No. 708,242. Patented Sept. 2, 1902.

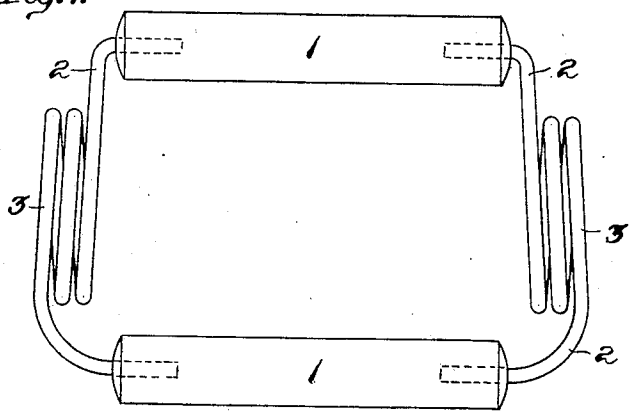
W. M. MOSELEY.

EXERCISING DEVICE.

(Application filed Apr. 16, 1902.)

(No Model.)

Fig. 1.



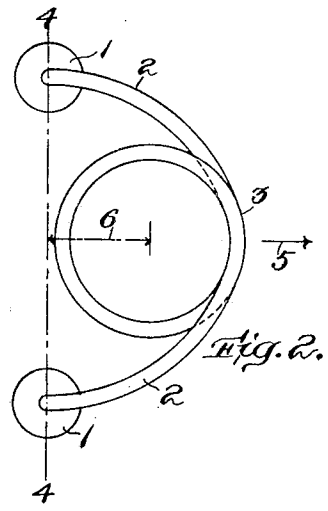


Fig. 2.

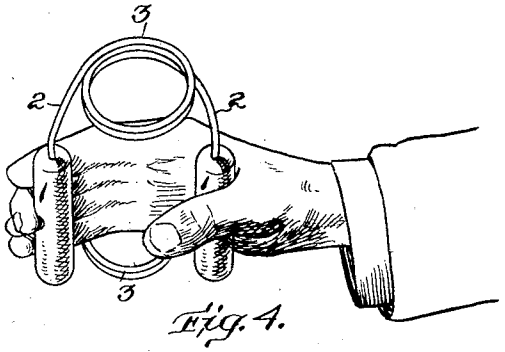


Fig. 4.

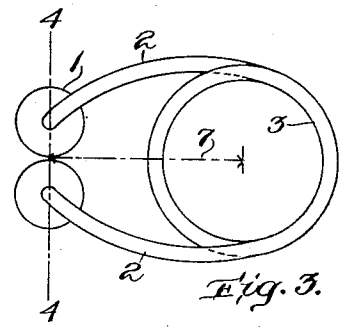


Fig. 3.

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UNITED STATES PATENT OFFICE.

WILLIAM MORRISON MOSELEY, OF ELGIN, ILLINOIS.

EXERCISING DEVICE.

SPECIFICATION forming part of Letters Patent No. 708,242, dated September 2, 1902.

Application filed April 16, 1902. Serial No. 103,079. (No model)

To all whom it may concern:

Be it known that I, WILLIAM MORRISON MOSELEY, a citizen of the United States, and a resident of Elgin, in the county of Kane and State of Illinois, have invented new and useful Improvements in Exercising Devices, of which the following is a specification, reference being had to the accompanying drawings, forming part hereof, in which—

Figure 1 is a view in elevation of my improved exercising device. Fig. 2 is an end view of the exercising device shown in Fig. 1. Fig. 3 is a view similar to Fig. 2, but showing the handles in another position. Fig. 4 is a perspective view of the device shown in Fig. 1, illustrating the manner in which it is used. Fig. 5 shows a modification hereinafter described.

My invention has for its object to provide an improved exercising device of simple construction which will be particularly adapted to be used for the exercise and development of the muscles of the fingers, hands, wrists, and arms.

My improved exercising device comprises, essentially, a pair of handles and one or more springs, preferably two, which are connected at their ends in any suitable manner with the handles; and my device is characterized and distinguished from all other devices of like character which have heretofore been produced mainly by the fact that the handles and springs are so connected and arranged that the springs oppose the closing movement of the handles and move toward and from the path of the handles when the handles are operated. The result of this construction is that when the handles are moved toward each other the opposing pressure of the springs, which is thereby increased by degrees and in proportion to the extent of such movement, is offset and counterbalanced, either in whole or in part, by the movement of the springs away from the path of the handles, which causes the springs to exert a more nearly uniform opposing pressure on the handles throughout the greater part of the closing movements of the latter than has been the case with exercising devices of this character as heretofore constructed.

In Figs. 1 and 2 of the accompanying drawings I have illustrated the preferred embodiment of my invention, and, as shown in said figures, the device comprises two handles 1 1, preferably arranged with their axes parallel and which are fast at their ends to the lever ends 2 of a pair of coiled springs 3 3. The axes of coiled springs 3 are preferably coincident with each other and arranged parallel with the axes of handles 1. These springs 3 are also arranged at one side of the path of the handles 1, as will be clear from Fig. 2.

In the operation of the device the handles 1 are grasped in the hand (see Fig. 4) and drawn together by closing the hand, the springs 3 acting to oppose such movement, thus exercising the several muscles which are employed to produce such movement. During the closing movement the handles 1 move relatively toward each other on a straight line, which is represented in Fig. 2 by the dotted line 4 4, and as they are moved together the springs 3 are forced sidewise away from line 4 4 in the direction indicated by the arrow 5 in Fig. 2. It will therefore be clear that, theoretically considered, the ends 2 serve as levers whose fulcrums are coincident with the axes of springs 3 and that when handles 1 are moved toward each other the movements of the lever ends 2 act to wind up the coils 3 and to put them under torsional strain, which opposes the closing movement of the handles. As handles 1 are moved toward each other on line 4 4 by two opposing forces, which are applied to the handles by the hand of the operator, and as these two forces are applied to the handles on lines which are substantially parallel and coincident with line 4 4 of Fig. 2, it will be seen that at the start of the closing movement springs 3 are more nearly in line with these two forces than they are at the completion of the closing movement of the handles—that is to say, at the start of the closing movement handles 1 and the axes of springs 3 are nearest in line and nearest to a "dead-center," so to speak, so that the two opposing forces which are applied to the handles by the operator theoretically converge toward the axes of springs 3 on an angle which is greater than the angle on which these two forces meet when the handles are near the limit of their movement toward each other. The result of this is that at the start of the closing movement the two forces act-

ing through lever ends 2 2 oppose each other more than they do near the ends of the closing movement, and therefore at the start of the closing movement more of the power which is applied to the handles is utilized in overcoming this opposition, while near the close of the movement less of the applied power is utilized in overcoming this opposition of the two forces. The resistance or opposition which the springs 3 offer to the closing of the handles increases as the closing movement progresses, and as the pressure applied to the handles by the operator is transmitted to the springs 3 with increasing force, owing to the movement of the springs away from the path of handles 1, the increasing resistance of the springs 3 is thereby counterbalanced and offset. This will be clear by reference to Fig. 2, in which the dotted line 6 indicates the distance of the axes of springs 3 from the line 4 4 at the start of the closing movement of handles 1 and considered in connection with the radius of springs 3 shows the leverage through which the power imparted by the hand to close the handles is exerted to wind up springs 3 at the beginning of the movement. Dotted line 7 indicates the distance of the axes of springs 3 from line 4 4 at the completion of the closing movement of the handles 1, and considered in connection with the radius of springs 3 shows the leverage through which the power imparted by the hand to close the handles is exerted to wind up the springs near the completion of the movement. The resisting power of the springs being least at the beginning of the closing movement and increasing to the maximum as the movement progresses, it will be obvious that when the leverage is least the resistance of the springs is least and that as the springs are wound up and their resistance increases the leverage increases correspondingly. Thus the springs 3 are caused to oppose the closing movement of the handles with more nearly uniform power throughout the greater part of the closing movement of the latter than has been the case with exercising devices of like character as heretofore constructed, and this is a highly desirable feature. In their movements the handles 1 also are turned on their axes, owing to their rigid connection with the ends 2 of the springs 3. This prevents a rubbing contact of the surfaces of the handles with the palm and fingers of the hand of the operator, tending to callous the hand of the operator. The rotation of the handles on their axes is at the same rate as the swinging movement of the fingers of the operator, so that there is no relative movement between the operator's hand and the handles 1 at the points of contact.

By varying the diameter of the coils of springs 3 as well as by varying the diameter of the wire of which the springs are made or by changing the shape of the wire the resistance of the springs may be modified to suit any desired requirement.

What I claim is—

1. An exercising device comprising a pair of handles and a pair of springs, each of which springs is coiled near its middle and fastened at its ends to the ends of the handles and with the coils of the springs each arranged at one side of the path of the handles.

2. The exercising device above described consisting of the handles 1, 1, the levers 2, 2, and the coil-spring 3 all organized as illustrated to cause movement of the handles 1, 1, toward each other to increase the effective length of the levers 2, 2, and to cause increasing resistance of coil-spring 3 to be balanced by the increasing leverage of levers 2, 2.

Signed by me at Elgin, Illinois, this 8th day of April, 1902.

WILLIAM MORRISON MOSELEY.

Witnesses:
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JNO. E. BOLLMAN.