R. UNDERWOOD.

DEVICE FOR PROMOTING DIGITAL DEXTERITY.

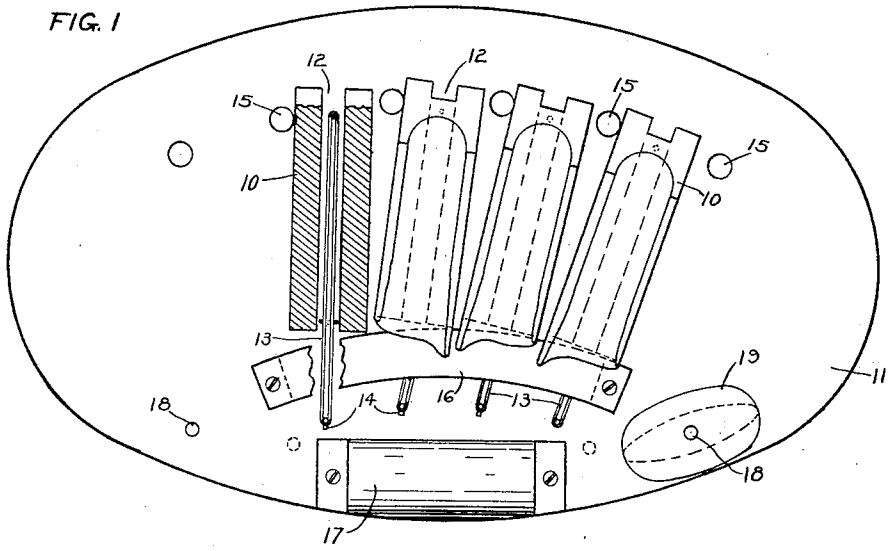
APPLICATION FILED JUNE 28, 1915.

1,174,205.

Patented Mar. 7, 1916.

2 SHEETS—SHEET 1.

FIG. 1



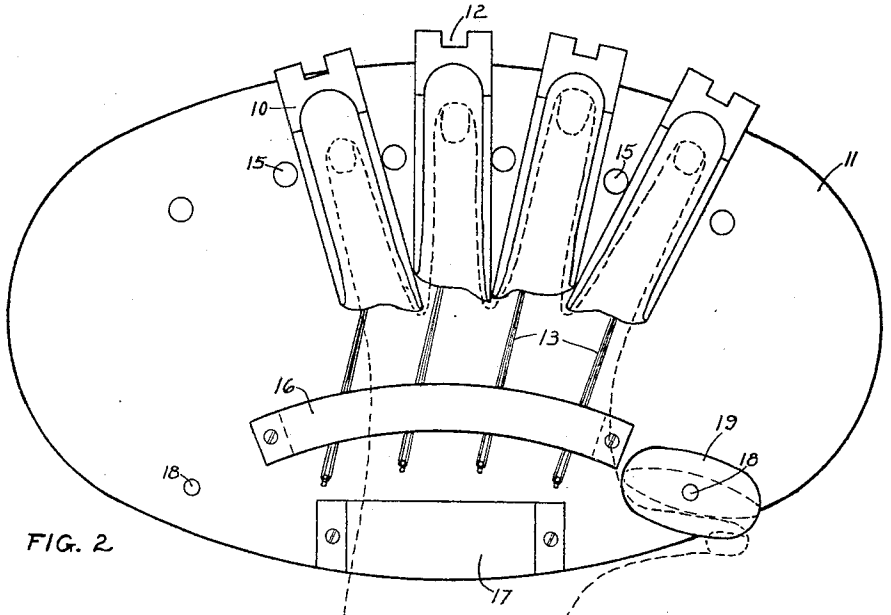
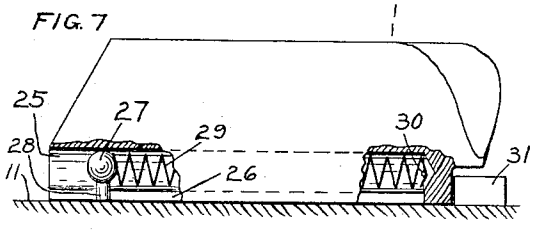


FIG. 2

FIG. 7



Inventor

By Red Underwood,

F. K. Fassett, Attorney

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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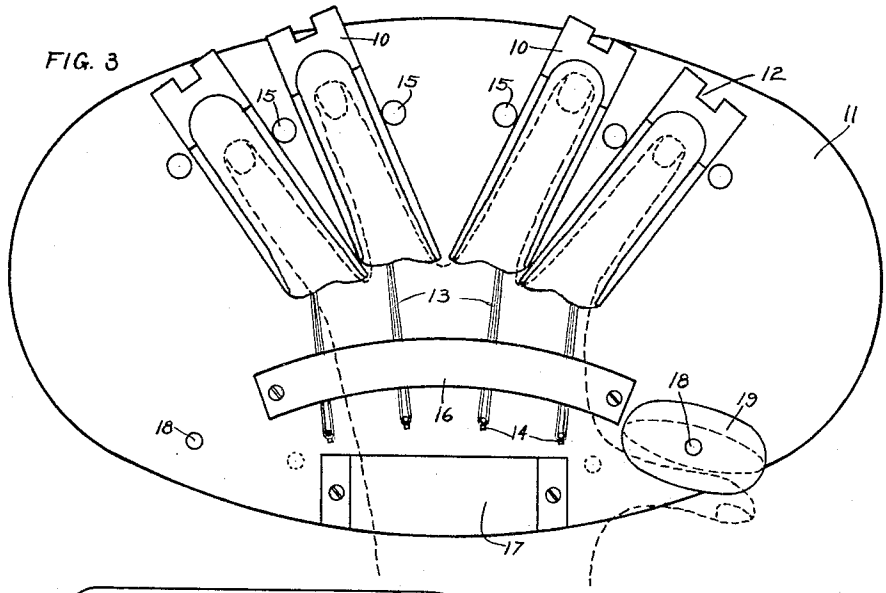
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FIG. 3



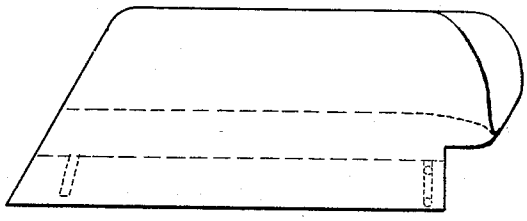


FIG. 4

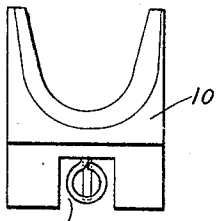


FIG. 5

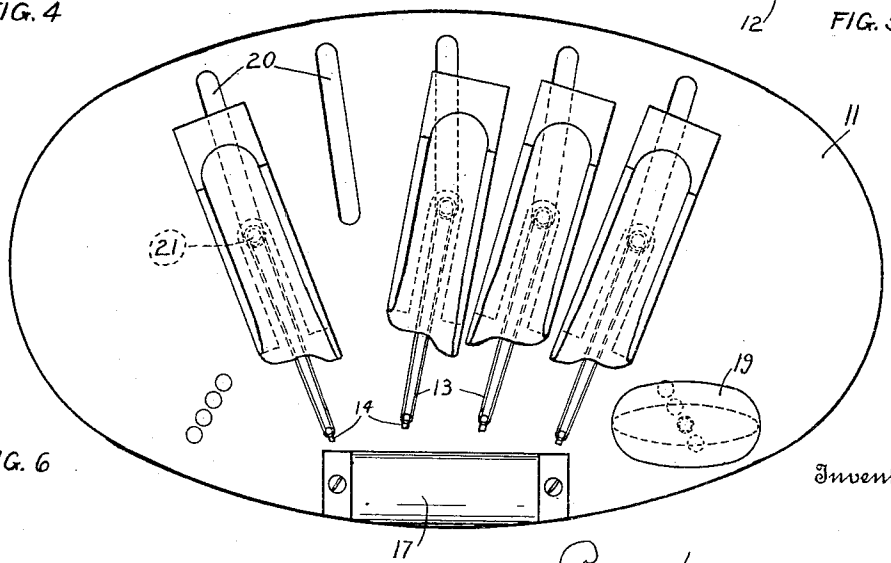


FIG. 6

Inventor

Red Underwood,

By F. K. Fassett,

Attorney

THE COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

REX UNDERWOOD, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOHN T. UNDERWOOD, OF CHICAGO, ILLINOIS.

DEVICE FOR PROMOTING DIGITAL DEXTERITY.

1,174,205. Specification of Letters Patent. Patented Mar. 7, 1916.

Application filed June 28, 1915. Serial No. 36,675.

To all whom it may concern:

Be it known that I, REX UNDERWOOD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Device for Promoting Digital Dexterity, of which the following is a specification.

My device is for the use of pianists, violinists and others in whose work hand development and digital dexterity is essential, and it accomplishes its purpose by exercising the muscles of the hand, flexing and extending the membrane and tissue between the fingers and loosening the joints.

It consists essentially of grooved blocks which are normally concentrated in a slightly fan shaped group and arranged so that when the fingers are laid in the grooves and the hand pushed forward the blocks will move in diverging paths, thus forcing the fingers apart and extending the membrane between the fingers, at the same time acting upon the knuckles and muscles of the hand. A pivoted thumb piece is provided against which the thumb bears and by which it is prevented from moving forward with the hand. This extends the membrane between the thumb and first finger. The blocks are so arranged that the divergence between any two fingers may be greater than that between the others so as to subject certain parts of the hand to greater tension than the other parts receive. The edges of the grooves are rounded to conform to the curvature of the fingers and the guides by which the blocks are made to diverge are arranged so the blocks can accommodate themselves to position of the fingers.

In the accompanying drawings: Figure 1 is a plan of the device with the parts in normal position, certain parts being shown in section. Fig. 2 is a similar view with the hand in place and under the influence of the device. Fig. 3 is a view similar to Fig. 2, showing the manner of obtaining special treatment of a certain part of the hand. Figs. 4 and 5 are separate views of a finger block. Fig. 6 is a plan of a modified structure. Fig. 7 is a detail of another modification.

The device consists of four grooved blocks 10 lying upon a base board 11. Each block has a longitudinal groove 12 in which an elastic member 13, in the present case an ordinary rubber band, lies, the outward end thereof being attached to the block while the inner end is attached to a hook 14 set in the base. The outer ends of the blocks are separated by pegs 15 while the inner ends are in contact, drawn together and against a stop 16 by the elastic members 13. There are six pegs 15 forming five spaces, and the elastic members 13 permit the blocks to be arranged in any desired order so the vacant space may be between any two blocks. Behind the stop 16 is a hand rest 17 and at each side of this rest there is a peg 18 to receive the thumb block 19, this block being placed on one or the other peg according to which hand is being treated.

In using the device the fingers are laid in the grooves and the thumb placed against the block 19. The hand is then pushed forward, moving the blocks 10 along with it. Fig. 2 shows the effect produced on the hand; the blocks move in diverging paths guided by pegs 15, rocking on the pegs sufficiently to accommodate themselves to the position of the fingers. The membrane between the fingers is thus extended more or less according to how far the hand is pushed forward, while the thumb is drawn back and the membrane between it and the first finger also extended. Fig. 3 shows the manner of effecting greater extension of certain parts of the hand. By arranging the blocks in suitable positions the treatment may be concentrated at any desired point.

In addition to extending the membrane the device may be used in different ways for exercising the hands. For example: with the fingers separated as in Fig. 2 the hand may be swung from side to side so as to flex the joints.

Various modifications may be made in the structure. In Fig. 6 the pegs 15 are eliminated and instead the base is provided with five radiating slots 20 in which pins 21 on the bottoms of the blocks, shown in dotted lines, play. As in the former construction the blocks may be arranged in any desired order and are capable of accommodating themselves to the positions of the fingers as above described. Instead of rubber bands springs may be employed if desired. The ends of the slots 20 in Fig. 6 act as stops so the stop 16 shown in Fig. 1 is not necessary. Rollers may be placed on pegs 15 if desired.

In the modification shown in Fig. 7 the block has a longitudinal bore 25 with a slot

26 in its lower wall. A knob 27 is mounted on the base 11 by a neck 28 which runs in slot 26. A compression spring 29 is fastened at 30 in the bore 25 and tends to move the block against the stop 31. By lifting the front end of the block clear of this stop the block can be removed from the knob 27 and placed in position over another one. This enables the operator to arrange the blocks to suit as above described.

What I claim is as follows:

1. A device for promoting digital dexterity, comprising blocks with grooves to lay the fingers in and means whereby when the hand is pushed forward the blocks are made to move in diverging paths, thereby extending the membrane between the fingers.

2. A device for promoting digital dexterity, comprising blocks with grooves to lay the fingers in and guides for the blocks which when the fingers are in the grooves and the hand pushed forward cause the blocks to move in diverging paths.

3. A device for promoting digital dexterity, comprising blocks arranged to confine the fingers and guides whereby when the fingers are confined by the blocks and the hand pushed forward the blocks are made to move in diverging paths.

4. A device for promoting digital dexterity, comprising blocks with grooves to lay the fingers in and guides whereby when the fingers are in the grooves and the hand pushed forward the blocks are made to move in diverging paths, the guides being arranged so the divergence between a certain two blocks is greater than between any other two blocks.

5. A device for promoting digital dexterity, comprising blocks with grooves to lay the fingers in, guides whereby when the fingers are in the grooves and the hand pushed forward the blocks are made to move in diverging paths, and means whereby the divergence between any two blocks may be made greater than that between the others.

6. In a device for promoting digital dexterity, a base, grooved blocks resting thereon, elastic members whereby the blocks are moved in one direction, and guiding pins whereby when the blocks are moved in the opposite direction to that in which they are moved by said elastic members they are made to move in diverging paths.

7. In a device for promoting digital dexterity, a base, grooved blocks resting thereon, elastic members whereby the blocks are moved in one direction, said members being anchored to the base so they will tend to concentrate the blocks, and guiding pins whereby when the blocks are moved in a direction opposite to that in which they are moved by said elastic members they are made to move in diverging paths.

8. A device for promoting digital dexterity, comprising blocks with grooves to lay the fingers in and guides for the blocks which when the fingers are in the grooves and the hand pushed forward cause the blocks to move in diverging paths, the guides being so constructed that the blocks can accommodate their positions to the fingers while extending the membrane between them.

9. A device for promoting digital dexterity, comprising sliding blocks with grooves to lay the fingers in, guides for the blocks, and elastic members which normally hold the blocks at one extremity of their range of movement, said guides being arranged to cause divergence of the blocks when they move from said normal position.

10. A device for promoting digital dexterity, comprising sliding blocks with grooves to lay the fingers in, guides for the blocks which when the fingers are laid in the grooves and the hand pushed forward cause the blocks to move in diverging paths, thereby extending the membrane between the fingers, and a block for the thumb to bear against so as to simultaneously extend the membrane between the thumb and first finger.

11. A device for promoting digital dexterity, comprising sliding blocks with grooves to lay the fingers in, guides for the blocks which when the fingers are laid in the grooves and the hand pushed forward cause the blocks to move in diverging paths, thereby extending the membrane between the fingers, and a pivoted block for the thumb to bear against so as to simultaneously extend the membrane between the thumb and first finger.

12. In a device for promoting digital dexterity, a base, grooved blocks resting thereon, a row of pins protruding from the base between which the blocks lie, there being enough pins to form one extra space, and elastic members tending to move the blocks and concentrate them, said members permitting the blocks to be moved from space to space between the pins, one block lying in each space whereby any one of the spaces may be the vacant one.

REX UNDERWOOD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."