Aug. 7, 1923. 1,464,075

N. Y. HULL

EYE EXERCISING DEVICE

Filed Aug. 18, 1922 2 Sheets-Sheet 1

Fig. 1.

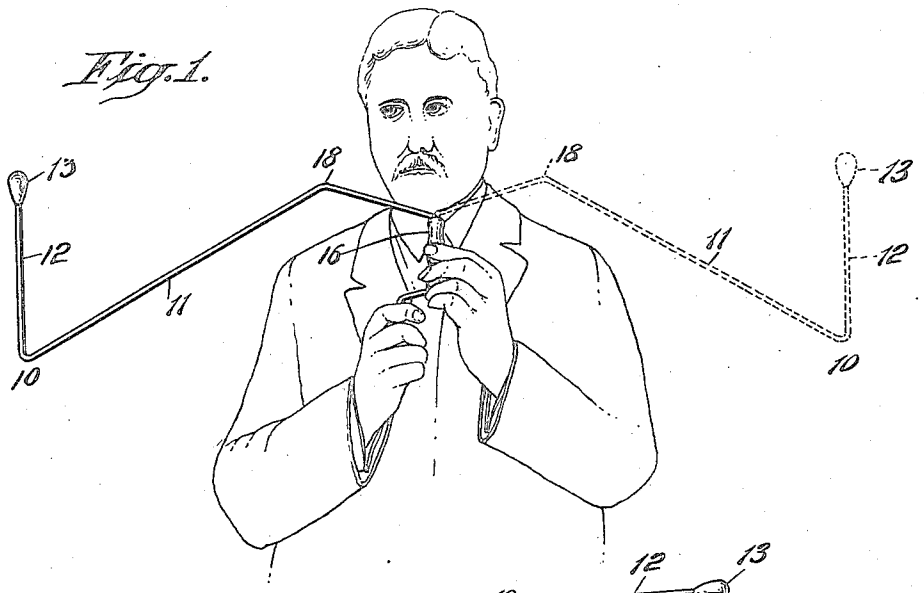
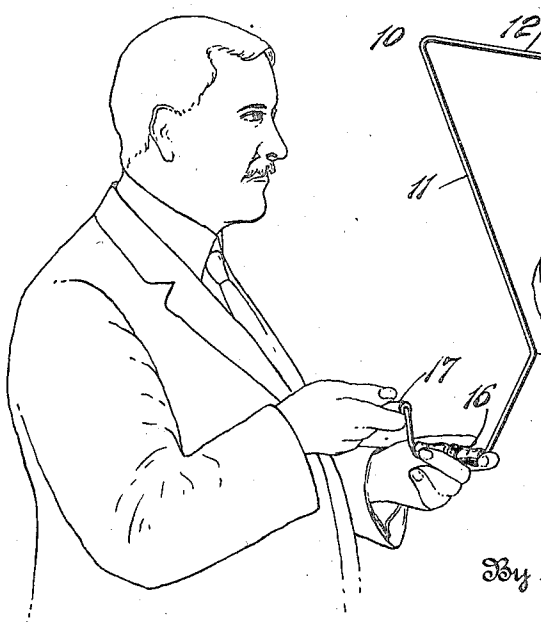


Fig. 3.



Fig. 2.



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NELSON Y. HULL.
By his Attorney.
Charles C. Gill

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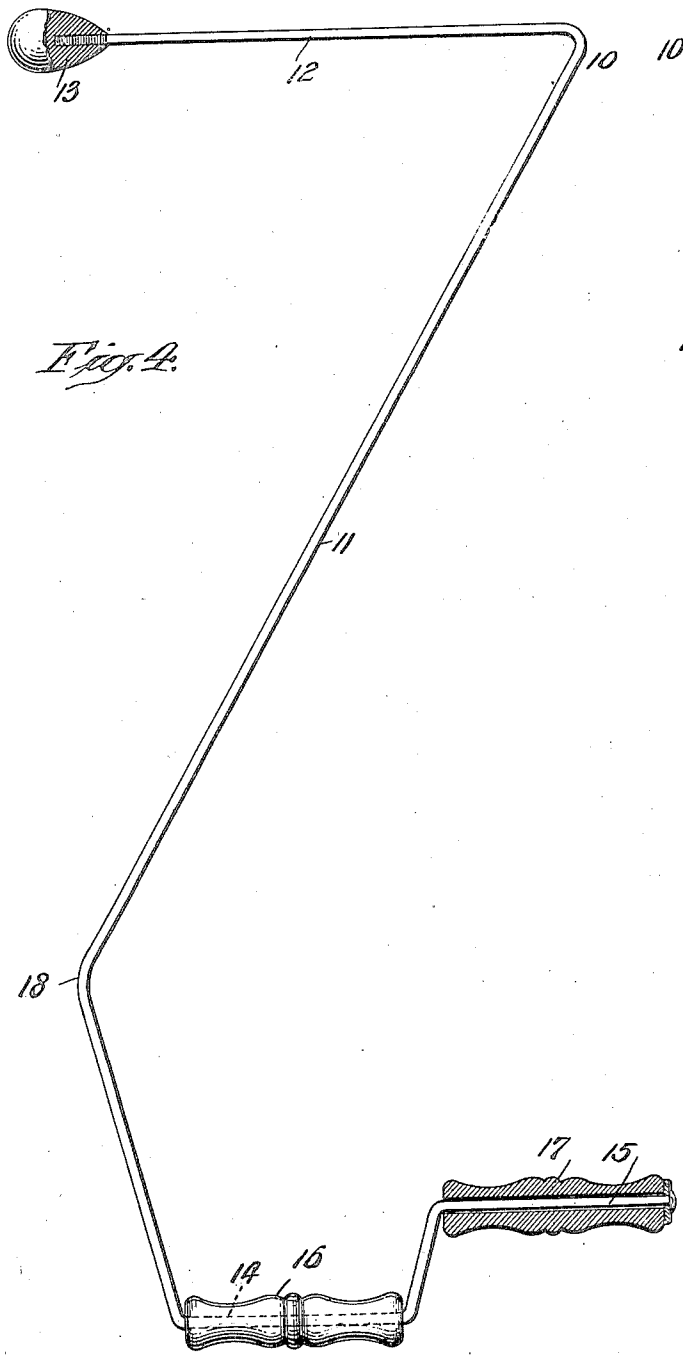


Fig. 4.

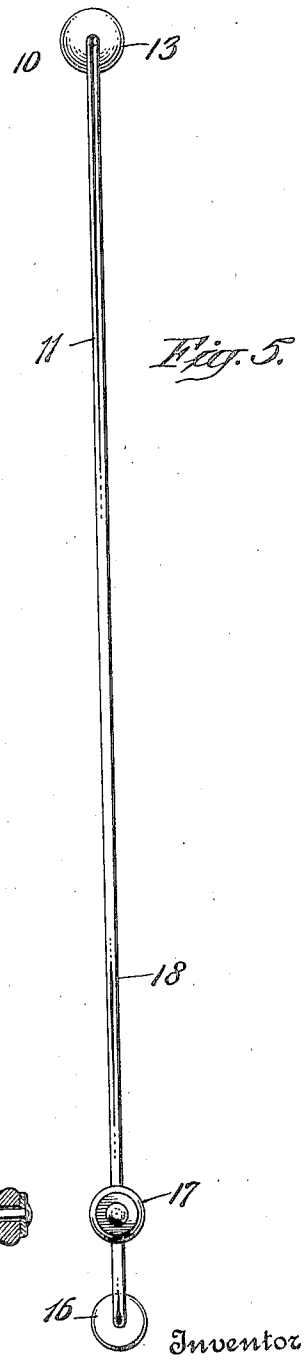


Fig. 5.

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Patented Aug. 7, 1923. 1,464,075

UNITED STATES PATENT OFFICE.

NELSON YOUNG HULL, OF PLAINFIELD, NEW JERSEY.

EYE-EXERCISING DEVICE.

Application filed August 18, 1922. Serial No. 582,650.

To all whom it may concern:

Be it known that I, NELSON YOUNG HULL, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Eye-Exercising Devices, of which the following is a specification.

The purpose of the invention is to provide an efficient device with the use of which a person may subject the ocular muscles of the eyes (four recti and two obliques) to proper exercising motions or exercises whereby to maintain them in condition to perform their proper functions and thus avoid defects in vision due to one or more of the muscles failing to properly or fully coact with the other muscles, and, also, whereby the ocular muscles may be strengthened and restored to normal condition and properly perform their functions should one or more of them fail to respond to or coact with the other muscles.

The more especial object of the invention is to provide a device with the use of which the ocular muscles may be so exercised as to effectually correct, in the eyes, the conditions known as myopia and myopic astigmia, and, also, hypermetropia and hypermetropic astigmia.

A further object of the invention is to provide a very simple, light, inexpensive and efficient device capable of use with slight instruction, adapted for effecting the exercise of the ocular muscles in accordance with the main purpose of my invention.

The device of my invention, in one form thereof, comprises an angularly bent plain wire rod having on its outer or free end a fixation object, as a small wooden ball or the like, and at its other end portion having a plain straight section to be held in one hand and an offset section or crank member to be held in the other hand and from which the free end of the rod is given its movements to carry the fixation object back and forth laterally on a horizontal plane, as often as necessary, on the 180° meridian, or up and down perpendicularly on the 90° meridian, or back and forth angularly on any angle between the 180° meridian and 0 meridian, or to the right or left on the line of a complete circle, as the nature of the correction sought may require. The aforesaid plain straight section of the device has on it a loose sleeve or handle to be normally held stationary and in the left hand and within which said section may have rotary motion, this section representing the axis of motion of the device, and the said offset or crank section has on it a loose sleeve or handle to be grasped by the right hand operating the device, said crank section being loose in its handle so that the operator may actuate the device while maintaining a fixed hold on said handle. Of course either hand may be used for holding the device at said straight section while the other hand applies the operating power to the device at the crank section.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Fig. 1 is a front elevation illustrating the device of my invention in use and as being actuated to move the fixation object horizontally on the 180° meridian;

Fig. 2 is a side elevation illustrating the device of my invention in use and as being actuated to move the fixation object to the right or left, on a complete circle;

Fig. 3 is a front elevation illustrating the device of my invention in use and as being actuated to move the fixation object up and down perpendicularly on the 90° meridian;

Fig. 4 is a side elevation, partly in section, of the device, and

Fig. 5 is an edge view of the same.

In the drawings 10 designates the device as a whole, said device comprising an outstanding body portion 11, a free end portion or arm 12 bent angularly in one direction from one end of said body portion and carrying a fixation object 13 on its outer end, a straight axial section 14 bent angularly in the opposite direction from the other end of said body portion and an offset or right angular crank section 15 extending from the said axial section, said body portion 11, arm 12, axial section 14 and crank 15 being formed from a single plain rod of metal, as stiff wire, and hence being in one integral piece. The fixation object 13 may be of any suitable character and I prefer to make the same of wood and of somewhat spherical form and I provide therein a socket to tightly receive the outer extremity of the arm 12. On the axial section 14 and crank arm 15 I preferably provide loose fitting wooden handles 16, 17, respectively, for convenience in actuating the device to move the

fixation object in predetermined paths, the handles 16, 17 being held firmly in the hands of the operator and the section 14 and crank arm 15 being adapted to rotate or turn freely within said handles. The upper portion of the body 11 is preferably bent inwardly over the section 14 and crank arm 15 at the point 18 for several reasons, one being for convenience in holding and operating the device with the fixation object efficiently positioned with relation to the eyes, as will be understood on reference to Figs. 1 and 3, and another reason being to permit the device to be enclosed in a flat stiff oblong paper envelope or container having a width slightly greater than the length of arm 12 or the combined length of the sections 14, 15.

In the normal use of the device the handle 16 will be held stationary in one hand and the handle 17 will be grasped in the other hand and by which the crank arm 15 will be swung back and forth on the arc of a circle or on the line of a complete circle, as may be required, with the result that the axial section 14 will turn correspondingly in the stationary handle 16 and communicate corresponding motion to the body 11, arm 12 and fixation object 13, the movement of the crank arm 15 being exactly reproduced, on a longer radius, in the arm 12 and object 13 and under the steady control of the operator.

A less convenient manner of employing the device would be to hold the handle 17 stationary in one hand and with the other hand on the handle 16 effect the rotary or rocking motion of the body 11 with its arm 12, the crank arm 15 then being the axis of motion, and the section 14 a crank member. The device may also be operated with the bare hands on the axle and crank sections, said sections then being allowed to slip, while turning, in the hands. The axle and crank sections of the device should, however, in the interests of convenience and completeness be equipped with loose fitting handles 16, 17.

The nature of the correction desired will determine the movements to be imparted to the fixation object 13, and in all cases the actuating end of the device will be held in near relation to the body of the operator so that the handles 16, 17 may be conveniently grasped in the hands and the arms steadied by being in a natural position against the body. For the correction of myopia and myopic astigmia, the ocular muscles should be subjected to several exercises, and in Fig. 1 I illustrate one of said exercises consisting in operating the device to swing the fixation object back and forth horizontally and about on a level with the eyes on the 180° meridian, the eyes intently following said object, and the muscles then exercised being the external and internal recti muscles and the exercise being chiefly for the correction of myopia and myopic astigmia. For the correction of myopia and myopic astigmia the superior and inferior recti muscles should also be brought into condition to function normally, and I accomplish this result by the exercise illustrated in Fig. 3, wherein it may be seen that I operate the device to move the fixation object up and down perpendicularly at the front of the eyes on the 90° meridian, the eyes closely following said object and being alternately elevated and depressed. A further aid to the correction of myopia and myopic astigmia, is to exercise the superior and inferior recti muscles by causing the fixation object to move on slanting or angular lines, at the right and left, between the 180° meridian and 0 meridian, the eyes closely following said object.

For the correction of hypermetropia and hypermetropic astigmia, it is necessary that the inferior and superior oblique muscles should be strengthened and brought to normal condition, and this result may be accomplished by the proper exercise of said muscles with the use of my device operated as indicated in Fig. 2, the device then being actuated to carry the fixation object on the line of a complete circle, both right and left, with the eyes intently following said object.

The exercises described above properly energize the ocular muscles and result in other corrections than those I have specially noted, as, for instance, a defect in the conjugate mobility of the eyes may be corrected by energizing the ocular muscles with the use of my device.

If the eyes should apparently be normal, they may be improved and kept in good normal condition by the exercise of the ocular muscles with the use of my device, such exercise bringing all the ocular muscles into normal action and keeping them in condition to function properly, and if defects should exist and are subject to correction by causing the muscles to properly function, such defects may be remedied with the use of my device.

It will be understood that in the use of my device, the movement of the fixation object is under the control of the person handling the device, and said object should be moved somewhat slowly, especially at the beginning of the treatment, so that the eyes may closely follow said object without placing sudden strains on the ocular muscles or other parts of the eye.

The form of the device of my invention is subject to modification and my invention is not therefore confined to the form of that device shown; said form is however one that I have found to be the most efficient and convenient for all practical purposes.

What I claim as my invention and desire to secure by Letters Patent, is—

1. A device of the character described for the exercise of the ocular muscles, comprising a body portion having at its free end a fixation object and at its other end an axial section to be retained in one hand and a crank section to be operated by the other hand for turning said axial section and thereby swinging said body portion to move said object on the arc of a circle.

2. A device of the character described for the exercise of the ocular muscles, comprising a body portion having at its free end a fixation object and at its other end an axial section to be retained in one hand and a crank section to be operated by the other hand for turning said axial section and thereby swinging said body portion to move said object on the arc of a circle, said axial and crank sections having thereon loose fitting handles to be grasped by the hands and within which said sections may have free rotation.

3. A device of the character described for the exercise of the ocular muscles, comprising a body portion having at its free end a fixation object and at its other end an axial section to be retained in one hand and a crank section to be operated by the other hand for turning said axial section and thereby swinging said body portion to move said object on the arc of a circle, said body portion and said axial and crank sections lying in the same plane and being formed from a single rod of wire.

4. A device of the character described for the exercise of the ocular muscles, comprising a body portion whose free end extends angularly in one direction and carries a fixation object and whose other end extends angularly in a reverse direction and is bent to form, on parallel planes, an axial section to be retained in one hand and a crank section to be operated by the other hand for turning said axial section and thereby swinging the main body portion to carry said fixation object on the arc of a circle.

5. A device of the character described for the exercise of the ocular muscles, comprising a body portion whose free end extends angularly in one direction and carries a fixation object and whose other end extends angularly in a reverse direction and is bent to form, on parallel planes, an axial section to be retained in one hand and a crank section to be operated by the other hand for turning said axial section and thereby swinging the main body portion to carry said fixation object on the arc of a circle, said axial and crank sections having thereon loose fitting handles to be grasped by the hands and within which said sections may have free rotation.

6. A device of the character described for the exercise of the ocular muscles, comprising a body portion whose free end extends angularly in one direction and carries a fixation object and whose other end extends angularly in a reverse direction and is bent to form, on parallel planes, an axial section to be retained in one hand and a crank section to be operated by the other hand for turning said axial section and thereby swinging the main body portion to carry said fixation object on the arc of a circle, said body portion and its parts being formed from a single rod of wire, and said fixation object being a rounded body rigidly secured on the free end thereof.

7. A device of the character described for the exercise of the ocular muscles, comprising a body portion whose free end extends angularly in one direction and carries a fixation object and whose other end extends angularly in a reverse direction and is bent to form, on parallel planes, an axial section to be retained in one hand and a crank section to be operated by the other hand for turning said axial section and thereby swinging the main body portion to carry said fixation object on the arc of a circle, said body between its oppositely extended end portions being inclined to lie over and in the same plane with said axial and crank sections.

Signed at New York city, in the county of New York, and State of New York, this 8th day of August, A. D. 1922.

NELSON YOUNG HULL.