

No. 649,538.

Patented May 15, 1900.

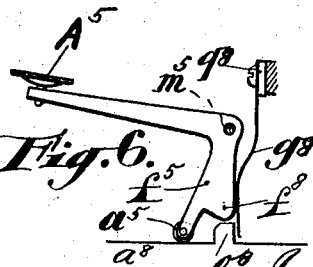
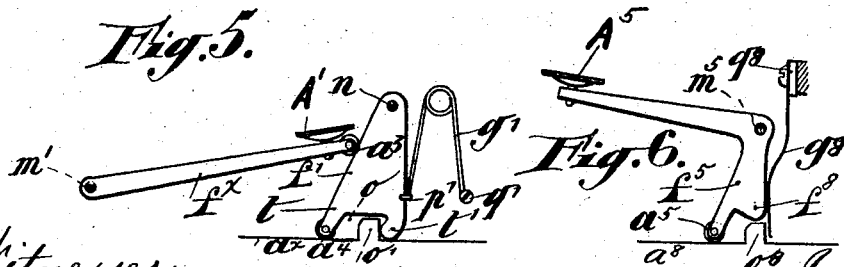
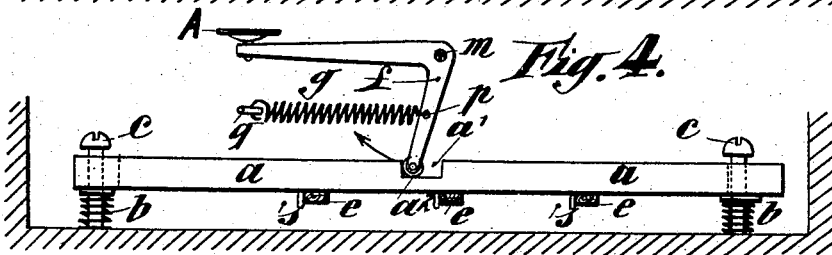
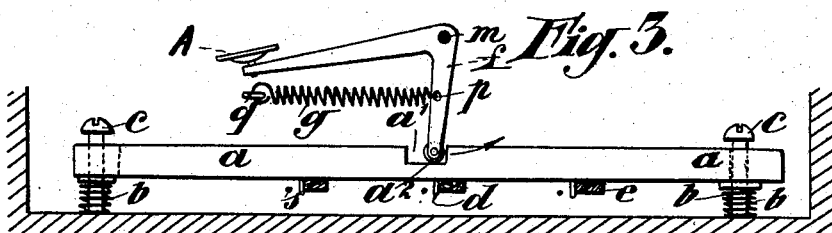
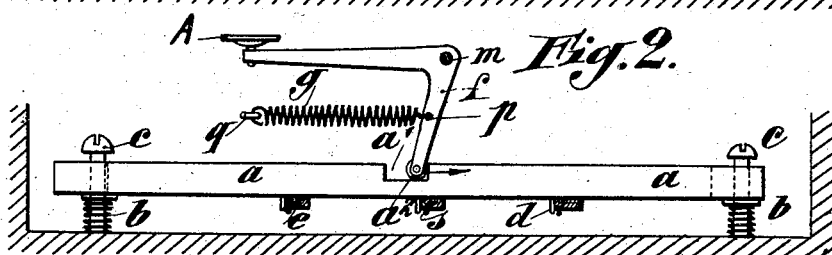
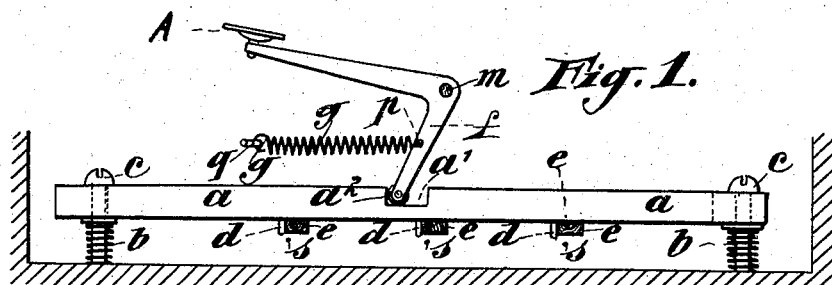
A. C. DETMERING.

VIBRATING OR PLAYING DEVICE FOR STRINGED INSTRUMENTS.

(Application filed Dec. 6, 1898.)

(No Model.)

2 Sheets—Sheet 1.



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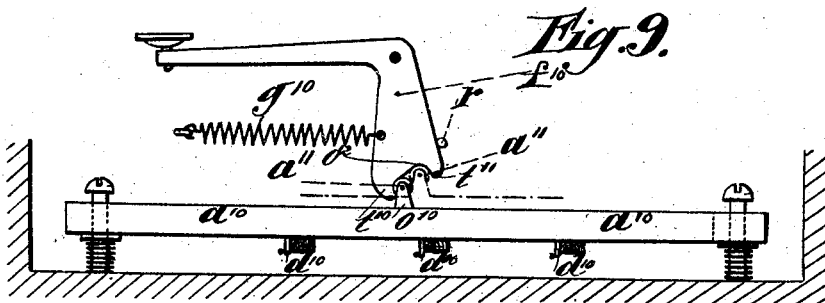
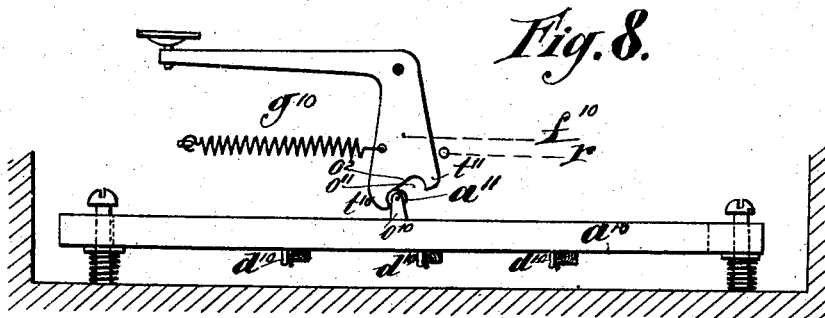
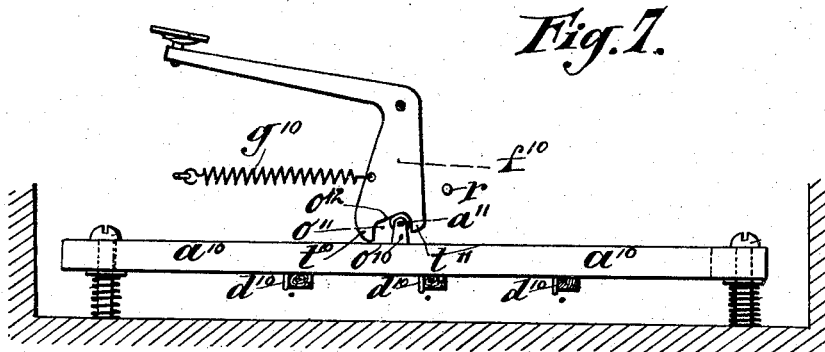
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(No Model.)

2 Sheets—Sheet 2.



Witnesses:

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UNITED STATES PATENT OFFICE.

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VIBRATING OR PLAYING DEVICE FOR STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 649,538, dated May 15, 1900.

Application filed December 6, 1898. Serial No. 698,489. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH CHRISTIAN DETMERING, a citizen of the Empire of Germany, residing at Hamburg, Germany, have
5 invented certain new and useful Improvements in Vibrating or Playing Devices for Stringed Instruments, of which the following is a specification.

The present invention relates to string instruments, and has particular reference to vibrating or playing devices for these instruments.

The object of the invention is to provide a simple but most practical device for vibrating or playing the strings by means of catching
15 or playing "bars" arranged across said strings and reciprocated over the strings through the agency of levers and springs in such a manner that said playing-bars catch
20 the strings in their forward motion and return back freely over the strings into their initial position. For this purpose it is very important to enable said playing-bars to be brought at the proper moment into the lower catching
25 position, as well as back into the upper initial position.

I attain the object of my invention by the arrangement, combination, and construction of parts, more clearly pointed out and claimed
30 hereinafter and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of the improved device in normal position. Fig. 2 is a similar view of same having been depressed to a
35 certain extent and being about to catch the strings. Fig. 3 is a similar view, the strings having been caught and the playing-bar moved to the right. Fig. 4 shows the playing-bar brought back again into its upper position and being about to be moved back over
40 the strings to the left of figure. Figs. 5 and 6 show two modified embodiments of the improved playing device. Figs. 7, 8, and 9 show
45 another construction of the operating-lever and playing-bar and the successive positions of the device as before.

In the drawings similar letters of reference denote similar parts throughout all the figures.

50 Referring by letters to the drawings, and particularly to Figs. 1 to 4, *a* represents the playing-bar; *b*, coil-springs fitted over head-pins *c*, guiding said playing-bars. *d* indicates the catching-fingers; *e*, damper-cush-

ions. *f* represents the operating-lever, and
55 *g* the controlling-spring therefor. *s* indicates the strings of the instrument. The playing-bar *a* is seated above and across the stringing of the instrument and the ends of said bar are provided with suitable incisions or
60 hollowings, sliding along guiding head-pins *c* and supported by springs *b*. The playing-bar carries at its under side a plurality of catching-fingers *d*, secured thereto, and the number of which corresponds to the number
65 of strings to be vibrated. On the side of each of said fingers there is a damper-cushion *e* of suitable form and material and adapted to contact with the string just before the catching-finger engages said string. The central part of said playing-bar is provided with
70 a suitable recess *a'*, within which operates a small roller *a²*, journaled in the lower end of a bell-crank lever *f*, pivoted at *m* and provided at its other end with a thumb-piece *A*
75 or its equivalent. Furthermore, said bell-crank lever *f* is controlled by a coil-spring *g* or its equivalent attached by one of its ends *p* to one arm of said lever and the opposite end of which is secured at *q* to any station-
80 ary part. It is obvious that instead of recessing the bar *a* to receive a roller on the lever *f* this construction could be reversed—that is to say, the end of the lever might be recessed and the roller located on the bar *a*
85 to play in the recess, and in Figs. 7 to 9 I show such a construction. As will be seen, the playing-bar *a* is actuated by depressing the operating-lever *f* at *A*, Figs. 1 to 4, engaging by means of its lower end and roller
90 *a²* the recess *a'* of said bar in such a manner that said playing-bar is first depressed to a certain extent—that is, until the damper-cushions *e* thereof are slightly pressed upon the strings *s* of the instrument. By further
95 depressing said operating-lever the roller *a²*, which has traveled (during the depression of the bar) in said recess *a'* until the other face thereof engages said face to move the playing-bar *a* forward, in which movement the
100 fingers *d* catch and release the strings *s* of the instrument, thus causing them to vibrate for producing the respective sound. By releasing the operating-lever *f* the controlling-spring *g* draws said lever back into its initial
105 position, and in this back movement of the lever *f* the roller *a²* first travels back in the recess *a'* to the left face of said recess at the

same time the coil-springs b , pressing upon the under side of the playing-bar, raise said bar again into its upper position, the fingers of which will be thus above the strings of the instrument. Now the roller a^3 , pressing against the left face of recess a' , causes the playing-bar a to move back into its normal position without contacting with the strings of the instrument.

In Fig. 5 of the accompanying drawings I have illustrated another embodiment of the invention, consisting in a lever f^x , pivoted at m' , also provided with a thumb-piece Λ' and carrying at its end a roller a^3 , journaled therein and adapted to travel over another lever f' , formed as shown and pivoted at n . Said lever f' has at its lower end an incision o , so as to present two extensions t t' , one of which (the extension t) carries a roller a^4 , adapted to travel over the playing-bar a^x , provided at its central part with a lug o' , extending into the incision o of lever f' . Lever f' and therefore lever f^x are controlled by spring g' , one end of which is secured at q' to a stationary part, the other end pressing against said lever f' . By depressing the lever f^x the roller a^4 first travels over the playing-bar a^x , lowering said bar, as with the arrangements shown in Figs. 1 to 4, until it engages lug o' to move said bar to the right. By releasing the operating-lever f^x the roller a^4 of lever f' , actuated by spring g' , travels back over the playing-bar a^x without moving the same, but allowing it to be raised again until the extension t' of lever f' engages lug o' of said playing-bar, carrying the same with it back into its initial position.

The embodiment shown in Fig. 6 of the drawings comprises a pivoted bell-crank lever f^5 , pivoted at m^5 and provided with thumb-piece Λ^5 and carrying at its lower end a roller a^5 , adapted to travel over the playing-bar a^8 . Furthermore, the lever f^5 has an extension f^8 for the purpose herein-after described. A suitably-formed spring-blade g^8 , secured at one end q^8 to a stationary part, is adapted to bring lever f^5 and playing-bar a^8 back into their normal position after having been moved to the right for vibrating the strings of the instrument. By depressing the operating-lever f^5 the roller a^5 first travels over the playing-bar a^8 , lowering the same, but without moving it forward, until it engages the lug o^8 , provided on said playing-bar, whereby the latter will be carried to the right for vibrating the strings of the instrument. By releasing the lever f^5 the spring-blade g^8 first causes the roller a^5 to run back over the playing-bar a^8 , allowing the same to be raised again, but without being moved longitudinally. Then the spring-blade g^8 , engaging the lug o^8 , brings the playing-bar a^8 and the lever f^5 back into their initial or normal position.

In Figs. 7 to 9 I have illustrated a still further embodiment of my invention and shown different positions of the parts hereinafter

described. The playing-bar a^{10} is in this case provided with a lug o^{10} , secured thereto or made one with it and carrying a roller a^{11} , journaled therein. The guiding-bolts, springs, damper-cushions, and catching-fingers may be constructed and arranged as already described and shown. The operating-lever f^{10} of the device, controlled by spring g^{10} , has the lower end of its engaging arm cut away, as shown, to present a suitable recess o^{11} , the top face o^{12} of which is inclined toward the left, and two lugs or extensions t^{10} t^{11} . A stop-pin r or its equivalent is provided to limit the movement of lever f^{10} to the right and to prevent said lever from leaving roller a^{11} of the playing-bar a . This latter device operates as follows: By depressing the operating-lever f^{10} the top face or incline o^{12} , sliding over roller a^{11} of lug o^{10} , depresses the playing-bar a^{10} , and the left side face of the recess o^{11} will be brought into engagement with lug o^{10} , while the catching-fingers d^{10} are carried into position about to catch the strings of the instrument. By further depressing the lever f^{10} the catching-fingers catch and vibrate the strings, after which the lug o^{10} is allowed to move upward in the recess o^{11} and therefore the playing-bar a^{10} to be raised before being brought back into the normal position by the lever f^{10} ; Fig. 9, or by still further depressing the operating-lever said playing-bar may be moved forward and somewhat raised at the same time, provided that said bar has a sufficient friction in its guides in order to be prevented from sliding upward. In the latter case the roller a^{11} of lug o^{10} remains applied against extension t^{10} during the up movement of playing-bar a^{10} , and said bar will not be actuated during the raising of operating-lever f^{10} .

The latter construction is especially practical, the stroke of the operating-lever being comparatively short.

I wish it to be understood that I do not confine myself to the precise arrangement and construction of the parts as shown in the accompanying drawings so long as the peculiar features of my invention be retained.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

In a device of the class described, the combination of a playing-bar having damper-cushions and string-catching fingers arranged on the under side of said playing-bar, of a pivoted bell-crank lever having a thumb-piece and the engaging end of which is provided with an elongated inclined recess, a roller journaled in a lug on said playing-bar, and entering said recess, and a spring for controlling said lever, substantially as described and for the purpose specified.

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Witnesses:

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