No. 614,456. Patented Nov. 22, 1898.

A. F. FLOREY.

PIANO ATTACHMENT.

(Application filed Jan. 18, 1898.)

(No Model.)

FIG. 1.

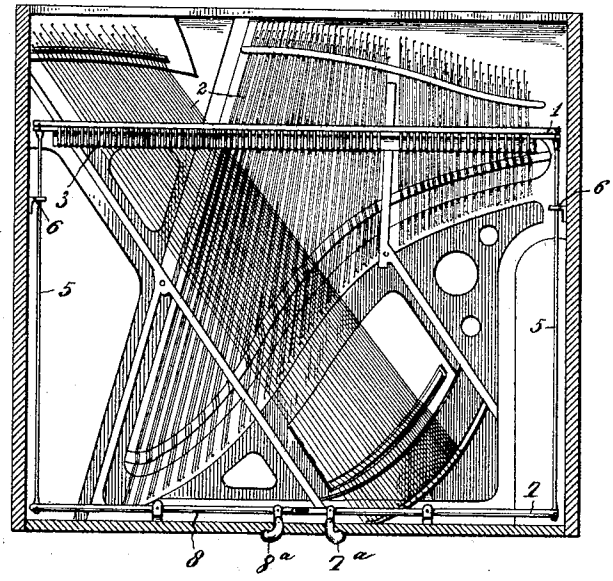


FIG. 2.

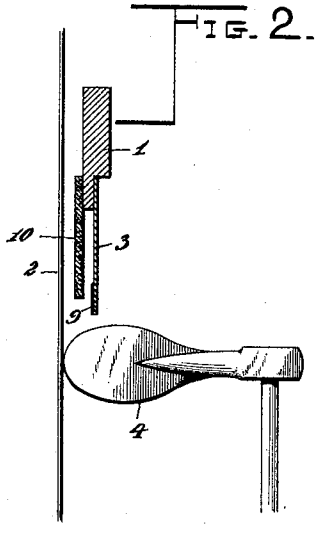


FIG. 3.

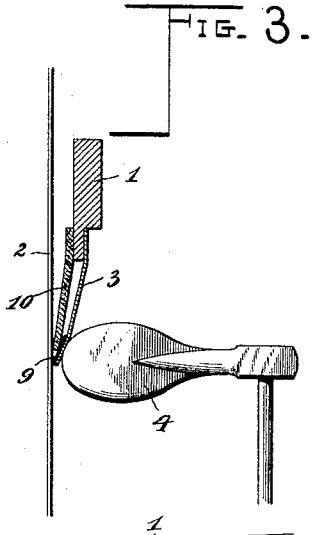


FIG. 4.

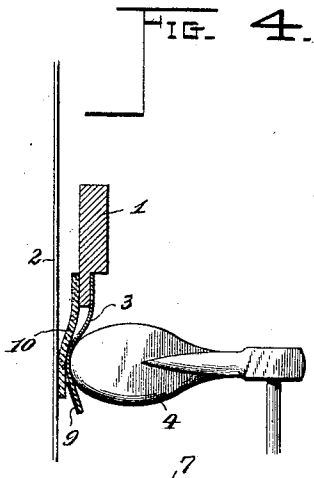


FIG. 6.

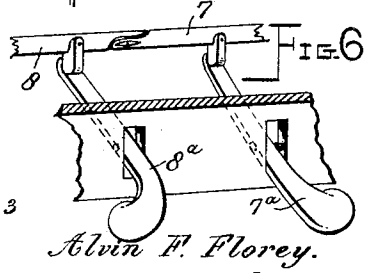
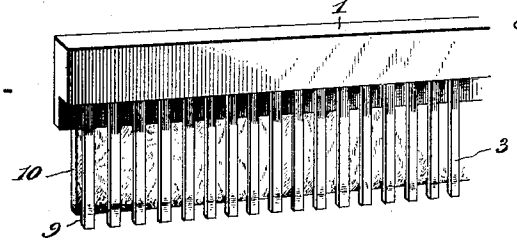


FIG. 5.



Witnesses

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Alvin F. Florey.

Inventor

By his Attorneys,

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

ALVIN F. FLOREY, OF WASHINGTON, NEW JERSEY, ASSIGNOR TO CORNISH & CO., OF SAME PLACE

PIANO ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 614,456, dated November 22, 1898.

Application filed January 18, 1898. Serial No. 667,073. (No model.)

To all whom it may concern:

Be it known that I, ALVIN F. FLOREY, a citizen of the United States, residing at Washington, in the county of Warren and State of New Jersey, have invented a new and useful Piano Attachment, of which the following is a specification.

My invention relates to attachments for pianos, and has for its object to provide a combined mandolin or cithern and muffler attachment adapted for varying the string tone produced by the operation of the hammers, the parts being so disposed as to adapt them to produce either a light metallic tone analogous to that of a mandolin, cithern, harp, or similar instrument or to muffle the tone for practicing and analogous purposes according to adjustment.

Further objects and advantages of this invention will appear in the following description and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a front view, partly broken away, of a sufficient portion of a piano of the upright type to show the application of the attachment embodying my invention. Fig. 2 is a detail view showing the relative arrangement of an instrument-string, the tongue-bar and attachments, and a hammer when the tongue-bar is in its normal position. Fig. 3 is a similar view showing the relative arrangement of tongue-bar when it is desired to bring the striking-faces of the tongues into contact with the strings of the instrument. Fig. 4 is a similar view showing the position of the tongue-bar when it is desired to muffle the tone without producing the metallic effect incident to the arrangement illustrated in Fig. 3. Fig. 5 is a detail view in perspective of a portion of the tongue-bar and attachments. Fig. 6 is a detail view showing the relative arrangement of the pedals and levers and the means whereby motion is communicated from the former to the latter.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

In the preferred embodiment of my invention I employ a single tongue-bar 1, held in place by suitable guides (forming no part of my present invention) for vertical movement approximately parallel with the strings 2 of the instrument and provided with striking-tongues 3, depending from the bar and adapted to be arranged, respectively, in the paths of the hammers 4, as shown clearly in Figs. 2 to 4, inclusive. Connected with opposite ends of the tongue-bar are push-bars 5, which in the construction illustrated are mounted in guides 6 and are connected at their lower extremities to levers 7 and 8, having their inner ends connected by a suitable sliding joint to insure coöperative movement thereof. The pedals 7^a and 8^a are centrally fulcrumed and are arranged, respectively, in operative relation with the inner ends of the levers 7 and 8 to elevate said inner ends, and thereby depress their outer ends to draw downwardly upon the bars 5. The pedal 7^a, however, is arranged nearer the fulcrum of the lever 7 than is the pedal 8^a to the fulcrum of the lever 8, and both levers being depressible to an equal extent it is obvious that a depression of the pedal 7^a will elevate the lever 7 to a greater extent than a depression of the pedal 8^a will elevate the lever 8, and hence the depression of the pedal 7^a will draw the tongue-bar downwardly through a greater distance than will the depression of the pedal 8^a, and for convenience the pedals 7^a and 8^a may be designated as "mandolin" and "practice" or "soft" pedals, respectively, as will be more clearly understood from the following description.

The tongues 3, one of which is employed for each hammer 4, are preferably constructed of flexible material, such as felt, and they are provided at their lower extremities and at those sides contiguous to the strings 2 with hard striking-faces 9, having, approximately, a superficial area which is equal in width to the tongue and equal in length or vertical measurement to the width of the tongue.

In connection with the striking-tongues I employ a muffler-strip 10, of flexible material, such as felt, which is arranged between the tongues and the plane of the instrument-strings and preferably depends to a point ap-

proximately midway between the upper and lower edges of the striking-faces of said tongues. This relative arrangement of parts may be and preferably is attained by fixing the muffler-strip to the same tongue-bar 1 as that above described, whereby the parts permanently maintain the relative position described. The advantage of arranging the muffler-strip upon the tongue-bar, which supports the striking-tongues 3, is that a single adjusting mechanism may be used for accomplishing the production of either a mandolin or tinkling tone and the muffled tone peculiar to the interposition of a muffler-strip between the hammers 4 and the instrument-strings. Only a difference in position of the tongue-bar is necessary to vary the character of the tone, as described. For instance, when the tongue-bar is lowered to bring the faced extremities of the tongues in the paths of the hammers, as shown in Fig. 3, the contact of a hammer with a tongue carries it, with the muffler-strip, into contact with the string, only the lower edge of the striking-face of the tongue contacting with the string, owing to the fact that the upper edge of said face is spaced from the string by the contiguous overlapping edge of the muffler-strip. The contact of the muffler-strip deadens the ordinary tone of the string, while the edge contact of the tongue-face produces the light semimetallic string tone having the general characteristics of mandolin, harp, cithern, and analogous tones. On the other hand, by still further lowering the tongue-bar to bring the body portions of the tongues into the paths of the hammers, above the striking-faces of said tongues, the operation of a hammer drives the tongue and muffler-strip toward the strings of the instrument; but only the muffler-strip comes in contact therewith, the striking-face of the tongue being thrown backwardly and held out of contact with the strings by the overlapping lower edge of the strip, as shown clearly in Fig. 4. The slight projection of the striking-faces of the tongue beyond the body portion or shank thereof has the effect of insuring the proper holding of said striking-faces out of contact with the instrument-strings, for the reason that said projection inclines the lower extremity of the tongue backwardly and prevents it from being lashed forward into contact with the strings. Thus when it is desired to produce the mandolin tone the operating-pedal 7^a or an equivalent device capable of imparting a small or single-step movement to the tongue-bar should be operated to depress the tongue-bar sufficiently to bring the striking-faces of the tongues into the paths of the hammers, as shown in Fig. 3, whereas in order to produce the muffled tone due wholly to the contact of the muffler-strip with the strings the other or practice pedal 8^a or an equivalent device should be operated to impart a double-step movement to the tongue-bar, and thus depress it sufficiently to bring the tongues at points above their striking-faces into the paths of the hammers, as shown in Fig. 4.

In addition to the advantage above indicated of simultaneously muffling the ordinary tone of a string and producing a tinkling sound thereof by the contact of the edge of the striking-face with the string, there is an advantage in causing the lower edge of the muffler-strip to overlap the hard striking extremity of a tongue, and thus causing the tilting of the tongue or an angular position thereof with relation to the string when brought into contact therewith. This additional advantage consists in the fact that there is no rebound or chatter caused by the contact of the striking-face with a string, and at the same time the blow of the striking-face is cushioned by the interposition between the upper portion of the striking-face and the instrument-string of the edge of the strip. The contact of a flat surface, such as the entire striking-face of a tongue, with a string is liable to produce a slight chatter or vibration due to the fact that said face does not strike all of the unison-strings of an instrument exactly at the same time; but by interposing the lower edge of the muffler-strip, as described, it forms a fulcrum consisting of an accurately horizontal edge over which the striking-face of the tongue rocks, and therefore the lower edge of the striking-face is brought into contact with all of the unison-strings simultaneously. A still further advantage of this relative arrangement of muffler-strip and tongue resides in the fact that the rebound of the hammer or the removal of the pressure thereof from a tongue is followed promptly by the removal of the striking-face from contact with the strings, whereby "repetition" of a tone due to rapid successive operations of the same hammer may be attained.

The specific construction of the tongue and striking-face is made the subject-matter of a copending divisional application, Serial No. 692,371, filed September 30, 1898.

Having described my invention, what I claim is—

1. In a device of the class described, the combination with flexible tongues having flat stiffened striking-faces, of a muffler-strip having a soft edge arranged in the path of the upper portions only of said flattened faces, substantially as specified.

2. In a device of the class described, the combination with tongues having flattened striking-faces, of a muffler-strip depending in the paths of the tongues and arranged with its lower edge overlapping the upper edges of said striking-faces and terminating short of the lower edges thereof, substantially as specified.

3. In a device of the class described, the combination of tongues having flat stiffened striking-faces projecting beyond the rear sur-

faces of the tongues, and a flexible muffler-strip depending in the paths of the tongues and arranged at its lower edge to overlap the upper portions of the striking-faces and terminating short of the lower edges thereof, substantially as specified.

4. In a device of the class described, the combination of tongues having flat stiffened striking-faces, a flexible muffler-strip depending in the paths of the tongues and arranged at its lower edge to overlap the upper portions of the striking-faces and terminating short of the lower edges thereof, and means for adjusting said tongues and strip simultaneously to occupy a plurality of positions, substantially as specified.

5. In a device of the class described, a tongue-bar provided with depending flexible tongues having flat stiffened striking-faces, and a depending flexible muffler-strip, attached to said tongue-bar and depending in rear and in the paths of the tongues with its lower edge between the horizontal planes of the upper and lower edges of said striking-faces, substantially as specified.

6. In a device of the class described, the combination with string-striking hammers, of a tongue-bar carrying a flexible muffler-strip and a series of depending tongues having flat stiffened striking-faces, the lower edge of the muffler-strip being arranged in the paths of the tongues between the horizontal planes of the upper and lower edges of said striking-faces, and means for operating the tongue-bar to arrange either the stiffened ends of the flexible body portions of the tongues in the paths of the hammers, substantially as specified.

7. In a device of the class described, the combination with a tongue-bar, having depending tongues and a muffler-strip, and capable of upper, lower, and intermediate positions, of operating devices having levers, capable of movements of different amplitudes, and connections between the levers and said tongue-bar, substantially as specified.

8. In a device of the class described, the combination with a tongue-bar, having depending tongues and a muffler-strip, and capable of upper, lower, and intermediate positions, of operating devices consisting of oppositely-positioned intermediately-fulcrumed levers having their remote ends connected with said tongue-bar, and having a slotted connection between their contiguous ends, to insure simultaneous movement thereof, and pivoted pedals operatively connected respectively with said levers, and arranged at different distances from the fulcrums thereof, whereby, with movements of equal amplitude, said pedals are adapted to communicate motions of different amplitudes to the levers, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ALVIN F. FLOREY.

Witnesses:
R. F. HOPPLE,
T. J. FLOREY.