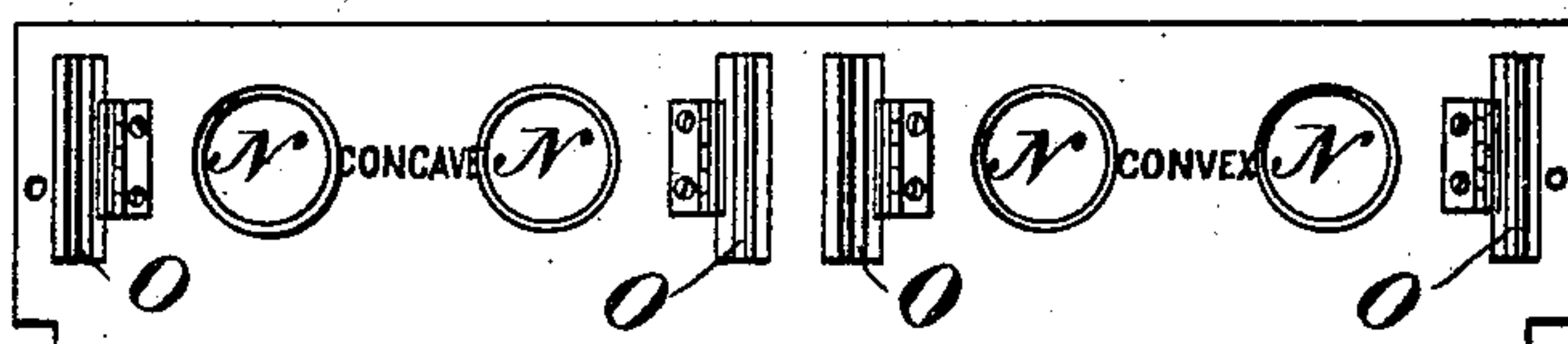
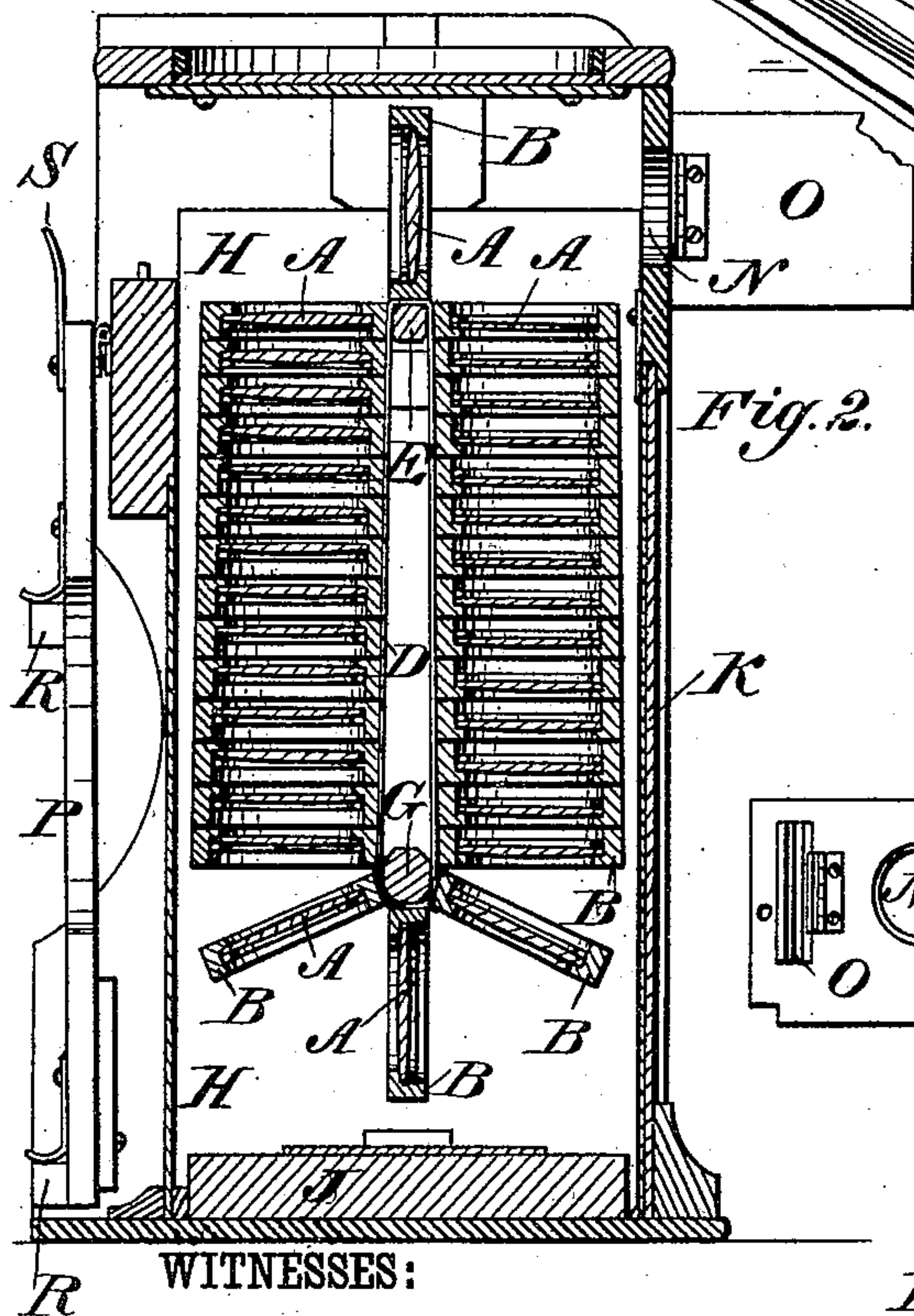
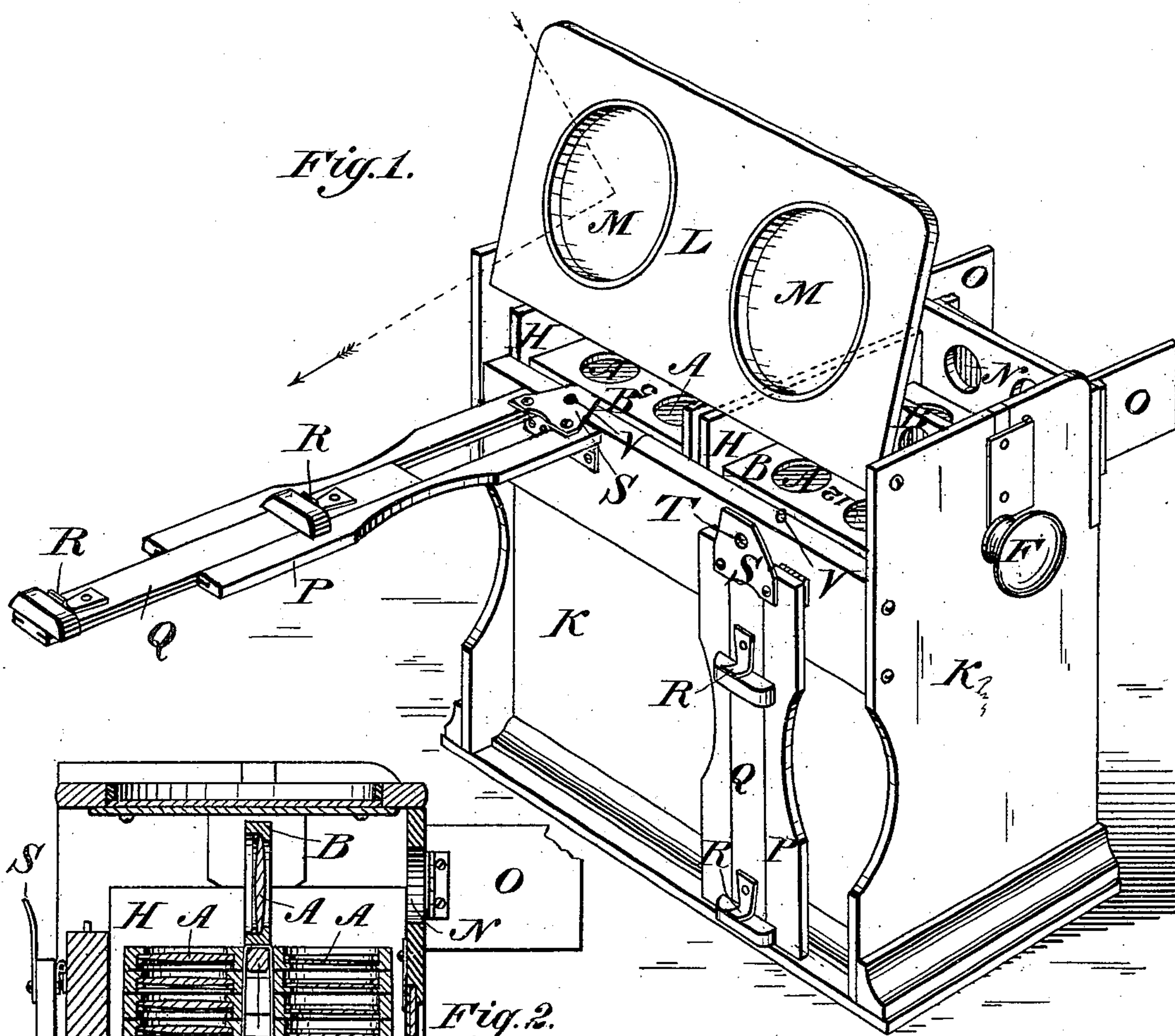


(No Model.)

A. MAYER.  
Optometer.

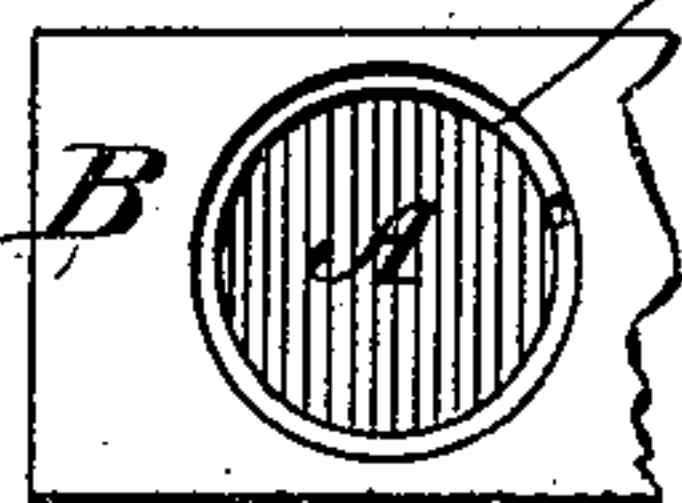
**No. 234,598.**

**Patented Nov. 16, 1880.**



**WITNESSES:**

Donn P. Twitchell.  
C. Sedgwick



**INVENTOR:**

A. Mayer

BY

**ATTORNEYS.**



# UNITED STATES PATENT OFFICE.

ABRAHAM MAYER, OF NEW YORK, N. Y.

## OPTOMETER.

SPECIFICATION forming part of Letters Patent No. 234,598, dated November 16, 1880.

Application filed May 20, 1880. (No model.)

*To all whom it may concern:*

Be it known that I, ABRAHAM MAYER, of the city, county, and State of New York, have invented a new and Improved Optometer, of which the following is a specification.

The object of my invention is to provide a new and improved optometer or instrument for ascertaining the number and kind of glasses required by persons having an impaired sight, making the use of spectacles necessary.

The invention consists in a case containing one or more sets of lenses arranged on an endless band in such a manner that a standard card, which is held on the end of an adjustable pivoted arm, can be read through the several lenses successively, so that the lenses suiting the eyes of the experimenter can be determined very easily and rapidly. The lid of the apparatus is provided with mirrors, which reflect the light upon the card.

In the accompanying drawings, Figure 1 is a perspective view of my improved optometer. Fig. 2 is a cross-sectional elevation of the same. Fig. 3 is an elevation of the strip provided with apertures through which the operator looks. Fig. 4 is a detail view of one of the lenses, showing the circular spring, by means of which they are held in their frames.

Similar letters of reference indicate corresponding parts.

Two lenses, A A, one for each eye, are mounted in a frame, B, preferably made of wood, and are secured in the same by a circular spring, C, or in some other suitable manner. Any desired or suitable number of these frames B are attached to an endless belt, D, at one of their longitudinal edges and adjoining each other, so that an endless chain of lens-frames, B, is formed. The endless belt D is mounted on an upper square shaft, E, provided with a button or knob, F, and a lower polygonal shaft, G, both of which are pivoted in two uprights, H H, connected by a bottom transverse piece, J. One of the frames B will always rest vertically on the upper shaft, E, and if this shaft is rotated each frame B will successively rest vertically upon the said shaft E, as shown in Fig. 2. The uprights in which the shafts E and G are pivoted are placed into a box or case, K, which may be arranged to receive one or more endless belts

and their corresponding uprights. This case K is provided with a hinged or pivoted lid, L, provided with a mirror, M, for each set of lenses. The case is provided with two adjoining apertures, N N, for each set of lenses, each of which apertures is provided with a hinged or sliding door, O, which may be closed independently of the other. These apertures are arranged in such a manner that their center is on a straight line with the center of the corresponding lens A in the frame B, resting vertically upon the shaft E. An arm, P, provided with a sliding part, Q, having two clamps, R, for the standard card at the ends, is pivoted to the case K, near the upper edge of the same, and is provided at the inner end with a plate, S, having an aperture, T, into which a stud, V, on the upper edge of the wall of the case K passes when the said arm P is raised, thereby holding it in a horizontal, or almost horizontal, position. However, this locking device may be replaced by any other suitable device for the same purpose.

The glasses on each endless belt range from the lowest to the highest number of lenses used, like lenses being fastened in each frame B, which frames are provided with the number of their lenses, and are arranged on the endless belts in numerical order.

In place of a reflector for each set of glasses, one large reflector may be attached to the lid L.

The within-described apparatus is used as follows: One or both doors, O, of the apertures N belonging to a set of lenses are opened, accordingly as the persons desire a glass for one or both eyes. The arm P is raised, the standard card is placed into one of the clamps R and the sliding part Q is drawn in or outward, so that the card is about twelve inches from the lens in the frame, resting vertically upon the shaft E. The lid L is then raised so that the mirrors M reflect the light upon the standard card. The card is first viewed through the weakest lenses. The knob is then turned so as to bring the next frame B to a vertical position, and in this manner the lenses are successively examined until the type of the standard card can be read clearly and distinctly without being magnified or reduced.

Lenses for hypermetropia or far-sightedness, and for myopia or near-sightedness, as-

tigmatism, or variable curvature of the cornea, and diplopia or cataract, may be arranged in the above-described optometer, either each kind of lenses in a separate apparatus, or two  
5 or more kinds in one larger casing.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the case and re-  
10 flecting-mirrors in the lid, of one or more sets of lenses on an endless band, and an adjust-

able pivoted arm, all arranged substantially as shown and described.

2. In an optometer, the combination, with the pivoted arm P, plate S, provided with ap- 15 erture T, and of the stud V, substantially as herein shown and described and for the purpose set forth.

ABRAHAM MAYER.

Witnesses:

OSCAR F. GUNZ,  
C. SEDGWICK.