Feb. 19, 1929. 1,702,700

E. L. MARTIN

EYE EXERCISING APPARATUS

Filed May 25, 1927

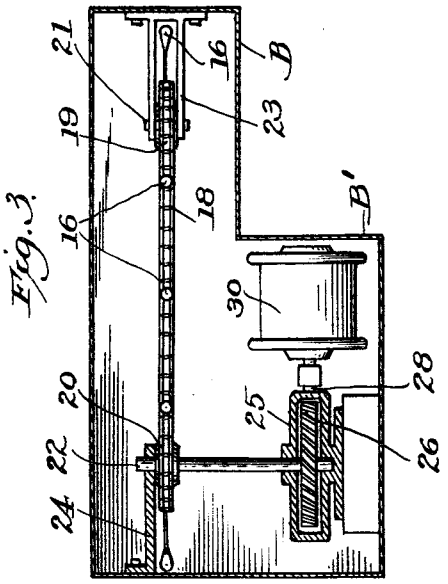


Fig. 3

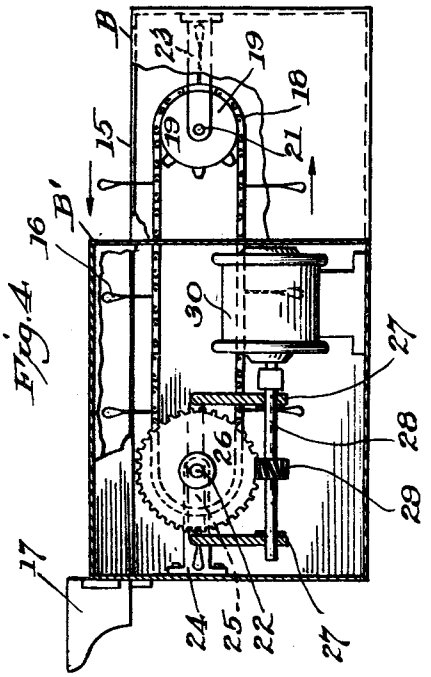


Fig. 4

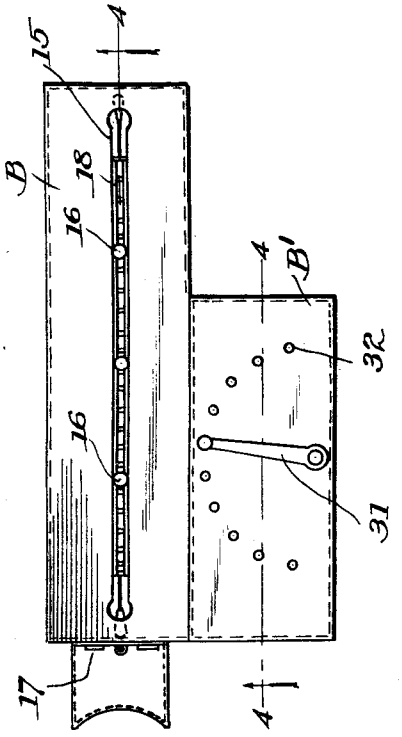


Fig. 1

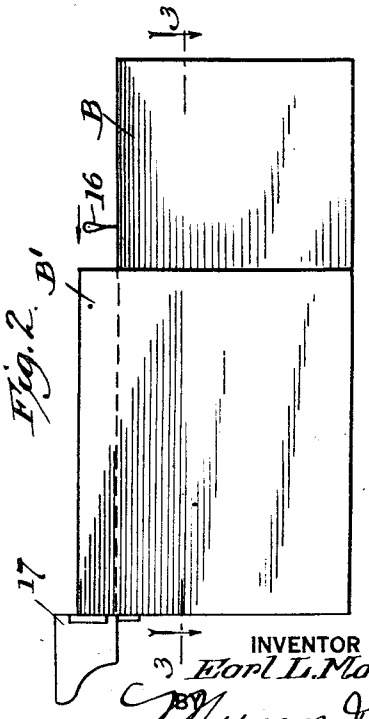


Fig. 2

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UNITED STATES PATENT OFFICE.

EARL L. MARTIN, OF SANTA ANA, CALIFORNIA.

EYE-EXERCISING APPARATUS.

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My invention relates to apparatus by the use of which the ocular muscles of the eyes may be subjected to proper exercising motions for strengthening and thus restoring the ocular muscles to normal condition.

It is a purpose of my invention to provide an apparatus of the above described character which is designed for mechanical operation to continuously move in a successive order a plurality of fixation objects, each object describing an advancing movement towards the eyes of the patient followed by a descending and disappearing movement, so that with the eyes intently following each object successively they will be subjected to motions which effectively exercise the muscles and thus restore them to normal condition.

It is also a purpose to provide an eye exercising apparatus as above specified which may employ any number of fixation objects desired, and means for actuating the objects which can be varied in movement to cause the objects to travel at any required speed in accordance with the nature of muscle correction desired.

I will describe only one form of eye exercising apparatus embodying my invention and will then point out the novel features thereof in claims.

In the accompanying drawings,

Figure 1 is a view showing in top plan one form of eye exercising apparatus embodying my invention;

Figure 2 is a view showing the apparatus in side elevation;

Figure 3 is a horizontal sectional view taken on the line 3—3 of Figure 2;

Figure 4 is a vertical sectional view taken on the line 4—4 of Figure 1.

Referring specifically to the drawings, my invention, in its present embodiment, comprises an elongated cabinet B having a lateral portion B' rising above and communicating therewith. The cabinet B is provided with a slot 15 in the top wall into which fixation objects 16 are adapted to enter and travel so as to be visible exteriorly of the cabinet and through sight openings provided in a hood 17 at one end of the cabinet. These fixation objects 16 are in the present instance in the form of arms having enlarged free ends, the other ends being fixedly secured to an endless conveyer 18 in the form of a chain trained about sprockets 19 and 20 fixed, respectively, on shafts 21 and 22. The shaft 21 is journaled in a bracket 23 fixed to one end wall of the cabinet B, while the shaft 22 has one end journaled in a bracket 24 secured to the other end wall of the cabinet. The shaft 22 is relatively long and its opposite end is journaled in a frame 25 for a worm wheel 26 fixed to the shaft within the frame. The frame is provided with a pair of depending arms 27 in which is journaled a shaft 28 having keyed thereto a worm pinion 29 which constantly meshes with the worm gear 26. The shaft 28, in turn, is operatively connected to the shaft of a motor 30 to which current is supplied through the medium of a rheostat including a movable contact arm 31 adapted to engage in one of a series of arcuately arranged stationary contacts 32. It will be understood that through the medium of the rheostat the rotational speed of the motor 30 can be varied at will.

In practice, the patient peers through the sight openings of the hood 17 to observe the movements of the fixation objects 16. By energizing the motor 30, the shaft 22 will be constantly driven to rotate the conveyer 18 so that its upper stretch moves toward the observer as indicated by the arrow in Figure 4. With this movement of the conveyer, the several fixation objects secured to the conveyer at intervals along the length of the latter will successively rise from the sprocket wheel 19 into the rear end of the slot 15 so that their upper enlarged ends are exposed to view. Under continued movement of the conveyer, the fixation objects will pass forwardly through the slot 15 and finally downwardly out of the slot and into the cabinet as determined by the movement of the conveyer around the sprocket wheel 20.

With the eyes of the patient intently following the movement of each fixation object as it advances toward him, the inner muscles of the eye will draw the eye in or toward each other, and as the object disappears from view in descending into the cabinet, the eye will return to original position to view the next fixation object. In this manner, the ocular muscles are exercised and thus restored to normal condition.

By means of the rheostat, the rotational speed of the motor 30 can be varied, which, in turn, decreases or increases the speed of travel of the fixation objects toward the eyes of the patient. In this manner, the rapidity of the exercising movements of the ocular muscles can be varied to suit the particular nature of muscle correction desired.

Although I have herein shown and described only one form of eye exercising apparatus embodying my invention, it is to be understood that various changes and modifications may be made therein without departing from the spirit of my invention and the spirit and scope of the appended claims.

I claim as my invention:

1. An apparatus for the exercise of the ocular muscles comprising a cabinet, a sight device on the cabinet, a fixation object, means for supporting the object within the cabinet for lineal movement toward the sight device and then to one side thereof so as to disappear from view with respect to the sight device, and means for actuating the first means so that the described movements of the object are successive and continuous.

2. An apparatus for the exercise of the ocular muscles comprising a cabinet having a slot therein, a sight device on the cabinet, an endless conveyer within the cabinet, fixation objects on the conveyer, means for supporting the conveyer for movement, and means for actuating the conveyer whereby the fixation objects will be moved successively exteriorly of the cabinet through said slot toward the sight device and then back into the cabinet to disappear from view with respect to the sight device, all in a continuous operation.

3. An eye exercising apparatus comprising a cabinet having a slot in the top wall thereof, a sight device on the cabinet at one end of the slot, spaced sprocket wheels within the cabinet directly beneath the slot, an endless chain trained about the sprocket wheels, fixation objects secured to the chain and arranged at intervals along the length of the latter, said objects being a sufficient length so that those on the upper stretch of the chain will project through said slot, and means for actuating one of the sprocket wheels to effect continuous movement of the chain in such direction that the fixation objects will be successively projected through said slot, caused to travel in the slot toward said sight device and finally returned to a position within the cabinet, said means including a motor and a rheostat for controlling the supply of current thereto.

4. An apparatus for the exercise of the ocular muscles comprising a cabinet, a sight device on the cabinet, a fixation object, means for supporting the object within the cabinet for lineal movement toward the sight device and then to one side thereof so as to disappear from view with respect to the sight device, and means for actuating the first means.

5. An eye exercising apparatus comprising a cabinet having a slot in the top wall thereof, a sight device on the cabinet at one end of the slot, spaced sprocket wheels within the cabinet directly beneath the slot, an endless chain trained about the sprocket wheels, fixation objects secured to the chain and arranged at intervals along the length of the latter, said objects being a sufficient length so that those on the upper stretch of the chain will project through said slot, and means for actuating one of the sprocket wheels to effect continuous movement of the chain in such direction that the fixation objects will be successively projected through said slot, caused to travel in the slot toward said sight device and finally returned to a position within the cabinet.

6. An apparatus for the exercise of the ocular muscles comprising a cabinet, a sight device on the cabinet, a fixation object, means for supporting the object within the cabinet for movement toward the sight device and then to one side thereof so as to disappear from view with respect to the sight device, means for actuating the first means, and means for controlling the last means to vary the speed of movement of the first means and hence the fixation object.

EARL L. MARTIN.