

H. OSTROVSKY.

APPARATUS FOR PROMOTING THE FLEXIBILITY OF THE JOINTS OF THE HANDS.

APPLICATION FILED FEB. 26, 1912.

1,061,003.

Patented May 6, 1913.

3 SHEETS—SHEET 1.

Fig. 1

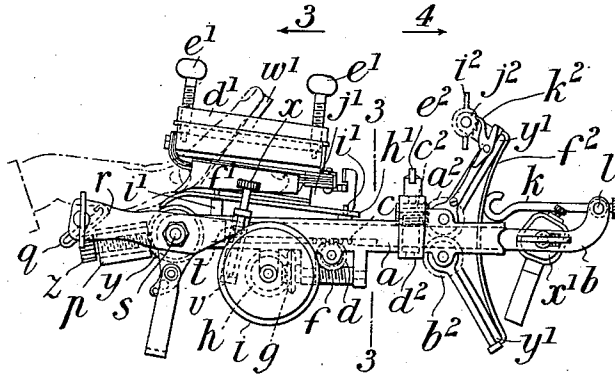


Fig. 3

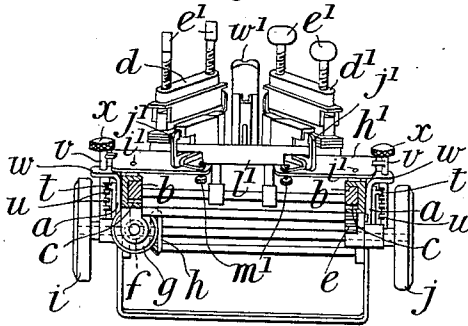


Fig. 4

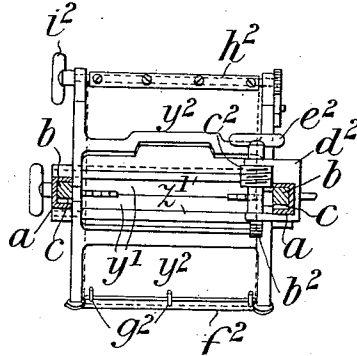
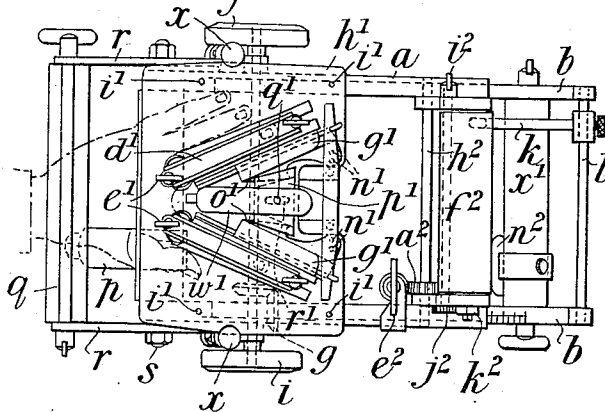


Fig. 2



Witnesses.

J. K. Moore
Robt. G. Curry.

Inventor.

Harry Ostrovsky
by
William R. Remond
att'y.

H. OSTROVSKY.
 APPARATUS FOR PROMOTING THE FLEXIBILITY OF THE JOINTS OF THE HANDS.
 APPLICATION FILED FEB. 26, 1912.

1,061,003.

Patented May 6, 1913.

3 SHEETS—SHEET 2.

Fig. 5.

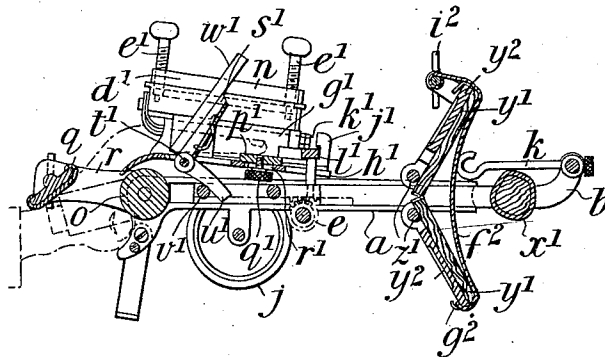


Fig. 7.

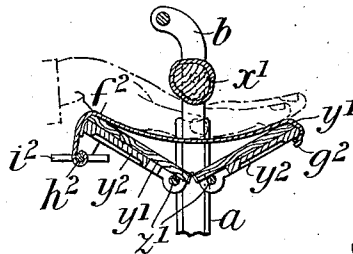
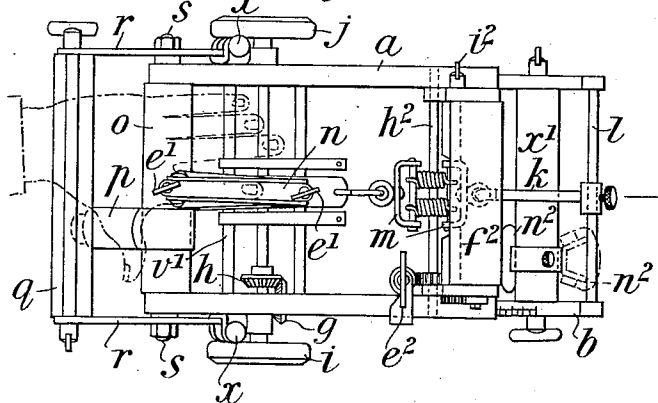


Fig. 6.



Witnesses.

J. K. Moore
 Robt. E. Barry.

Inventor.

Harry Ostrovsky
 by
 William C. Brown
 atty.

H. OSTROVSKY.
 APPARATUS FOR PROMOTING THE FLEXIBILITY OF THE JOINTS OF THE HANDS.
 APPLICATION FILED FEB. 26, 1912.

1,061,003.

Patented May 6, 1913.

3 SHEETS—SHEET 3.

Fig. 10.

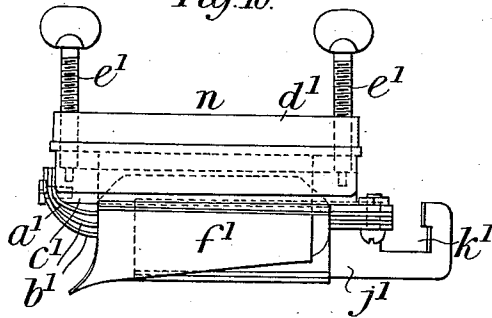


Fig. 11.

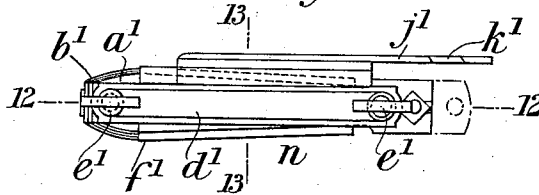


Fig. 12.

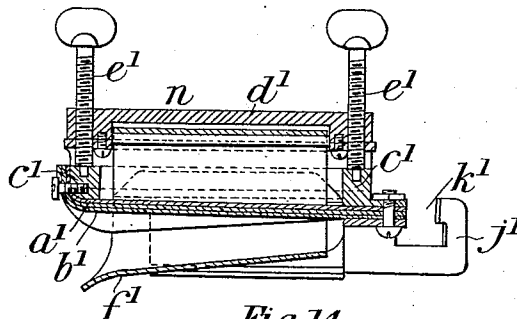


Fig. 14.

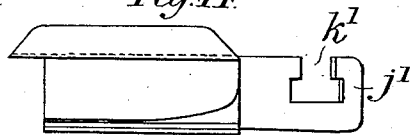


Fig. 15.



Fig. 16.

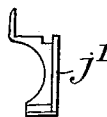


Fig. 13.

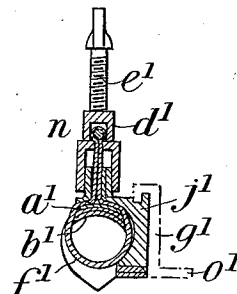
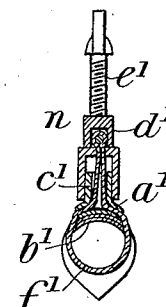


Fig. 9.



Witnesses.

J. K. Moore
 Robt. E. Barry.

Inventor.

Harry Ostrovsky
 by
 Andrew P. Smith
 atty.

UNITED STATES PATENT OFFICE.

HARRY OSTROVSKY, OF LONDON, ENGLAND, ASSIGNOR TO OSTROVSKY MUSICIANS
HAND DEVELOPMENT COMPANY, LTD., OF LONDON, ENGLAND.

APPARATUS FOR PROMOTING THE FLEXIBILITY OF THE JOINTS OF THE HANDS.

1,061,003.

Specification of Letters Patent.

Patented May 6, 1913.

Application filed February 26, 1912. Serial No. 680,050.

To all whom it may concern:

Be it known that I, HARRY OSTROVSKY, a subject of the Emperor of Russia, residing at 66 Amhurst road, Hackney, London, England, have invented a new and useful Apparatus for Promoting the Flexibility of the Joints of the Hands, of which the following is a specification.

My invention relates to apparatus for use by musicians for promoting the flexibility of the joints and stretching the muscles and ligaments of the hands.

In the accompanying drawings, Figure 1 is a side elevation of the apparatus. Fig. 2 is a plan of the same. Figs. 3 and 4 are sections on the line 3—3 Fig. 1, looking in the direction of the arrows 3 and 4 respectively. Fig. 5 is a central longitudinal section of the apparatus. Fig. 6 is a plan with certain parts removed. Fig. 7 is a view of a portion of Fig. 5 in a different position. Fig. 8 is a detail connected with Fig. 7. Fig. 9 is a vertical section of a finger socket or stall hereinafter described. Figs. 10 and 11 are respectively a side view and a plan showing the finger socket or stall when fitted with the slide hereinafter described. Figs. 12 and 13 are sections on the lines 12—12 and 13—13 respectively of Fig. 11. Figs. 14 15 and 16 are respectively a side view, a plan and an end view of the slide used in connection with the finger socket or stall shown in Figs. 10 to 13.

The apparatus constructed according to my invention comprises a channeled frame *a* in which is mounted a slide *b* to which movement can be imparted by suitable mechanism such as a rack *c* formed on each side of the slide *b* and pinions *d*, *e* mounted in the frame *a* the pinion *d* being actuated (through the medium of a worm *f* and bevel wheels *g*, *h*) by a hand wheel *i* or *j* at either side of the frame *a*. To a hook *k* on a bar *l* at the rear end of the slide *b* is attached, by a spring connection *m*, as shown in Fig. 6 a socket or stall *n*, hereinafter described, into which any one of the fingers can be inserted and securely gripped, so that if the hand be held by the palm bearing upon a bar *o* of the frame and by the thumb partially embracing a projection *p* adjustable along the said bar as illustrated in Figs. 5 and 6, and movement be given with the other hand to the slide *b* in the direction indicated by the arrow Fig. 6, a pulling

strain will be produced on the finger whereby the desired stretching of the joints, muscles and ligaments in the direction of the length of the hand will take place. A padded bar *q* is advantageously arranged on the frame *a* against which bears the back of the hand while the finger is being operated on. This bar is pivoted to arms *r*, *r* jointed at *s*, *s* to the frame *a* so as to rock thereon, the inner ends of the said arms being each provided with a tooth *t* designed to engage with notches or teeth *u* on a spindle *v* turning in a bracket *w* fixed to the frame *a* and operated by means of a knob *x* so that when the notches *u* are turned away from the tooth *t* the position of the bar *q* can be adjusted by raising or lowering the same and when the notches are turned into engagement with the tooth *t* the bar *q* will be held in its adjusted position. The bar *o* is arranged to turn in the frame *a* so that the projection *p* will bear upon the underside of the bar *q* in whatever position the latter is adjusted.

The projection *p* can be slid along the bar *o* in order to allow it to be used for either the right or the left hand and for this purpose it is provided with a band or strap *y* which can be caused to loosely embrace the said bar or to firmly grip the same by operating a pressure screw *z* in the projection *p*.

The hook *k* is adapted to slide along the bar *l* in order to bring it into line with the finger being operated upon or to move it to one side of the frame, out of the way, when not required for use.

It is obvious that instead of producing the required tractive force by means of the slide *b* as hereinbefore described, the weight of the body can be used for this purpose in which case the hand would, of course, not be held by the bar *o* and projection *p*.

The device *n* for gripping the fingers while the apparatus is being used for pulling or stretching them is shown in Fig. 9. It also serves for the lateral stretching or spreading of the fingers as hereinafter described and is illustrated in Figs. 10 to 16. The said device consists of a saddle *a*¹ preferably made of metal, lined or padded with leather *b*¹ and adapted to fit against the upper side of the finger, the saddle being secured to a slotted bar *c*¹ above which is a bar *d*¹ having two thumb screws *e*¹, *e*¹

screwing through it so as to produce pressure upon the bar c^1 ; to the bar d^1 is connected a fabric or leather band f^1 which passes through the slotted bar c^1 and which, when the screws e^1 are turned, will draw up the band f^1 in such a manner as to embrace and compress the finger against the saddle a^1 .

To the frame a are also applied inclined guides g^1, g^1 in which finger sockets or stalls n can move in such a manner that they gradually move away from each other in order to produce a lateral stretching of the muscles and ligaments as illustrated in Fig. 2. For this purpose the guides g^1, g^1 are mounted on a removable plate h^1 retained in position upon the frame a by means of studs i^1 on the latter located in holes in the said plate, the finger sockets or stalls n being fitted with removable slides j^1 , as illustrated clearly in Figs. 10 to 16, moving in the guides g^1 and formed with apertures k^1 designed to receive a bar l^1 carried by the slide b so that, by operating the latter, the finger sockets n will be moved along the guides g^1, g^1 outward in an inclined direction, thereby producing the required lateral stretching or spreading of the fingers. In order that this device may be adjustable for different sizes of hands and for different stages of spreading or stretching, the guides g^1, g^1 are hinged to the removable plate h^1 by means of screw-threaded studs m^1 which can be removed and placed in different holes n^1 in the said plate and the guides are provided with inclined portions o^1, o^1 bearing upon the inclined edges of a plate p^1 which is adjustably secured to the plate h^1 by a screw q^1 in a slot r^1 in the plate h^1 , so that by adjusting the plate p^1 and changing the pivoting points of the guides g^1 the angle of inclination of the latter can be altered. When spreading or stretching the fingers as just described the bar o is not made use of, and the bar q serves as a rest for the arm.

It will be obvious that the plate h^1 together with the stretching guides g^1 and also the bar l^1 are removed from the frame a as indicated in Fig. 6 when the apparatus is to be used for stretching the fingers in the direction of their length.

For pressing back the fingers an arm s^1 is hinged at t^1 to the plate h^1 and is provided with a tail w^1 on which bears a bar v^1 on the slide b in the rearward movement of the latter. The finger rests on a cradle w^1 carried by the arm s^1 so that if the hand be placed in the position shown in Fig. 1 with the adjacent fingers clamped in the sockets n , and the frame b racked forward the finger can be pressed back as illustrated. The slide b also carries a rotatable rubber covered bar x^1 designed to be used in conjunction with removable plates y^1, y^1 carried on frames y^2, y^2 hinged at z^1, z^1 to the

frame a in order to produce pressure on the back of the hand at the joints as illustrated in Fig. 7 the apparatus being up-ended for the purpose. The required inclination is given to the hinged plates y^1, y^1 by means of pinions $a^2 b^2$ on the hinges of the plates, the pinion a^2 being actuated by a worm c^2 mounted in a bracket d^2 on the frame a and turned by hand by means of the head e^2 . A sheet of leather or fabric f^2 extends over the plates y^1 one end being attached to hooks g^2 on one of the frames y^2 and the other end to a roller h^2 arranged to be turned by means of the handle i^2 , and to be retained in any position to which it may be turned by a ratchet wheel j^2 and pawl k^2 so as to regulate the tension of the sheet f^2 . The hand being placed with the palm resting on the sheet f^2 as shown in Fig. 7 and movement being given in the required direction to the slide b , the bar x^1 will press upon the back of the hand thereby increasing the flexibility of the joints.

The rotatable bar x^1 is formed with rounded corners of different radii so that by altering its position it is adapted to suit hands of different sizes and different stages of bending them back.

Hinged plates l^2 shown in detail at Fig. 8, covered with rubber or leather and acting against a spring m^2 , are placed between the back of the hand and the bar x^1 so that pressure shall be put on both sides of the hand in order temporarily to squeeze the hand and thereby promote the circulation of the blood.

A projection n^2 having a padded or flexible cover is provided on the bar x^1 to allow of producing pressure on the back of individual joints of the fingers when required, this projection being arranged so that its position along the bar x^1 , can be altered to suit the finger to be operated upon. To this end it is attached to the bar by means somewhat similar to those hereinbefore described for securing the projection p to the bar o .

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. Apparatus for promoting flexibility of the joints of the hands, comprising a slide mounted in a frame and adapted to have movement imparted thereto by suitable mechanism, and means for holding and compressing the fingers mounted upon said slide.

2. An apparatus for promoting flexibility of the joints of the hands comprising a frame, a slide mounted therein, suitable mechanism for imparting movement to said slide, means provided upon said slide for gripping the fingers and means for holding the palm of the hand.

3. An apparatus for promoting flexibility of the joints of the hands comprising a slide

mounted in a frame and adapted to have movement imparted thereto by suitable mechanism, means for holding and compressing the fingers mounted upon said slide, and means for producing a lateral stretching of the joints and ligaments.

4. An apparatus for promoting flexibility of the joints of the hands comprising a frame, a slide mounted therein, suitable mechanism for imparting movement to said slide, means provided upon said slide for holding the fingers and for compressing them at the joints.

5. An apparatus for promoting flexibility of the joints of the hands, comprising a frame, a slide mounted therein, suitable mechanism for imparting movement to said slide, means provided upon said slide for holding the fingers and compressing them at the joints, and means provided upon said frame against which the palm of the hand is adapted to rest.

6. An apparatus for promoting flexibility of the joints of the hands comprising a frame, a slide mounted therein, suitable mechanism for imparting movement to said slide, means provided upon said slide for holding and compressing the fingers, a bar provided in said frame, said bar adapted to be engaged by the palm of the hand, a secondary bar adapted to be engaged by the back of the hand, and an adjustable projection provided upon one of said bars, said projection forming a support for the thumb.

7. An apparatus for promoting flexibility of the joints of the hands comprising a frame, a slide mounted in said frame, a rack on said slide, a pinion mounted in said frame, engaging said rack, means for rotating said pinion, and means for holding and compressing the fingers provided upon said slide.

8. An apparatus for promoting flexibility of the joints of the hands comprising a frame, a slide mounted in said frame, suitable mechanism for imparting movement to said slide, and means provided upon said slide for holding and compressing the fingers, said means consisting of a plurality of saddles, slotted bars to which the saddles are secured, bands between which the fingers are adapted to be inserted, and means for drawing up said bands.

9. An apparatus for promoting flexibility

of the joints of the hands, comprising a frame, guides provided upon said frame, a slide mounted in said guides, means for holding and compressing the fingers provided upon said slide, and means for moving said slide toward and away from one end of said frame.

10. An apparatus for promoting flexibility of the joints of the hands, comprising a frame, a slide mounted in said frame, guides provided upon said slide, and means for holding and compressing the fingers, said holding and compressing means being mounted on said guides, said guides being diverged to permit the finger holding and compressing means to move toward and away from one another.

11. An apparatus for promoting flexibility of the joints of the hands, comprising a frame, a slide mounted on said frame, suitable mechanism for moving said slide relative to said frame, adjustable guides provided upon said slide, and means for holding and compressing the fingers, said holding and compressing means for the fingers being mounted upon said guides and adapted to move thereon.

12. An apparatus for promoting flexibility of the joints of the hands, comprising a frame, a slide mounted on said frame, suitable mechanism for moving said slide relative to said frame, adjustable guides provided upon said slide, means for holding and compressing the fingers, said holding and compressing means for the fingers being mounted upon said guides and adapted to move thereon, and means for detachably securing said guides upon said slide.

13. An apparatus for promoting flexibility of the joints of the hands, comprising a frame, a slide movably mounted in said frame, a bar carried by said slide, hinged plates carried by said frame, and a strip of flexible material carried by said plates, said bar being adapted to embrace the back of the hand and the flexible material to be embraced by the palm of the hand, and means for causing the bar and plates to approach and recede from each other.

HARRY OSTROVSKY.

Witnesses:

A. ALBUTT,
PERCY C. SUMMERS.