

July 19, 1949.

R. UNDERWOOD
EXERCISING DEVICE

2,476,518

Filed April 29, 1946

2 Sheets-Sheet 1

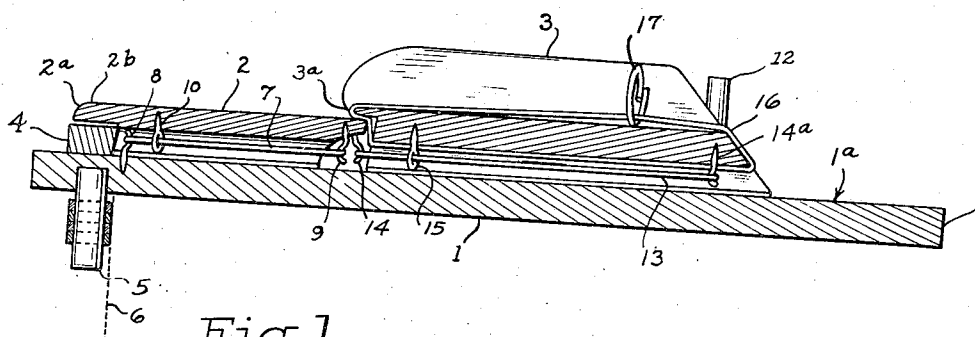


Fig. 1.

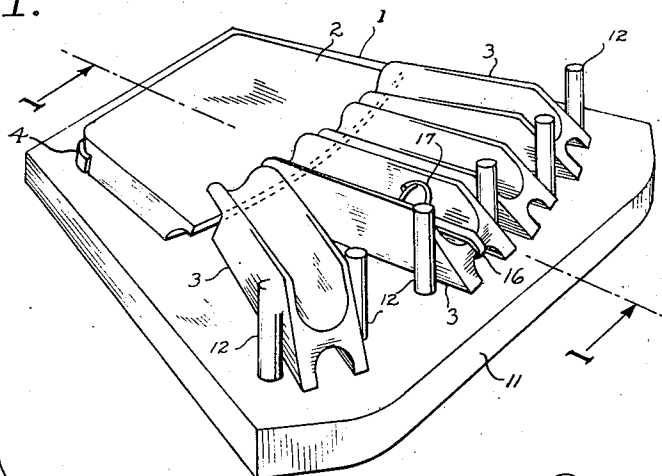


Fig. 2.

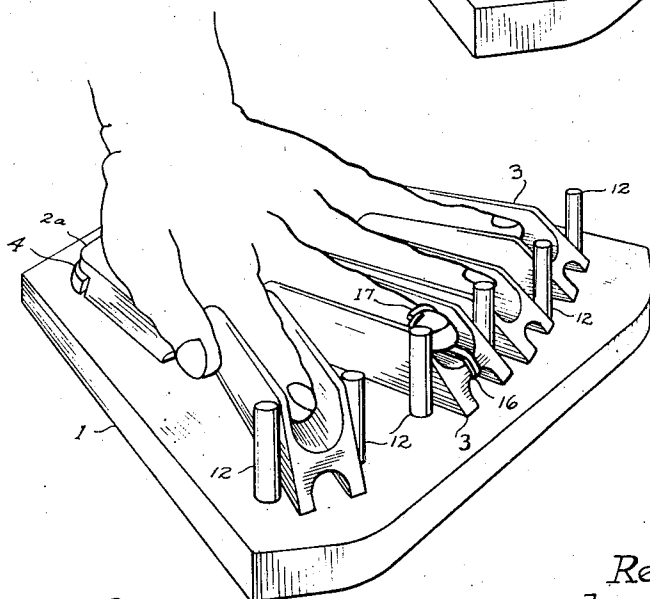


Fig. 3.

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2 Sheets-Sheet 2

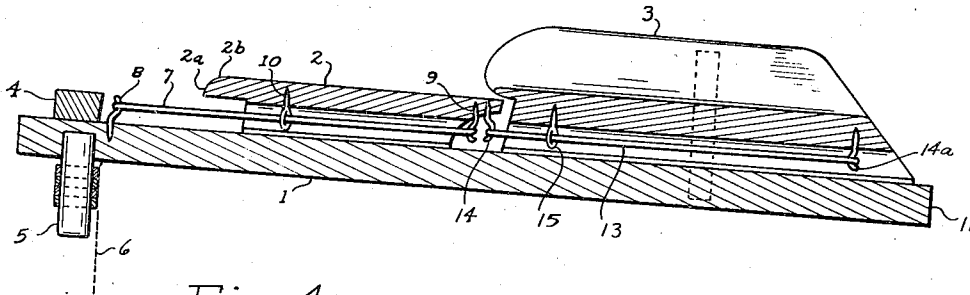


Fig. 4.

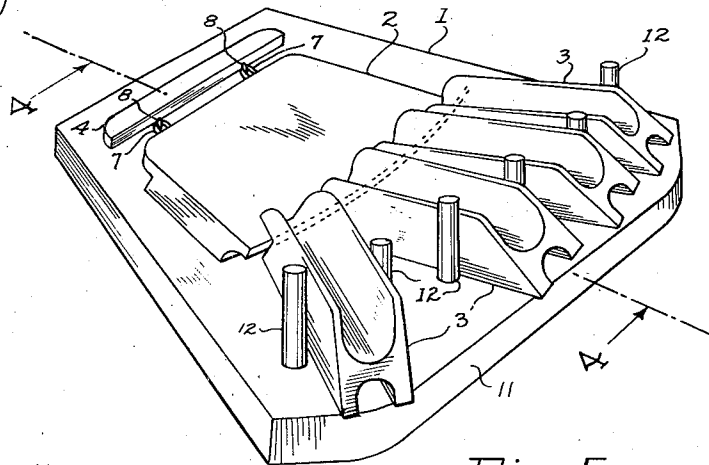


Fig. 5.

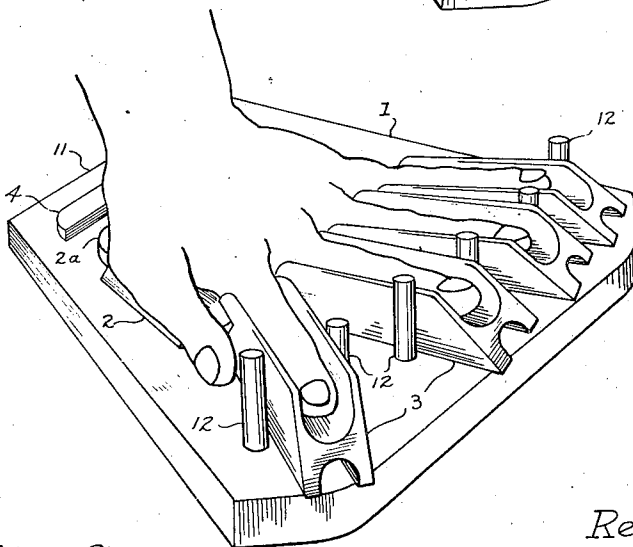


Fig. 6.

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UNITED STATES PATENT OFFICE

2,476,518

EXERCISING DEVICE

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14 Claims. (Cl. 272-67)

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My invention relates to the art of kinesitherapy and has for its particular object the provision of an exercising appliance for the use of the hands and fingers so as to develop stretch between the several fingers and flexibility and muscular tone to the hands. My invention is particularly adapted for the use of musicians, such for example, as pianists and violinists, but it has substantial value in the art of physical therapy and in athletics. In connection with the latter use it might be said that my invention is particularly useful in developing flexibility and grip and spread of the hand and fingers, in the training of basketball, football and baseball players who must catch and throw.

To this end, my appliance comprises a base having a single large member adapted for engagement by and support of the palm and base of the hand and a plurality of trough-like finger glides diverging therefrom. Said hand support and said finger glides are resiliently joined together and to said base. Guideways are provided so as gradually to cause said finger glides to diverge as said hand and finger supports are moved from their initial point. The points of connection of the finger glides and the hand support are made upon flexible joints and the palm support is resiliently mounted so that it may move about said base and, thus, the parts are adapted to accommodate themselves to the stretch and tension induced in the hands and fingers of the user thereof rather than to force said fingers and the hand into unnatural and distorted positions.

The principal object of my invention is to provide an appliance of this character which will promote stretch of the fingers and yet to support the remainder of the hand in a comfortable and relaxed position so as not to induce cramping of the hands and fingers.

A further object of my invention is to provide a device of this character in which the parts may easily be adjusted and interchanged into a plurality of arrangements so as to promote selectivity, stretch and flexibility between the several fingers and the joints between said fingers and the hand generally.

A further object of my invention is to provide a device of this character which tends to produce a separation of the metacarpal joints and not merely a stretching of the webs between said fingers.

Further and other features of my invention and the mode of operation thereof are herein-

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after described with reference to the accompanying drawings, in which:

Fig. 1 is a section taken on a line 1-1 in Fig. 2;

Fig. 2 is a perspective view of said appliance with one of the finger glides shown spaced more widely apart than the remainder;

Fig. 3 is a view of said appliance showing the manner in which the user's hand may be placed thereon with the palm supported by its appropriate support and with the fingers arranged in the finger glides;

Fig. 4 is a section similar to Fig. 1 with the palm support and the finger glides shown in extended position, said section being taken on the line 4-4 in Fig. 5;

Fig. 5 is a view similar to Fig. 2 with the parts of said appliance shown extended; and

Fig. 6 is a view similar to Fig. 3 showing the manner in which the user's hand is arranged when said appliance is used to spread the forefinger and the middle finger more widely apart than the remainder.

An appliance embodying my invention comprises a base 1 which has a flat top 1a. Said top is preferably quite smooth and polished because it is upon said top surface that the palm and finger supporting members are mounted. Said base preferably is frusto-triangular in elevation. The palm supporting member 2 is arranged adjacent the portion of the base of lesser width and the trough-like finger supporting glides 3 diverge toward the broader portion of said base. A shouldered abutment 4 extends upwardly from the flat top of said base and engages the heel of the palm supporting member 2. Projecting downwardly from said base are a pair of pegs 5 which are adapted to engage the edge of a table 6 or other support. This prevents relative movement between said base and said table or support.

Joining the base and palm supporting member 2 is a looped elastic member 7. This is joined to pins 8 secured in said base and hooks 9 secured in the undersurface of said palm supporting member 2 in the manner shown in Fig. 4. I preferably pass said elastic member through eyes 10 so as to keep the courses of said looped elastic member separated widely. This permits the palm supporting member 10 to be drawn back to its initial position and centered with respect to the shouldered abutment 4.

It is to be noted that the forward edge 11 of the palm supporting member 2 is formed upon a curve and thus the abutting ends of the finger glides may bear against said edge and slide rela-

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tively thereon so as to accommodate the finger glides in the position of the fingers when they are stretched in the manner shown in Fig. 6. Projecting upwardly from the flat top of the base 1 are a plurality of pins 12 which are spaced upon a circular course adjacent the near or wide edge 11 of the appliance as it is viewed in Figs. 1, 2, 4, and 5. The spacing of said pins is greater than that of the inner ends of the finger glides abutting the palm supporting member 2. Thus, when said palm supporting member and the finger glides are pushed outwardly, as is shown in Figs. 5 and 6, the outer ends of said glides which lie between the pins 12 are spaced apart a greater distance. This causes the fingers of the user to be separated more distantly, as is shown in Fig. 6, to provide the stretch and exercise for which said appliance is designed.

Elastic members 13 join the palm supporting member 2 and the finger glides 3, as is shown in Figs. 1 and 4. Said elastic members are carried by hooks 14 projecting downwardly from the palm supporting member 2 and hooks 14a projecting downwardly from the outer or more distant ends, respectively, of the finger glides 3. Said elastic members also preferably pass through eyes 15 arranged at the end of said finger glides 3 adjacent the palm supporting member 2 so as to keep said elastic members arranged longitudinally of the finger glides 3. As is noted in the drawings, said elastic members 7 and 13 preferably are somewhat elongated to promote uniformity in resistance throughout the entire operating stroke of the members 2 and 3. That is, said elastic members are not of such limited elongation that they promote increased tension as the members are moved by the pressure of the hand from the position they occupy in Figs. 1 to 3, inclusive, to that in which they occupy in Figs. 4 to 6, inclusive.

I preferably provide more ways between the pins 12 than there are finger glides 3. This permits said finger glides to be moved selectively between more than one of said pairs of said pins so that stretch may be directed between any two of the fingers to a greater degree than between the remainder.

My exercising appliance may be used as follows:

The base of said appliance is arranged flatwise upon a table with the bottom supported by said table top and with the pegs 5 engaging one edge thereof. One of the hands is then arranged so that the palm thereof rests upon the supporting member 2 and the fingers are arranged in the glides 3. It is to be noted that said glides are quite long so as to accommodate the entire length of the finger. I find that greater efficiency is attained when the fingers are arranged flatwise in said glides 3 but in some exercises for musicians, for example, the fingers are arranged in chord playing position. Except when the fingers are arranged in chord playing position the palm rests upon the member 2 which supports the weight thereof. Thus, the fingers may be relaxed to minimize tension during the stretching operation. Then the palm supporting member is forced away from the shouldered abutment which will also push the finger glides 3 therewith, until the limit of stretch is attained. This may be done by pushing the palm supporting member 2 with the hand to be stretched. In some cases it is desirable to merely relax the hand and support it upon said member 2 and to push the hand to be exercised by the other hand, grasping the hand to be exercised by the back and exerting

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all of the pushing force with the non-exercised hand. It is to be noted that the member 2 is only resiliently secured to the base and, thus, when the fingers are being stretched the member 2 may be "waggled" to and fro sideways to increase the stretch between the fingers and particularly through the metacarpal joints thereof. It is desirable that said stretching of the fingers be accomplished by a number of easy strokes, each of which is extended only to the point that stretch is accomplished. Uncomfortable tension is, thus, avoided. This promotes increased spread and flexibility without promoting undue strain in the joints of the hand and fingers thereof.

Because of the fact that the finger glides 3 and the palm supporting member 2 move away from the shouldered abutment 4, the latter may be used as a support about which the thumb may be hooked if it is desired to promote stretch between the thumb and the fingers. This may be accomplished in the same way by supporting the palm upon the member 2 and pushing it away from said shouldered abutment over which the thumb is hooked. Thus, simultaneously stretch is promoted between the thumb and the fingers and the fingers may be simultaneously spread apart to promote flexibility and suppleness of the entire hand.

In the drawings I have shown my apparatus provided with five ways and four finger glides 3. This provides an alternate way for each of the glides 3 to permit the latter to be arranged selectively to spread any pair of selected fingers. That is, the forward end of each of the glides 3 is unconnected with the base and, thus, may be lifted upwardly and over an intervening peg to cause any one of the ways to be skipped and to promote stretch between said skipped ways. Also because said glides 3 may easily be disengaged from their elastic members 13 merely by unhooking the elastic member from a hook 14, any of said glides 3 may be removed from the palm supporting member 2 to promote greater or less stretch between any of the fingers and disengagement of the remaining fingers with a glide. Thus, by removing the two central finger guides 3 and using only the two marginal ones, stretch may be provided between the thumb and the fingers in specialized exercises. Also any one of said glides 3 may be detached and removed for promoting stretch between any of the fingers or the thumb and any two fingers.

Most of the exercises for producing stretch may be accomplished with the palm of the hand resting upon the surface of the member 2. Said device may also be used with the back of the hand bearing upon the upper surface of the member 2.

About one or more of the finger glides 3, I arrange an endless member 16, such for example, as a rubber band and place thereon a ring 17. Said ring may be engaged by the tip of a finger to be used in flexing exercises to promote the muscle tone of the individual fingers. I have found that if said ring is given a bright color it aids in concentrating when said ring is lifted or manipulated by one of the fingers. Said ring may be shifted from one end of the glide 3 to the other if desired and may be pulled longitudinally thereof or laterally as in lifting exercises. The thumb may grip one of the marginal edges of the palm supporting member 2 in a stretching exercise or may grip the marginal edge of the base or, as has been pointed out, may be arranged in one of the glides 3 with equal facility depending upon the exercise to be practiced.

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Although I have described the structure and function of the various parts of my appliance in detail, it is to be understood that these are cited merely by way of example and other and further uses and exercises may be afforded to meet specific and individual needs.

I claim:

1. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base and said finger glides being joined to the palm supporting member by resilient retracting elements.

2. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, and said finger glides being joined to the palm supporting member by flexible resilient retracting elements.

3. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base and said finger glides being joined to the palm supporting member and the latter to the base by flexible resilient retracting elements.

4. An exercising appliance for the hands and fingers comprising a base having a downwardly projecting abutment for engaging a support, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, and said finger glides being joined to the palm supporting member by resilient retracting elements.

5. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging trough-like finger glides, said palm supporting member and finger glides being slidably mounted upon said base, and said finger glides being joined to the palm supporting member by resilient retracting elements.

6. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member and the latter to the base by flexible resilient retracting elements, and the edge of said palm supporting member adjacent the finger glides being curved, said retracting elements tending to hold the finger glides in abutment therewith.

7. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member and the latter to the base by flexible resilient retracting elements, and the edge of said palm supporting member adjacent the finger glides being curved upon a circular sweep, said retracting elements tending to hold the finger glides in abutment therewith.

8. An exercising appliance for the hands and fingers comprising a base, a member for support-

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ing the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member by resilient retracting elements, and a plurality of guide elements adapted for selective engagement by said finger glides at points spaced from said palm supporting member, said guide elements being positioned and arranged to define the path of travel of said finger glides.

9. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member by resilient retracting elements, and a plurality of guide pins adapted for selective engagement by said finger glides at points spaced from said palm supporting member, said guide pins being positioned and arranged to define the path of travel of said finger glides.

10. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member by resilient retracting elements, a plurality of guide elements adapted for selective engagement by said finger glides at points spaced from said palm supporting member, said guide elements being positioned and arranged to define the path of travel of said finger glides, said guide elements being spaced apart greater distances than the points of joinder of said finger glides with the palm supporting member, whereby when said palm supporting member and therewith the finger glides are slid upon the base, said finger glides are caused to separate progressively at increasing divergent angles.

11. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member and the latter to the base by flexible resilient retracting elements, a plurality of guide elements adapted for selective engagement by said finger glides at points spaced from said palm supporting member, said guide elements being positioned and arranged to define the path of travel of said finger glides, said guide elements being spaced apart greater distances than the points of joinder of said finger glides with the palm supporting member, whereby when said palm supporting member and therewith the finger glides are slid upon the base, said finger glides are caused to separate progressively at increasing divergent angles, and the flexibility of the connections between the finger glides and palm supporting members accommodating differential spreading and stretching of the several fingers.

12. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member and the latter to the base by flexible resilient retracting elements and means for fixing the initial position of said palm

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supporting member and therewith the finger glides.

13. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon said base, said finger glides being joined to the palm supporting member and the latter to the base by flexible resilient retracting elements, and a shouldered abutment for fixing the initial position of said palm supporting member and therewith the finger glides.

14. An exercising appliance for the hands and fingers comprising a base, a member for supporting the palm of the hand and a plurality of diverging finger glides, said palm supporting member and finger glides being slidably mounted upon

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said base, said finger glides being joined to the palm supporting member and the latter to the base by flexible resilient retracting elements, and said palm supporting member being free of guides upon said base to permit said palm supporting member to move freely and independently of the paths of travel of said finger glides.

REX UNDERWOOD.

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The following references are of record in the file of this patent:

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