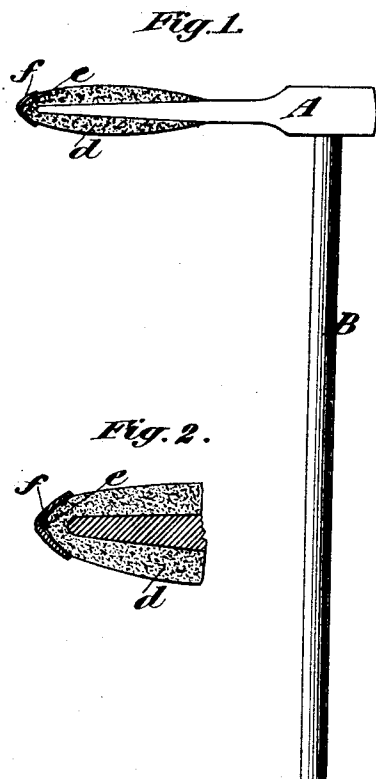


(No Model.)

A. W. HALL.
HAMMER FOR PIANOFORTE ACTIONS.

No. 514,711.

Patented Feb. 13, 1894.



Witnesses:-
George Barry,
D. Howard Tiller

Inventor:-
Alexander Wilford Hall
by attorneys
Brown & Lewis

UNITED STATES PATENT OFFICE.

ALEXANDER WILFORD HALL, OF NEW YORK, N. Y.

HAMMER FOR PIANOFORTE-ACTIONS.

SPECIFICATION forming part of Letters Patent No. 514,711, dated February 13, 1894.

Application filed January 28, 1893. Serial No. 460,023. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER WILFORD HALL, of the city and county of New York, in the State of New York, have invented a new and useful Improvement in Hammers of Pianoforte-Actions, of which the following is a specification.

The object of my invention is to obtain a hammer that will be more effective upon the shorter strings of the piano-forte. In order to explain this object fully I will refer to the hammer as now constructed and to the consequent defect in the higher notes of the instrument resulting from such construction.

It is well recognized that the hammers of the higher notes in a seven and one-third octave or full size piano-forte bring out very little tone. This I have discovered to result from the formation of the tip of the hammer where it comes in contact with the string being so blunt that it becomes impossible on such short strings as are used for those notes to concentrate the force of the blow to the exact nodal point or center of the ventral sector where alone effective action can be produced. The length of the strings of the highest note between the bridge of the sound-board and the agraffe is but about two inches and the point or center where they should be struck is but about an eighth of an inch from the agraffe and not more than about one sixty-fourth of an inch in length, but the narrowest or thinnest of the hammers constructed in the common way extends along the wire from an eighth to a quarter of an inch and are so soft that when the blow is struck the strings embed themselves into the hammers so as to make the length of contact still greater and less effective. The string of the length above mentioned vibrates nearly five thousand times in a second so that it is impossible for the hammer with its soft yielding face to get out of the way clear of the string, after striking a blow, quickly enough to avoid its damping the vibration.

My invention consists in the construction of the face of the hammer as hereinafter described and claimed whereby it is adapted for effectively striking the string at the proper point within an exceedingly short limit.

Figure 1 is a side view of a hammer for one of the higher notes of an upright piano-forte illustrating my invention. Fig. 2 represents on an enlarged scale a section of the tip of the hammer shown in Fig. 1.

In carrying out my improvement, the hammer head A is or may be constructed in the usual way and provided with the usual covering *d* of felt, leather or soft material. To the head thus constructed and faced I apply as shown in Figs. 1 and 3, across the tip or nose a piece *e* of thin metal, as wire, and secure the said piece *e* to the covering *d* by means of a facing strip *f* or integument of thin and soft material as leather or skin, which is lapped over the said piece *e* and secured by glue or other adhesive material to the covering *d*. The nose or tip of the hammer thus constructed may be made to strike the string on the exact ventral point of the string best suited to produce the proper tone, the length of the string with which the hammer comes in contact being the minimum and the recoil of the hammer from the string will be very sharp and the hammer will have but little tendency to damp the string and thereby check the vibration.

What I claim as my invention is—

The combination in a piano-forte hammer of a covering of soft material overlapping the tip or nose of the hammer, a piece of metal arranged across the nose or tip outside of said covering and an integument covering said piece of metal and constituting the striking surface of the hammer, substantially as here- in set forth.

ALEXANDER WILFORD HALL.

Witnesses:

FREDK. HAYNES,
L. M. EGBERT.