No. 778,803. PATENTED DEC. 27, 1904.

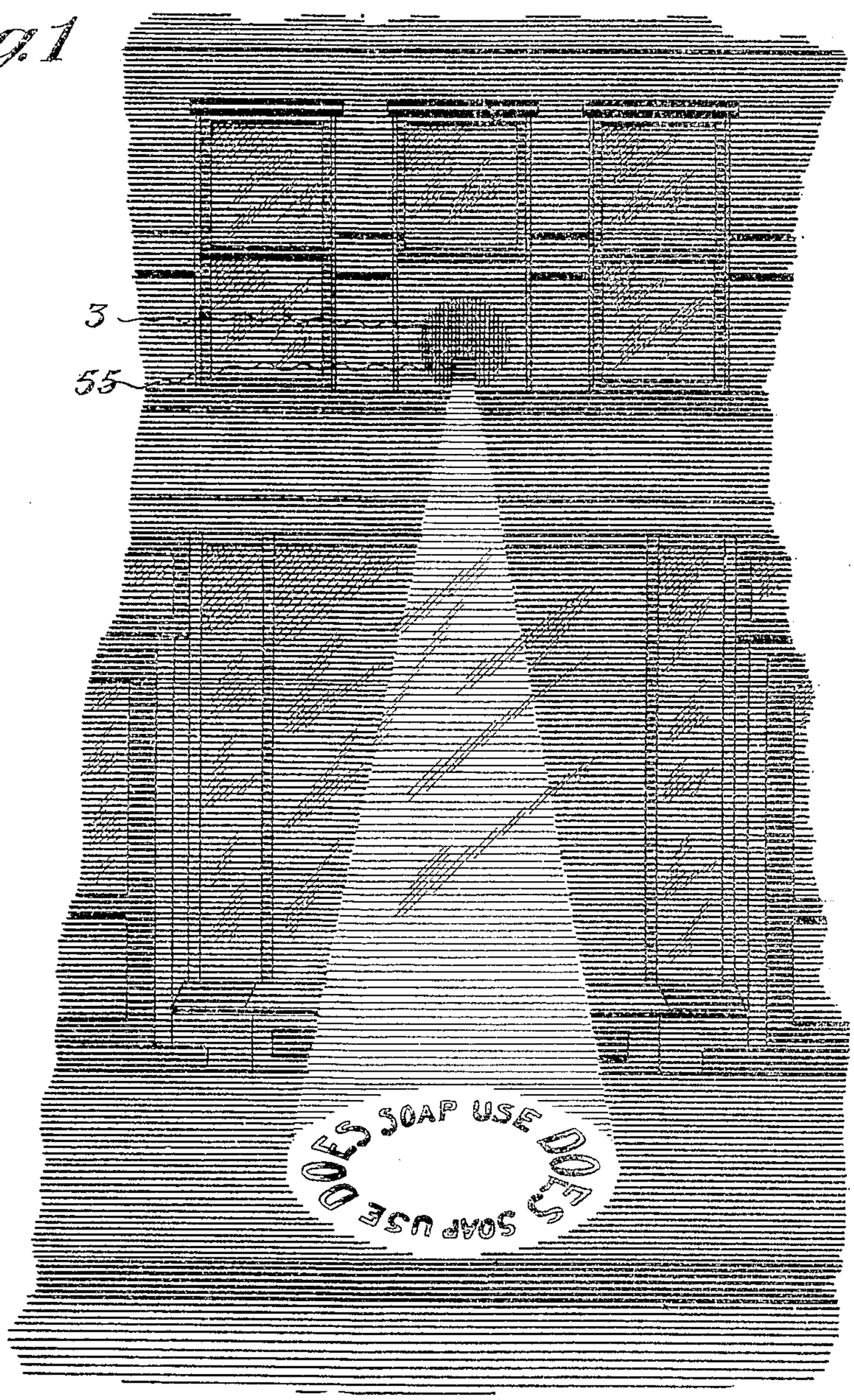
A. SCHWEITZER.

STEREOPTICON.

APPLICATION FILED JAN. 5, 1903. RENEWED MAY 10, 1904.

3 SHEETS—SHEET 1.

Fig. 1



Witnesses:
Geo. B. Rowley.
C. R. Herman.

Inventor;
ALBERT SCHWEITZER
By H. C. Evarts & Co
Attorneys.

No. 778,803. PATENTED DEC. 27, 1904.

A. SCHWEITZER.

STEREOPTICON.

APPLICATION FILED JAN. 5, 1903. RENEWED MAY 10, 1904.

3 SHEETS—SHEET 2.

Fig. 3

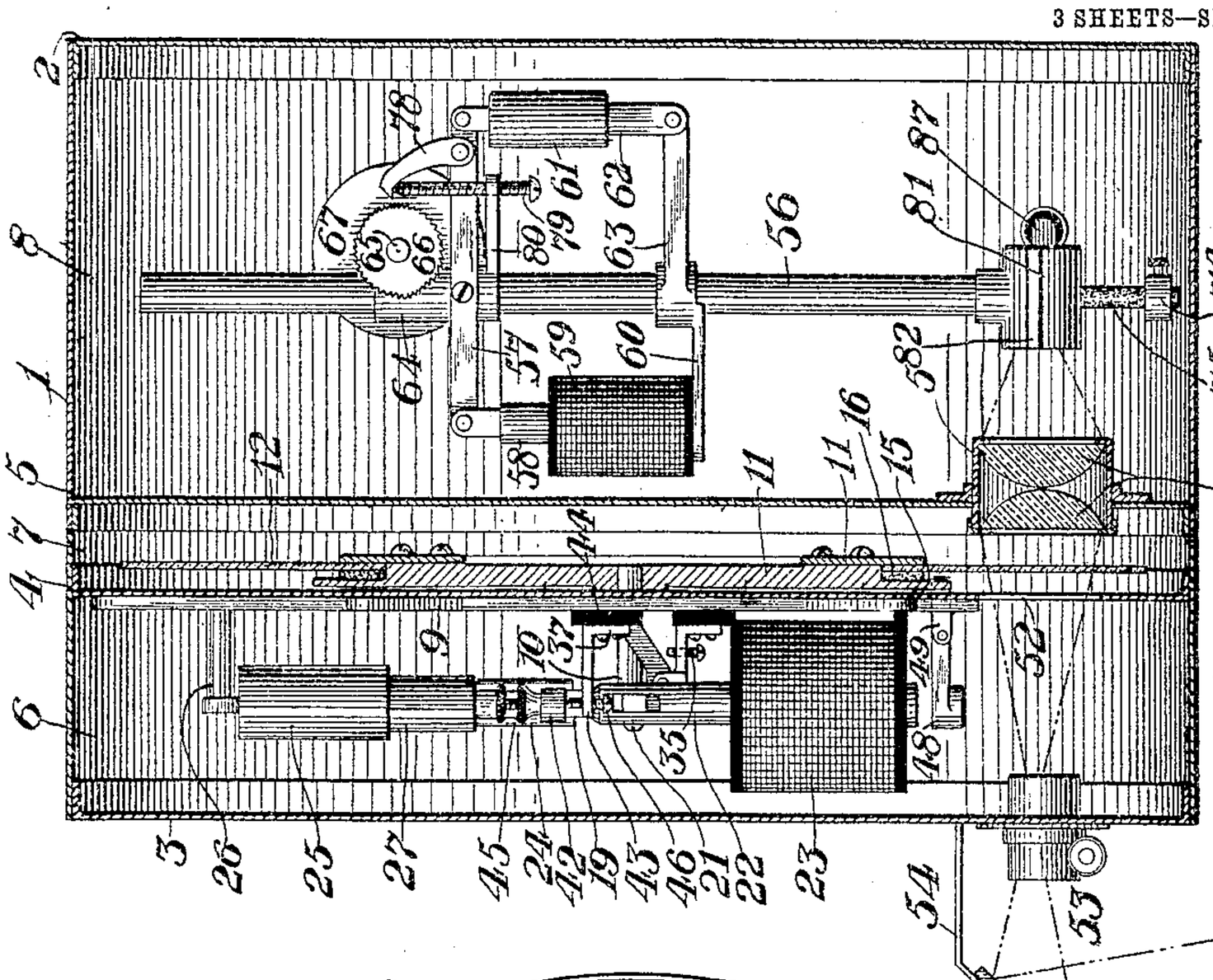
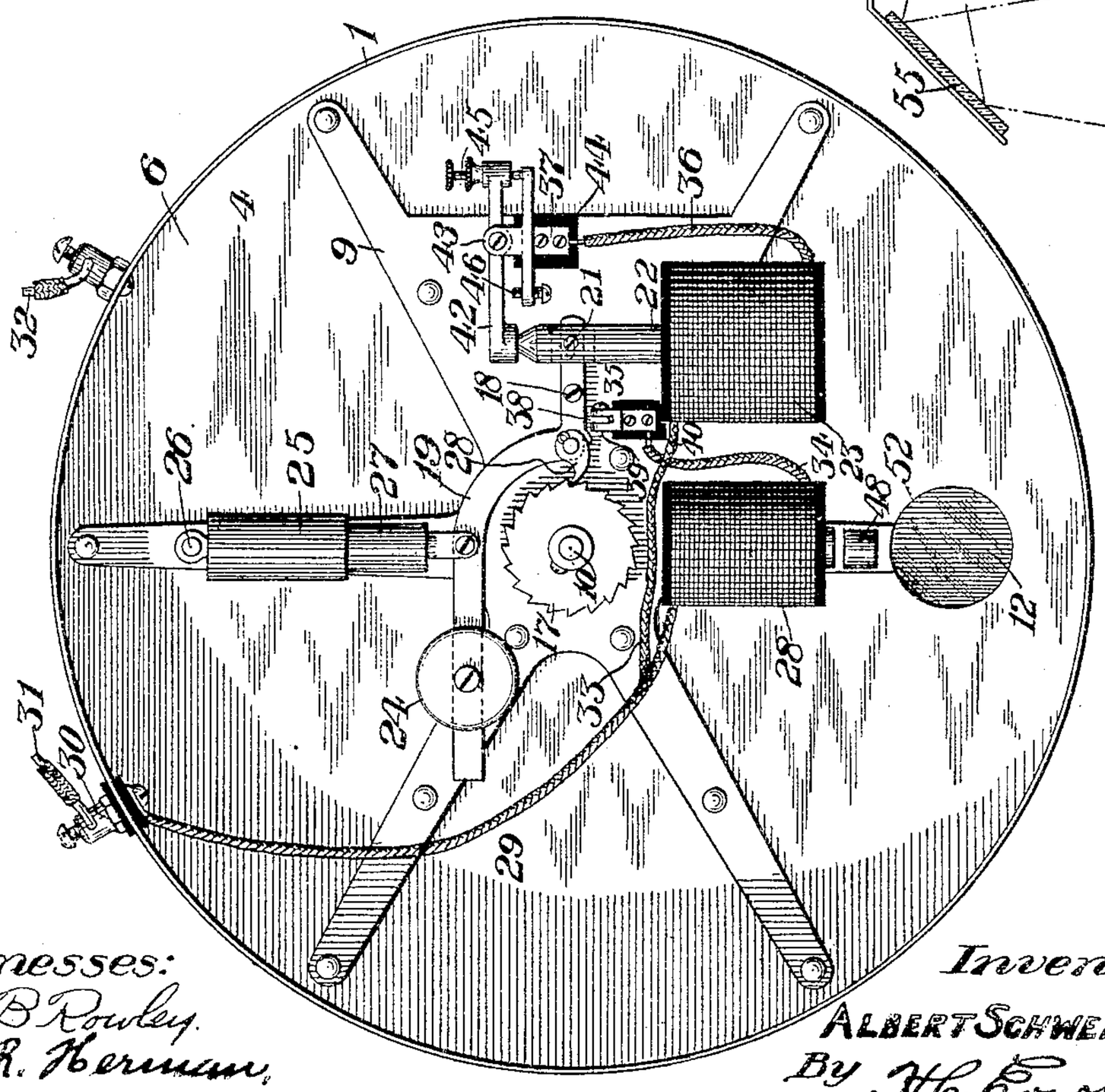


Fig. 2



Witnesses:
Geo. B. Rowley.
C. R. Herman.

Inventor;
ALBERT SCHWEITZER
By N. C. Evarts & Co.
Attorneys.

No. 778,803. PATENTED DEC. 27, 1904.

A. SCHWEITZER.

STEREOPTICON.

APPLICATION FILED JAN. 5, 1903. RENEWED MAY 10, 1904.

3 SHEETS—SHEET 3.

Fig. 4

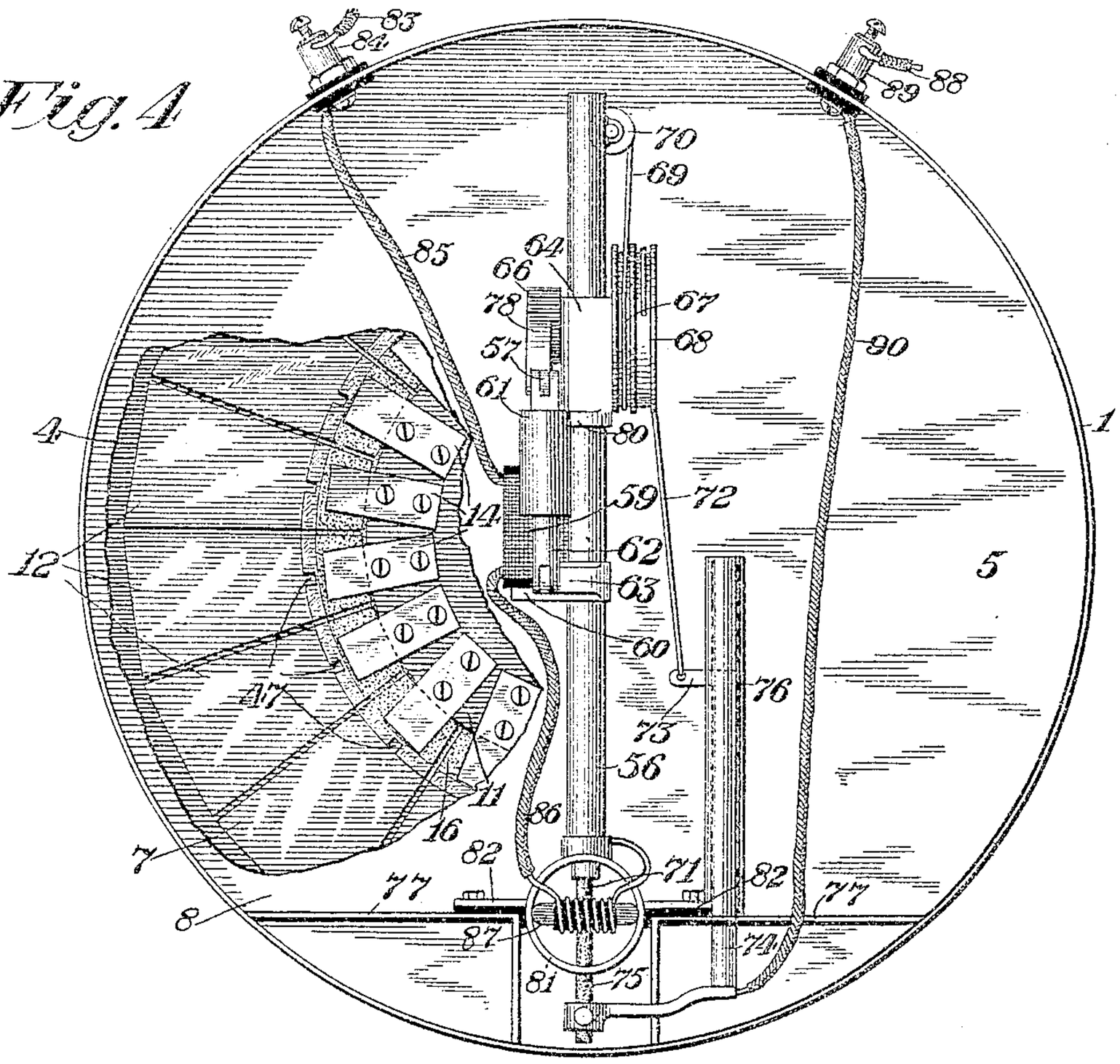


Fig. 5

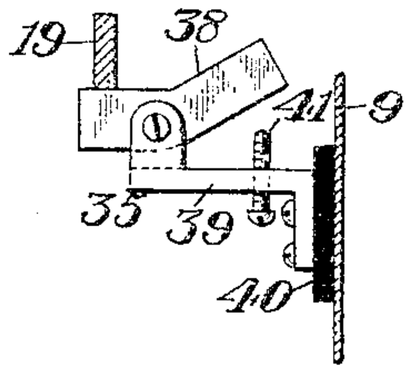


Fig. 6

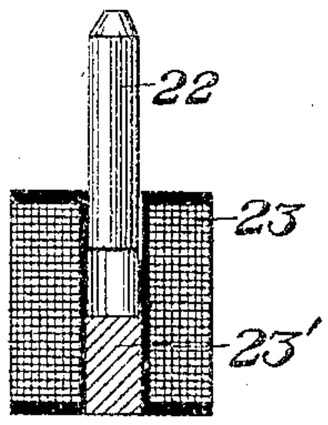
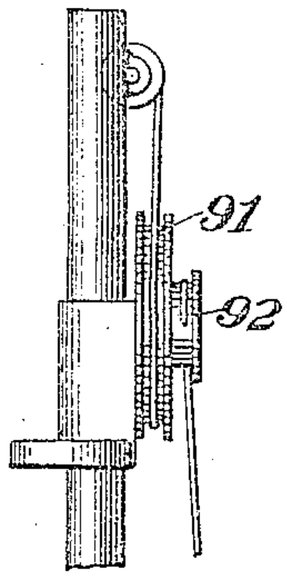


Fig. 7



Witnesses:
Geo. B. Rowley,
C. R. Herman.

Inventor;
ALBERT SCHWEITZER.
By A. G. Eberle
Attorneys.

No. 778,803. Patented December 27, 1904.

UNITED STATES PATENT OFFICE.

ALBERT SCHWEITZER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE AUTOMATIC ILLUMINATING ADVERTISING & MANUFACTURING COMPANY, OF PITTSBURG, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

STEREOPTICON.

SPECIFICATION forming part of Letters Patent No. 778,803, dated December 27, 1904.

Application filed January 5, 1903. Renewed May 10, 1904. Serial No. 207,323.

To all whom it may concern:

Be it known that I, ALBERT SCHWEITZER, a citizen of the United States of America, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Stereopticons, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in stereopticons, and relates particularly to that class of devices employed for projecting printed or pictorial matter and displaying the same at a desired point; and the invention has for its main object the construction of an apparatus operated longitudinally and which is entirely automatic in its operation in the successful display of different representations.

A further object of the invention is to construct a device of this character in which the printed or pictorial matter to be reproduced and displayed is projected downwardly from the device, whereby the latter may be arranged in the window or other available space and the representation displayed on the sidewalk instead of projecting the same upon a curtain or other vertical wall, as heretofore generally done.

Various other objects are sought to be obtained, and these will be hereinafter more fully described and specifically pointed out.

In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout the several views, in which—

Figure 1 is a perspective view of a part of a building, illustrating the manner in which the matter is displayed from an elevation onto the sidewalk. Fig. 2 is a front elevation, with the front plate of the drum or casing removed. Fig. 3 is a central vertical sectional view of the apparatus. Fig. 4 is a rear elevation of the apparatus with the rear or back plate removed and a part of the partition broken away to better show the arrangement of the rotatable disk. Fig. 5 is a side elevation of one of the automatic cut-outs, showing the operating-lever and a part of the back plate in section. Fig. 6 is a central vertical sectional view of the control-solenoid. Fig. 7 is a detail side elevation of a part of the carbon-clutch mechanism as employed for direct current.

The apparatus embodies a disk or wheel which carries the matter which is to be projected and displayed in the desired manner, and this disk or wheel is intermittently operated electrically, the operation being entirely automatic, whereby to successfully display the matter carried by the disk or wheel. Means is provided for regulating the length of time that each card or other matter carried by the disk or wheel is to be displayed. The apparatus also involves a condensing medium whereby the rays of light are condensed and projected into the focusing apparatus, from which point they are projected onto the reflector. The apparatus also involves the novel construction of lamp whereby the entire rays of the light are projected direct into the condensers and the full force of the lamp thereby obtained. As the particular form of lamp which is shown in connection with the present illustration of the apparatus has been made the subject of a separate application, it will be referred to herein and described only in so far as is necessary in connection with the description of the construction and operation of the apparatus.

In the present illustration of the apparatus I have shown the mechanism, including the lamp, inclosed within a circular casing 1, having a rear plate 2 and front plate 3, a convenient form of construction being the flanging of these plates and the inserting of a plunger within the casing, whereby the latter may be screwed, bolted, riveted, or otherwise suitably fastened to the end plates. The casing is divided by interior partition-plates 4 5 into compartments 6, 7, and 8. The partition-plates 4 and 5 are also preferably provided

with a flanged periphery, as is the construction for the end plates 2 3, said construction being the most convenient one for enabling me to secure the plates in position in the inclosing casing.

Mounted on the front face of the partition-plate 4 is a spider 9, which may be readily secured thereto by screws, bolts, rivets, or other desired means and forms a bracket for the suspending of the actuating mechanism. The spider 9 and partition-plate 4 are centrally apertured to receive the spindle or journal-pin 10, on the rear end of which is securely mounted a disk or wheel 11, which carries the matter which is to be projected and displayed. This disk or wheel in practice I have preferably made of aluminium, as with such material I obtain the desired rigidity and also obtain a lighter disk or wheel than would be possible with a heavier metal, though, of course, if desired, other material may be employed. In practice I have generally affixed the matter to be displayed onto transparent plates 12 by printing, painting, or otherwise affixing the matter thereto. These plates are arranged centrally around the disk or wheel and are held by the spring-clips 14, firmly fastened to the disk or wheel. The disk or wheel 11 is preferably chamfered off on one side around the periphery, as seen at 15, and on this chamfered portion is placed the cushioning material 16—such as asbestos, felt, or the like—against which the plates rest, said plates being placed in position by merely lifting the ends of the spring-clips, so that the plate can be inserted between the cushioning material and the projecting part of the spring-clip, as clearly illustrated in Fig. 3 of the drawings.

Mounted on the outer or front end of the spindle or journal 10 is an actuating-ratchet 17, and pivotally mounted on the spider 9, the pivot-pin 18 being substantially in a horizontal line with the spindle or journal-pin 10, is an actuating-lever 19. This actuating-lever carries a pawl 20 to engage with the ratchet-wheel 17 and has its rear end projecting through and pivotally connected, as at 21, to the armature 22 of the solenoid 23, said solenoid being suitably supported from the spider or supporting-bracket 9. The armature or core 22 in practice I make of soft iron, whereby the same will be attracted when the solenoid is energized and the armature or core moved downwardly within the solenoid, whereby to operate the actuating-lever, as will be later described. After each actuation of the disk or wheel and upon the breaking of the electrical circuit, as will be later described, the actuating-lever 19 is adapted to descend by gravity, and the length of time required for the same to descend may be regulated, whereby the length of time the matter is to be displayed may be controlled. In practice a convenient form of regulating the time for the descent of the actuating-lever I have found to be the employment of an adjustable weight 24, carried by the actuating-lever, and the employment of a dash-pot, the cylinder 25 of which is suspended from the pin 26, carried by one of the vertical arms of the spider 9, the plunger 27 of said dash-pot being pivotally connected to the actuating-lever 19. In practice the disk or wheel rotates, whereby to bring one of the cards or other matter into position to be displayed, and as soon as the card or other matter has been brought into position the circuit is temporarily broken, whereby the disk or wheel remains in this position until the mechanism completes its operation to again make the circuit, partially rotating the disk or wheel to bring the succeeding card into position for display. To this end I employ a magnet 28 in connection with the solenoid 23. The magnet 28 is connected by circuit-wire 29 with the binding-post 30, to which the supply-wire 31 is connected, the other pole, 32, being grounded to the casing. A branch wire 33 connects the supply-wire 29 with the solenoid 23, whereby the current simultaneously passes to the magnet and solenoid. The magnet is connected by wire 34 to the cut-out 35, while the solenoid is connected by wire 36 to the cut-out 37. In connection with the cut-outs I employ two circuit-breakers so arranged and disposed as to come into action at different times to accomplish the desired result. The circuit-breaker 38 is pivotally mounted on the bracket 39, insulated from the spider or supporting-bracket 9 by insulation 40 and carrying an adjusting screw or stop 41. This circuit-breaker is disposed below the horizontal arm or leg of the actuating-lever 19. The circuit-breaker 42 embodies a soft-iron bar or lever normally attracted to the armature or core 22 of the solenoid 23. This bar or lever is pivotally supported in the bracket 43, mounted on insulation 44, secured to the spider or supporting-bracket 9. The adjusting-screw 45 is carried by the lever 42, and the screw 46, carried by the bracket 43, forms a stop for the lever 42 in order to break the circuit between the same and the core or armature 22. As stated, the disk or wheel is intermittently actuated, whereby to temporarily hold each card in position to be displayed. This wheel is locked in position through the deënergizing of the magnet and is released, whereby it is free to rotate, through the energizing of the magnet. To this end the periphery of the wheel is provided opposite to each of the spring holding-clips 14 with notches 47, and the locking-lever 48 is pivoted to the bracket 49, carried by the spider or supporting-bracket 9. This locking-lever 48 extends through the spider or supporting-bracket 9 and through partition-plate 4, whereby to engage in the notches 47 as the disk or wheel rotates. This locking-lever constitutes an armature of the magnet 28 and is made of material which may be

attracted to the magnet when the latter is energized.

The partition-plate 5 is provided directly in front of the arc of the lamp with an opening, and in this opening is mounted an annular shell or casing 50, which is suitably secured in position and which, together with the two convex lenses 51 mounted therein, forms a condenser by means of which the rays of the light are concentrated and projected through the opening 52 in the partition-plate 4 into the focusing-tube 53, which is mounted in the front plate 3. Where it is desired to project the matter downwardly, as would be the case where the apparatus is placed in a building and it is desired to display the matter on the sidewalk or pavement, I employ a bracket 54, which is connected to the front plate 3 and carries a reflector 55, placed at an angle of about forty-five degrees, whereby the rays will be reflected downwardly, as fully illustrated in Fig. 3 of the drawings. It must be evident, of course, that the apparatus may be employed to project the light in any desired direction, the only alteration necessary being the changing of the position of the reflector 55.

The lamp employed by me in connection with the apparatus is of a special construction whereby the rays of light will be projected in one direction. This lamp in its construction embodies a stand-tube 56, to which is pivotally secured the lever 57. One end of this lever is pivoted to the armature or core 58 of the solenoid 59, supported on bracket-arms 60, carried by the stand-tube 56. The other end of the lever 57 has pivoted thereto a cylinder 61, forming one element of the dash-pot, the other element, the plunger 62, being pivotally connected to the bracket-arm 63, carried by the stand-tube 56. The lever 57 is pivoted on the bushing or boss 64, carried by the stand-tube, and in this bushing or boss is mounted a journal 65, which carries on one end the ratchet 66 and at its other end carries drums 67 68. The cord or cable 69 is connected to the drum 67 and passes over the pulley 70, carried by the stand-tube near its upper end, said cord or cable passing downwardly through the stand-tube and being connected to the holder for the upper carbon 71. A like cord or cable 72 is connected to the drum or pulley 68 and to the arm 73 of the holder 74, which carries the lower carbon 75. This lower-carbon holder operates in a slotted tube 76, which is supported on one of the brackets 77, which supports the lamp entire. The ratchet-wheel 66 is engaged and actuated by the pawl 78, normally held out of engagement with said wheel by the screw 79, mounted in the bracket 80, carried by the boss or bushing 64. The carbons project into the inclosing shell or casing 81, provided with side lugs 82, which are insulated from the brackets 77, as seen in Fig. 4, and rest upon these brackets, whereby to support the lamp. The circuit is made to the lamp for the upper carbon through wire 83, binding-post 84, wire 85 to the solenoid 59, and through wire 86, which latter wire is wrapped or coiled around the horseshoe-magnet 87 and grounded by connection to the stand-tube 56. Circuit is made to the lower carbon 75 through wire 88, binding-post 89, and wire 90. The windings of the wire 86 on the horseshoe-magnet 87 are insulated from said magnet and are so arranged that the magnetic circuit established between the poles of the magnet blows or projects the rays of the light all in the direction of the condenser, concentrating the rays entirely in this direction.

In Fig. 7 I show the arrangement of the carbon-feeding mechanism for the direct instead of alternating current, which latter would be used for the arrangement and construction of lamp-feeding mechanism as seen in Fig. 4. The only alteration necessary for the direct current would be the employment of differential pulleys 91 92 for the cables 69 and 72, as with direct current it is well known that the upper carbon burns much faster than the lower carbon, and consequently it is necessary to employ a pulley 91 of considerably greater diameter than the pulley 92, whereby to obtain a uniform or desired feed.

In operation we will assume that the current is turned on and flows through wire 29, wire 33, to the magnet 28 and solenoid 23, energizing the said magnet and solenoid. The energizing of the magnet 28 attracts the armature 48, which, as heretofore stated, is also a locking-lever for the disk or wheel 11. The attracting of this armature releases the locking end of the same from engagement with the notches of the disk or wheel, so that the latter is free to be rotated. The energizing of the solenoid 23 causes the armature and core 22 thereof to be drawn downwardly, and as it moves downward it draws therewith the rear end of the actuating-lever 19, causing the pawl 6 to engage and operate the ratchet 17 so as to impart a partial or one-step movement to the disk or wheel 11, consequently bringing the succeeding card into position for display. The actuating-lever 19 at this time is in engagement with the circuit-breaker 38, and as the operation of the disk is completed the actuating-lever 19 moves out of engagement with the circuit-breaker 38, breaking the circuit, whereby to deënergize the magnet 28, so that the armature 48 will drop away from said magnet, elevating the rear or locking end of the armature, whereby the latter will engage with the periphery of the disk or wheel 11 and drop into the succeeding notch 47. The solenoid still remains energized at this time, and as the core or armature of said solenoid moves downward it draws the lever 42 therewith until said lever engages with the stop 46, thus arresting the movement of the lever and

breaking the circuit between the armature or core and the lever, so as to deënergize the solenoid 23. As the locking-lever engages in the notch in the disk or wheel the actuating-lever 19 drops back by gravity due to the action of the weight 24, and its movement is controlled through the medium of the dash-pot 25, so as to bring the lever into position for operation, and as said lever again engages with the circuit-breaker 38 the magnet 28 and solenoid 23 are again energized to repeat the operation.

I desire to call particular attention to the fact that the operation of the device is entirely automatic to intermittently operate the disk or wheel whereby to successively display the different cards or other matter carried thereby. I also desire to call attention to the manner in which the rays of the light are projected forwardly from the lamp into the condenser and in which latter they are condensed and concentrated into the focusing-lenses 53, from whence they are projected onto the reflector 55, the latter, as heretofore stated, being adapted to be placed at an angle which will project the rays of light in the desired direction.

In order that the solenoid may be of sufficient strength to operate the mechanism without necessitating heavy winding, and consequently consuming a great amount of current, I employ in this solenoid a stationary iron core 23′, which as it becomes magnetized assists in drawing down the armature 22 to perform the operation.

It will of course be understood by those familiar with the art that when using alternating current I will employ a resistance-spring in the circuit and will employ a choke when operating on direct current, as is the usual practice.

While I have shown and described in detail a preferable form of my invention as it has been practiced by me, yet it will be evident that in the construction various changes may be made in the construction as to details thereof without departing from the spirit of the invention or the scope of the appended claims.

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

1. In a device of the type set forth, a supporting means for the matter to be displayed comprising a disk having a channeled edge, cushioning material arranged in the channeled portion of said disk, and spring-clips projecting over the said cushioning means.

2. The combination with the casing having closed ends and a pair of partitions arranged therein, a condenser mounted in one of said partitions and being in alinement with the opening in the other partition, a focusing-tube arranged in the forward end wall of said casing, a reflector supported in front of said focusing-tube, an illuminating means arranged in the rear of the said condenser and the revolving means mounted in front of said condenser, and means for operating said last-named means.

3. In combination with the disk and the means for operating the same including a lever, a dash-pot having one of its members connected with said lever, a weight carried by the free end of said lever, and means for holding said disk in predetermined positions.

4. In combination with the revolving means for supporting the display matter, the locking means therefor, and the means for intermittently moving said revolving means, and said means for simultaneously actuating the said locking means and said first-named means respectively.

5. In combination with the casing and the partition, an illuminating means, a disk supported on one side of said partition and being formed with notches, means for revolving said disk mounted on the opposite side of the said partition and including the magnet, the armature of said magnet extending through the said partition and being adapted to engage the notches of the said disk, substantially as described.

6. In combination with the rotary disk carrying a ratchet, a lever provided with a pawl for engagement with said ratchet, electrical means for actuating said lever, electrical apertured locking means for said disk, and means controlled by said lever for cutting out the circuit in which the said last-named means are included.

In testimony whereof I affix my signature in the presence of two witnesses.

ALBERT SCHWEITZER.

Witnesses:

H. C. EVERT,

A. M. WILSON.