

No. 849,278.

PATENTED APR. 2, 1907.

L. N. SOPER.
PIANO ACTION.

APPLICATION FILED JAN. 11, 1907.

Fig. 1.

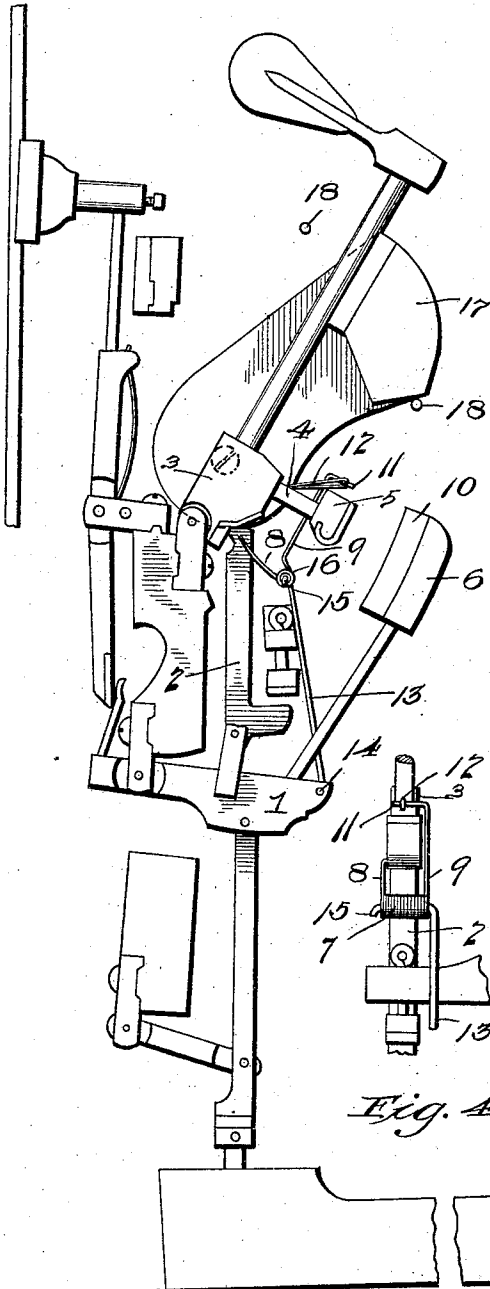


Fig. 2.

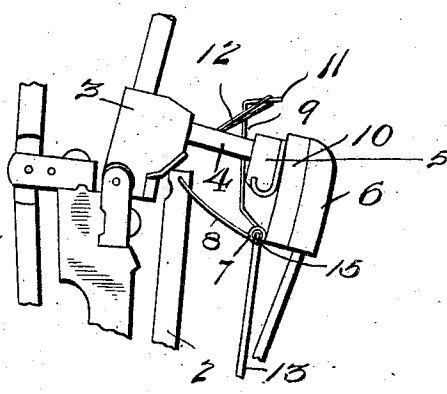


Fig. 3.

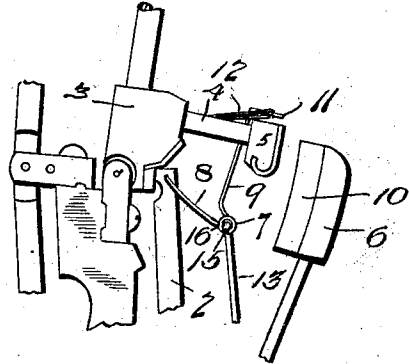


Fig. 5.

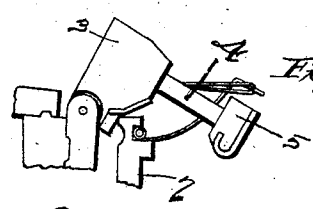
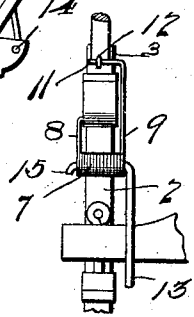


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

LEWIS N. SOPER, OF GUELPH, ONTARIO, CANADA.

PIANO-ACTION.

No. 849,278.

Specification of Letters Patent.

Patented April 2, 1907.

Application filed January 11, 1907. Serial No. 351,840.

To all whom it may concern:

Be it known that I, LEWIS N. SOPER, a subject of the King of Great Britain, residing at Guelph, Wellington county, in the Province of Ontario, Dominion of Canada, have invented a certain new and useful Piano-Action, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to piano-actions; and the object of the invention is to produce a rapid repeating action for upright pianos which will have all of the excellent qualities and capabilities of the grand and give greater reliability in operation than has heretofore been practicable with the actions known to the trade.

With the above and other objects in view, the nature of which will more fully appear as the description proceeds, the invention consists in the novel construction, combination, and arrangement herein fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a sectional elevation of a piano-action embodying the present invention, the parts being illustrated in the position of rest. Fig. 2 is a similar view illustrating the position assumed by the parts when the appropriate key is depressed. Fig. 3 is a similar view illustrating the positions assumed by the parts when the key is relaxed or partially released, as in rapid playing. Fig. 4 is an irregular vertical section taken at a right angle to Fig. 1 to better illustrate the form and arrangement of the spring and the directing medium therefor. Fig. 5 is a sectional elevation illustrating a modification in which the directing medium for the spring is dispensed with.

Referring to the drawings, 1 designates the wippen, 2 the jack, 3 the hammer-butt, 4 the countercheck-shank, 5 the countercheck, and 6 the back-check.

In carrying out the present invention I use a spring substantially V-shaped in general outline, embodying a coiled portion 7 and two arms 8 and 9, which constitute the end portions of the spring and project from the coiled portion at an angle to each other. One arm of the spring is terminally bent to go transversely through the jack, near the upper extremity of the latter, being journaled in the jack, said arm inclining from the jack outward and downward to bring the coiled portion of the spring about on the level of the

lower part of the felt 10 on the back-check. When the key is struck, the jack in its rebound is stopped by the coiled part of the spring meeting the back-check. The other arm 9 of the spring extends upward from the coiled portion, and the extremity thereof is bent into a hook 11, located above the plane of the countercheck and its shank and arranged, preferably, over the countercheck and engaging one end of a loop or flexible connection 12, the other end of which is attached to the countercheck-shank, intermediate of the length of the latter.

The spring is kept in position and guided and directed in its movements by a link 13, the ends of which are bent at right angles to the body thereof, one end 14 passing transversely through the wippen, near the outer end of the latter, the other end 15 passing through the coil or coils of the spring, a piece of bushing 16, such as cloth, being drawn in first. The spring so placed and connected becomes a hammer-spring, a jack-spring, and a repeating-spring, giving the rapid and positive repeating effect of the best grand action and being also a substitute for the bridle-wire and tape, which are thus done away with. The arrangement set forth produces a lively action and also constitutes a lost-motion eliminator.

In soft-pedal practice when the hammer is thrown forward to half-stroke or less the jack will be in touch with the hammer-butt. The effect is pleasing to the pianist and is a valuable feature in self-playing pianos, where on account of the rapidity required the action will prove a success where the ordinary action falls short. When the key is struck and the hammer at check about three-eighths or one-half inch from the string, the plane of the flexible connection should be through the axis of the butt. By bending the end of the spring up or down said connection may be brought into the line and position required.

The hammer-rest rail 17 is shown as pivotally mounted to allow the same to be moved up or down, as with the soft pedal, stops 18 being also shown to limit the throw of said hammer-rail.

I claim—

1. An upright-piano action comprising a countercheck with shank, a hammer-butt, a jack, a spring having one end connected to the jack and its free end extending above the plane of the countercheck-shank, a flexible connection located above the countercheck-

shank and having one end attached to the free end of the spring and its opposite end connected with the hammer-butt and a spring-directing element controlled by a movable part of the action.

2. An upright-piano action comprising a hammer-butt, a jack, a spring interposed between the butt and jack, and means connected with said spring operating to direct the movement of the spring.

3. An upright-piano action comprising a hammer-butt, a jack, a spring interposed between the butt and jack, and a connection between said spring and a movable element of the action operating to direct the movement of the spring.

4. An upright-piano action comprising a hammer-butt, a jack, a spring interposed between the butt and jack, and a link having one end connected with the spring and operating to direct the movement of said spring.

5. An upright-piano action comprising a hammer-butt, a jack, a spring interposed between the butt and jack, a wippen, and a

link actuated by the wippen and connected with the spring and operating to direct the movement of the spring.

6. An upright-piano action comprising a hammer-butt, a jack, a spring interposed between the butt and jack, and a connection actuated by a movable element of the action and pivotally attached to the spring at a point intermediate of the ends thereof.

7. An upright-piano action comprising a hammer-butt, a jack, a spring interposed between the butt and jack, a countercheck with shank, a flexible connection having one end connected with the countercheck-shank and the other end in engagement with the free end of said spring and a spring-directing element actuated by a movable part of the action.

In testimony whereof I affix my signature in presence of two witnesses.

LEWIS N. SOPER.

Witnesses:

NELLIE MACKENZIE,
HERBERT STEVENSON.