

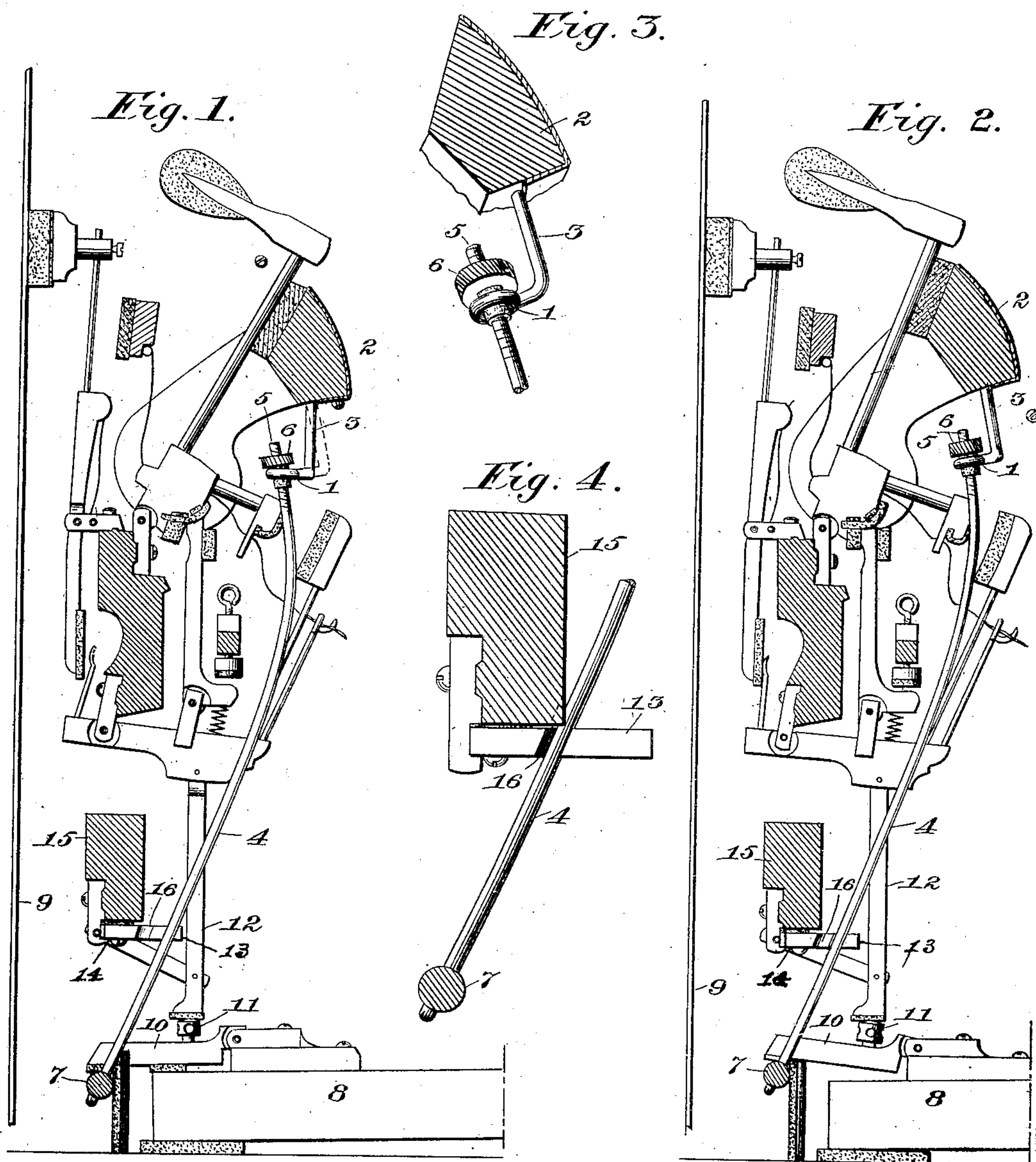
No. 747,790.

PATENTED DEC. 22, 1903.

L. N. SOPER.
PIANO ACTION.

APPLICATION FILED APR. 30, 1903.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

LEWIS N. SOPER, OF GUELPH, CANADA.

PIANO-ACTION.

SPECIFICATION forming part of Letters Patent No. 747,790, dated December 22, 1903.

Application filed April 30, 1903. Serial No. 155,054. (No model.)

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, in the Province of Ontario and 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 has for its object to provide what may be termed a "soft-pedal lost-motion eliminator" which will do away with the usual lost motion in the keys resulting from lifting or changing the position of the parts of the action without correspondingly altering the position of the keys.

It is well understood that from one-third to two-fifths of the touch of the key of a piano is lost by the hammer being thrown forward by the hammer-rail for piano and pianissimo effects, the hammer being thereby lifted from the parts of the action connecting it with the keys. The object of the present invention is to keep the parts in perfect contact when the soft pedal is used, thus doing away with lost motion and giving a perfect and uniform touch.

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 of parts, as hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a vertical cross-sectional view of a piano-action, showing sufficient thereof to illustrate the nature of the present invention. Fig. 2 is a similar view showing the hammer-rail and the parts connected therewith raised as they appear under the influence of the soft pedal. Fig. 3 is an enlarged detail perspective view looking toward the under side of the hammer-rail, showing one of the screw-eyes and hangers and hanger-adjusting device. Fig. 4 is a detail cross-section showing the latch for holding the hanger out of operative position. Fig. 5 is a detail plan view of the latch.

Like reference-numerals designate corresponding parts in all the figures of the drawings.

In carrying out the present invention a se-

ries of screw-eyes 1 are connected with the hammer-rail 2, said screw-eyes having shanks 3, which are preferably screwed or inserted into the lower side or edge of the hammer-rail, as shown. The eyes 1 are disposed in a substantially horizontal plane, while the shanks 3 are bent substantially at right angles thereto, so as to enter the under side of the hammer-rail. Ordinarily about four of such screw-eyes are employed in a single action, although said number may be increased or diminished at the will of the manufacturer. The lower bent portions of the screw-eyes extend, by preference, toward the axis of motion of the hammer-rail, as clearly shown in the drawings.

Passing through each eye 1 is a hanger 4, consisting, preferably, of a piece of wire of suitable gage, having the upper end thereof screw-threaded, as shown at 5, and inserted through the eye 1, where it receives an adjusting-nut 6, which rests upon the eye and by means of which said hanger-wire may be raised and lowered to properly adjust the lifting-rail carried thereby in proper relation to the whips hereinafter described. The lower ends of the hangers 4 are all connected with and contribute to support a horizontally-disposed lifting-rail 7, which runs parallel with the inner ends of the keys 8 and between the ends of the keys and the strings 9 and about on a level with the tops of the keys when the latter are at rest.

The keys 8 are provided with hinged whips 10, the free members of which are provided with the usual capstan-screws 11, upon which the abstracts 12 rest. When in the normal position, the free ends of the whips extend inward just over the lifting-rail 7 and in touch with said lifting-rail, as shown in Fig. 1.

13 designates a latch which is pivotally mounted at one end, as at 14, on the lower rail 15 of the action or other convenient place, said latch being provided with a notch 16 to receive the hanger 4 when the latter is pushed rearward. When the latch is in engagement with the hanger 4, the lifting-rail 7 is sustained beyond and over the extremities of the whips 10. This enables the action to be taken out of the case. After restoring the action to its place the latch is disengaged from the hanger, whereupon by sweeping the hands

over the keys the lifting-rail is allowed to gravitate beneath the free ends of the whips, which then come to a position of rest upon said lifting-rail.

5 From the foregoing description it will be obvious that when the soft pedal is used, the hammer-rail being lifted to throw the hammer nearer the strings, all parts connected with it down to the lifting-rail and the whip
10 will also be raised, raising the abstract and all parts above it, so that the jack will be kept in perfect touch with the hammer-butt. The lifting-rail is adjusted to the whips by the nuts on the upper ends of the hangers,
15 and the exact amount of lift required may be obtained by bending the screw-eyes toward or away from the axis of the hammer-rail, as shown by dotted lines in Fig. 1. When so adjusted, the screw-eyes will not again
20 need attention. It will be understood that bending the eyes inward creates less lift and bending them outward increases the amount of lift.

Usually the soft pedal is allowed to lift the
25 hammer only five-eighths of an inch because of the lost motion and lame action. With this device the hammer can be thrown forward an inch and yet the contact in every part will remain perfect. The depth of touch
30 is not changed in the least, and results in tone and quality may be had not attainable with the ordinary action. There is no need of a felt stop between the hammers and strings, the tone being better in the absence
35 thereof. This device will also add to the durability of the action besides making the touch and tone much more satisfactory.

Having thus described the invention, what is claimed as new is—

40 1. In a piano-action, the combination with the keys, of hinged whips thereon, a hanger adjustably connected with the hammer-rail, and a whip-lifting rail wholly supported by said hanger.

45 2. In a piano-action, the combination with

the keys, of hinged whips thereon, a hanger connected with the hammer-rail, means for adjusting the connection between the hanger and the hammer-rail, and a whip-lifting rail wholly supported by the hanger.

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3. In a piano-action, the combination with the keys of hinged whips thereon, a screw-eye connected with the hammer-rail, a hanger extending through the screw-eye, a nut threaded upon said hanger and engaging the
55 screw-eye for adjusting the hanger relatively to the hammer-rail, and a whip-lifting rail wholly supported by the hanger.

4. In a piano-action, the combination with the keys, of hinged whips thereon, a whip-
60 lifting rail, a bendable screw-eye connected with the hammer-rail, and a hanger attached to the lifting-rail and also connected with said screw-eye.

5. In a piano-action the combination with
65 the keys, of hinged whips thereon having their free ends extended inward beyond the ends of the keys, a hammer-rail, eyes carried by the hammer-rail, hangers passing through said eyes, nuts on the hangers bearing against
70 the eyes for adjusting the hangers relatively to the hammer-rail, and a lifting-rail wholly supported by the hangers and extending immediately beneath the free ends of the whips and located between the ends of the keys and
75 the strings.

6. In a piano-action, the combination with the keys, of hinged whips thereon, a whip-lifting rail extending beneath the whips, hangers connecting said lifting-rail with the
80 hammer-rail, and a latch for engaging one of the hangers and holding the lifting-rail out of engagement with the whips.

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

LEWIS N. SOPER.

Witnesses:

EDWIN J. LINGWOOD,
HUGH MCMILLAN.