

No. 774,632.

PATENTED NOV. 8, 1904.

W. H. ZIMMERMAN.
OPTICAL TOY.

APPLICATION FILED FEB. 16, 1904.

NO MODEL.

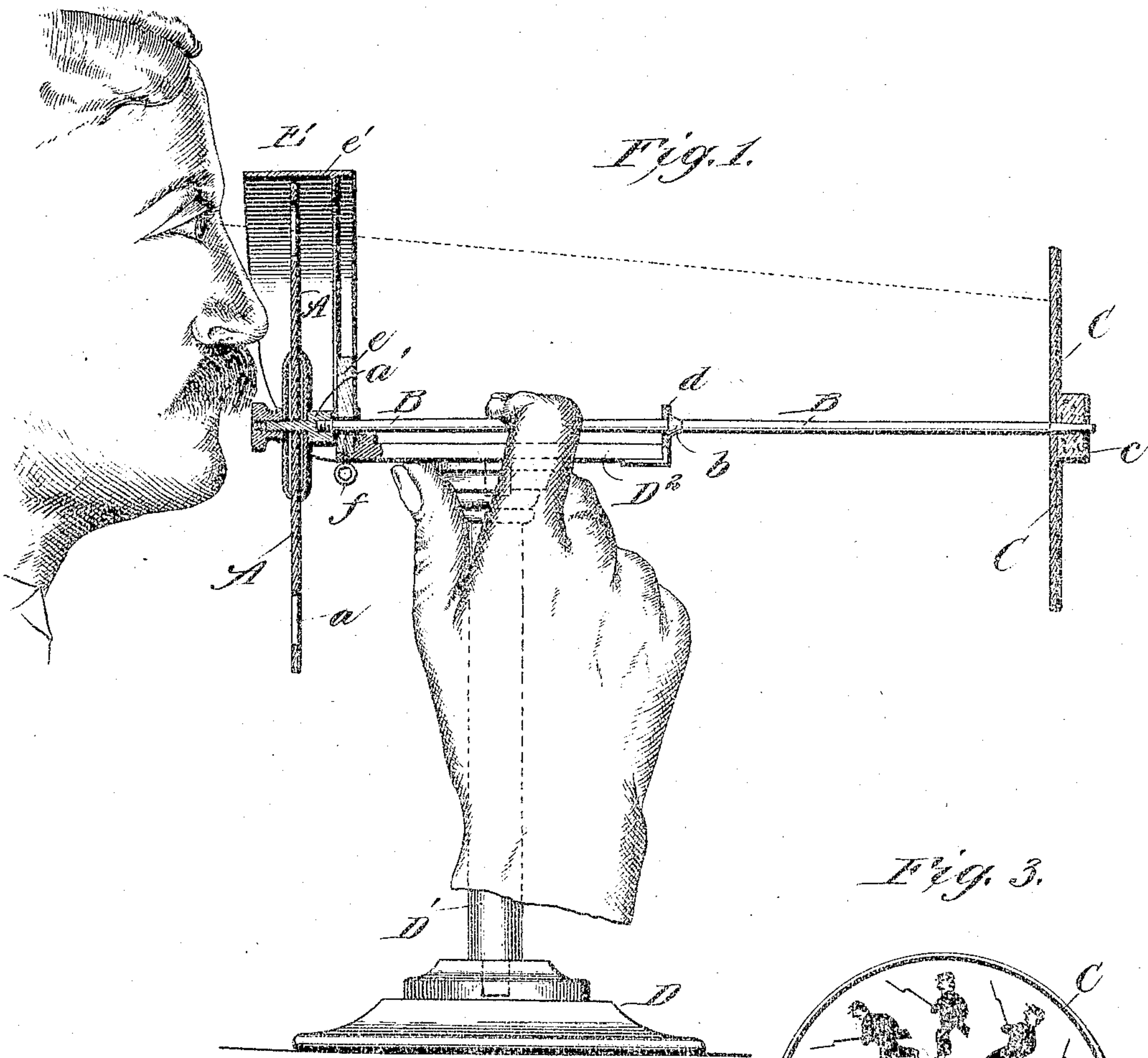
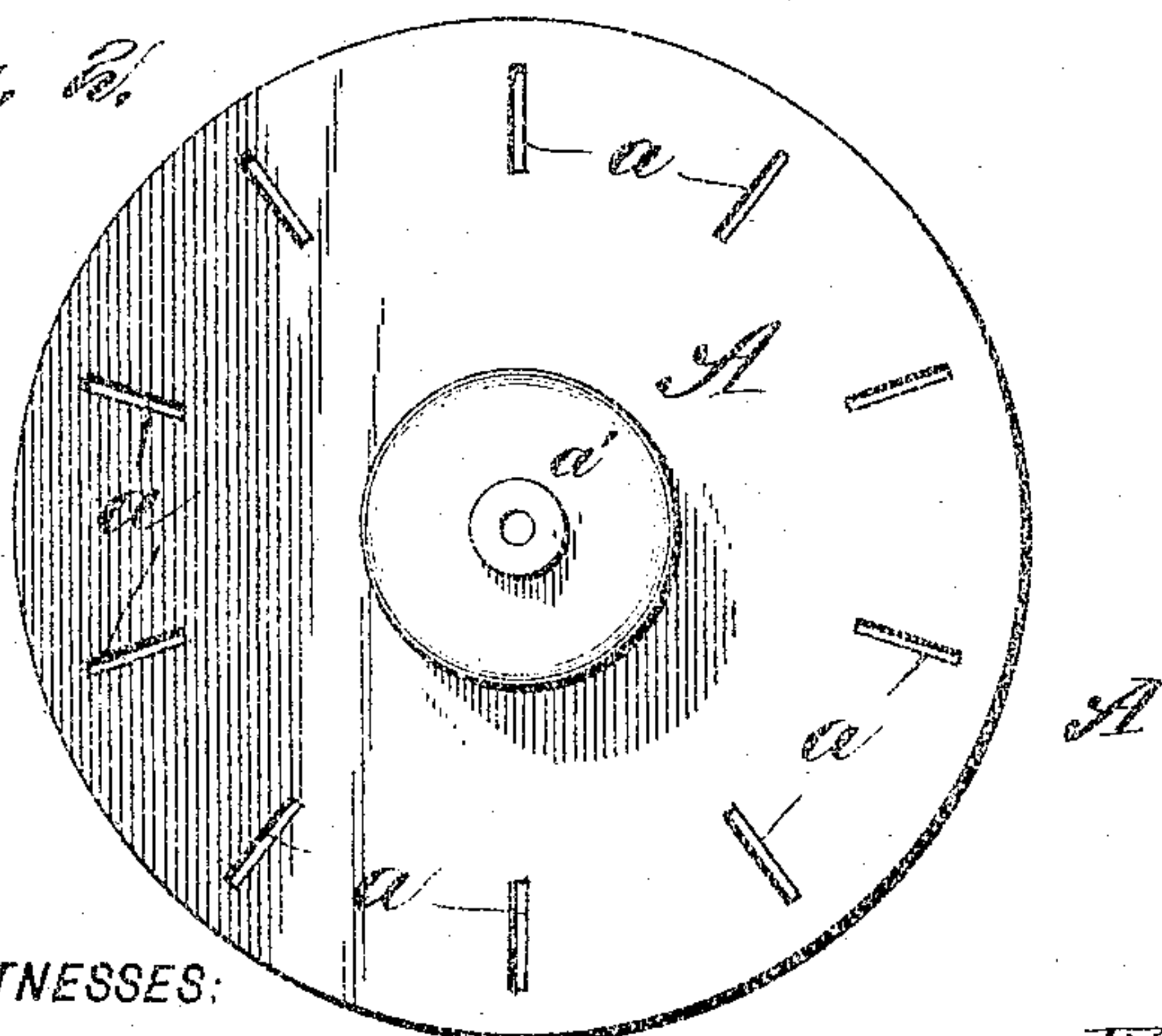


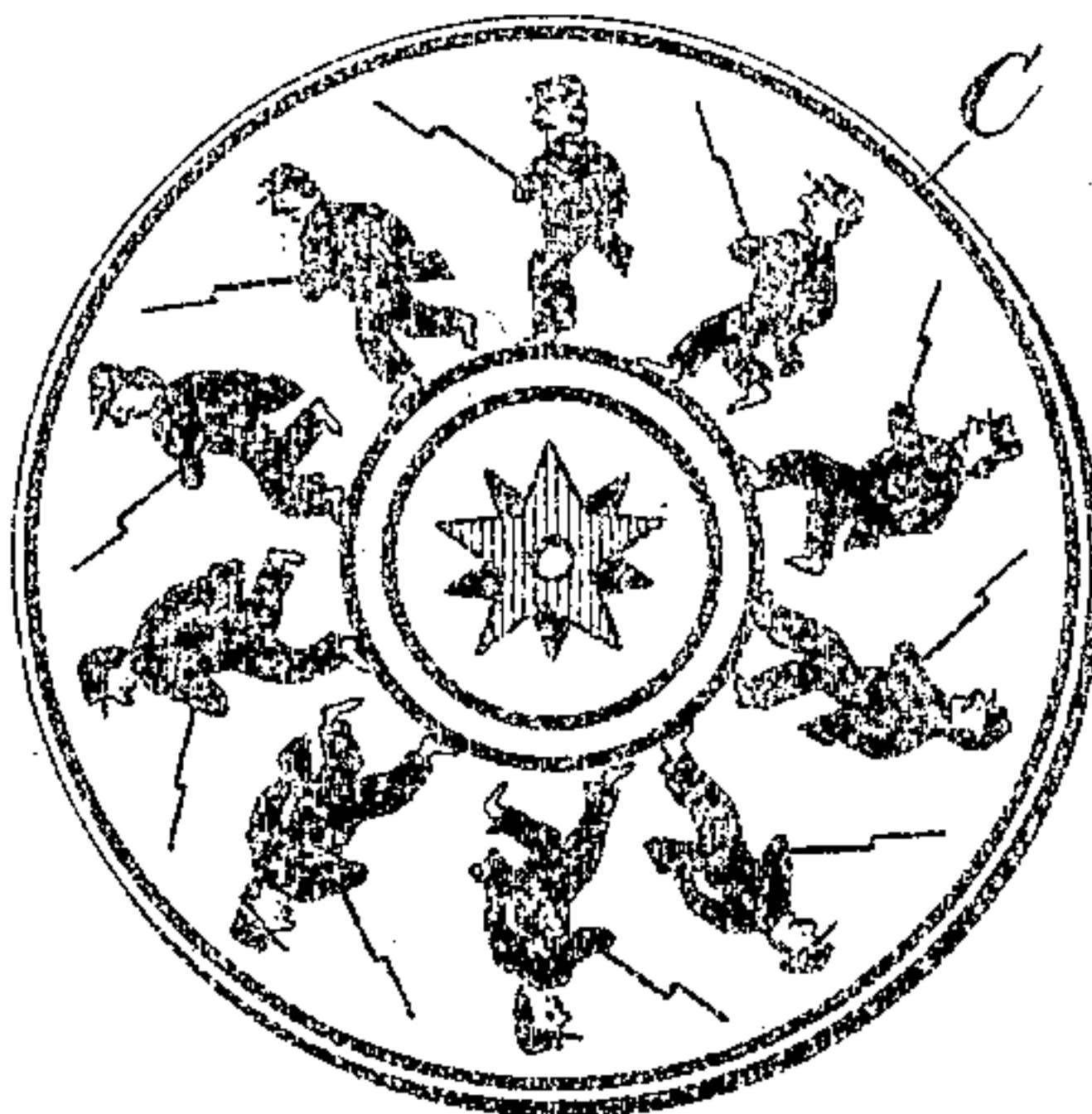
Fig. 2.



WITNESSES:

Fred. D. Bradford.
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Fig. 3.



INVENTOR

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OPTICAL TOY.

SPECIFICATION forming part of Letters Patent No. 774,632, dated November 8, 1904.

Application filed February 16, 1904. Serial No. 193,776. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. ZIMMERMAN, a citizen of the United States, residing at Halethorpe, in the county of Baltimore and State of Maryland, have invented a new and useful Improvement in Optical Toys, of which the following is a specification.

My invention is in the nature of an improved optical toy, designed to furnish both amusement and instruction.

Toys founded upon the general principles of persistence of vision have long been known under the various names of "phenakistoscope," "thaumotrope," "zoetrope," "stroboscope," and "rotoscope," from which have been evolved in later years the more elaborate forms of the kinetoscope, the biograph, the cinematograph, the vitascope, the phantoscope, &c., all of which aim to give figures the movement of life or action by presenting in rapid succession a series of figures, each of which has a slightly-advanced position in a definite movement, so that when viewed as they pass in succession the figure appears to move with an animated action.

My invention is designed to provide a simple toy of this general character which may be made and sold for a very small price and which is so constructed as to be made and sold in what is known as the "knockdown" form, in which for convenience of storage and cheapness of transportation the parts are dismembered and packed within a small compass and as quickly and conveniently erected for use.

Figure 1 is a side view, partly in section, of the toy with the position of the eye and the forefinger indicated. Fig. 2 is a face view of the slitted disk, and Fig. 3 is a face view of one of the series of figured disks.

In the drawings, A represents a slitted disk whose slits *a* are arranged radially in circular series near the outer edge of the disk. This disk is provided with a hub portion *a'*, having a screw-threaded socket, into which is detachably screwed the threaded end of a horizontal shaft B. On the opposite end of the shaft is detachably fitted the figured disk C, which has also a hub *c* with a hole through it. This disk for quick detachability is merely forced onto the end of the shaft and is there held by

frictional contact, this end of the shaft being slightly tapered for this purpose. The hub of this disk may be cheaply and conveniently made of cork, which maintains a stiff and closely-fitting connection with the shaft. This shaft and its disks are mounted upon a T-headed stand consisting of a post *D'* and a horizontal table-surface *D*². The post *D'* is preferably mounted on a base *D*. At one end the table has an upturned flange *d*, forming a bearing for the shaft, and against this flange bears a collar *b* on the shaft to resist the thrust in forcing the figured disks onto the shaft and to prevent all endwise travel of the shaft in its bearings when in rotation. The front end of the shaft is carried in a bearing formed in a detachable guard *E*, which consists of a cross-bar *e* with an arched flange *e'*, which incloses and protects the slitted disk and which flange projects sufficiently to form a hood to shade the eyes in viewing the figures and also acts as a guard to limit the approach of the observer's face toward the wheel. The combined guard and eye-shade is detachably united to the end of the table *D*² by thumb-screws *f*, so that these parts may be separated and laid flat when packed. The parts *D D' D*² of the stand are also detachably connected by tenons and sockets, so that they may be dismembered and laid flat, and as the disks are also detachable from the shaft it will be seen that all of the parts may be compactly packed and transported in the knockdown form at a minimum expense for freight and storage, thus reducing the price at which the toy may be placed upon the market. Its easy dismemberment for packing, storage, or transportation and the equally rapid reassembling of all of its parts into complete wholeness for immediate use confer upon it a commercial value not heretofore obtained in this class of devices.

In using the toy the eye is arranged in front of the guard, as shown, and with the hand grasping the post of the stand the forefinger is rolled along the top of the shaft at right angles to the same with a frictional contact that sets up in a most simple and convenient way in either direction a rapid rotation of the shaft and its two disks. The figured disk

now presents to the eye through the slits of the front disk the apparently animated motions of the figures.

It will be seen that an important practical feature is the arrangement of the shaft parallel to and close to the horizontal table-surface D^2 of the T-headed stand and the extension of the post D' up close to the shaft, so that when the post is grasped by the hand the forefinger can reach over and be rolled along the top of the shaft to rotate it by the same hand which supports it.

To give a stronger light upon the figured disk, the back side of the slitted disk should either be made white or be covered with a silver paper or reflecting-surface, so as to throw its reflected light onto the figures, and the front face of the slitted disk is preferably made black.

This device presents for a few cents an optical instrument which is equally amusing and instructive and has unlimited extension into any variations of figures, as the figured disks may be made by the hundred. The disks also instead of bearing figures may have the spectrum colors placed in radial sequence to illustrate the composition of white light and may be used also to illustrate other principles of physics.

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

1. An optical toy, comprising a shaft bearing a slitted disk at one end and a figured disk at the other end, a stand having a support,

and a bearing at one end for the shaft, and a detachable guard at the other end, said guard consisting of a cross-bar containing a bearing for the front end of the shaft and an offsetting flange mounted on said cross-bar and extending over and housing the slitted disk and acting also as a stop to limit the approach of the observer's face to the wheel substantially as shown and described.

2. An optical toy, comprising a shaft bearing a detachable slitted disk at one end and a detachable figured disk at the other end, a stand having a detachable upright and a bearing at one end for the shaft, and a guard arranged at the other end and detachably connected thereto, said guard having a cross-bar with a bearing for the shaft and a curved flange mounted on the cross-bar and inclosing the slitted disk, all of said parts being detachably connected for disassociation and packing in the knockdown form substantially as and for the purpose described.

3. An optical toy, comprising a T-headed stand consisting of a post and a table-surface borne on the upper end of the post, and a rotary shaft arranged in bearings above the table-surface immediately adjacent to and parallel with the same and having at one end a slitted disk and at the other end a figured disk substantially as and for the purpose described.

WILLIAM H. ZIMMERMAN.

Witnesses:

OREGON MILTON DENNIS,
CARTER MORTON.