

A. J. OEHRING & A. L. TUCKER.

SCENIC THEATER APPARATUS FOR PRODUCING SUN EFFECT.

No. 555,113.

Patented Feb. 25, 1896.

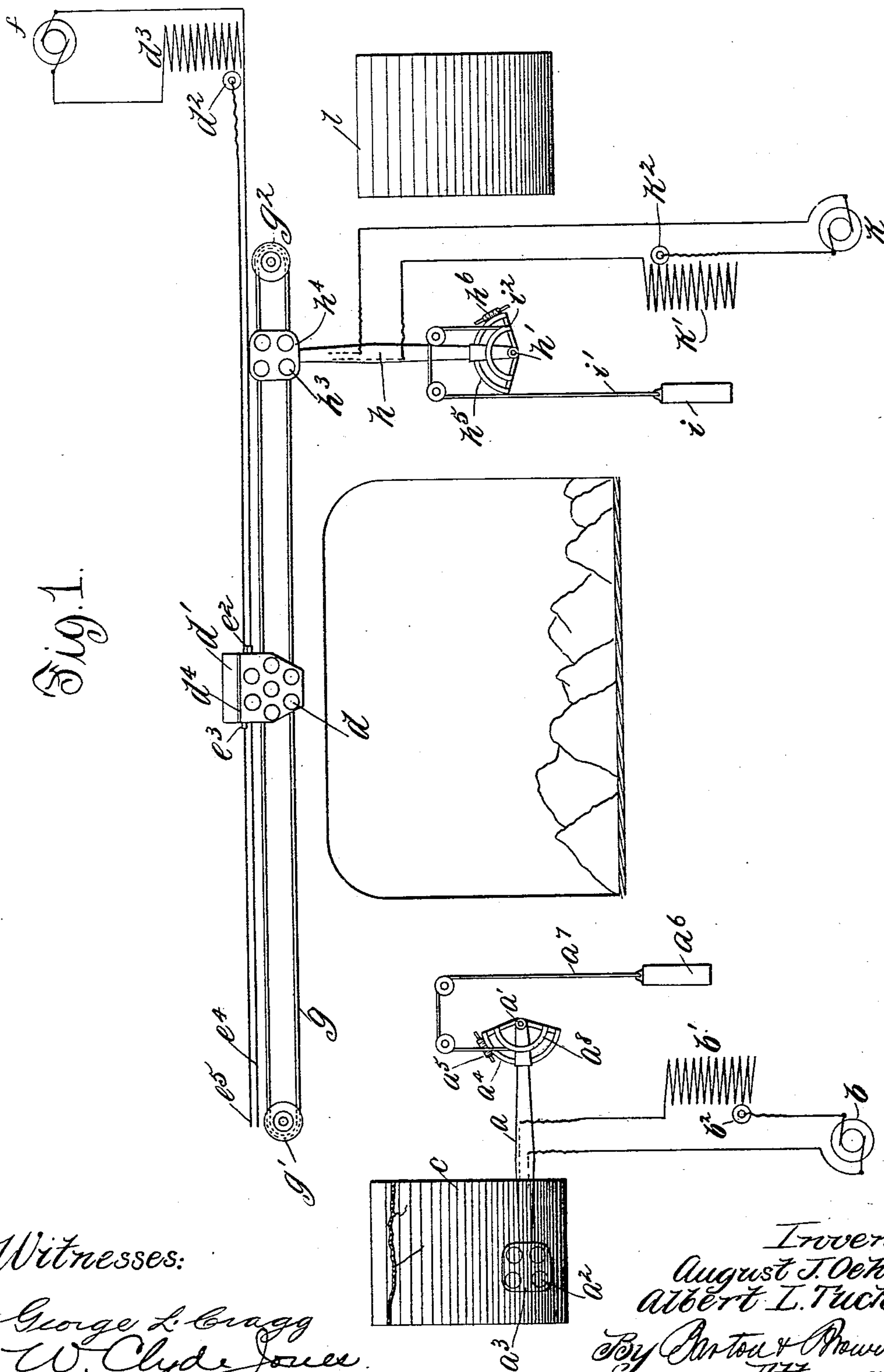


Fig. 1.

Witnesses:

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(No Model.)

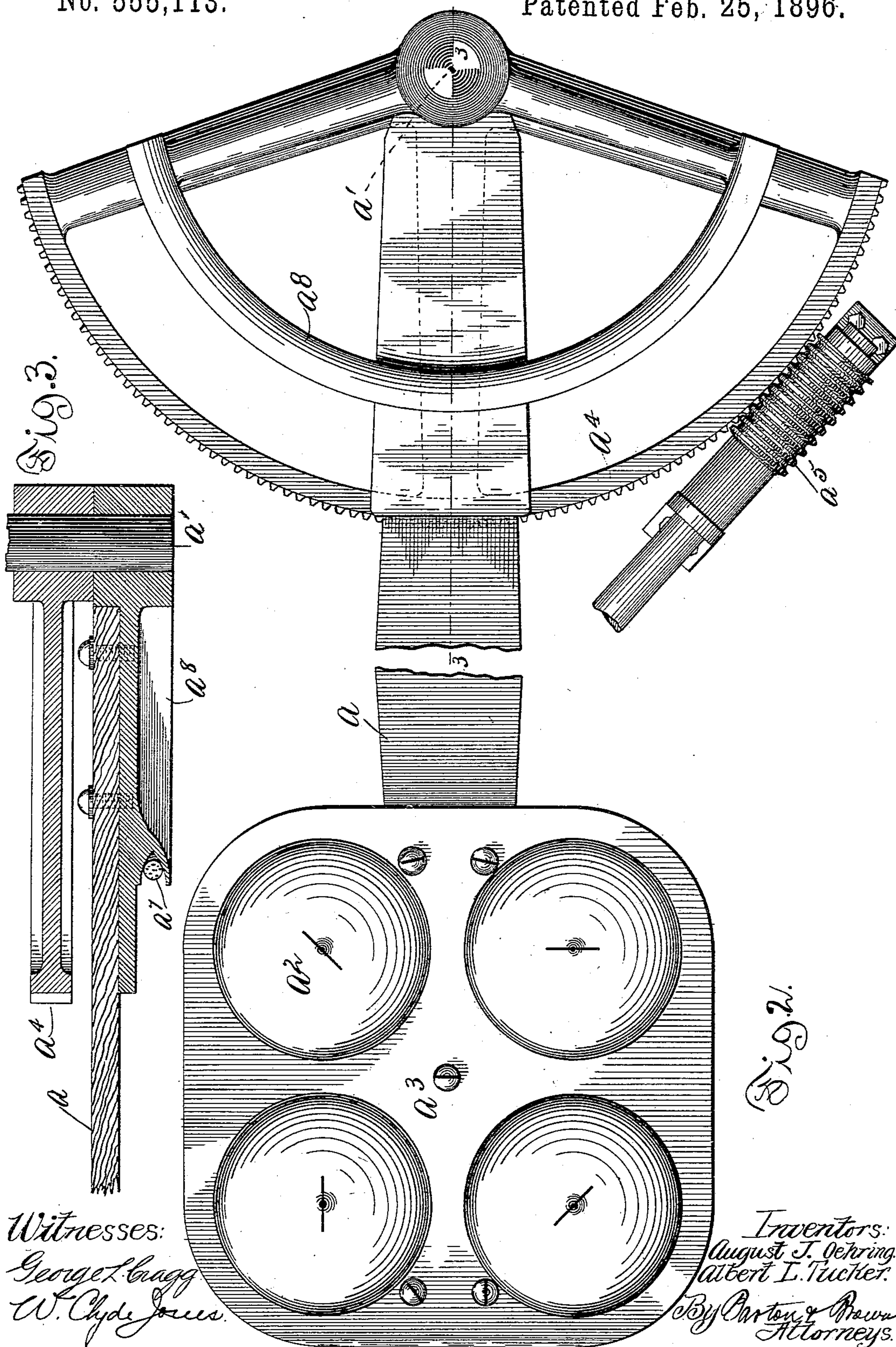
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(No Model.)

4 Sheets—Sheet 3.

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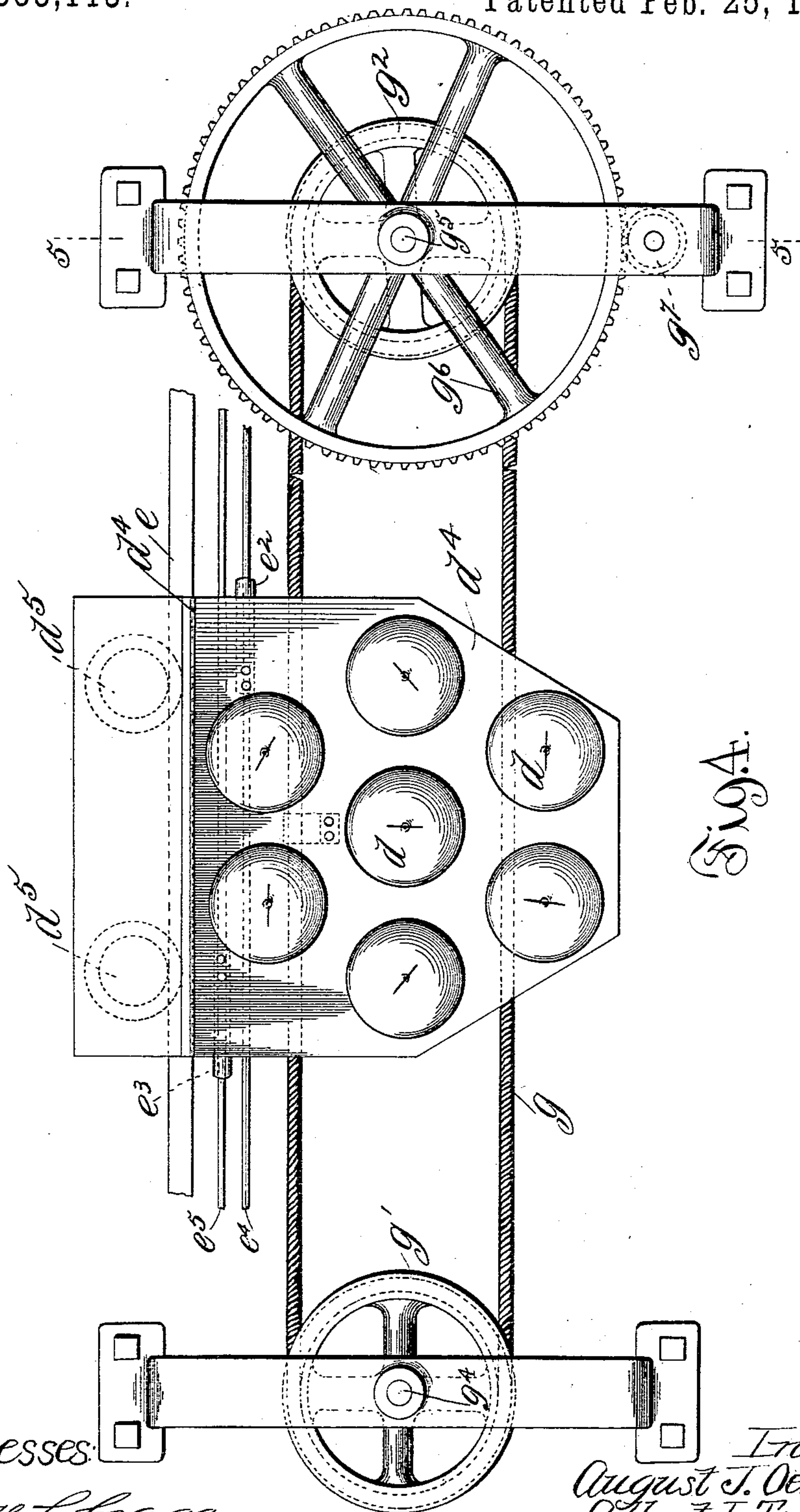


Fig. A.

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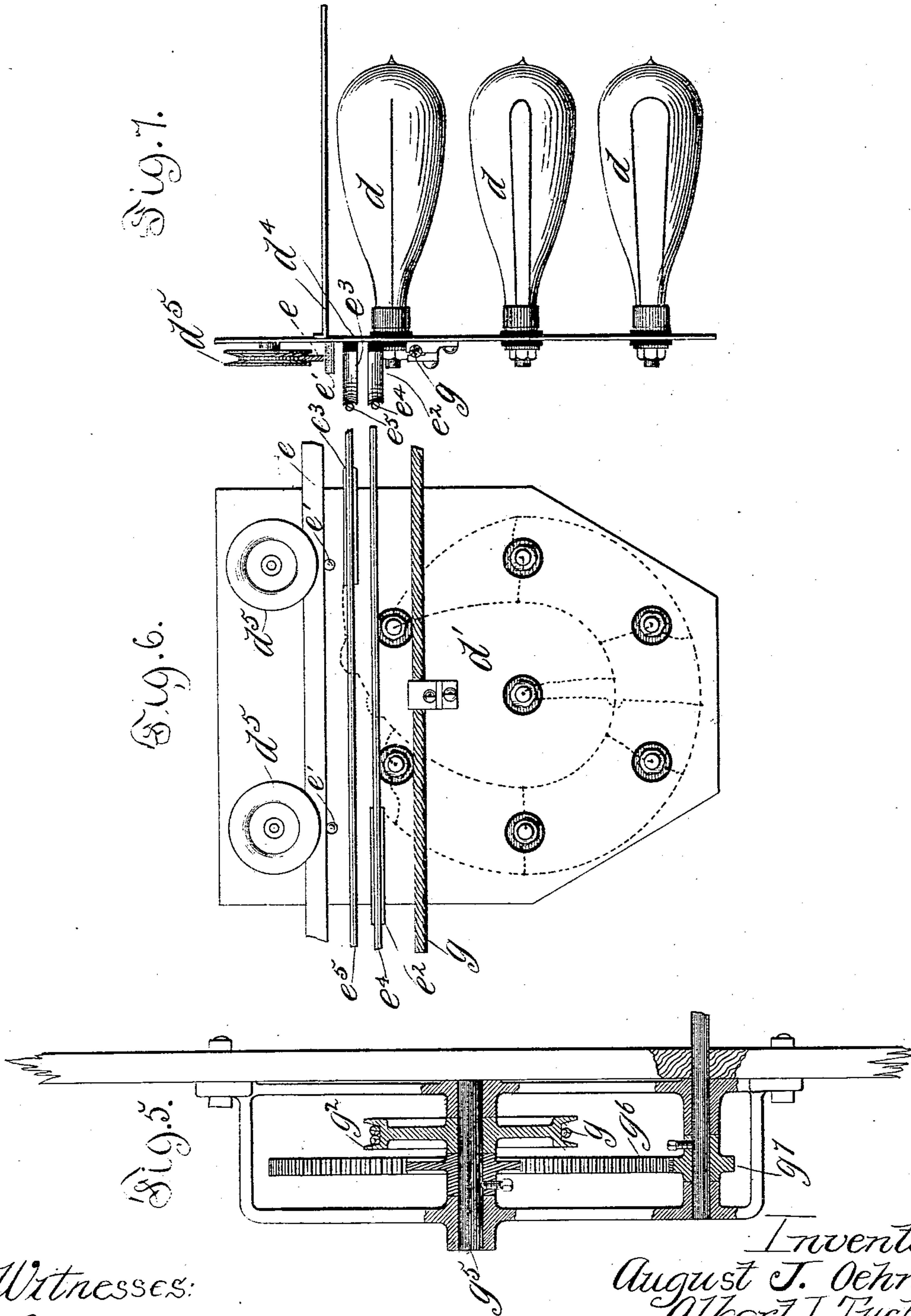
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UNITED STATES PATENT OFFICE.

AUGUST J. OEHRING AND ALBERT L. TUCKER, OF CHICAGO, ILLINOIS, ASSIGNORS TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

SCENIC-THEATER APPARATUS FOR PRODUCING SUN EFFECT.

SPECIFICATION forming part of Letters Patent No. 555,113, dated February 25, 1896.

Application filed May 13, 1895. Serial No. 549,133. (No model.)

To all whom it may concern:

Be it known that we, AUGUST J. OEHRING and ALBERT L. TUCKER, citizens of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Scenic-Theater Apparatus for Producing Sun Effect, (Oehring Case No. 11, Tucker Case No. 4,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

Our invention relates to scenic-theater apparatus, and more particularly to apparatus for producing a traveling-sun effect.

The object of our invention is to provide means for lighting the stage of the scenic theater and the objects of the landscape provided thereon with a light that shall simulate in varying intensity and the direction of its rays the light of the sun, whereby the landscape presents the appearance of being lighted by a traveling sun, producing shifting shadows, and by a light of varying intensity to suggest the progress and decline of the day.

To accomplish the above objects we provide lights just back of the proscenium-opening, but removed from the edges of the opening so as to be invisible to the audience, the lights being caused to ascend from a position on a level with the objects of the landscape to produce the shadows of the rising sun, the lights then passing across the stage above the proscenium-opening to present the appearance of the travel of the midday sun, the lights then descending upon the opposite side of the proscenium-opening to cause the objects of the landscape to throw gradually-lengthening shadows to represent the setting of the sun. By this movement of the lights the shadows are caused to shift in accordance with the shadows produced by the sun; but the audience see only the shadows, the lights traveling in such a manner as to remain always invisible to the audience.

As the sun rises, the light, at first of a reddish color, changes through orange, gold, &c., to white, the color gradually changing from white to red again as the sun sets, and to produce this effect the light is passed through

screens properly colored to give the light this varying color.

We will describe our invention in connection with the accompanying drawings, in which—

Figure 1 is a view illustrating our invention, the circuit connections being shown in diagram. Fig. 2 is a detail view of the mechanism for causing the lights to ascend and descend. Fig. 3 is a partial sectional view on line 3 3, Fig. 2. Fig. 4 is a detail view of the horizontally-traveling lights and the mechanism for moving the same. Fig. 5 is a sectional view on line 5 5, Fig. 4. Fig. 6 is a rear view of the horizontally-traveling lamp-carriage. Fig. 7 is an end view thereof.

Like letters refer to like parts in the several figures.

An arm a is pivoted to rotate about an axis a' and carries upon its end a number of incandescent lamps a^2 , four being shown in the drawings, behind which lamps is a reflector a^3 . A segmental rack a^4 is mounted upon the arm a and meshes with a worm a^5 , adapted to be positively driven to rotate the segmental gear and consequently the arm a , thus raising the arm from a horizontal to a vertical position and causing the lamps carried on the end thereof to travel upward in a curved path. A weight a^6 is secured to a cord a^7 , passing over pulleys and around a segmental pulley a^8 , mounted upon the arm a , the weight a^6 thus counterbalancing the weight of the arm a and the lamps.

The lamps a^2 are illustrated as connected in circuit with a dynamo b and a rheostat b' , the traveling contact b^2 of the rheostat being adapted to be moved to cut in or out resistance.

In front of the lamps a^2 a screen c is provided, varying from a reddish color at the bottom, through orange, gold, &c., to white at the top, so that as the lamps are raised the color of the projected light varies gradually from red through the intermediate colors to white to present the appearance of the change of the color of sunlight as the sun rises in the morning. As the lamps begin their ascent, all of the resistance of the rheostat b' is in circuit, but is gradually cut out as the lamps rise to increase the brilliancy of the light.

In a concurrently-pending application, Serial No. 549,136, we have described means for automatically actuating the traveling contact of a rheostat to cut in and out resistance at the proper time, and we prefer to employ such means for operating the traveling contact in the present instance.

As the lamps a^2 approach the upper end of their travel the lights are gradually dimmed, and finally extinguished. At the same time that the lamps a^2 are being dimmed and extinguished a series of lamps d provided upon a traveling carriage d' is cut into circuit and gradually increased in brilliancy by the movement of the traveling contact d^2 of the rheostat d^3 , which is connected in circuit with the lamps d .

Behind and above the lamps d is provided a reflector d^4 . Upon the rear of the carriage d' are provided wheels d^5 , which travel on a track e , pins e' being provided upon the carriage beneath the bar e constituting the track to prevent the carriage from leaving the track. Upon the carriage is provided a pair of collecting brushes or contacts e^2 e^3 adapted to make contact respectively with the trolley-wires e^4 e^5 .

The several lamps d are connected in circuit, as illustrated in dotted lines in Fig. 6, between the collecting-brushes e^2 e^3 . The trolley-wires e^4 e^5 are connected respectively to the opposite poles of a dynamo f . To the rear of the carriage d' is secured an endless cord g , which passes around the pulleys g' g^2 mounted to rotate in bearings g^4 g^5 . Mounted to rotate with the pulley g^2 is a gear-wheel g^6 adapted to mesh with a positively-driven pinion g^7 to cause the endless cord g to be moved in one direction or the other to impart motion to the carriage d' .

When the lamps d are lighted, the carriage d' is at one end of its stroke—the left, as seen in Fig. 1—and the endless cord g is driven to move the carriage d' to the right. Upon the right of the proscenium-opening is provided an arm h , pivoted at h' and carrying upon its end a series of lamps h^3 , behind which is a reflector h^4 . Mounted upon the arm h is a segmental gear h^5 adapted to mesh with a positively-driven screw h^6 , whereby the arm may be rotated upon its axis. A weight i is suspended from a cord i' , which passes over loose pulleys and about a segmental pulley i^2 , the weight thus serving to counterbalance the weight of the arm h and the lamps carried upon the end thereof. The lamps h^3 are connected in circuit with a dynamo k and a rheostat k' having a traveling contact k^2 .

The arm h normally rests in a vertical position, and when the horizontally-traveling carriage d' approaches the end of its travel to the right the lamps d are gradually dimmed and extinguished, and at the same time the circuit is closed through the lamps h^3 , and the brilliancy of the light is gradually in-

creased. The arm h is then rotated toward the horizontal position, thus causing the shadows thrown by the objects of the landscape on the stage to gradually lengthen. In front of the lamps h^3 , as they descend, is provided a screen l , colored white at the upper end, the coloring gradually changing through gold, orange, &c., to red near the lower end, so that as the lamps h^3 descend the light is caused to gradually approach a red to present the appearance of the light of the setting sun.

In Fig. 1 the pivoted arms a and h are illustrated diagrammatically as moving in the plane of travel of the horizontally-traveling carriage d' ; but in practice the arms a and h move in planes perpendicular to the plane of travel of the carriage d' , and while the arms a and h are illustrated as of such a length that when occupying vertical positions the lamps carried upon their ends are at the same height as the traveling carriage d' it may be desirable to make the arms of a less length in order that the lamps may not be visible to the audience as the arms rotate.

The operation of the apparatus as above described is as follows: The arm a occupies, at the start, a horizontal position, the carriage d' being at the leftward end of its travel, while the arm h occupies its vertical position. Circuit is closed through the lamps a^2 , and the resistance of the rheostat is gradually cut out to increase the brilliancy of the light. At the same time the arm a is rotated to cause the lamps to rise and cause the shadows thrown by the objects of the landscape to gradually decrease in length. As the lamps a^2 rise the color of the light gradually changes from red to white, due to the intervention of screen c . As the lamps a^2 approach the upper end of their travel they are gradually dimmed and then cut out of circuit, the lamps d being at the same time lighted and gradually increased in brilliancy. It will be observed that there are a greater number of lamps on the carriage d' than upon the end of the arm a , so that the light will be more intense after the lamps d are thrown completely into circuit and the lamps a^2 cut out than while the lamps a^2 are alone in the circuit. The extinguishment of the lamps a^2 and the lighting of the lamps d is effected so gradually that the resultant light continuously increases in brilliancy. The carriage d' then travels across the stage, causing a shifting of the shadows to suggest the travel of the midday sun. When the carriage d' approaches the end of its travel the lamps d are gradually extinguished and the lamps h^3 gradually lighted, the resultant light produced being one of gradually-decreasing brilliancy. The arm h is then rotated to its horizontal position to cause the lamps h^3 to descend, the shadows thrown by the objects of the landscape being thus gradually lengthened. The passage of the lamps h^3 behind the screen l causes the light to gradually change to a reddish color.

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

1. The combination with the stage of a scenic theater, of a pivoted arm situated to the rear and to one side of the proscenium-opening and carrying lamps upon its end, a horizontally-traveling lamp-carriage above the proscenium-opening, a pivoted arm situated upon the opposite side of the stage to the rear and to the side of the proscenium-opening and carrying lamps upon the end thereof, and means for rotating said pivoted arms advancing said carriage and lighting and extinguishing the lamps, substantially as described.

2. The combination with the rotating pivoted arm *a*, of the lamps *a*² carried on the end thereof, the screen *c*, the traveling carriage *d*', the lamps *d* carried thereon, the pivoted arm *h*, the lamps *h*³ carried upon the end thereof, and the screen *l*, substantially as described.

In witness whereof we hereunto subscribe our names this 22d day of September, A. D. 1894.

AUGUST J. OEHRING.
ALBERT L. TUCKER.

Witnesses:

W. CLYDE JONES,
GEORGE L. CRAGG.