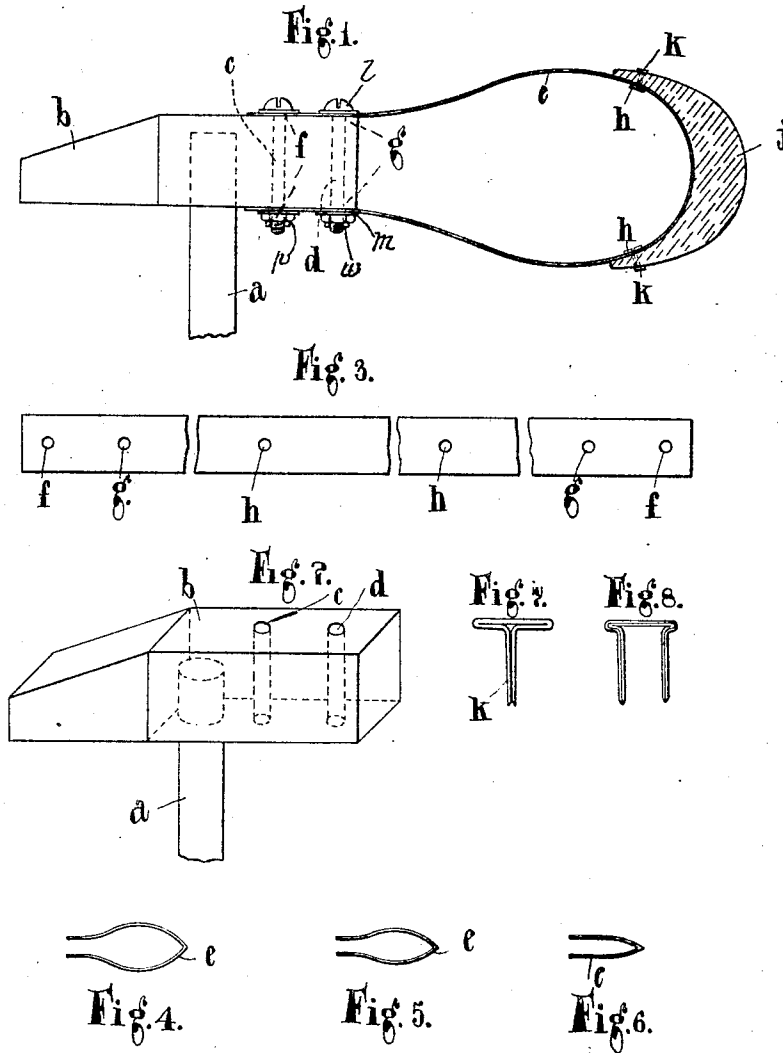


A. E. N. LAWRENCE.
HAMMER FOR PIANOS AND SIMILAR INSTRUMENTS.
APPLICATION FILED OCT. 16, 1919.

1,353,357.

Patented Sept. 21, 1920.



INVENTOR
A. E. N. Lawrence.
BY
L. R. Kerslake ATTORNEY

UNITED STATES PATENT OFFICE.

ATHOL ERNEST NEVILLE LAWRENCE, OF RUSTENBURG, TRANSVAAL, SOUTH AFRICA.
HAMMER FOR PIANOS AND SIMILAR INSTRUMENTS.

1,353,357.

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To all whom it may concern:

Be it known that I, ATHOL ERNEST NEVILLE LAWRENCE, a subject of His Majesty the King of England, residing at Loop street, Rustenburg, in the Transvaal Province of the Union of South Africa, has invented certain new and useful Improvements in Hammers for Pianos and Similar Instruments, of which the following is a specification.

This invention relates to an improved hammer or striker for pianos and similar instruments.

Such hammers or strikers, at present in general use, consist of rigid V-shaped or pointed wooden appliances pivotally fixed to a frame opposite the strings of the instrument they are designed to strike. The face of the striker is covered with a soft pliable medium, usually felt, to modify the blow upon the string, and to soften the resultant sound produced thereby. It can be well understood, that in the course of time constant use invariably tends to deprive the felt of its pliability, which consequently becomes harder and harder through continuous compression caused by the constant hammering of the felt against the strings, until eventually it becomes almost as hard and incompressible as the wooden face it covers.

When this condition has been reached in the life of a piano, mellow tones cannot be produced therein and the tone of the piano becomes harsh and unpleasant to the ear. The mellowness and richness of tone is thus a variable dependent upon the condition of the felt covering the faces of the hammers or strikers.

The object of the present invention is to provide an improved hammer or striker, whereby this drawback is obviated, and the original tone of the instrument is permanently retained.

This invention consists in a hammer or striker for use in pianos or similar instruments, characterized in that a cushion of felt or the like which constitutes the striker portion is connected to its supporting base by means of a yielding element, preferably of metal whereby the striker or hammer remains effective over a long period and variation in the condition of the hammer with use is avoided.

The accompanying drawings illustrate by way of example, one way of carrying the invention into effect.

Figure 1, is a side view of a complete hammer head,

Fig. 2 is a perspective view of part of the hammer head.

Fig. 3 is a developed view of the metal spring.

Figs. 4, 5, and 6 indicate on a small scale modified shapes of spring which may be used.

Fig. 7 is a side elevation of a split pin, and

Fig. 8 is a side elevation of a double split pin, whose use will be hereinafter described.

The hammer shank or rod *a* is pivoted in the usual manner on the frame of the instrument and carries a block *b* which is preferably of wood and to this block the metal spring *e* which is preferably flat, is attached. Through this block from top to bottom two holes *c* and *d* are bored to receive bolts, 1. Along the axis of the flat spring *e* and symmetrically about the center thereof, six holes *f*, *g* and *h* are bored. The holes *f* and *g* are near the end of the spring and are spaced so as to correspond with the holes *c* and *d*. One of the bolts 1 passes through the block *b* by the hole *c* and the holes *f* of the spring *e* while the other bolt 1 passes through the hole *d* of the block *b* and the holes *g* of the spring *e*. The bolts are held by nuts *p* and suitable washers *m* are used. To prevent the parts from working loose the washers *m* may be of the split variety and split pins *w* may be passed through holes in the bolts 1.

The outer end of the loop which is constituted by the center portion of the spring *e* is the end adapted to strike the string and is therefore covered with a cushion *j* of felt or other suitable material, which cushion *j* is preferably of crescent shape. This cushion is attached to the spring by any suitable means, such as split pins *k* whose ends are bent outwardly after passing through the cushion *j* and the holes *h* of the spring. Instead of the holes *h*, in the spring *e* two holes in close proximity may be used in which case the double split pins as shown in Fig. 8 are used.

For higher notes, it is desirable to employ less resilient hammers, or the hammer above described may be progressively modified to suit change of pitch by modifying the shape of the metal loop as shown on a small scale in Figs. 4, 5, and 6, so as to alter the curva-

ture of the striking surface whereby the force of the blow is increased. This variation may also be effected by altering the length or its temper with or without altering the curve. The shape of the spring may also be altered by varying the depth of the block *b*.

If desired, the felt or other suitable material may be compressed before being applied to the spring. The cushion *j* is preferably of crescent shape but any other suitable shape may be used and the thickness of the cushion may be altered as desired.

To prevent the loosening of any of the bolts, all the nuts are preferably provided with split washers.

What I claim is:—

1. A hammer for pianos comprising a shank, a block connected to the upper end thereof, a spring formed from a single strip of metal bent into a loop shape and having its end portions rigidly secured to one end portion of the block so that the side portions will be free to yield from the intermediate portion to the point of attachment of the end portions, and a cushion detachably secured to the outer surface of the curved intermediate portion of the spring.

2. A hammer for pianos as claimed in claim 1 wherein the intermediate portion of the spring is provided with spaced openings, and split pins mounted through the ends of the cushion and passed through the openings in the spring and serving to detachably secure the cushion to the spring.

3. A hammer for pianos comprising a shank, a block connected to the inner end thereof and provided with longitudinally spaced transverse openings in one end portion, a spring formed from a strip of metal arranged in a loop shape and provided at its end portions with opposed pairs of openings, a pair of fastening devices engaging the openings in the spring and the block for clamping the end portions of the spring on opposite sides of one end portion of the block so as to permit the intermediate and side portions of the spring to yield, a crescent shaped cushion of felt arranged on the curved outer surface of the spring, and means associated with the ends of the cushion for detachably securing the cushion to the spring.

In testimony whereof I affix my signature.

ATHOL ERNEST NEVILLE LAWRENCE.