

H. P. ALEXANDER.  
LENS.

APPLICATION FILED AUG. 27, 1902.

954,772.

Patented Apr. 12, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

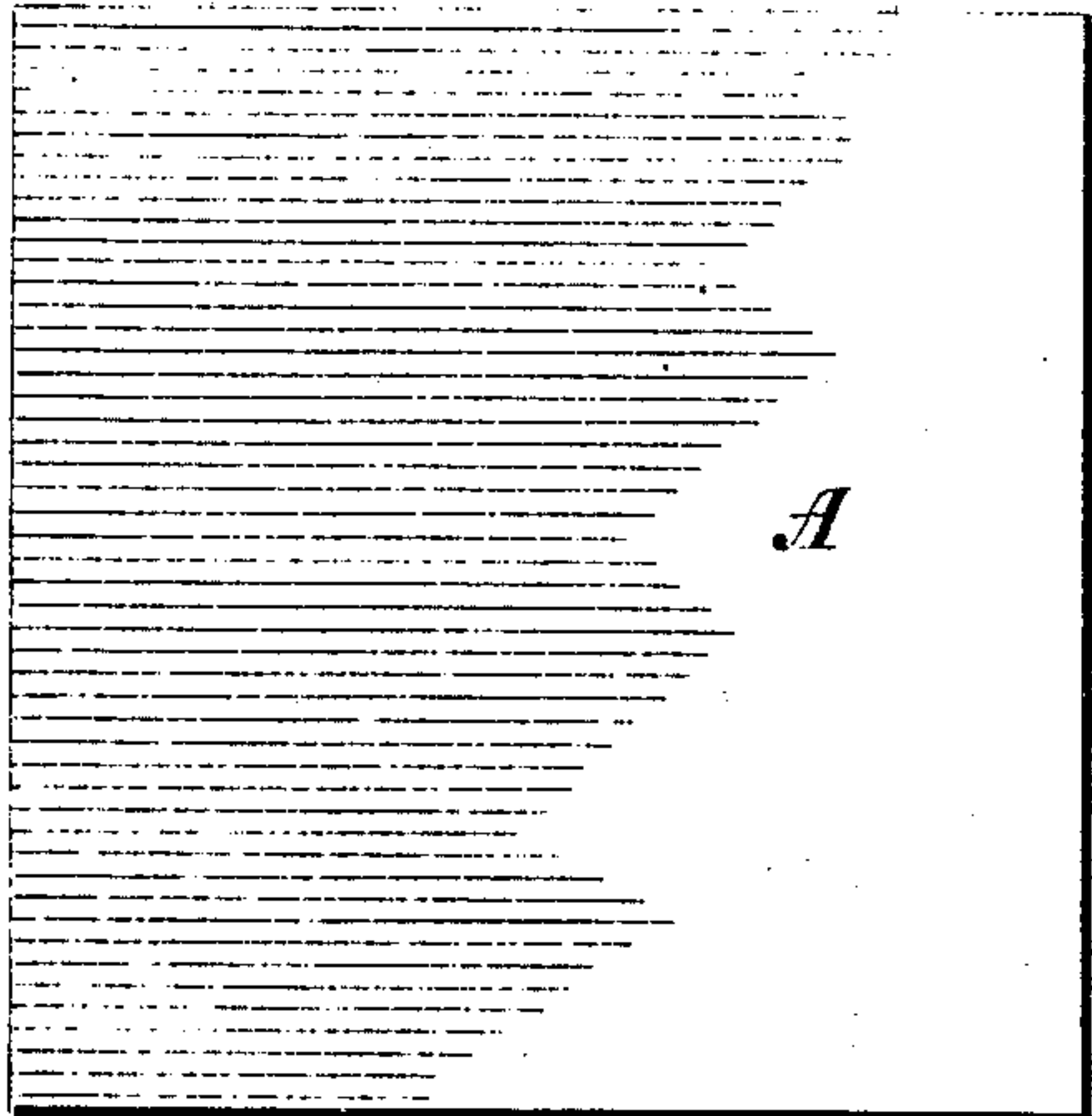


Fig. 5.

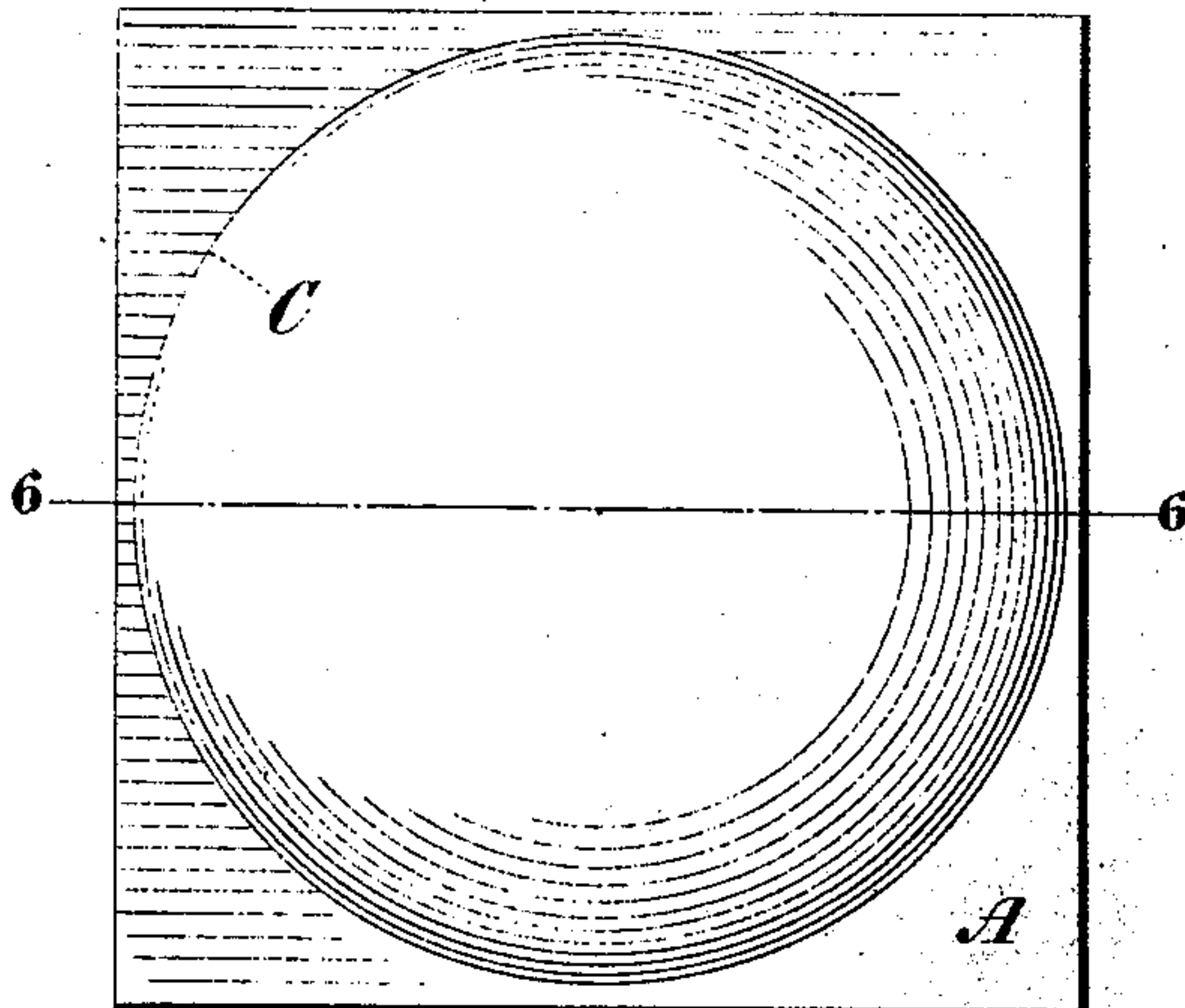


Fig. 2.

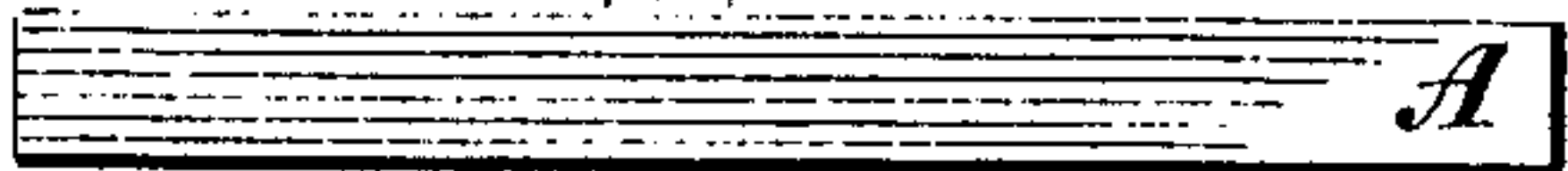


Fig. 6.

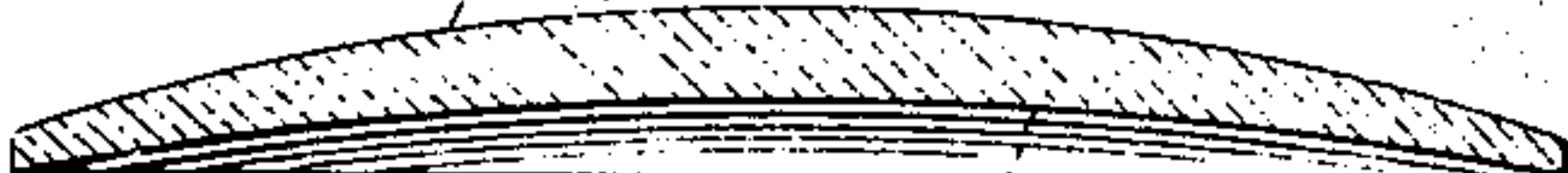


Fig. 3.

Fig. 7.

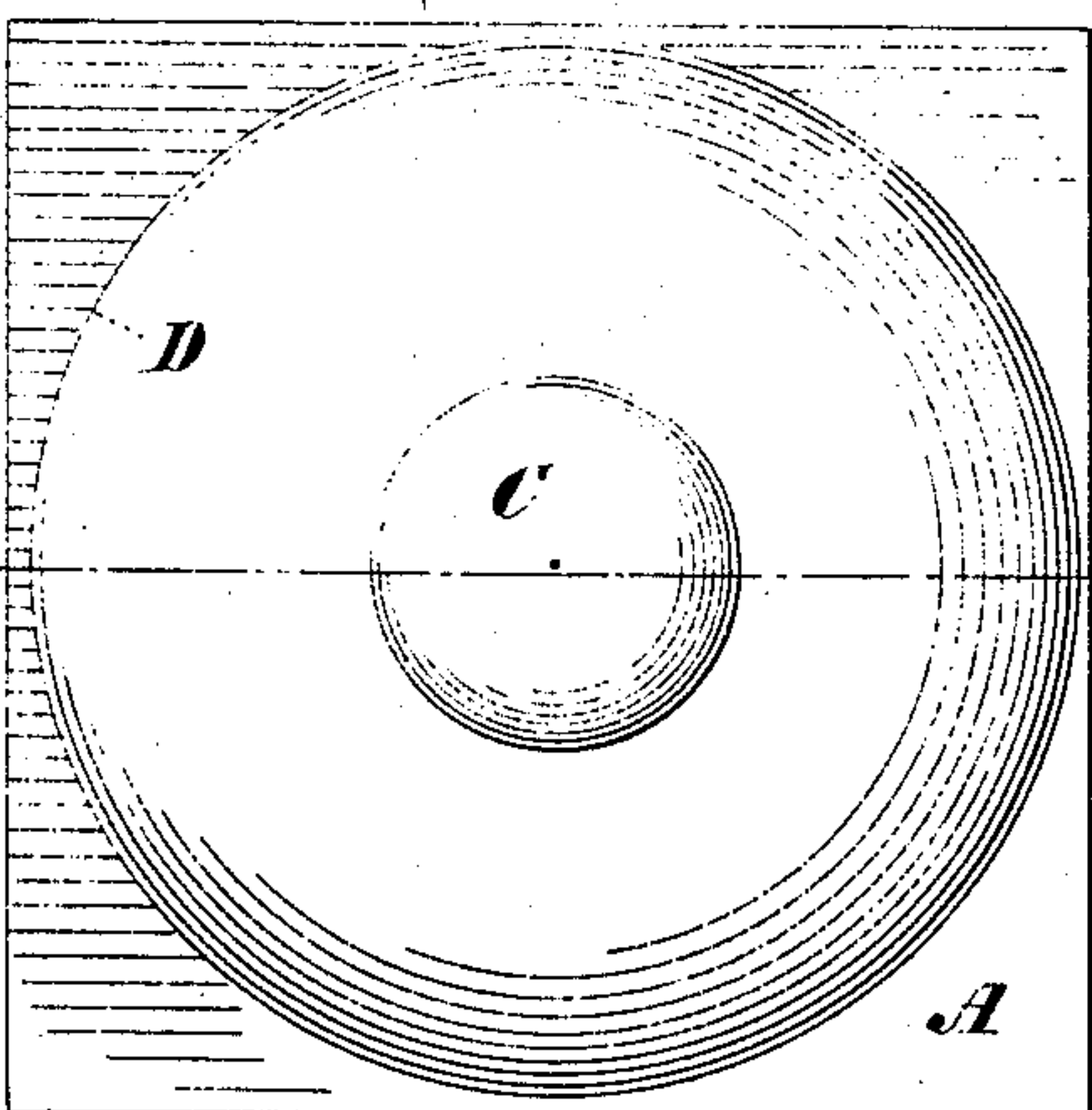
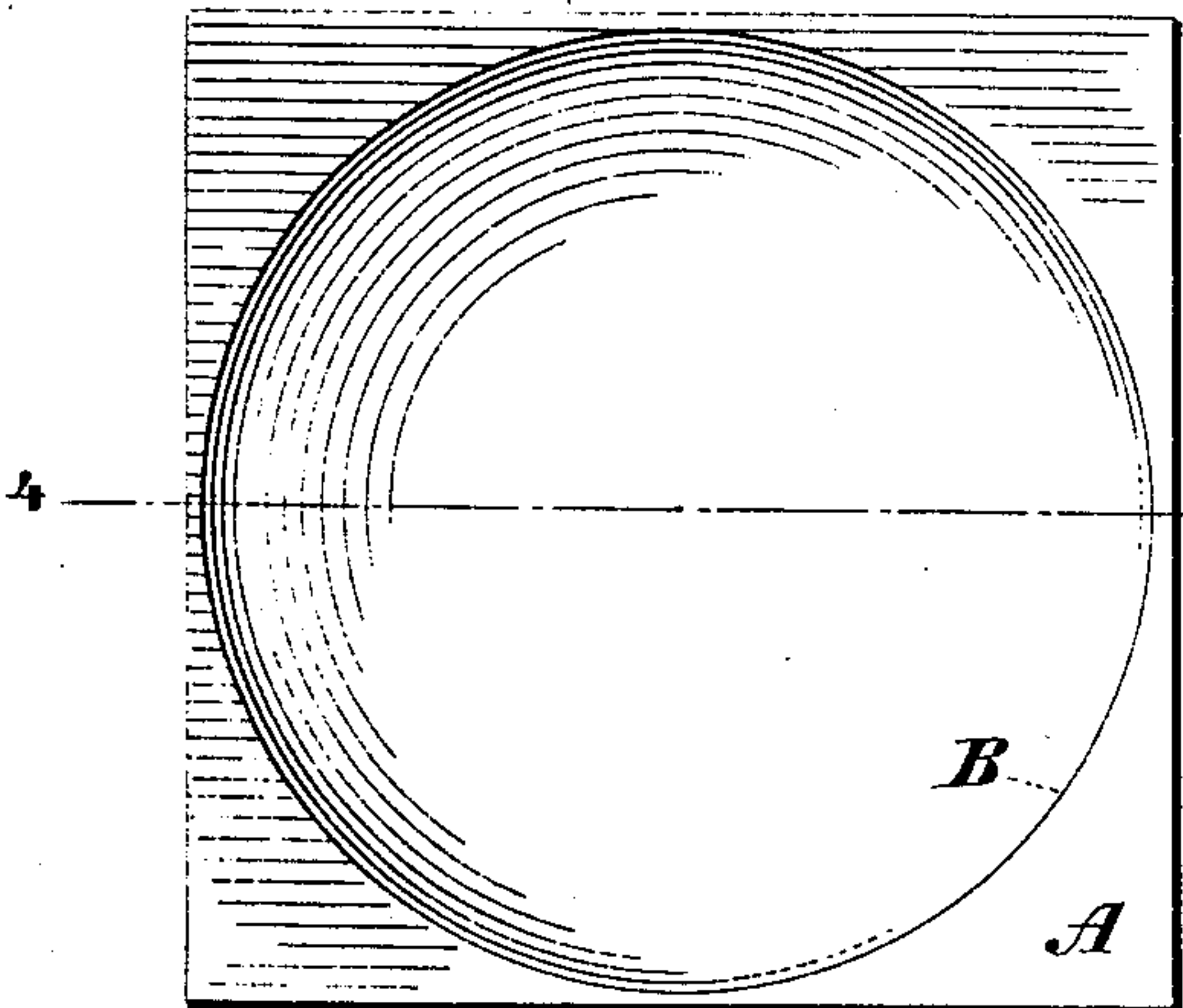


Fig. 4.



Fig. 8.

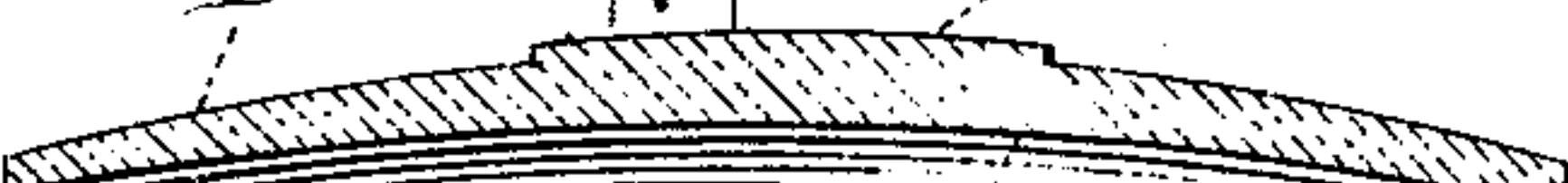
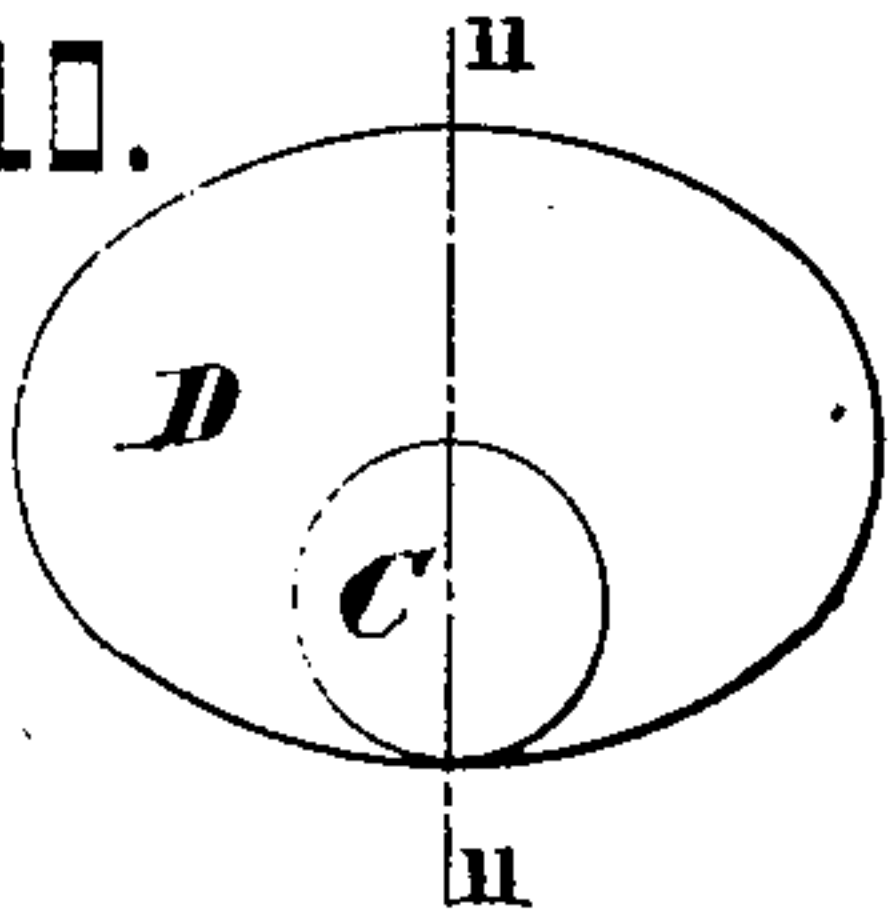


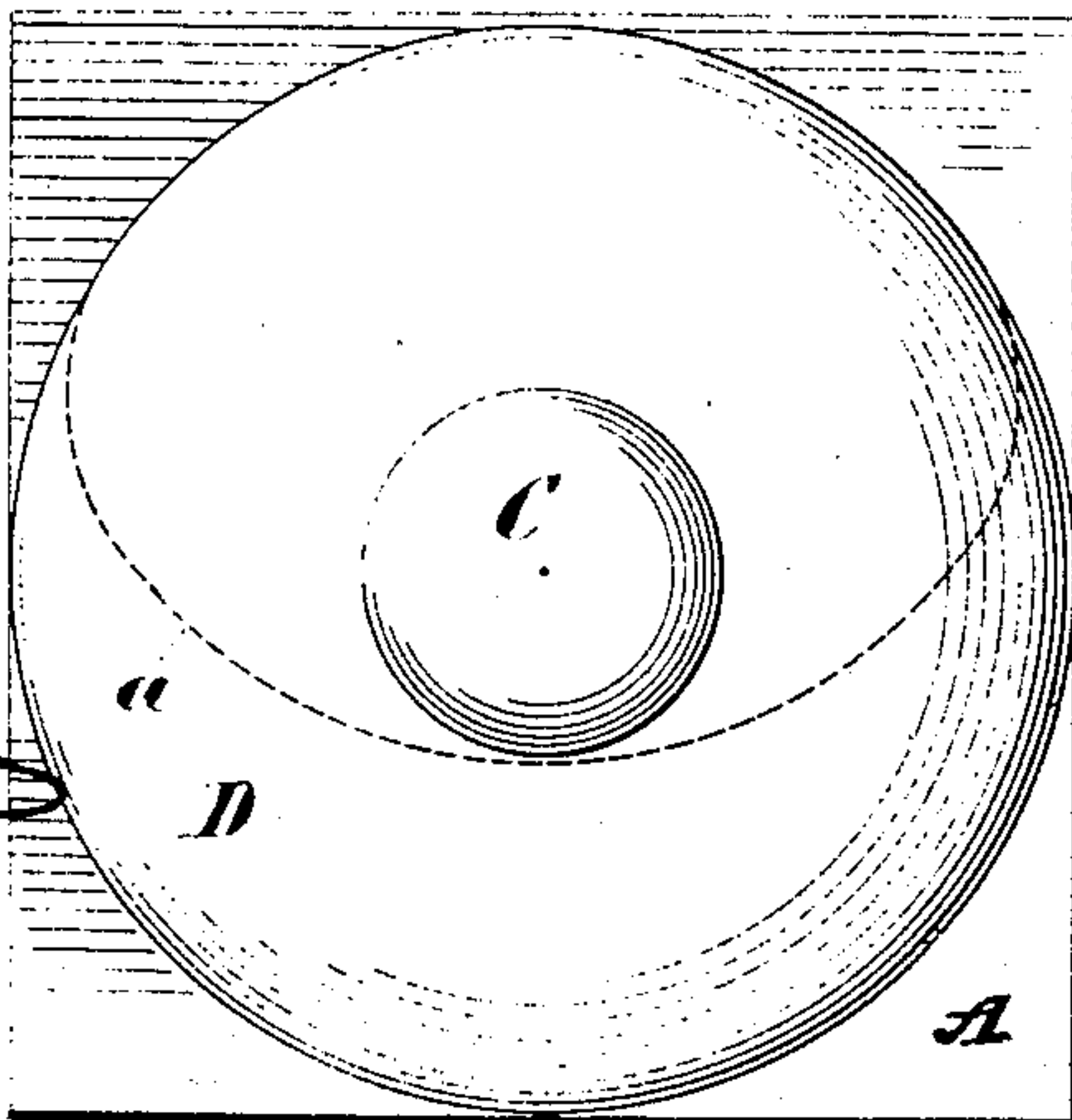
Fig. 10.



WITNESSES:

*Gustave Dietrich*

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B

Fig. 11.



INVENTOR

*Henri P. Alexander*

BY

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his ATTORNEY

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2 SHEETS—SHEET 2.

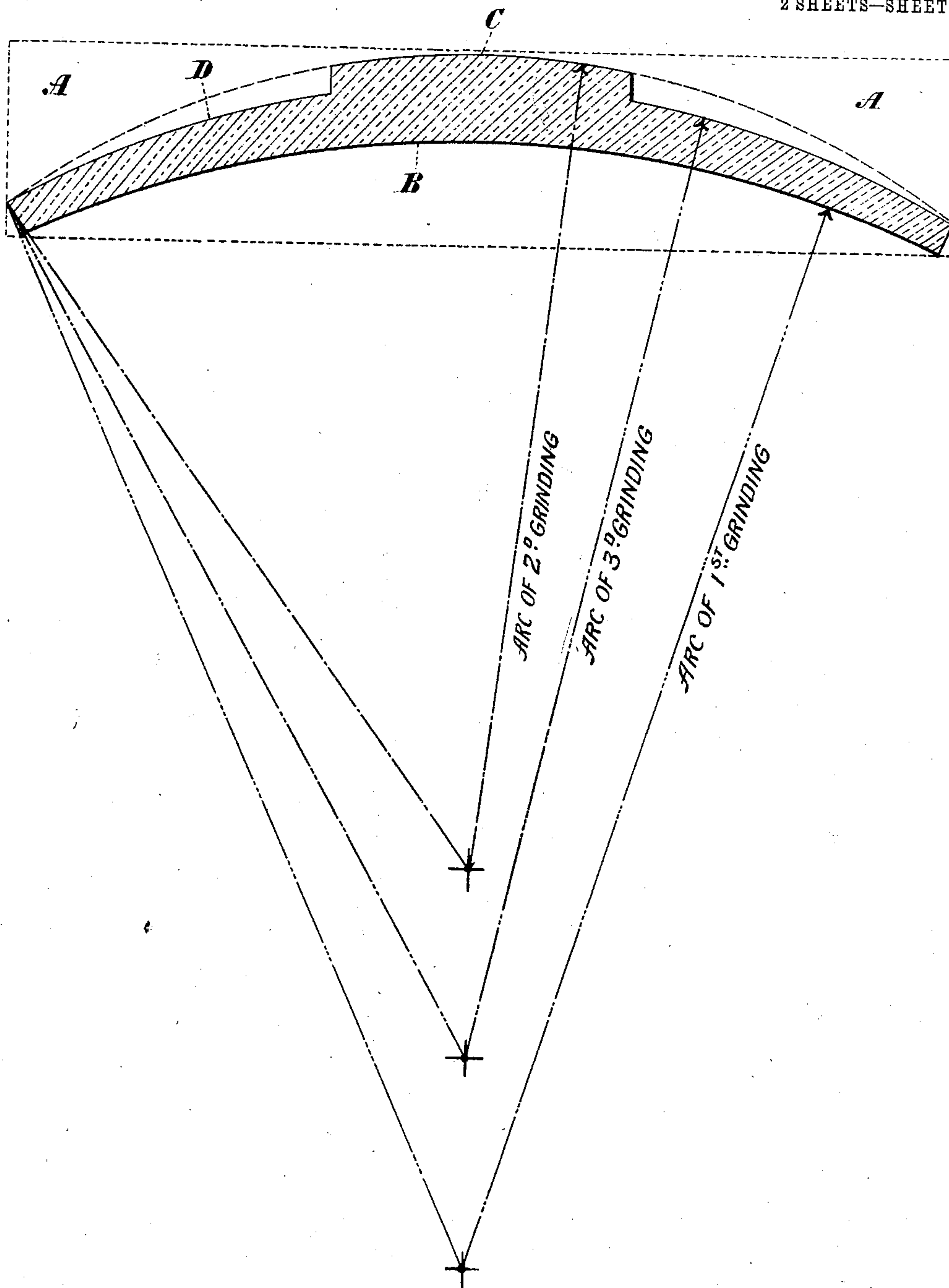


Fig. 12.

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# UNITED STATES PATENT OFFICE.

HENRI P. ALEXANDER, OF NEW YORK, N. Y., ASSIGNOR TO FLORENCE H. ALEXANDER,  
OF NEW YORK, N. Y.

LENS.

954,772.

Specification of Letters Patent.

Patented Apr. 12, 1910.

Application filed August 27, 1902. Serial No. 121,160.

*To all whom it may concern:*

Be it known that I, HENRI P. ALEXANDER, a citizen of the United States, residing at the city of New York, borough of Manhattan, in the county and State of New York, have invented certain new and useful Improvements in Lenses, of which the following is a full, clear, and exact specification.

My invention relates to improvements in lenses, and has for its object more particularly to provide a bifocal lens for eyeglasses consisting of one integral piece of glass or other transparent substance so constructed that the same will present a neater and more finished appearance than has heretofore been possible in lenses of this character.

These objects above set forth I am enabled to attain by means of my invention which consists in the novel construction of the lens as hereinafter more fully described and then pointed out in the claims.

In the accompanying drawings forming part of this specification, wherein like letters of reference indicate like parts, Figures 1 and 2 are face and edge views, respectively, of a piece of glass ready for grinding; Fig. 3 is an inverted face view of the glass showing the first grinding thereon; Fig. 4 is a section taken on the line 4—4 of Fig. 3; Figs. 5 and 6, are face and sectional views, respectively, the latter being taken on the line 6—6 of the former, showing the second grinding thereon; Figs. 7 and 8 are similar views, the latter being taken on the line 8—8 of the former, showing the second and third grindings thereon; Fig. 9 is a face view similar to Fig. 7 and showing the outline of the lens, as the same is to be, marked thereon; Figs. 10 and 11 are face and sectional views, respectively, of the completed lens; the latter being taken on the line 11—11 of the former, and Fig. 12 is a diagrammatic sectional view greatly enlarged, showing the construction of the lens.

In the production of bifocal lenses embodying my invention I first take a piece of glass A, or other suitable transparent material, about one and one-half inches square and about one-eighth of an inch in thickness, as shown at Figs. 1 and 2, and mount the same upon a suitable revoluble holder for grinding, and grind the inner or concave side B of the lens, where that is required, in an ordinary grinding machine in the usual manner to produce the shape

shown at Figs. 3 and 4. I next reverse the glass upon the holder and proceed to form the lens C which is intended for reading or close work, and has a curvature of short radius, as is shown at Figs. 5 and 6, the operation of grinding beginning at the edge of the glass and proceeding toward its center. I then partly re-grind the outer surface of said lens to form a lens D adapted for distance vision which although possessing a curvature of greater radius than said reading lens has its axis of generation coincident with that of said reading lens. In re-grinding the outer surface to produce the distance lens I again begin at the edge of the glass and proceed toward its center, but stop at a point about a quarter of an inch from the center of the glass plate A which is also the center of the lens C and thus leave the original grinding undisturbed and thereby form a complete circular lens C of about one-half inch in diameter superimposed upon the center of the plate A and which has a curvature of shorter radius than that of the surrounding lens portion D, as shown at Figs. 7 to 12 inclusive. After the lens has been formed as aforesaid a gage of the desired shape and size is then placed in position upon the plate so as to have the small lens C at the center of the plate adjacent to the lower edge of the gage, and then the outline *a* of the gage upon said plate is cut with a diamond, as indicated at Fig. 9, whereupon the remainder of the glass plate is broken off, and the lens then edged and polished in the usual manner and it then constitutes the finished lens.

In the foregoing description I have described the method of producing what is known as a periscopic spherical lens. These lenses, however, can be ground in all of the different classifications of lenses, such as spherical, cylindrical and spherocylindrical lenses. The only difference in grinding cylindrical and spherocylindrical bifocal lenses is that instead of grinding the concave spherical portion first, as in the periscopic spherical lens, I first grind the cylindrical portion required. When the lens is finished, but before marking and cutting the same to the shape desired, the required axis of the cylindrical side should be marked thereon which should also pass through the center of the small lens in the center of the plate. For neatness and better effect I pre-



fer to grind the smaller lens in or upon what is known as the outside of the lens, but the same may also be ground upon the inner side of the lens.

5 Bifocal lenses made according to my invention will be found to have proper centers and be free from prismatic effects, and further will be neater in appearance, and more durable than heretofore.

10 Without limiting myself to the details of construction which may be varied within the scope of the invention, what I claim and desire to secure by Letters Patent is:

1. A solid bifocal lens consisting of a  
15 single crystal having formed upon one face a pair of concentric-ground visual surfaces.

2. A solid bifocal lens consisting of a single piece of crystal having formed upon one face a pair of visual surfaces having  
20 coincident axes of generation.

3. A solid bifocal spectacle or eyeglass lens consisting of a single crystal having formed upon one face a pair of concentric

visual surfaces of different dioptries, one side of the outer surface being removed whereby the inner surface lies at or near one edge of the finished lens.

4. A solid bifocal lens consisting of a single crystal having formed upon one face a pair of visual surfaces having coincident axes of generation and one surface lying at or near the edge of the other, substantially as specified.

5. A solid bifocal spectacle or eyeglass lens, consisting of a single crystal having formed upon one face a pair of visual surfaces of different dioptries having coincident axes of generation, and one surface lying at or near the edge of the other.

Signed at the city of New York, in the county and State of New York, this 25th day of August, 1902.

HENRI P. ALEXANDER.

Witnesses:

C. AUGUSTUS DIETERICH,  
JACOB LEVEY.