be used only with contact lenses made according to the present invention, it is apparent that the machines used to form the novel bifocal may also be used to impart the orienting feature as a mere additional or final cutting step used in making the bifocal front surface.

It will be appreciated that the method is applicable to hard or soft single vision lenses of the prismatic type as well as hard or soft bifocal prism type lenses.

Tests have shown that the additional comfort and security derived from maintaining the secondary curve and peripheral curve portions of the contact lens throughout its entire circumference are significant. The width of the lid-engaging surface may be made sufficient to achieve the intended purpose without materially weakening the lens. The comfort of the lens has been found superior to that of prior art truncated lenses, and lenses displacement is achieved very reliably and comfortably.

A construction has been illustrated wherein the lens in monocentric; that is, the various centers of curvature of the front and rear surfaces and the bifocal segment are located on the optical center of the lens. This is an advantage, but is not strictly necessary to the practice of all aspects of the invention.

Referring now to other general aspects of the methods described above, it will be understood that, when the lens blank **50** is positioned for rotation as shown in FIGS. **14** and **15**, for example. The geometric center line of the lens blank (**32** in FIGS. **14** and **15**) is positioned perpendicular to the axis of machine rotation **61**. Consequently, rotation of the blank **50** will cause a projection of the line **32** about the center line **61** to describe a flat plane **32P** perpendicular to the axis **61**.

The tool point **76** is swung through an arc of radius R-3 lying to one axial side only of the intersection between the plane of rotation **32P** and the outer edge of the lens. Under these circumstances, the near vision segment surface **30** will occupy exactly half of the lens blank front surface, and the offsetting surfaces **35** will be planar surfaces lying substantially perpendicular to the front surface of the lens, and will lie on a common meridian on the lens as a whole.

The edge portions **34**, **36** of the upper and lower segments respectively will lie along this meridian and will appear to lie in a straight line when the lens is viewed in front elevation. The segment "line" area **33** will thus be defined by discontinuous edge lines **34** which are meridians on the distant vision front surface **28**, and also by discontinuous edge lines **36** which are meridians on the near vision surface **30**. The plane occupied by the offsetting surfaces **35** lies substantially perpendicular to the surface **30**, being formed when radius R-3 is being cut.

Referring now to FIG. **15**, for example, and to another aspect of the preferred method, the movement of the tool pivot axis **86** from its offset position **0-1** to its point of coincidence with the machine center line axis **61** this has been described as the preferred method. This step also includes pre-setting the distance between the tool point **76** and the pivot axis **86** to the exact predetermined radius R-3 of the near vision segment. When this method is practiced, and movement of the tool pivot axis **86** is stopped just short of coincidence with the axis **61**, as shown in FIG. **17**, for example, the form of lens shown in FIG. **17A** will be produced, and such lens will have radius R-3 as its near vision segment radius of curvature.

Where the form of lens shown in FIG. **18B** is being made, an alternate method is clearly available. This consists of centering the tool pivot axis **86** with respect to the center line **61**, and beginning the cut with the tool being point **76** being swung through a radius greater than the radius R-3, and gradually being adjusted to a smaller radius wherein the tool point becomes exactly tangent to the lowermost portion of the lens distant vision front segment surface **28**. Both methods are equally applicable for making lenses such as those shown in FIGS. **18B** and **19**, for example.

The method described also assumes that the pivot axis **86** of the tool holder **80** will always lie within the perpendicular plane **32P** just referred to. Thus, axis **86** will be perpendicular to the machine axis **61** at all times, and either intersect such axis (FIG. **18**) or be more or less offset from this axis **61** (FIGS. **16** and **17**), but will normally lie someplace within the plane **32**.

While the invention might be practiced in such a way that the segment "line" area **33** might not always exactly bisect the lens, and while the tool point might be such that the surface segments **35** are not truly planar, and while the tool pivot axis might be offset from the plane just described, a preferred form of method is that shown and described herein. Accordingly, in the claims, when reference is made to such referred planes, axes or dimensions, it will be understood that such expressions are intended to cover these preferred arrangements as well as their counterparts which differ slightly in arrangement or dimension.

It will thus be seen that the present invention provides novel bifocal contact lenses and other lenses having a number of advantages and characteristics, including those pointed out herein and other which are inherent in the invention.

Several preferred embodiments having been described by way of example, it is anticipated that various changes and modifications to the described form of apparatus may be made by those skilled in the art without departing from the spirit of the invention or the scope of the appended claims.

We claim:

1. A bifocal contact lens blank having a front surface portion which is subdivided into distant and near vision front surface segments, said distant vision segment surface being defined, at least in part, by a front surface portion in the form of a segment of a sphere having a first, given radius of curvature, said near vision segment surface being defined at least in part by a front surface portion in the form of a segment of a sphere having a second, given radius of curvature which is smaller than the said first given radius of curvature, said distant vision segment lying in approximately the upper half of said lens blank and said near vision segment lying in the lower half of said lens blank, said surfaces meeting each other along a locus of tangent points lying generally centrally of the lens and being joined to each other on either side of said locus of tangent points by a pair of offsetting front surfaces extending between the lowermost edges of said distant vision segment surface and the uppermost edges of said near vision segment, said offsetting surfaces extending generally perpendicular to at least one of said near and distant vision front surfaces of said lens, and substantially along a meridian of said lens front surface, said offsetting surfaces, being adopted, in use, to face toward the lower lid of the wearer.