

(No Model.)

F. X. AUDET, Jr.

DEVICE FOR PRODUCING OVERTONES IN STRINGED INSTRUMENTS.

No. 525,688.

Patented Sept. 11, 1894.

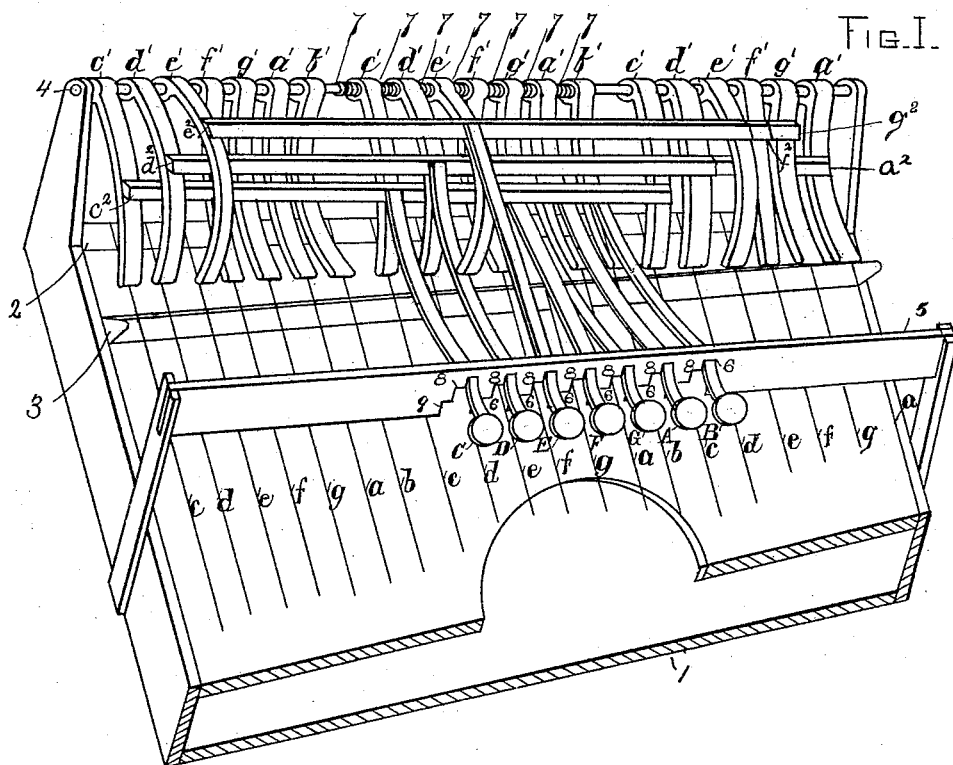
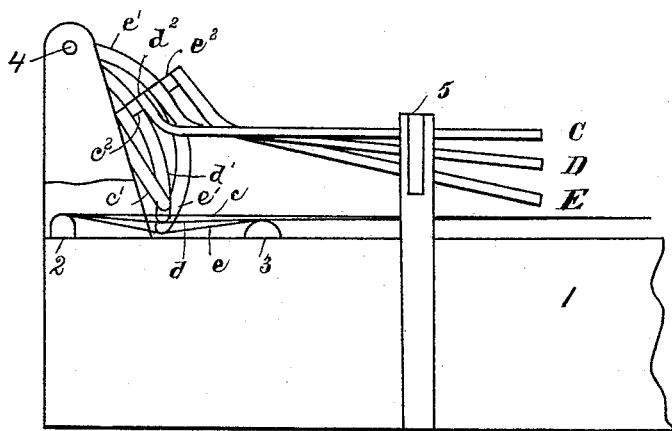


FIG. II.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

FRANK X. AUDET, JR., OF LYNN, MASSACHUSETTS.

DEVICE FOR PRODUCING OVERTONES IN STRINGED INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 525,688, dated September 11, 1894.

Application filed May 13, 1893. Serial No. 474,084. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK X. AUDET, Jr., a citizen of the United States, and a resident of Lynn, in the county of Essex and the Commonwealth of Massachusetts, have invented a new and useful Device for Producing Overtones in Stringed Instruments, of which the following is a specification.

My invention consists of an auxiliary bridge placed slightly below the strings at sufficient distance to avoid their vibration, a series of movable fingers suitably supported above the strings, and a device for depressing a series of said fingers and thereby bringing a series of strings in contact with said bridge.

My invention further consists of a device for increasing the tension of a series of strings across the auxiliary bridge and raising them to a given tone, by the depression of a series of said fingers.

My invention further consists of the devices and combination of devices hereinafter set forth and claimed.

The object of my invention is to furnish a simple and accurate device of the above class.

My invention is illustrated by the accompanying drawings, in which—

Figure 1 is a perspective view of a stringed instrument showing my device applied thereto. Fig. 2 is a side view of same showing three positions of movable fingers.

Similar letters and figures of reference refer to similar parts throughout the several views.

Referring to the drawings, 1 represents a portion of a musical instrument strung in the natural key, and having at one end a bridge 2 over which the strings are drawn.

The form of instrument shown in the drawings is taken merely for illustration and I have omitted in the drawings parts unnecessary therefor.

The letters *a b c d e f* and *g* are not strictly speaking letters of reference but are placed on the drawings to indicate tone of the strings adjacent to which they are severally placed.

3 represents the auxiliary bridge, which is suitably secured upon the instrument and the height of which is such that it does not come in contact with strings, normally, but lies slightly below the same a sufficient distance to avoid their vibration. For producing half tones I prefer that the bridge 3 should

pass under each string at a distance from the bridge 2 of one-eighteenth of the length of said string, so that when a string is brought in contact therewith, without increase of tension, it is raised a half tone.

Supported above the instrument by suitable brackets is a rod 4 upon which are mounted a series of fingers *c' c' c', d' d' d', e' e' e', &c.*, free to rotate on the rod 4. Each of the fingers *c' c' c'* when depressed will come in contact with the string that produces the note C in the different octaves, between the bridges 2 and 3. The arrangement of the other fingers with reference to the strings is similar.

To simultaneously depress the series of fingers operating on corresponding notes in different octaves I find it convenient to arrange them as follows:—The fingers *c' c' c'* are united by a rigid connecting rod *c<sup>2</sup>*, the fingers *d', d', d'*, by a rigid connecting rod *d<sup>2</sup>* and similar arrangement made with other fingers. All the fingers *c', c', c'* correspond in curvature and all the fingers *d', d', d'*, but the several series *c', c', c', d', d', d', &c.*, differ in curvatures, so that each series can be independently operated. To each of the connecting rods *c<sup>2</sup>, d<sup>2</sup>, e<sup>2</sup>, &c.*, I secure a lever C, D, E, &c., by means of which the connecting rods *c<sup>2</sup>, d<sup>2</sup>, e<sup>2</sup>*, and their connected fingers may be depressed. I provide a series of suitable stops to hold the fingers in the positions hereinafter described as follows, but I do not consider my invention limited thereto, as other devices may be substituted therefor without essentially affecting the nature thereof.

The levers C, D, E, &c., are extended beneath a bar 5, which is provided with a series of recesses 6, 6, 6, &c., each of which receives one of the levers C, D, E, &c. One side of each of the recesses 6, 6, 6, &c., is provided with off-sets 8 and 9. One of the fingers attached to each of the connecting rods *c<sup>2</sup>, d<sup>2</sup>, e<sup>2</sup>, &c.*, is provided with a spring 7 conveniently coiled about rod 4 and secured to said fingers which acts to raise said finger, the connecting rod, connecting fingers, and lever attached thereto. The levers C, D, E, &c., are preferably pivoted to the connecting rods *c<sup>2</sup>, d<sup>2</sup>, e<sup>2</sup>*, so that when depressed to off-sets 8 and 9 they may be turned under the same and held thereby, the springs 7, 7, 7, &c., act-

ing to hold said levers against the off-sets 8 and 9 and against the recesses 6, 6, 6, &c. The height of recesses 6, 6, 6, &c., and of off-sets 8 and 9 is preferably such that when one of the levers C, D, E, &c., rests against top of recess 6, 6, 6, &c., the fingers connected with the connecting rods  $c^2$ ,  $d^2$ ,  $e^2$ , &c., to which it is secured, are raised slightly above the strings and do not interfere with their vibration. When such lever is held by off-set 8 the fingers connected therewith bring a series of strings in contact with the auxiliary bridge 3 without, however, increasing their tension, and said auxiliary bridge being placed as hereinbefore described the pitch of said strings is raised a half-tone. When the lever is held by the lower off-set 9, the fingers connected therewith are thereby depressed a sufficient distance below the auxiliary bridge 3 to stretch the strings across the same and raise their pitch another half tone.

If it is only desired to play in sharps one of the off-sets 8 or 9 may be omitted, also if only desired to arrange for flats. It will be sufficient to describe the method of using my improved device to play in both sharps and flats. In the first place the instrument should be tuned a half-tone below concert pitch. All the levers C, D, E, F, G, A, B, should then be placed under the off-sets 8, 8, 8, &c. This brings all strings in contact with the auxiliary bridge 3 and raises the instrument to concert pitch. Suppose then it is desired to play in the key of G. F being the only sharp, the lever F is pressed down and held by off-set 9. This raises all the strings producing F to F sharp and the instrument may then be played in that key. Suppose for example it is desired to play in the key of B flat. B, being the only note to be flatted, the lever marked B is released and placed under top of recess 6, raising the fingers connected therewith above the strings producing the note B to vibrate clear of the auxiliary bridge 2, and since all other strings have been raised producing the note B flat.

Having thus described my invention and its use, so as to enable one skilled in the art to make and use it, I claim as novel and desire to secure by Letters Patent—

1. In a device for producing overtones in stringed instruments the combination of an

auxiliary bridge placed slightly below the strings at sufficient distance to avoid their normal vibration, a series of movable fingers mounted upon a suitable support and normally held slightly above the strings, a device for depressing a series of said fingers against the strings and thereby bring them in contact with the auxiliary bridge, and a series of suitable stops for retaining the fingers when depressed, substantially as set forth and for the purposes specified.

2. In a device for producing overtones in stringed instruments the combination of an auxiliary bridge placed slightly below the strings at sufficient distance to avoid their normal vibration, a series of movable fingers mounted upon a suitable support and normally held slightly above the strings, a series of suitable connections connecting the fingers operating on strings producing corresponding notes in the different octaves, and a device for simultaneously depressing said connected fingers, substantially as described and for the purposes specified.

3. In a device for producing overtones in stringed instruments the combination of an auxiliary bridge placed slightly below the strings at sufficient distance to avoid their normal vibration and extending under each string at a distance from the bridge of the instrument equal to one eighteenth part of the length of the string, a series of movable fingers mounted on a suitable support and normally held above the strings, a device for depressing a series of said fingers until a series of strings are brought in contact with the auxiliary bridge thereby raising their pitch a half-tone and for further depressing said fingers and thereby stretching said strings across said auxiliary bridge until raised another half tone, and a series of suitable stops for holding the fingers in either of the above positions, substantially as set forth and for the purposes specified.

In testimony whereof I have hereunto set my hand, this 8th day of May, A. D. 1893, in the presence of two witnesses.

FRANK X. AUDET, JR.

Witnesses:

HARRY C. PARTRIDGE,  
ALFRED SMITH.