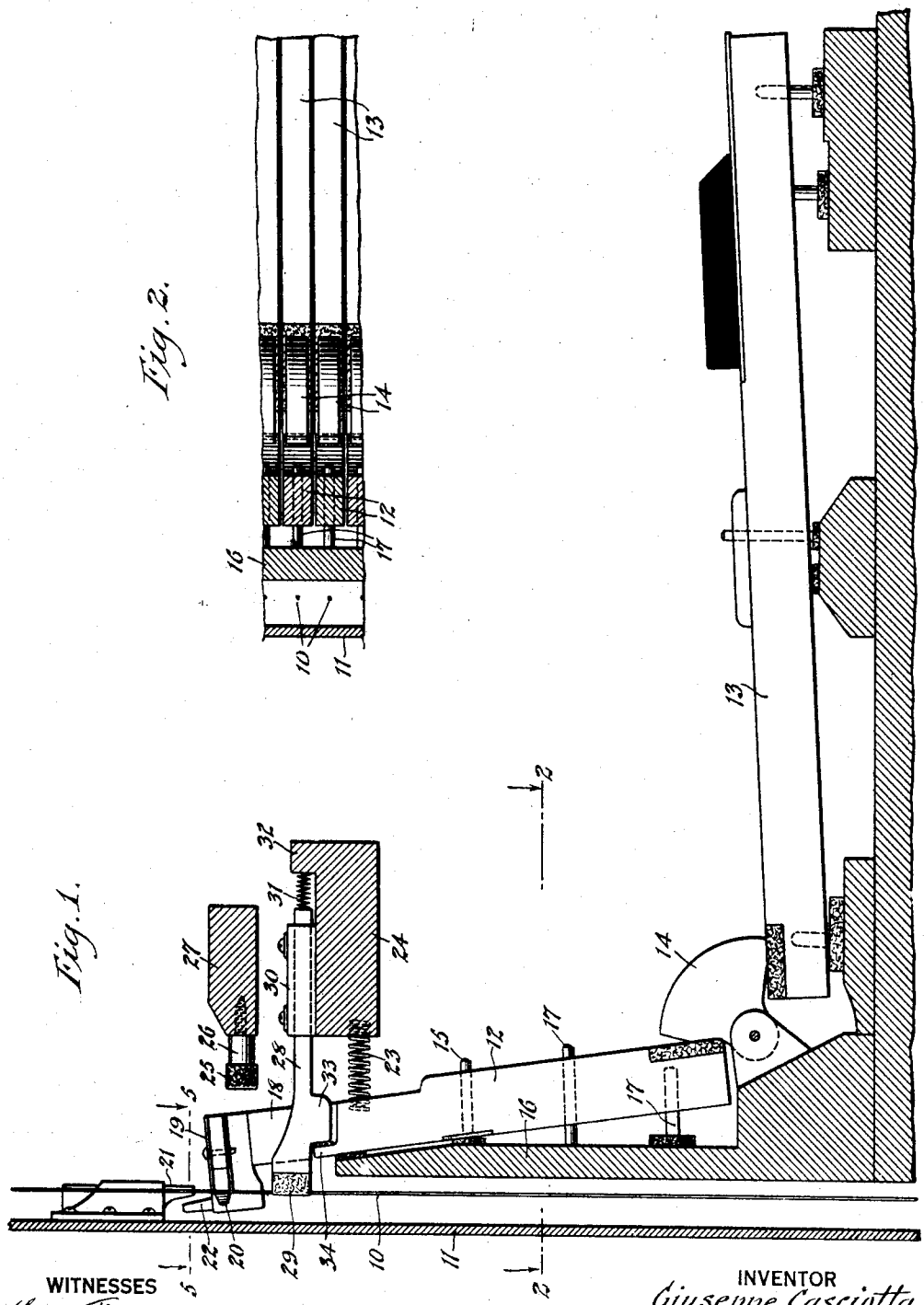
Sept. 22, 1931. G. CASCIOTTA 1,824,706

PLECTRUM PIANO ACTION

Filed Oct. 17, 1930 2 Sheets-Sheet 1



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Fig. 3.

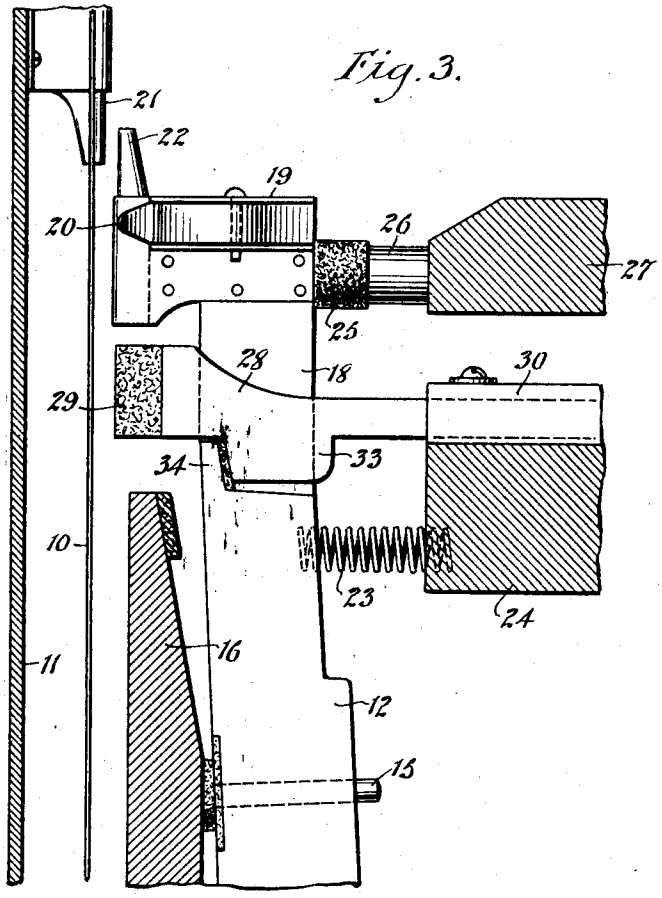


Fig. 4.

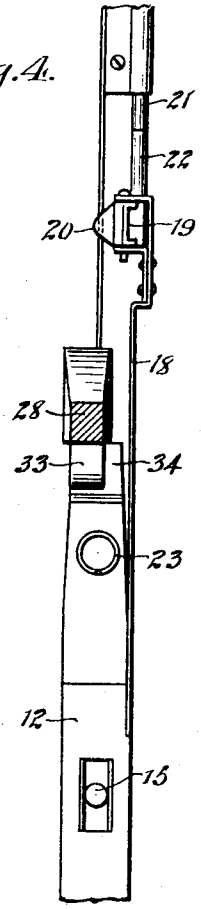


Fig. 5.

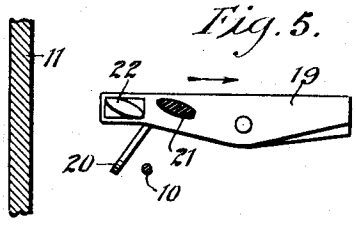


Fig. 6.

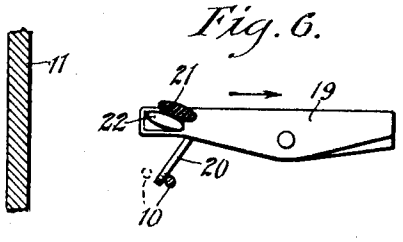


Fig. 7.

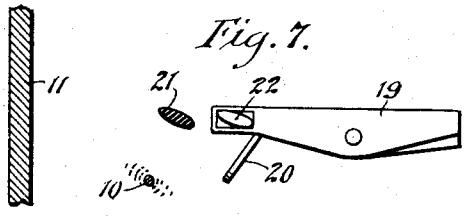
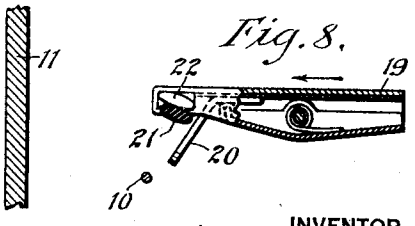


Fig. 8.



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UNITED STATES PATENT OFFICE

GIUSEPPE CASCIOTTA, OF NEW YORK, N. Y.

PLECTRUM PIANO ACTION

Application filed October 17, 1930. Serial No. 489,451.

This invention relates to plectrum piano action, such as disclosed in the United States Letters Patent No. 1,462,444, granted to me, which simulates the tonal qualities of a harp, and has especial reference to certain improvements in connection with an instrument of this character.

The invention has for one of its objects the provision of an improved form of damper action in an instrument of the indicated character, whereby the dampers will be moved out of contact with the strings to allow them to vibrate freely when picked by their plectrums; and also to return the dampers to the strings at the proper time to "kill" the tone.

With the foregoing and other objects of the invention which will appear as the following description proceeds, the invention resides in the combinations, construction and operation of the parts illustrated in the accompanying drawings, in which:

Figure 1 is a transverse sectional view of an arrangement for an upright piano embodying the present invention;

Figure 2 is a section on the line 2—2 of Figure 1;

Figure 3 is an enlarged sectional view illustrating the plectrum lever in its retracted position in relation to other parts associated therewith;

Figure 4 is a front view of the lever shown in Figure 3;

Figure 5 is a section on the line 5—5 of Figure 1;

Figures 6, 7 and 8 are views similar to Figure 5 but showing different stages of movement of the plectrum on the lever.

It is to be understood that the musical instrument embodying the present invention will include the desired number of strings mounted upon a soundboard, one of the strings being designated 10 and the soundboard being designated 11. Each string is picked by means arranged on the upper end of a lever 12 operated by a key 13 through the intervention of a transmission member 14. The lever 12 is mounted for pivotal movement on a fulcrum or pin 15 carried by a vertical support 16. The lever 12 is provided with one or more openings to respectively receive guiding elements or pins 17 secured to the support 16, for the purpose of preventing any lateral or sidewise movement or distortion of the lever at its point of pivotal connection incidental to the sidewise strains upon the upper end of the lever. The key 13 is mounted for up and down movement in the usual manner, and the member 14 is pivotally mounted, as shown, on the support 16. A flexible strip 18 made of suitable metal such as brass is secured to the upper end of the lever 12. A retaining device 19 of any preferred form is attached to the upper end of the strip 18, which is designed to firmly and detachably retain a plectrum or pick 20 having the desired flexibility. It will be apparent that by reason of the provision of the strip 18, the device 19 together with the plectrum or pick 20 may be swung to either side within certain limits for a purpose hereinafter fully described.

In order to swing the device 19 and its plectrum or pick 20 there are provided guiding elements 21 and 22 respectively on the soundboard 11 and device 19. Any suitable means, such as a spring 23 having one end bearing on the lever 12 and its opposite end bearing on a rail 24, serves to return the lever 12 to its normal position in which the plectrum or pick 20 will be disposed behind the string 10. It will now be apparent that when the key 13 is pressed or struck to move it downwardly, the element 22 will encounter the element 21 thereby causing the plectrum or pick 20 to swing or move sidewise under the tension of the strip 18, that in the further movement of the lever 12 the string 10 will be picked, as shown in Figure 6, causing it to vibrate, as shown in Figure 7. When pressure on the key 13 is released, the spring 23 will move the lever 12 in an opposite direction, and in so moving the element 22 will encounter the element 21 but on its opposite side, causing the plectrum or pick 20 to be swung out of the path of the string 10 so as not to pick the same, as shown in Figure 8. When the key 13 is pressed down to operate the lever 12, the

movement of the lever 12 is limited by a felt disk 25 on the end of a stud 26 carried by a rail 27.

In accordance with the present invention, there is provided a damper action which is designed and adapted to allow the related string 10 to vibrate freely when picked by the plectrum 20, and also to "kill" the tone at the desired moment. This damper action includes a damper 28 having a felt disk 29 glued to the head. A guide 30 is connected to the upper surface of the rail 24, which guides the damper 28 for sliding movement toward and away from the string. The damper 28 is under the influence of means in the form of a compression and expansion spring 31 which has one end thereof in contact with the damper 28 and its opposite end in contact with an upstanding bead 32 on the rail 24. The spring 31 has a normal tendency to constantly urge the damper 28 toward the string 10 in contact therewith. Coacting means on the damper 28 and lever 12 is provided whereby the damper 28 will move out of contact with the string 10 before the string is picked by the plectrum 20 by the operation of the lever 12. The said coacting means consists of a downwardly projecting portion or member 33 on the damper 28, and an upwardly projecting portion or member 34 on the lever 12. It will now be understood that when the key 13 is depressed the lever 12 will be operated, causing motion of the damper 28 out of contact with the string 10 against the action of the spring 31. After the damper 28 has moved out of contact with the string 10, and in the continued movement of the lever 12 the string 10 will be picked by the plectrum 20 and be caused to vibrate. When the pressure on the key 13 is withdrawn the spring 23 will return the lever 12 to its normal position and the spring 31 will move the damper 28 to its normal position in which the disk 29 will contact with the string 10, whereby stopping the vibration of the string. It will be apparent that the damper action described is operated directly by the plectrum lever, and that it is of simple construction and is adapted to be easily installed. It is also to be understood that the features of the present invention may be applied to a grand piano action.

What is claimed is:

1. In a musical instrument of the class described, the combination of a music string, an actuating lever having means for picking the string upon the actuation of the lever, a damper mounted for movement with respect to said string, yieldable means constantly acting on the damper to urge it in contact with said string, said damper being in engagement with said lever so that said damper will be moved by the lever out of contact with said string prior to the string being picked by said picking means.

2. In a musical instrument of the class described, the combination of a music string, an actuating lever having means for picking the string upon the actuation of the lever, a damper mounted for sliding movement with respect to said string, yieldable means constantly acting on the damper to slide it in contact with said string, said damper being in engagement with said lever so that said damper will be slid by the lever out of contact with said string prior to the string being picked by said picking means.

3. In a musical instrument of the class described, the combination of a music string, an actuating lever having means for picking the string upon the actuation of the lever, a rail, a damper mounted on said rail for movement toward and away from said string, yieldable means arranged between said rail and damper to constantly act on the damper to urge it in contact with said string, said damper being in engagement with said lever so that said damper will be moved by the lever out of contact with said string prior to the string being picked by said picking means.

4. In a musical instrument of the class described, the combination of a music string, an actuating lever having means for picking the string upon the actuation of the lever, a damper mounted for movement with respect to said string, yieldable means constantly acting on the damper to urge it in contact with said string, a downwardly projecting portion on said damper in engagement with an upwardly projecting portion on said lever, whereby the damper will be moved by the lever out of contact with said string prior to the string being picked by said picking means.

5. In a musical instrument of the class described, the combination of a music string, a pivoted actuating lever having means for picking the string upon the actuation of the lever, a damper mounted for movement with respect to said string and extending transversely of said lever, yieldable means constantly acting on the damper to urge it in contact with said string, said damper being in engagement with said lever so that said damper will be moved by the lever out of contact with said string prior to the string being picked by said picking means.

6. In a musical instrument of the class described, the combination of a music string, a pivoted key operated lever having means for picking the string upon the operation of said lever, a rail, a damper, a guide on said rail to guide said damper for movement toward and away from said string and disposed transversely of said lever, coacting means on the lever and damper whereby to

move the damper out of contact with the string by the operation of the lever, to allow the string to vibrate when picked, means to return the damper into contact with said string subject to the return movement of said lever to its normal position, and means to return said lever to its normal position.

7. In a musical instrument of the class described, the combination of a string damper, a lever, a projecting portion of said damper which coacts with a projecting portion on said lever whereby to move said damper by the operation of the lever out of contact with a string to allow it to vibrate freely when picked, and a plectrum on said lever to pick said string after the damper has been moved out of contact with the string.

Signed at New York City, in the county of New York and State of New York, this 16th day of October, 1930.

GIUSEPPE CASCIOTTA.