flange 4.

5 is the usual abstract.

Mounted upon the main rail 2 is the hammer-butt 6 carrying the shank 7 and hammer 8. The hammer shank rests normally upon the hammer rest rail 9. The hammer is impelled outward or away from the string by the usual spring 10. All of these parts except the hammer-butt may be of any ordinary or usual construction.

The upper end of the hammer-butt 6 is

formed with an outwardly projecting shank 11 which may be either of metal or wood, the inner end being inserted in a socket in the hammer-butt 6. Mounted upon the extremity of this shank which extends at right angles to the direction of the hammer shank 7 is a catcher 12. This catcher at its upper end is thickened and formed with a socket for the reception of the outer end of the shank 11, and the catcher is held upon the shank 11 by means of a set screw 13. The catcher extends downward approximately at right angles to the shank 11 and on its inner face is disposed the felt or leather pad 14.

Mounted upon the abstract is the jack flange 15 which is located inward of the point of pivotal connection between the abstract and the wippen, and pivotally connected to this flange 15 is the jack or fly 16. This jack or fly is of the form illustrated in the application of George C. Snyder, filed on the 24th day of January, 1911, Serial No. 604,441. This jack is angular in form and has a relatively short arm 17 extending inward toward the action rail and pivoted at 18 to the flange 15, and a relatively long arm 19 which extends upward and inward.

Disposed upon the face of the main rail 2 is a regulating rail 20 adapted to trip the jack. This regulating rail is angular in form and has an outwardly extending portion 21 having a felted lower face as at 22.

Pivotally mounted upon the jack is a finger 23 having a rounded upper face adapted to engage with the felt 22 of the regulating member 20 as the jack rises. This regulating finger 23 is adjustable by means of an adjusting screw 24. All of these parts are precisely the same as illustrated in the said application of Snyder and in our former application filed March 20, 1913, Serial No. 755,761.

The upper end of the jack or fly 19 is angularly extended as at 25 and slightly beveled so as to fit between a buckskin facing 26 disposed upon the shoulder 27 of the jack and an outwardly projecting block of felt 28. In other words, the hammer-butt and the engaging end of the jack are constructed in the same manner as in our previous application.

Pivotally mounted upon the upper end of the jack is a member 29. The lower end of this member is bifurcated and fits over the jack and is pivoted thereto by means of the

pivot pin 30. The jack is formed with a shoulder 31 which limits the forward movement of this member 29 and the upwardly and outwardly extending body of this member 29 is urged outward away from the strings of the instrument and toward the catcher 12 by means of a light spring 32. This spring is disposed in a notch 33 formed in the upper end of the jack and in a notch 34 formed in the upper end of the member 29. The face of the member 29 is recessed as at 35 and disposed against the face of this recess is a layer of felt designated 36 adapted to contact with the buckskin 14 of the catcher 12. The engaging faces of the felt 36 and the buckskin 14 are slightly rounded to conform to each other so that as the hammer rebounds, the buckskin face 14 will slide over the felt face 36 and eventually the frictional engagement between the two faces will check the rebound of the hammer.

The operation of the invention will be apparent from what has gone before. Upon a depression of the outer end of the key the abstract and the outer end of the wippen are raised. This lifts the jack or fly and with it the hammer until the tripping finger 23 strikes the felt pad 22 of the regulating rail. This occurs at the instant that the hammer has struck the strings. As soon as the rounded face of the finger 23 contacts with the felt 22, the jack is turned upon its pivot and tripped and the upper end of the jack is thrown outward. At the same time that the upper end of the jack is moving outward, the hammer will rebound from the strings and the inner leather face 14 of the catcher 12 will come in contact with the rounded face of the felt 36 which will frictionally resist the further rearward movement of the hammer. It will be obvious that the leather face of the catcher will move downward upon the felt face of the member 29 a distance depending upon the force of the blow and that thus provision is made for the check of a very light blow or a very heavy blow without any tendency to catch the hammer at one point only whether a heavy or a light blow has been struck upon the key and thus there will be no tendency to stutter or "tremble". As the member 29 is pivoted upon the upper end of the jack or fly, it is obvious that it will be forced inward, that is, toward the end of the fly upon an over stroke of the key and a consequent greater outward movement of the upper end of the jack than normally occurs. This over stroke of a key may be caused by a number of different factors as, for instance, the sagging of the keyboard and the compressing of the key felts.

It will of course be obvious that with the mechanism heretofore described there is no

necessity of a bridle tape thus doing away with considerable expense and trouble and eliminating the danger of the bridle tape being eaten away by mice as very commonly happens. Furthermore space is economized in this action which is particularly important where the action is to be used for player pianos. The hammer will be positively retracted upon the fall of the jack and will not have to be drawn back by any bridle tape. In order, however, to secure a quick action of the hammer, it is desirable to provide the usual hammer spring.

What we claim is:

1. An upright piano action including a hammer-butt, a jack, a catcher mounted upon the butt extending outward and downward over the upper end of the jack, a back check pivoted upon the upper end of the jack extending upward and outward therefrom, and a spring engaging the back check and urging the free end thereof outward.
2. An upright piano action including a hammer-butt, a jack, a catcher mounted upon the butt and extending outward and downward over the upper end of the jack, a back check pivoted adjacent the upper end of the jack and extending upward and outward therefrom, and a spring resiliently urging the free end of the back check outward away from the upper end of the jack, the jack being formed with a stop limiting the outward movement of the back check, the jack, when the hammer is retracted, supporting the back check in spaced relation to the catcher and out of engagement therewith.
3. An upright piano action including a hammer-butt, a jack, a catcher mounted upon the butt and extending outward and downward over the upper end of the jack, a member bifurcated at its lower end to fit over the upper end of the jack and pivoted therethrough to the jack, the said member extending upward and rearward, the jack being formed with a stop for limiting the forward movement of the member, and a spring disposed between the free end of the member and the upper end of the jack and acting to force the free end of the member outward but permitting the free end to move inward toward the extremity of the jack, the jack, when the hammer is retracted, supporting said member with its face in spaced relation to but out of engagement with the face of the catcher.

In testimony whereof we affix our signatures in presence of two witnesses.

GEORGE F. ABENDSCHEIN. [L. S.]
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Witnesses:

AUG. GAREISS, JR.,
 MABELLE FINNEGAN.