



(No Model.)

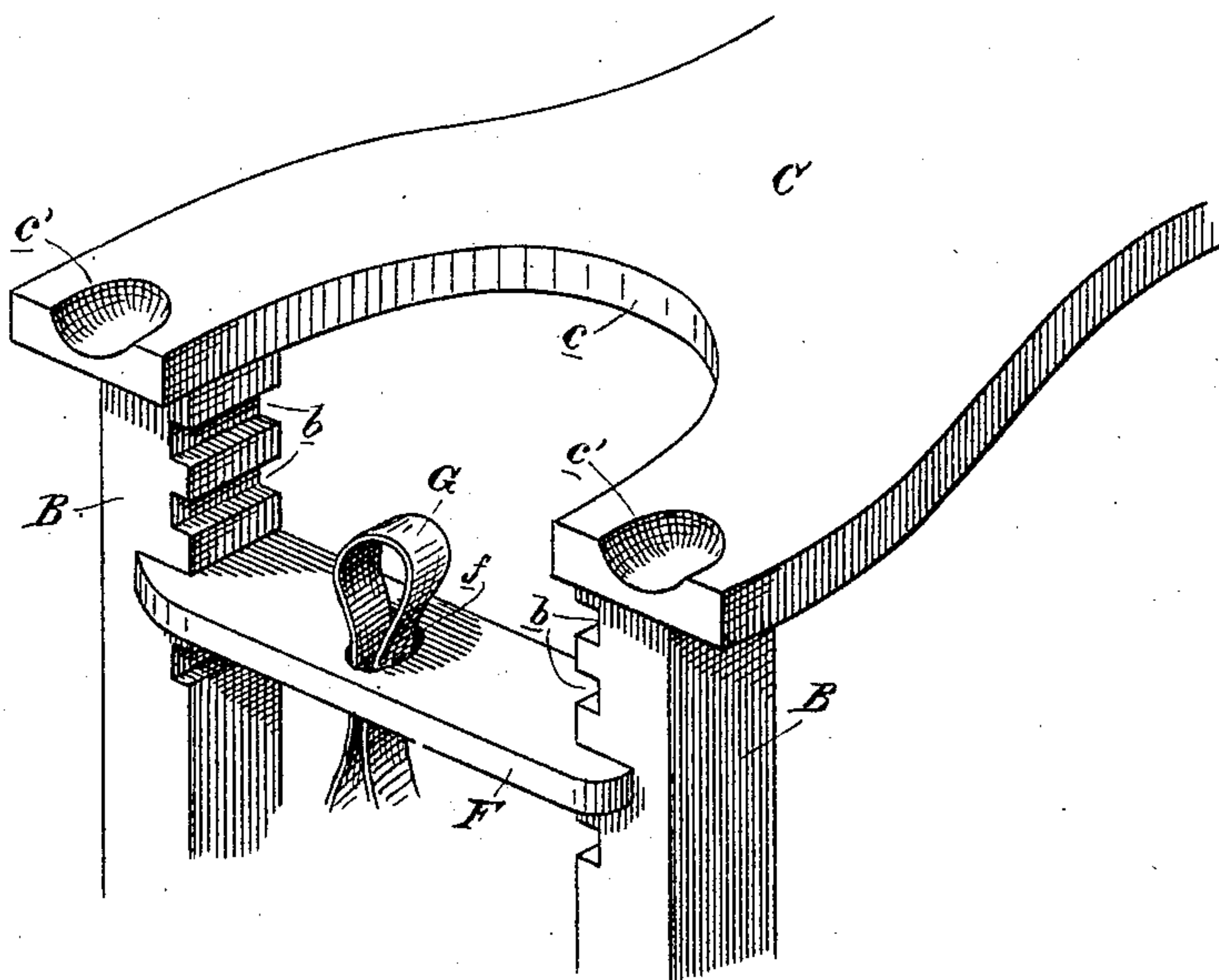
2 Sheets—Sheet 2.

E. S. BONELLI.  
EXERCISING DEVICE FOR MUSICIANS.

No. 440,837.

Patented Nov. 18, 1890.

*Fig. 3.*



Witnesses,  
Geo. H. Strong  
J. H. Hourse

Inventor,  
Eugene S. Bonelli  
By Denny & Co.  
attorneys



# UNITED STATES PATENT OFFICE.

EUGENE S. BONELLI, OF SAN FRANCISCO, CALIFORNIA.

## EXERCISING DEVICE FOR MUSICIANS.

SPECIFICATION forming part of Letters Patent No. 440,837, dated November 18, 1890.

Application filed December 6, 1889. Serial No. 332,825. (No model.)

*To all whom it may concern:*

Be it known that I, EUGENE S. BONELLI, a subject of the King of Italy, residing in the city and county of San Francisco, State of California, have invented an Improvement in Exercising Devices for Musicians; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to that class of devices for exercising the muscles of the fingers, hand, and wrist used by musicians, and in which a pivoted spring-controlled lever is employed having a finger-strap and used in connection with a bridge on which the other fingers rest while the one connected with the strap is moved.

My invention consists in the details of construction, arrangement, and combination hereinafter fully described, and specifically pointed out in the claims.

The object of my invention is to provide a readily-portable machine of this class adapted to be taken to pieces and packed in small compass, so that it can be carried about while traveling, said machine being constructed compactly and having all the parts necessary for the full exercise of all the muscles of the fingers, hand, and wrist.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my device. Fig. 2 is a view showing the attachment and use of the wrist-exercising portion. Fig. 3 is a view of the upper portion of the front of the machine, showing the finger-grooves *c'* in the ends of the top plate C.

A is the bed-plate of the machine, from which rise four posts B, which support a top plate C. These parts are all fitted together removably by means of pins and sockets, or tenons, or dowel-pins, as may be desired, so that they may be readily fitted together and taken apart.

Between the rear pair of posts B is pivoted the cross-foot *d* of the lever D, which extends forwardly to and between the front posts. The cross-foot *d* of this lever is also removably secured in its seat, so that when the posts are taken out it readily comes out.

One or more springs E are secured to the bed-plate A, and are adapted to be readily connected with and disconnected from the

sides of the lever D. This connection may be formed in any suitable manner, as by the hooked end of the springs fitting in one or more staples or eyes *d'* on the sides of the lever. Similar springs E' are suspended from the top plate C of the frame, and are adapted to be connected with and disconnected from the lever in the same manner as the lower springs.

In the inner surface of the forward posts are made the series of grooves *b*, one set being in the upper portion of the posts and the other set being in the lower portion. Into these grooves is adapted to be inserted the bridge-plate F, to which are attached near each end the finger-loops *f*. The bridge-plate has a central hole *f'*.

Secured to the forward end of the lever D is a strap G, which forms a loop for the insertion of one of the fingers, said strap having a number of holes *g* in it, whereby it may be lengthened or shortened as may be desired. In the forward or free end of the lever D is made a hole *d''*, which receives the connecting-screw and thumb-nut *h* of the wrist-exercising connection, which consists of a bar or plate I, having pivoted to its outer end a bail *i*, the upper portion of which carries a roller J. The plate I is secured to the end of the lever D by means of the screw and is fixed tightly in place by the set-nut, and in this position it projects outwardly beyond the forward posts of the frame, its bail extending upwardly, so that the hand of the exerciser may pass under the roller. The forward end of the top plate is cut out to form a semicircular opening *c*, as shown.

Upon the bed-plate, about its center, is fixed the approximately V-shaped flange K, the sides of which are slightly curved.

The operation of the device is as follows: When the lever D is connected by one or both of the lower springs E, according to the strength desired for the resistance of the lever, the bridge-plate F is set in one or the other of the upper series of grooves *b* in the forward posts. The bight of the strap G is now passed through the hole *f'* of the bridge-plate and the finger to be exercised is inserted in the strap above the bridge-plate, while the adjacent fingers are placed through the loops *f* of the bridge-plate, so that they remain sta-



tionary. The finger in strap G is now lifted up and down, whereby it is exercised by the resistance of the lever due to its springs. This lever, its springs and strap, and the bridge-plate and its loops are practically identical with the similar parts described and secured to me by Letters Patent of the United States, No. 410,748, dated September 10, 1889; but in the present machine I provide for a reversal of this movement, which was not possible in my former machine. To accomplish this I release the lower set of springs E and attach one or both of the upper springs E' to the lever. I remove the bridge-plate F from the upper series of grooves in the forward posts and place it in the lower set of grooves and then let the strap of the lever hang down to receive the finger to be exercised.

In order to exercise the muscles of the wrist, I attach to the end of the lever the extension-plate I. The forearm is now rested upon the top plate C, with the wrist extending into the opening c in the forward end of the top plate, which is for the purpose of giving it free play. The fingers are extended forwardly under the roller in the upper portion of the bail, and the hand is then moved up and down against the power of the lever, which is attached by its lower spring, and the hand has free movement at the wrist, whereby it is exercised conveniently and thoroughly.

In order to stretch the fingers apart, I exercise them by passing them on each side of the curved sides of the V-shaped flange on the bed-plate of the frame. It will be seen, therefore, that this instrument develops all the muscles in the hand and fingers, and tends to equalize the power of contraction and relaxation in the muscles and relative counter-muscles. The object of the finger-loops on the bridge-plate is to allow each finger to be practiced independently to bring into play the tendon and muscle of that finger only which is connected with the strap of the spring-controlled lever, while the muscles of the other fingers remain perfectly tranquil. The wrist-movement attachment not only practices the up-and-down movement of the wrist with the palm of the hand downward, but the hand may be turned and practiced with the palm upward; or the hand may be inserted in the bail sidewise. In the upper surface of the ends of the top plate C, on each side of its opening c, are made small finger-grooves c', in which the fingers are placed, thereby stretching them, and at the same time permitting the up-and-down exercise of an intervening finger playing in opening c.

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

1. In an exercising device, the combination of a pivoted lever having at its end a strap for engaging the finger to be exercised, a spring or springs detachably connected with said lever from below for pulling the lever

downwardly, and a spring or springs to be detachably connected with the lever from above for pulling the lever upwardly, whereby by the alternate use of said springs the exercising motion of the finger may be reversed, substantially as herein described.

2. In an exercising device, the combination of a pivoted lever having a strap at its end for engaging the finger to be exercised, a spring or springs to be detachably connected with said lever and tending to draw it downwardly, a separate spring or springs to be detachably connected with said lever and tending to draw it upwardly, and a bridge-plate having finger-loops and adapted to be adjusted in the frame above or below the end of the lever, according to the springs used with the lever, substantially as herein described.

3. In an exercising device, the combination of a frame having a set of posts provided with a series of grooves at their upper portion and a series of grooves at their lower portion, a lever pivoted in the frame and having its free end playing between the grooved posts, springs detachably connected with the lever and tending to pull it downwardly, and other springs detachably connected with the lever and tending to draw it upwardly, a finger-strap on the free end of the lever, and a bridge-plate having separate finger-loops and adapted to be fitted into the upper series of grooves of the posts and the lower series of grooves of the posts, according to which set of springs is being used with the lever, substantially as herein described.

4. An exercising device for musicians, consisting of a frame composed of a bed-plate, posts at its corners, and a top plate supported by the posts, a lever pivoted in the rear posts of the frame and having its free end playing between the forward posts, springs connected with the bed-plate of the frame and adapted to be detachably connected with the lever to pull it downwardly, other springs connected with the top plate of the frame and detachably connected with the lever and tending to draw it upwardly, a strap on the free end of the lever for receiving the finger to be exercised, and a bridge-plate having finger-loops for the inactive fingers and adapted to be carried in the forward posts above or below the lever, substantially as herein described.

5. In an exercising device, the pivoted spring-controlled lever, in combination with the extension-plate I, secured to the end of the lever, the pivoted bail i in the end of the extension-plate, and the roller J, carried by the bail for exercising the wrist, substantially as herein described.

6. In an exercising device, the spring-controlled swinging lever, in combination with the removable extension-plate detachably secured to the end of the lever, the bail carried by the end of the plate, and the roller in the top of the bail for exercising the wrist, substantially as herein described.

7. In an exercising-machine, the frame hav-



ing a top plate C, with its forward end made with a semicircular opening *c*, and the pivoted spring-controlled lever carried in the frame under the top plate, in combination with the  
 5 detachable extension-plate connected with the pivoted lever, the bail connected with the end of the extension-plate, and the roller on the top of the bail, substantially as herein described.

10 8. In an exercising-machine, the frame thereof having a top plate C, with an opening *c* in one end, and having finger-grooves *c'* in its upper surface on each side of the opening, substantially as and for the purpose herein  
 15 described.

9. An exercising-machine consisting of the following parts, to wit: the frame composed of the bed-plate, the corner-posts, and the top

plate, the lever pivoted in the rear post, the upper and lower springs secured to the bed- 20 plate and to the top plate, respectively, for controlling the movement of the lever, the adjustable bridge-plate in the forward posts and having finger-loops, the strap on the forward end of the lever, the V-shaped flange on the bed- 25 plate of the frame, the extension-plate of the lever, the bail carried by the extension-plate, and the roller in the top of the bail, all arranged and adapted to operate substantially as herein described.

In witness whereof I have hereunto set my hand. 30

EUGENE S. BONELLI.

Witnesses:

S. H. NOURSE,  
 H. C. LEE.