

UNITED STATES PATENT OFFICE.

FRED C. GILLETTE AND ARTHUR J. FLINT, OF BOSTON, MASSACHUSETTS.

PIANOFORTE-ACTION.

SPECIFICATION forming part of Letters Patent No. 633,189, dated September 19, 1899.

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To all whom it may concern:

Be it known that we, FRED C. GILLETTE and ARTHUR J. FLINT, of Boston, in the county of Suffolk and State of Massachusetts, have
5 invented a new and useful Improvement in Pianoforte-Actions, of which the following, taken in connection with the accompanying drawings, is a specification.

Our invention relates to improvements in
10 pianoforte-actions; and it consists in a device by which the function known as "repeat" is fully developed and the hammer movements are much improved and simplified.

The mechanism by which we attain the im-
15 proved results is illustrated in the accompanying drawings, in which—

Figure 1 is an elevation showing the parts of an upright-pianoforte action, the hammer being represented as back in its resting po-
20 sition. Other positions of the hammer are indicated by dotted lines. Figs. 2 and 3 show different positions of the hammer-butt and its coacting parts.

As our invention relates entirely to the parts
25 that are directly connected to the hammer, we will confine our description to those parts.

In Fig. 1 A represents the jack, which is made and hung in the usual manner. The jack-fly B is pivoted to the jack at B'. The
30 upper end B³ of the jack-fly B is made nearly or quite flat and broad, and the front face is inclined so as to be nearly or quite at right angles with the adjusting-screw L' of the button L, whereby there is a full bearing between
35 the face of the button and that of the jack-fly, as shown. The hammer H² has a stem H' and butt H, pivoted at H⁵ to the flange D. A hammer-butt bracket L is connected to the butt by means of a pin L². An adjustable
40 back-stop button L⁴ is connected to the bracket L by the adjusting-screw L'.

E represents the well-known light check-spring, adapted to assist in checking the forward movement of the hammer, but not to
45 control its action except to a very limited degree.

We will now explain the peculiar features of our pianoforte-action. The lower end of the hammer-butt H has a rounded boss H⁴,

made substantially as shown in the drawings, 50 although the exact form of this part need not be followed. It is essential only that the lever-like function of this part be maintained, so that the spiral spring S shall have free scope to perform its work of steadying and 55 to a limited extent controlling the movements of the hammer. In addition to these functions the spiral spring S completely controls the action of the jack-fly B, no other spring being required for the jack-fly. The 60 jack-fly has a mortise cut entirely through it, as shown at B², Figs. 2 and 3. This mortise leaves a free space through the upper part of the jack-fly for the spring S to work in. One end of the spring S is connected to the ham- 65 mer-butt at S', the other end being attached to the jack-fly by the wire hook at S². This hook S² may be bent as desired, so as to bring more or less tension on the spring S, and thus adjust it. We do not confine ourselves to 70 any particular method of constructing the spring or of attaching it to the hammer-butt or to the jack-fly. The advantage of directly connecting the hammer and the jack-fly is that this method secures a perfect coaction 75 and balance between these parts. A single adjustment establishes a perfect working relation between the hammer and the jack-fly.

In Figs. 1 and 2 the hammer and its parts are shown in the position that they occupy 80 when the key is in its normal position and the hammer clear back. In this position the upper face B³ of the jack-fly is in full contact with the cushion H³ of the hammer-butt. The dotted lines *h h'*, Fig. 1, represent different 85 positions of the hammer-head when the player is executing a repeat.

In Fig. 3 we have shown one of the positions that the upper end of the jack-fly will occupy in relation to the hammer-butt and 90 the back-stop button L⁴.

We claim—

In a pianoforte-action, a hammer having a butt pivoted as usual, and having a rounded boss below the pivot acting like a lever, the 95 fulcrum of which is the pivot upon which the hammer swings; and a longitudinally elastic spring attached at the rear of the hammer-

butt above the pivot and passing around and
under the boss to the jack-fly to which it is
attached, whereby the said spring acts both
upon the hammer and upon the jack-fly; and
5 the said jack-fly; substantially as and for the
purpose set forth.

In testimony whereof we have signed our
names to this specification, in the presence of

two subscribing witnesses, on this 20th day
of August, A. D. 1898.

FRED C. GILLETTE.
ARTHUR J. FLINT.

Witnesses:

BOWDOIN S. PARKER,
WILLIAM H. PARRY.