

(No Model.)

2 Sheets—Sheet 1.

W. S. SCALES.
STEREOPTICON.

No. 592,575.

Patented Oct. 26, 1897.

Fig. 1.

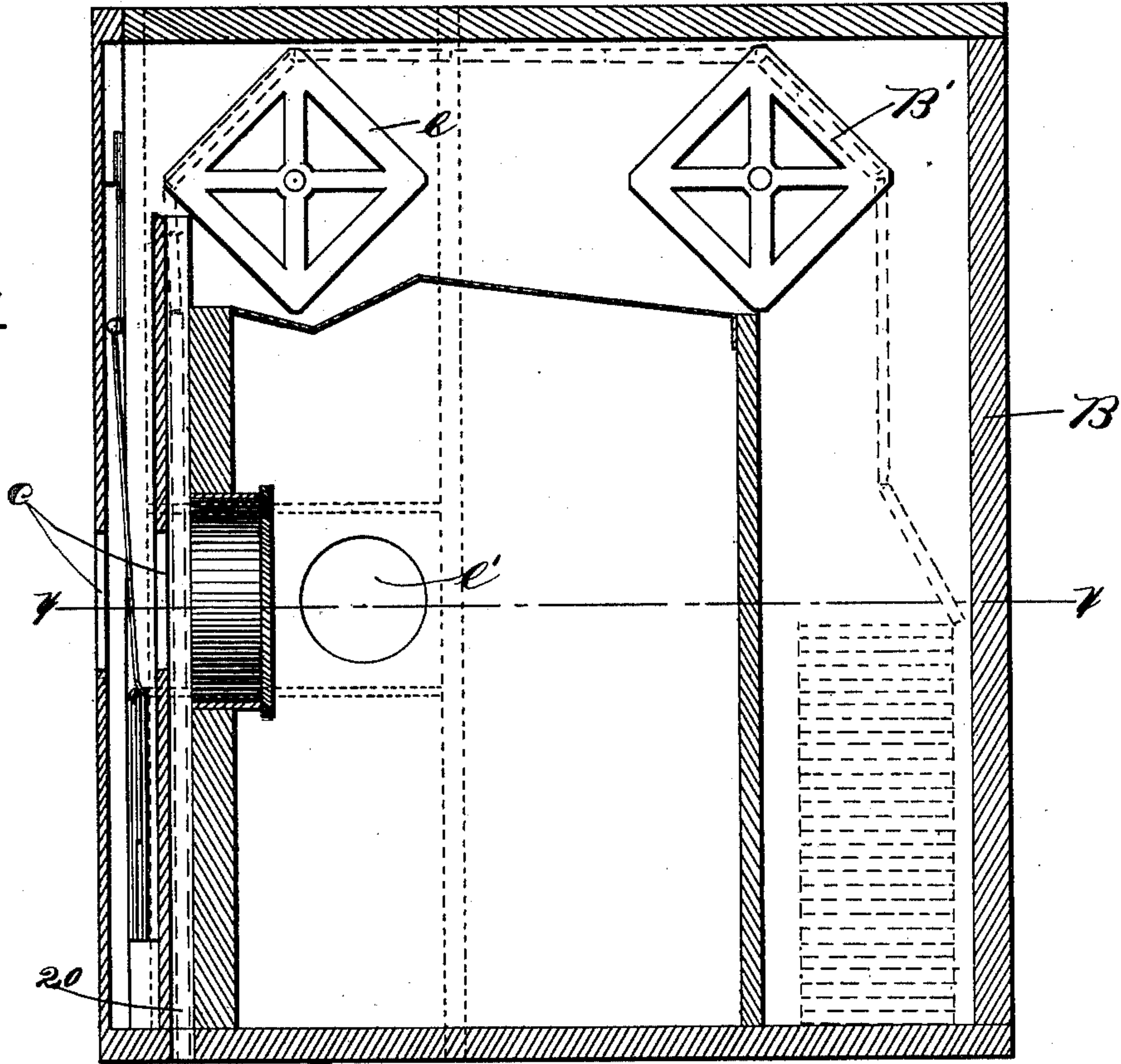
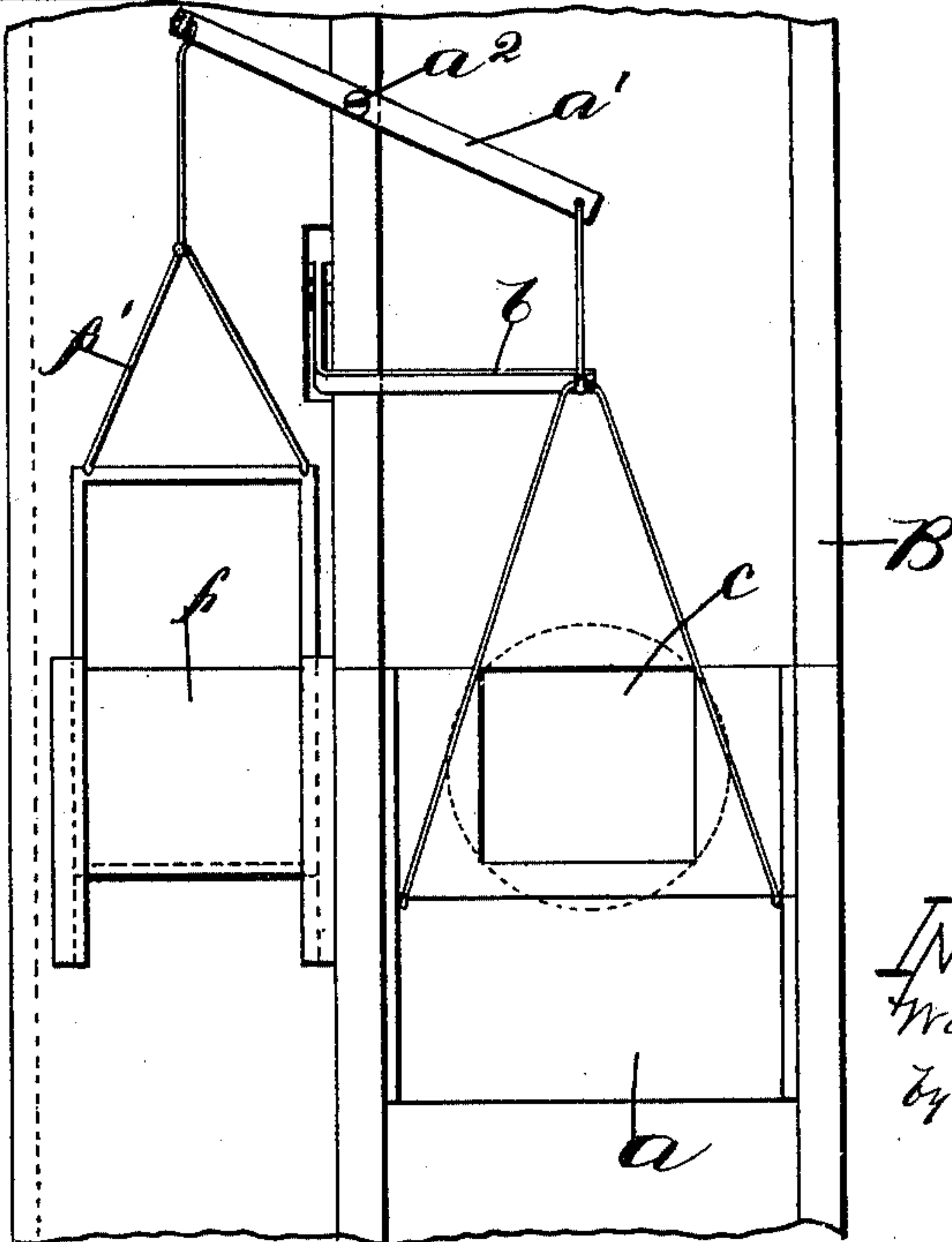


Fig. 2.



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by J. J. Hayes
att'y.

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2 Sheets—Sheet 2.

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STEREOPTICON.

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Fig. 3.

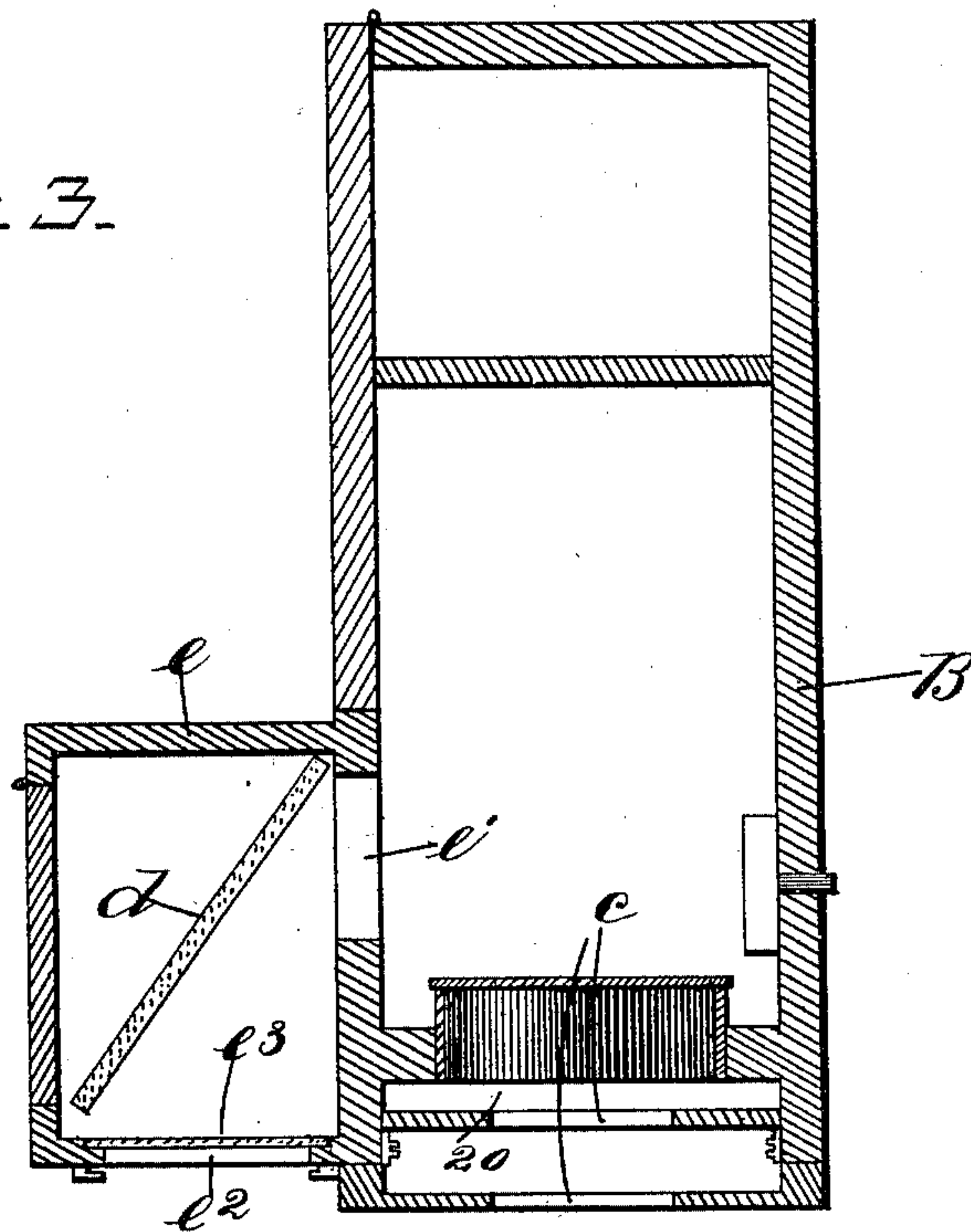
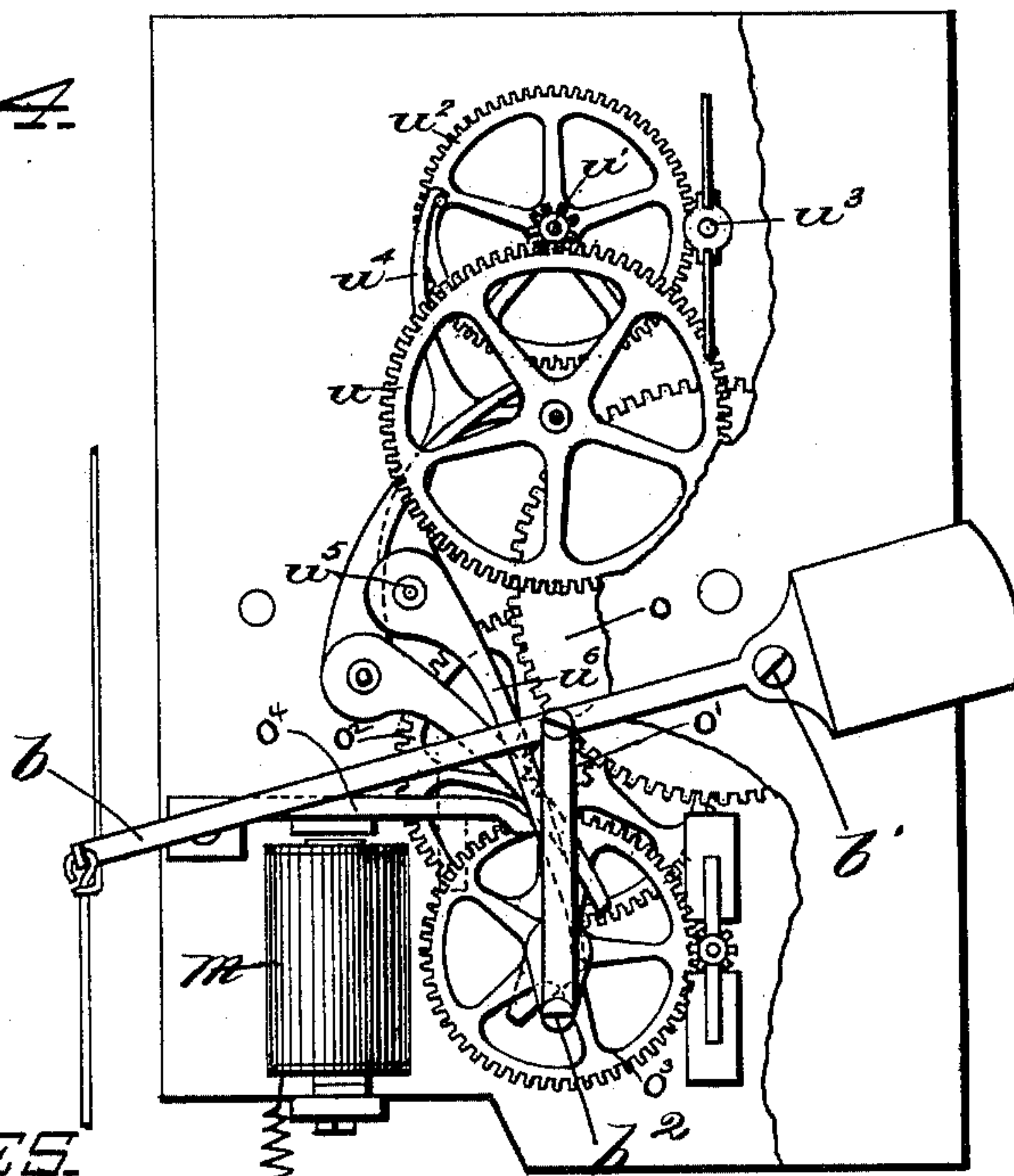


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM S. SCALES, OF EVERETT, MASSACHUSETTS, ASSIGNOR TO EDMUND HUDSON, OF HARTFORD, CONNECTICUT.

STEREOPTICON.

SPECIFICATION forming part of Letters Patent No. 592,575, dated October 26, 1897.

Application filed May 21, 1895. Renewed September 8, 1897. Serial No. 650,982. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. SCALES, of Everett, county of Middlesex, and State of Massachusetts, have invented an Improvement in Stereopticons, of which the following description, in connection with the accompanying drawings, is a specification, like letters and numerals on the drawings representing like parts.

10 Stereopticon-views are usually thrown onto a canvas in a dark room by removing the screen which normally covers the display-opening, after which said screen is restored while the next view is being placed in position for exposure. During the time the views are thus being placed in position the canvas upon which the pictures are thrown is dark, and the sudden changes upon the canvas from dark to light weary and tire the eyes of the
20 observers. Dissolving views have been introduced which overcome this effect; but the expense of a stereopticon constructed and arranged to produce dissolving views is very large, two lamps being usually employed, and
25 the constant and careful attention of an experienced operator is required to successfully manipulate the lamps to produce the desired optical effect, as success depends almost entirely upon his successful manipulation.

30 With stereopticons—such, for instance, as represented in Letters Patent No. 518,104, granted to Edmund Hudson—where the stereopticon-plates are connected together as a chain and means provided for operating the
35 screen which covers the display-opening and also for moving along the plates, which is operated from a distant point at the will of the operator, the necessity of a constant attendant is avoided, but the optical effect is the
40 same as in the old form of stereopticon—that is, the canvas is dark and then light.

This invention has for its object to improve the construction of stereopticons, whereby the sudden change upon the canvas from dark
45 to light is avoided and at the same time the requirement of an attendant will be unnecessary, so that the operator, who may be a lecturer, may at his own free will operate the apparatus.

50 In carrying out this invention the appa-

ratus is arranged to normally throw the light upon the canvas, which may be colored—as, for instance, it may be a green or other soft light during the time the display-opening of the stereopticon is closed—and as the display-opening is uncovered this light disappears and the view is displayed. This alternate action is produced by mechanism provided for the purpose, which may, if desired, be operated at will from a distant point, so that if the stereopticon is used by a lecturer he may cause this alternating action to take place, and the need of an attendant is rendered unnecessary, although my invention comprehends any other way of operating the mechanism as long as the alternating optical effect above mentioned is produced.

As a simple way of producing the optical effect referred to I have provided an auxiliary chamber at one side of the light-compartment of the stereopticon, which is made to communicate therewith, and said chamber has an opening at the front, and a screen is provided for said front opening, although it may be arranged at the opening communicating with the light-compartment, which is operated simultaneously with the screen which covers the display-opening of the stereopticon, but in the opposite way—i. e., it closes said auxiliary chamber, as by closing the front opening thereof, when the display-opening of the stereopticon is uncovered and opens it as said display-opening is covered.

The two screens may be connected together—as by a walking-beam, for instance—so that the screen of the auxiliary chamber may be lighted to permit the passage of light through it as the screen of the display-opening of the stereopticon is raised to cover the display-opening.

As is well known, the stereopticon slide or plate is inverted, so that as the screen is raised to cover the display-opening the view gradually disappears, beginning at the top, while the screen for the auxiliary chamber at the same time gradually falls, preventing the passage of light through it, thereby throwing the light upon the canvas, which follows the gradual disappearance of the view.

Any suitable mechanism may be provided

for operating the screen simultaneously, but in opposite ways, one form, however, being herein shown.

Figure 1 shows in vertical section a stereopticon apparatus embodying this invention; Fig. 2, a front view of a portion of the same, showing the screens of the display-opening of the stereopticon and of the front opening of the auxiliary chamber; Fig. 3, a horizontal section of the apparatus shown in Fig. 1, taken on the dotted line xx ; and Fig. 4, a view showing one form of motor mechanism for operating the screens.

As my invention is applicable to a stereopticon of any usual or suitable form, the form herein shown is only generally illustrated, it comprising a box or case B, adapted to contain any usual or suitable lamp (not shown) and lens or lenses located back of the display-opening c .

The box or case is adapted to receive any suitable number of stereopticon-plates 20, connected together as a chain, which pass over an idle drum B' , thence over a drum e , and thence by the display-opening c . The drum is arranged to be turned a quarter of a revolution by a suitable motor mechanism each time said mechanism is let off or otherwise operated. Substantially this form of stereopticon is shown in the Letters Patent No. 518,104, above referred to.

a represents the screen of the display-opening c of a stereopticon, it being supported upon one end of a walking-beam a' , pivoted at a^2 , and the bent arm or lever b is connected to said screen—as to its supporting-yoke, for instance—which is pivoted at b' and operated by a crank b^2 , driven by a motor mechanism—such, for instance, as represented in Fig. 4 or of any other suitable form. As the crank is given a complete rotary movement the arm b' will raise the screen a and lower it again, thereby covering the display-opening c and thereafter uncovering it.

The motor mechanism is adapted to be let off by an electromagnet m or otherwise, and as this mechanism and means for operating it form no part of my invention it is not herein further described except to say that the main gear o , driven by the main spring, engages a pinion o' , secured to a shaft carrying a toothed wheel o^2 , which engages a pinion secured to a shaft carrying a toothed wheel o^3 , which engages a pinion on the escape-shaft. The toothed wheel o^3 has a stop-pin which is engaged by the armature-lever o^4 of the electromagnet m . The crank b^2 is secured to the shaft carrying the toothed wheel o^3 . A secondary train is also shown which is employed to operate the stereopticon-slides 20 by intermittently turning the drum e , which is connected therewith by means not shown, and this secondary train comprises a toothed gear u , secured to a shaft carrying a pinion driven by a main driving-gear, (not shown,) and said gear u engages a pinion u' , secured to a shaft carrying toothed gear u^2 , which engages

a pinion on the escape-shaft u^3 . This secondary train is released by a releasing-lever u^4 , pivoted at u^5 and having a downwardly-extended arm u^6 , which is operated by the screen-actuating train at regular intervals by means not shown in detail, since this part of the mechanism forms no part of my invention.

e represents the auxiliary chamber, located at one side of the box or case B, having an opening e' at one side by which it communicates with the light-compartment of the stereopticon.

The auxiliary chamber e has an opening e^2 at the front, which is formed with a glass plate e^3 , which may be colored, if desired, to soften the light. A mirror d is contained in said auxiliary chamber, it being arranged obliquely between the front opening e^2 and the side opening e' to reflect the light, although so far as the breadth and scope of my invention is concerned said mirror, as well as the front colored plate, may be omitted; but as better and more efficient results can be produced by their employment I prefer to employ both.

If the mirror d is omitted, the auxiliary chamber e will be lighted through the side opening e' and will appear through the front opening; but the result in such case is not as satisfactory as when a mirror is employed.

A screen f , sliding in suitable ways provided for it, is secured to the lower end of a yoke f' , which is connected by a link with one end of the walking-beam a' , and said screen is so hung as to cover the front opening e^2 when the screen a exposes the display-opening, and vice versa.

Each time the motor mechanism is operated and the crank b^2 revolved the screen a rises and covers the display-opening c and the screen f falls and uncovers the front opening e^2 , and then the screens return to their former position.

As the stereopticon-view is inverted it will be observed that as the screen a rises and the view disappears, beginning at the top, and the screen f falls, a colored light is thrown on the canvas, beginning at the top, following the gradual disappearance of the view. The same result may be accomplished by another form of screen or other shutter of the auxiliary chamber and located at any other desired point to open and close the light-passage there-through, so my invention is not limited to the exact location of the screen f .

I claim—

1. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

2. The combination with a stereopticon,

comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, provided with a colored-glass plate, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

3. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, an obliquely-arranged mirror contained in said auxiliary chamber, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

4. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, provided with a colored-glass plate, an obliquely-arranged mirror contained in said auxiliary chamber, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

5. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a screen for said display-opening, and another screen for said auxiliary chamber, substantially as described.

opticon, a screen for said display-opening, and another screen for said auxiliary chamber, and means for moving said screens simultaneously in opposite ways, substantially as described.

6. The combination with a stereopticon, comprising a light and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a screen for said display-opening, and another screen for said auxiliary chamber, and mechanism for moving said screens simultaneously in opposite ways, operated from a distant point at the will of the operator, substantially as described.

7. The combination with a stereopticon, comprising a light, and a lens back of a display-opening, of an auxiliary chamber communicating with the light-compartment of the stereopticon, having an opening at the front beside the display-opening of the stereopticon, a walking-beam, a screen supported by one end thereof for said display-opening, and a screen supported by the other end thereof, for the auxiliary chamber, and mechanism for moving said screens, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM S. SCALES.

Witnesses:

B. J. NOYES,
C. B. CROCKER.