No. 896,814. PATENTED AUG. 25, 1908.

W. H. ELY.

VERISCOPE.

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Fig. 1

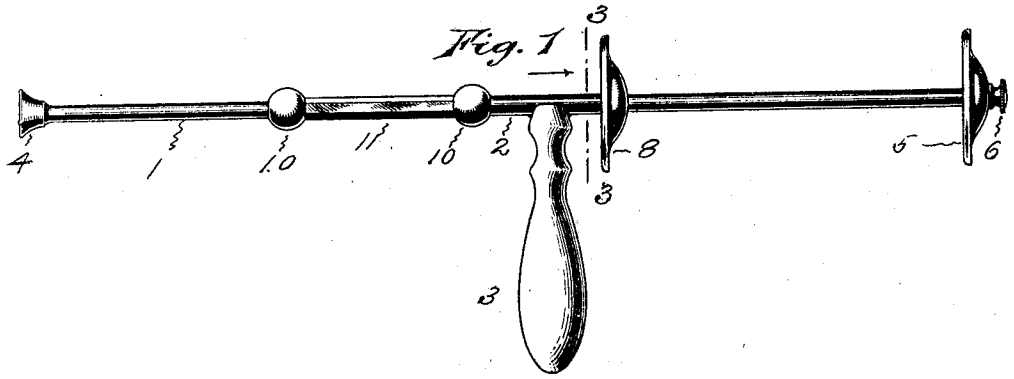


Fig. 2

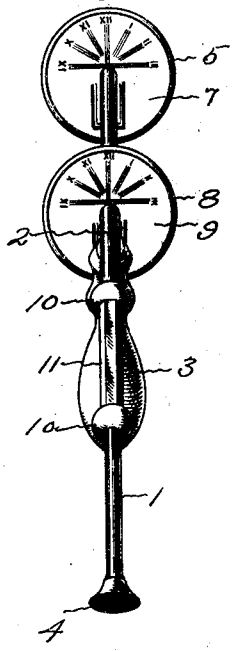
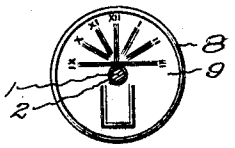


Fig. 3



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UNITED STATES PATENT OFFICE.

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VERISCOPE.

No. 896,814. Specification of Letters Patent. Patented Aug. 25, 1908.

Application filed May 14, 1908. Serial No. 432,832.

To all whom it may concern:

Be it known that I, WILLIAM H. ELY, a citizen of the United States, residing at Middletown, in the county of Middlesex and State of Connecticut, have invented a new and useful Veriscope, of which the following is a specification.

This invention relates to a piece of apparatus which is designed to be used in testing eyesight and in verifying lenses selected to rectify corneal refraction in cases of myopia, presbyopia and astigmatism.

The object of the invention is to produce a simple, inexpensive apparatus that can be readily employed by opticians to instantly prove whether lenses selected are too strong, too weak, or are spherically or cylindrically proper to correct the defects of vision of a patient or client.

The embodiment of the invention illustrated has a spindle with a rest at one end that is adapted to be placed against the chin of the person to be examined, a target at the other end of the spindle, and an accommodation target located on the spindle, intermediate of the chin rest and the far target, which targets are provided with any lines, figures, letters or characters suitable for testing vision. The spindle with these parts is rotarily held by a handle for convenience in manipulation.

Figure 1 of the accompanying drawings shows a side elevation of an apparatus that embodies the invention. Fig. 2 is a view looking from the chin rest toward the targets with the latter approximately in the positions occupied when the end of the spindle is resting against the chin of the patient. Fig. 3 shows a cross section on the plane indicated by the dotted line 3—3 on Fig. 1 looking in the direction indicated by the arrow.

The spindle 1 is preferably formed of one or more pieces of round rod or wire of suitable length and any desired material. This spindle is rotarily supported near the middle of its length by a sleeve 2 to which is secured a handle 3 of any suitable design and material.

At one end the spindle is provided with a button 4 which is designed to be placed against the chin of the person whose eyesight is to be examined. Secured to the end of the spindle opposite the chin rest is a disk 5. This disk, which preferably is formed of thin metal, is desirably held in place by a clamp screw 6, and on the face toward the chin rest is preferably secured a card 7 of white paper or other white material, containing suitable radial lines, figures, letters or other characters delineated in a contrasting color, usually black. Located on the spindle between the supporting sleeve and the far target is a disk 8 preferably formed of metal, which disk on the face toward the chin rest is provided with a card 9 of white paper or other white material containing the same radial lines, figures, letters or other characters as are on the card held by the far disk. The same lines, figures, letters or characters are printed or marked the same size, color and density on both targets. The spindle may be ornamented by knobs 10 and may have a section 11 of angular cross-section between the knobs, if desired.

This device is used by having the patient hold it by the handle with the button against the chin in such manner that he can see the lines, figures, letters or characters upon the upper part of both of the targets. If the lines or characters on the near or accommodation target are blacker than the lines on the distant target, myopia is indicated. If the lines or characters on the distant target appear blacker, presbyopia is indicated. If the lines or characters on both targets appear equally black, the focus is between the targets and is normal. If the focus is not normal the necessary lenses are placed in the trial frame worn by the patient until the focus is corrected, that is, is brought between the two targets. Fogging lenses are applied until the lines or characters on the far target are blurred and then these lines are brought out by suitable lenses, and if there is astigmatism one of the lines will be brought up to blackness quicker than the others, and this line indicates the meridian of the cylinder necessary to use to correct the astigmatism. The targets may be rotated while these tests are being made to prove these steps, and they may be turned around to bring the horizontal and vertical lines of the characters on the underside to the top for proving the test with these lines. Any desired lines, letters, figures or characters may be placed on these targets for the purpose of making the desired tests. And the targets may be formed by putting the lines or characters in a dark color desirably black upon a light background, desirably white, formed in any suitable manner upon or applied to the surfaces of the disks which are toward the chin rest,

although the simplest and preferred way is to print these in black ink upon white cards which are slipped into recesses in the faces of the disks.

It is not absolutely essential that the lines, figures, letters or characters on the two targets be identical in form or outline. They should, however, be substantially similar in character and of the same density or blackness. In this arrangement the two targets are employed as checks against getting the focus too near or too far while trying cylinder lenses. It is necessary in making the proper tests with this instrument in cases of astigmatism, to bring the farther focus within or nearer to the eye than the remote target. Then the nearer or astigmatic focus is carried out by the application of proper lenses until the foci are at an equal distance from the eye, somewhere just within the far target and beyond the inner target, which is as stated used to make sure that the farther focus is brought inside of the far target. This is indicated by the fact that the characters on the near target will be somewhat brighter than those on the far target. The employment of the inner target in this manner eliminates any possible doubt as to the position of the foci, due to spasmodic or nervous variations in the sight of the patient. By constant reference to the inner target and the comparison between the inner and outer, the necessary conditions for a perfect test are readily indicated at all times.

With this simple instrument, the scope and corneal curvature of an eye can be readily determined, and the power and requisite lens can be instantly determined and quickly verified.

The invention claimed is:

1. A sight testing apparatus having a spindle provided with a plural number of targets located at a distance from each other on the spindle, and similar lines, letters or characters of the same color and density arranged on the faces of the targets, substantially as specified.

2. A sight testing apparatus having a spindle with a chin rest at one end, a target at the other end, and a target intermediate of the distant target and the chin rest, said targets having on the faces toward the chin rest lines, letters or characters of the same color, arrangement and density, substantially as specified.

3. A sight testing apparatus having a spindle, a handle rotarily connected with the spindle, a plural number of targets located at a distance from each other on the spindle, said targets having similar lines, letters, or characters of the same color and equal density on their faces, substantially as specified.

4. A sight testing apparatus having a sleeve, a handle secured to the sleeve, a spindle rotarily supported by the sleeve, a chin rest at one end of the spindle, a target at the other end of the spindle, and a target on the spindle between the sleeve and the distant target, said targets having on the faces toward the chin rest, disks of light color with similar dark lines, letters or characters of the same color and equal density, substantially as specified.

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