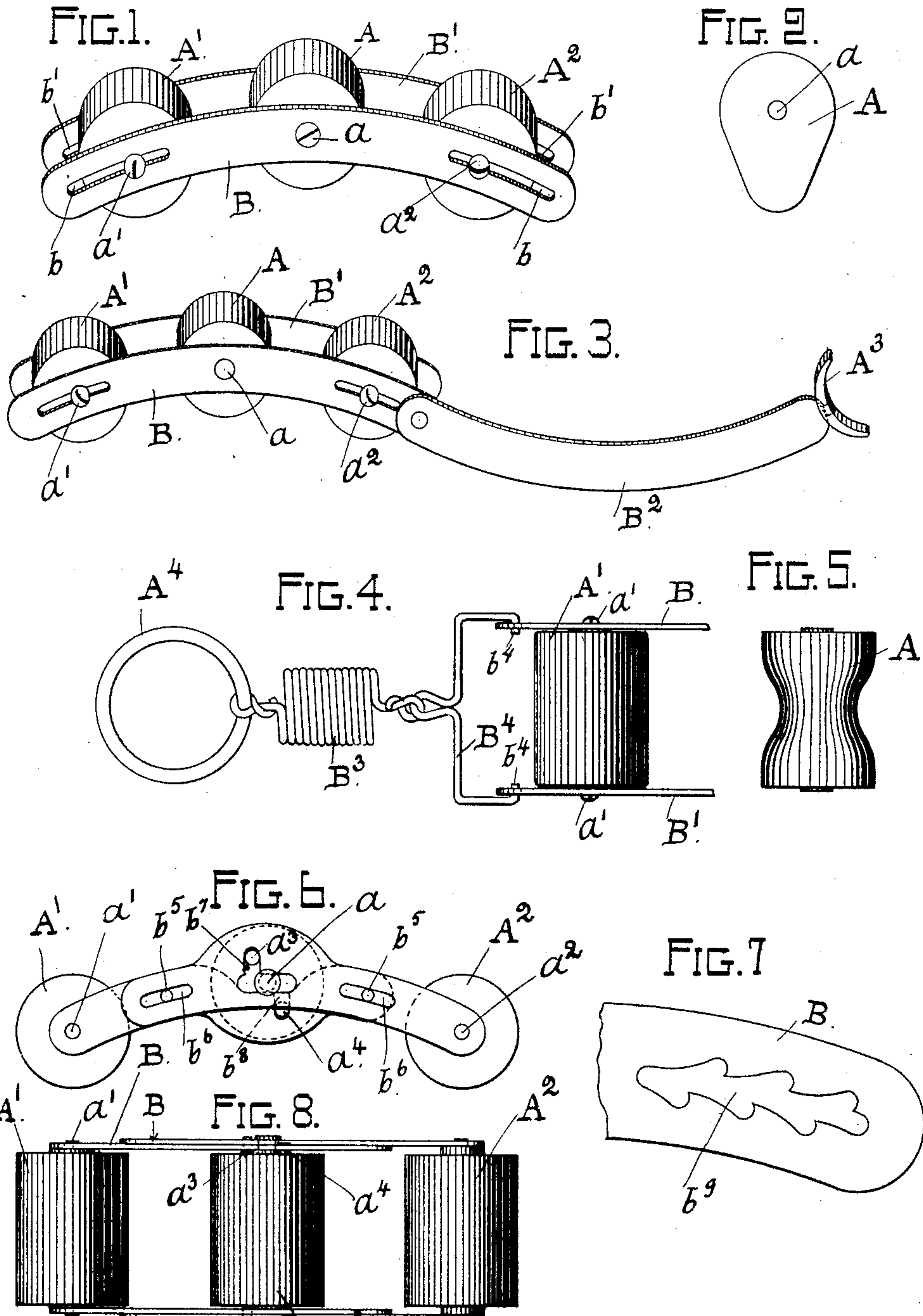


(No Model.)

R. A. LUCCHESI.
DILATOR FOR FINGERS OF THE HAND.

No. 602,191.

Patented Apr. 12, 1898.



WITNESSES
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UNITED STATES PATENT OFFICE.

RICHARD A. LUCCHESI, OF SAN FRANCISCO, CALIFORNIA.

DILATOR FOR FINGERS OF THE HAND.

SPECIFICATION forming part of Letters Patent No. 602,191, dated April 12, 1898.

Application filed August 17, 1896. Serial No. 603,079. (No model.)

To all whom it may concern:

Be it known that I, RICHARD A. LUCCHESI, of the city and county of San Francisco, in the State of California, have invented a new and useful Dilator, of which the following is a specification.

The object of my invention is to provide a simple, effectual, and inexpensive device by means of which pianists, organists, and players of all stringed musical instruments may stretch the ligaments of their fingers to make them limber and supple preparatory to beginning either a private exercise or a public performance.

The importance, or rather necessity, of developing the freedom of the hand and finger muscles is too well understood and felt among musicians to be demonstrated here. It is commonly known that the compositions of Liszt, for example, require great stretches of the fingers, because they contain compounded chords of many notes distributed with large gaps. The student who is not yet able to play pieces of such scope and wishes to master them needs mechanical help in order to acquire promptly that command over his fingers which is necessary to gain the desired end, and it is only with help of this nature that he can hope to save the long time usually consumed in practicing wearisome exercises on the keyboard or finger-board, often with meager success. As to public performers or professional players they also are at times more or less wanting in nimbleness of the hand and will find it to their advantage to use a dilator, in order to properly loosen their fingers by spreading them well apart and keeping them in a distended position, a few minutes before giving their concerts.

Referring now to the drawings hereunto annexed for a detailed description of my said invention, Figure 1 is a perspective view showing my improved dilator in its most common form, the same being adapted for stretching the four fingers of the hand. Fig. 2 represents a varied form that may be given particularly to the central stretcher forming part of said dilator. Fig. 3 is a perspective view of a dilator of similar construction to that shown at Fig. 1, but provided with an attachment for stretching the thumb at the same time as the

fingers. Fig. 4 is a broken elevation showing part of the dilator with a different form of thumb-stretcher. Fig. 5 is a detailed view of a finger-stretcher having concave sides. Fig. 6 is a plan of a dilator of modified construction. Fig. 7 is a plan showing a modified form of slot for the ends of the stretcher-holding plates. Fig. 8 is a front view of the construction illustrated at Fig. 6.

Similar letters refer to similar parts throughout the said eight figures.

A A' A² represent three distending objects or bodies, which may be called "expanders" or "stretchers," and are of a size and form adapting them to be inserted between the four fingers of the hand. The said objects or bodies may be either hollow or solid, according to the nature of the material of which they are composed, but they are preferably made each in one piece. Most any light material may be used for making them—such as aluminium, cork, wood, celluloid, &c. As to their shape, it is easier to make them cylindrical—that is to say, give them the form of rollers, such as are represented in Figs. 1, 3, 4, 6, and 8—although they admit of several variations in this respect, as suggested by Figs. 2 and 5. Thus Fig. 2 shows a stretcher or expander which is oval in cross-section, and Fig. 5 one having concave sides. These different forms and others that could be named have all their peculiar merit, and I do not confine my invention to any particular one among them, my aim being to use always the best form for any particular shape of hand or fingers and therefore to suit the form to the case in all instances.

The three stretchers or expanders aforesaid are united by means of two slightly-curved plates B B', which are placed, respectively, upon their top and bottom and to which they are connected by pins or screws a a' a², projecting from their upper and lower ends and passed through said plates. The central stretcher is by preference set in a fixed position in the ordinary form of dilator—that is, so as not to move either laterally or upon its axis—and its pins or screws a are tightly fitted in small holes of the plates B B' to obtain this result. On the other hand, the outer stretchers are capable of both these movements,

their pins or screws $a' a^2$ being loosely fitted and adapted to slide and turn in slots $b b'$, provided for them in the ends of the plates at a short distance on each side of the central
 5 stretcher. Thus arranged the outer stretchers are movable to and from the central one, and are consequently self-adjusting when inserted between the fingers of the hand to spread them apart, as hereinafter described.
 10 The finger-stretchers and plates above mentioned constitute a complete dilator for ordinary use; but the same may be supplemented by a thumb-stretcher whenever desired. Figs. 3 and 4 illustrate two forms of such.
 15 That represented in Fig. 3 consists of a half-ring or crescent-shaped piece A^3 , connected by a swivel-joint to one end of a bar or plate B^2 , pivotally secured to the upper side of the plate B and arranged to fold thereover. The
 20 other thumb-stretcher (shown in Fig. 4) consists of a full ring A^4 , fastened to one end of a spiral spring B^3 , the other end of which is attached to a double hook B^4 , having inwardly-bent ends $b^4 b^4$, engaging suitable holes in the
 25 ends of the plates B B', as shown.

Figs. 6 and 8 illustrate a dilator made substantially on the same principle as that hereinbefore described, but having special means for moving the outer stretchers in and out
 30 relatively to the middle one. In this modified form of dilator the pins or screws $a' a^2$ of the outer stretchers are not allowed to play within slots of the plates, as in the other case, but are fitted in small holes, like the pins or
 35 screws a of the central stretcher, and the plates B B' are made each in two sections overlapping one another and interconnected by pins b^5 and slots b^6 , which permit the longitudinal motion of one section upon the other
 40 and consequently the lateral motion of the outer stretchers. The several plate-sections are separately connected besides with the middle stretcher by means of eccentric pins $a^3 a^4$ engaging slots $b^7 b^8$, formed in said sec-
 45 tions. It will now be seen that owing to this arrangement the outer stretchers can be readily moved sidewise to and from the central stretcher by merely turning the latter, so as to cause the eccentric pins to shift the plate-
 50 sections endwise. The movement of the outer stretchers is thus rendered positive and can be regulated to produce the proper degree of distention.

In Fig. 7 is shown a modified form of slot
 55 b^9 for dilators made after the mode illustrated at Figs. 1 and 3. This slot is indented or notched to afford stops for the pins of the outer stretchers, so that they may not move out beyond a given point and will keep said stretch-
 60 ers in a particular position. The indentations or notches in said slot may be inclined the opposite way, if desired, in which case they will check the inward movement of the outer stretchers instead of their outward move-
 65 ment.

My improved dilator is to be used according to the following directions: Take the in-

strument with its inwardly-curved face toward you and place the middle stretcher between the second and third fingers, at the
 70 same time running the first and little fingers outside the outer stretchers. Push very gently the several stretchers between the various fingers as far as they will go, pressing on the outer stretchers, not the middle one.
 75 Take care not to force the ligaments nor to expand the muscles unduly or beyond what nature would endure. See that the upper and lower plates are respectively parallel with the upper and lower sides of the hand and
 80 that the fingers rest against the central part of the stretchers. Keep the dilator on at first no longer than one minute at a time. Apply the instrument often and especially before undertaking the daily mechanical study.
 85 Time will allow the dilator to be pushed farther down and held longer, indicating thus the good result obtained. The application of the thumb-stretcher scarcely needs descrip-
 90 tion. If using a thumb-stretcher of the kind illustrated in Fig. 3 of the accompanying drawings, simply swing out the pivoted plate or bar B^2 into the position represented in said figure and turn the half-ring on its swivel, so
 95 that the thumb may be brought to bear squarely against it. If using a thumb-stretcher of the type shown at Fig. 4, insert the thumb into the ring and let it pull on the spring. To remove the instrument, first dis-
 100 engage the thumb, if a thumb-stretcher be used. Then take hold of the stretcher that lies between the third and fourth fingers and pull it out gently, withdrawing the little finger first and the others afterward, thus free-
 105 ing the hand and relaxing all the muscles.

The hereinabove-described dilator is suitable for hands of all sizes and may be conveniently carried in the pocket. If a thumb-stretcher be employed, it can be folded or detached after use, as will be readily under-
 110 stood, so that the instrument is compact and portable in whichever way it is made. The instrument being thus always at one's command can be applied whenever and where-
 115 ever required. Its use will be found to be quite beneficial, especially to those whose time for practice is limited, as it will do away with tedious exercises and greatly facilitate the execution of pieces belonging to the modern school which demand great stretches. In
 120 short, it is invaluable to all who have to play on the piano, or organ, or violin, or other keyed or stringed instruments, and, generally speaking, to virtuosi and students of music throughout the world.
 125

Having described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A dilator consisting of parallel plates having suitable holes and slots, objects or
 130 bodies upon which the fingers are stretched and which are located between said plates and having pins passed through the holes and slots therein, and an object or body upon

which the thumb is stretched detachably connected with said plates, substantially as described.

2. A dilator consisting of one or more plates
5 formed of interconnected sections, objects or
bodies upon which the fingers are stretched
and which are held thereby, and means for
shifting the plate-sections, substantially as
described.

10 3. A dilator consisting of distenders adapt-

ed to be slipped between the fingers, and of
plates having holes and slots in which the
ends of the rollers are placed, substantially
as described.

In testimony whereof I affix my signature 15
in presence of two witnesses.

RICHARD A. LUCCHESI. [L. S.]

Witnesses:

A. H. STE. MARIE,
HENRY P. TRICOU.

Correction in Letters Patent No. 602,191.

It is hereby certified that in Letters Patent No. 602,191, granted April 12, 1898, upon the application of Richard A. Lucchesi, of San Francisco, California, for an improvement in "Dilators for Fingers of the Hand," an error appears in the printed specification requiring correction, as follows: In line 13, page 3, the word "rollers" should read *distenders*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 9th day of April, A. D., 1901.

[SEAL.]

Countersigned:

F. I. ALLEN,

Commissioner of Patents.

F. L. CAMPBELL,
Assistant Secretary of the Interior.