

A. C. ROEBUCK.
LIME LIGHT MECHANISM.
APPLICATION FILED JULY 6, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

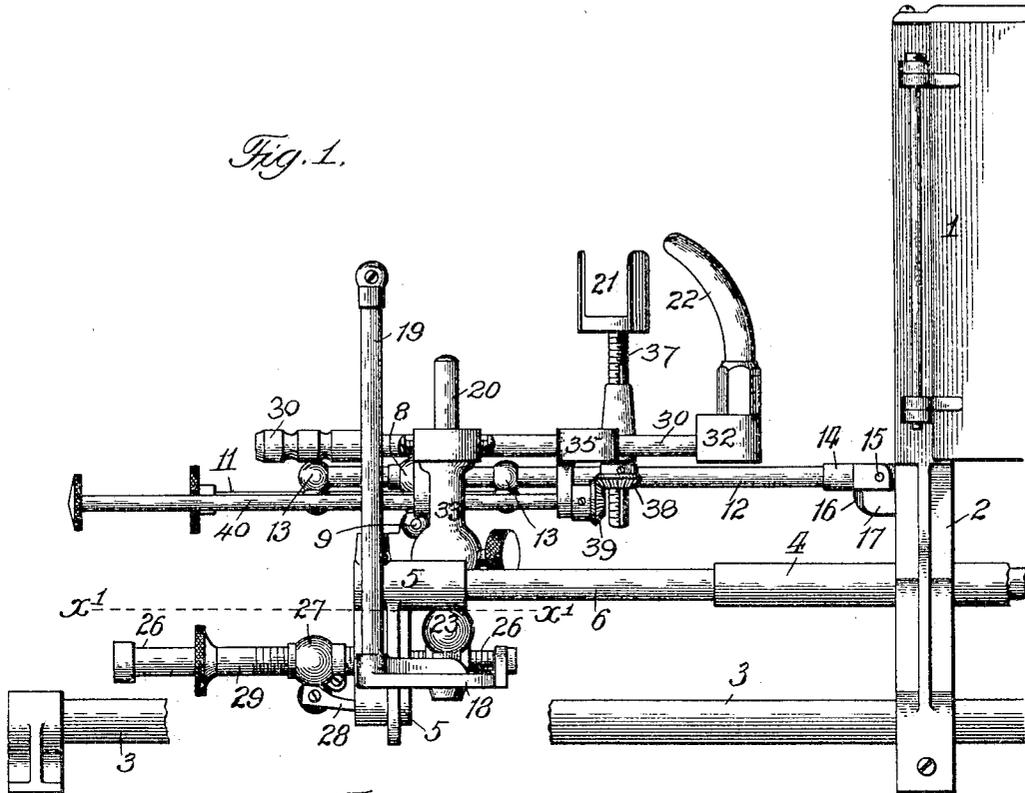
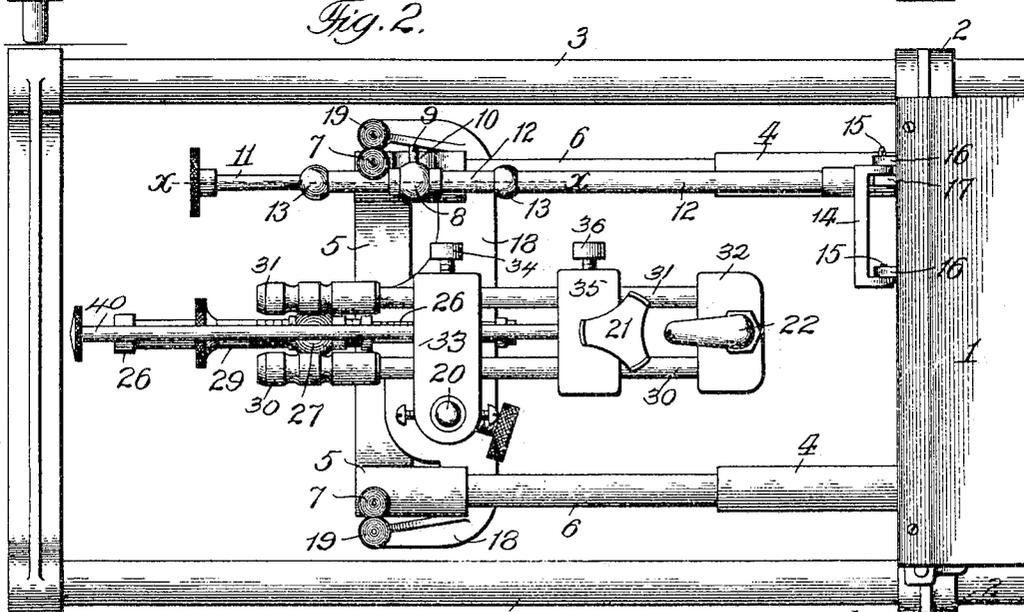


Fig. 2.



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Fig. 3.

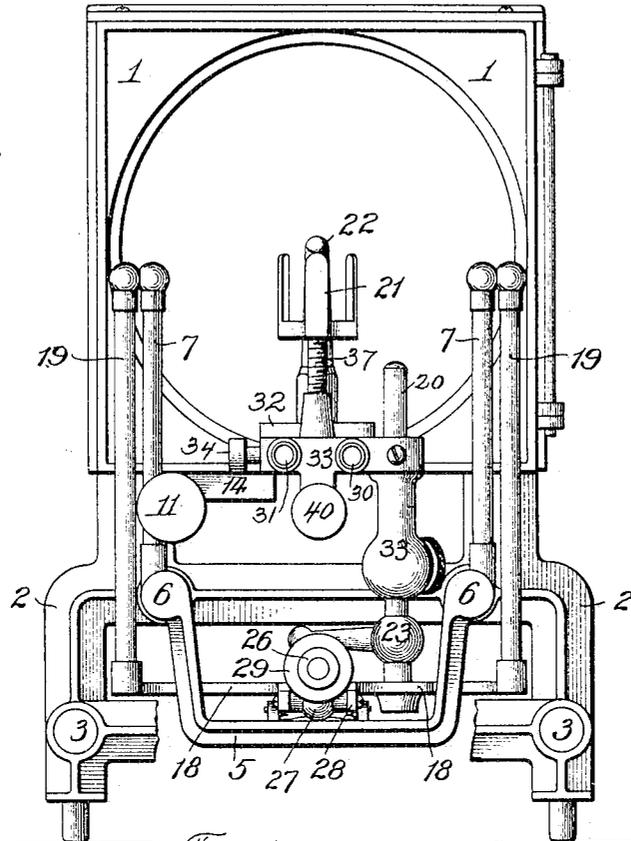


Fig. 4.

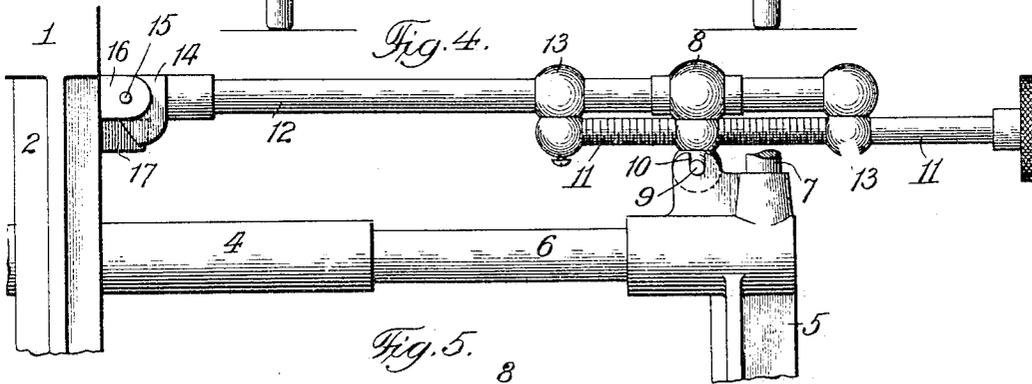
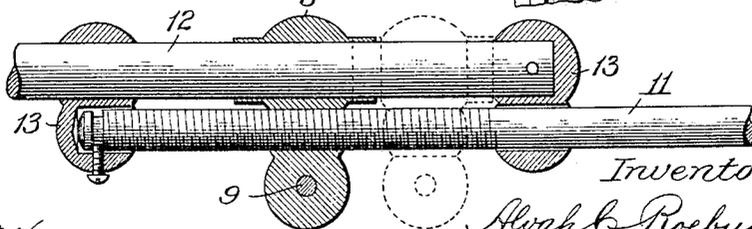


Fig. 5.



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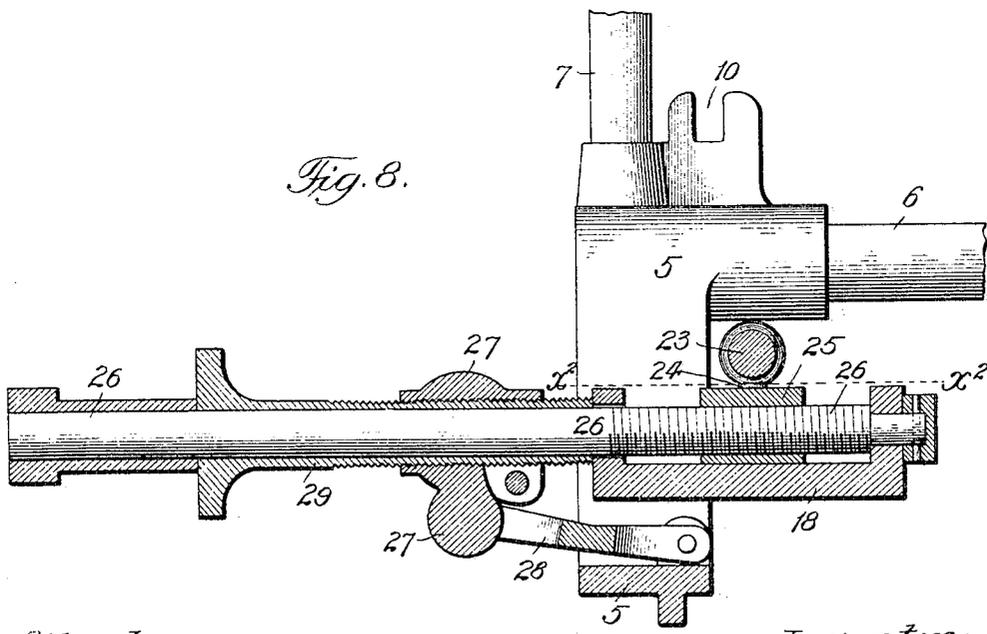
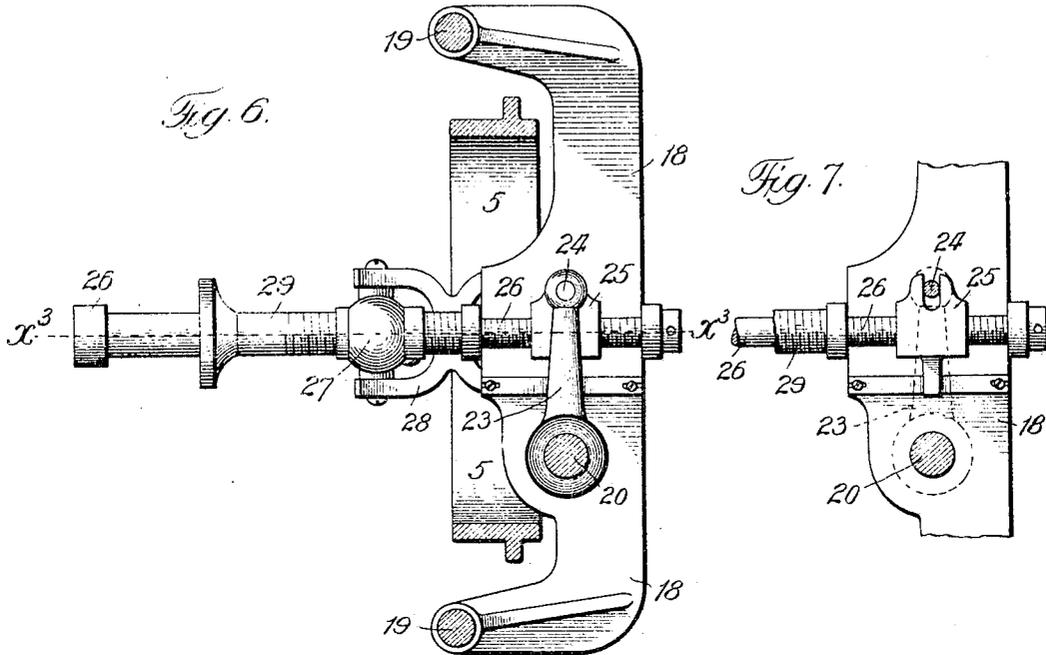
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ALVAH C. ROEBUCK, OF CHICAGO, ILLINOIS.

LIME-LIGHT MECHANISM.

SPECIFICATION forming part of Letters Patent No. 793,157, dated June 27, 1905.

Application filed July 5, 1904. Serial No. 215,446.

To all whom it may concern:

Be it known that I, ALVAH C. ROEBUCK, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Lime-Light Mechanisms, of which the following is a specification.

The present invention relates to lime-light mechanisms for stereopticon and other like apparatus, and has for its object to provide a simple and efficient structural arrangement and combination of parts adapted to afford an adjustment of the lime-light fixture in a longitudinal, a vertical, and lateral direction with relation to the optical axis of the stereopticon or like apparatus in a ready, convenient, and certain manner and which in the attainment of one adjustment will not disturb any of the other adjustments, all as will hereinafter more fully appear and be more particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of the present lime-light mechanism in its application to an ordinary stereopticon. Fig. 2 is a plan view of the same. Fig. 3 is a rear end elevation of the same. Fig. 4 is an enlarged detail side elevation of the adjusting means for effecting a longitudinal adjustment of the lime-light fixture and taken from the rear or side opposite to that shown in Fig. 1. Fig. 5 is an enlarged fragmentary longitudinal section of the same at line $x-x$, Fig. 2. Fig. 6 is a detail sectional plan at line $x'-x'$, Fig. 1, of the adjusting means for imparting a lateral adjustment to the lime-light fixture. Fig. 7 is a similar view at line $x''-x''$, Fig. 8, of the adjusting means for imparting lateral adjustment to the lime-light fixture. Fig. 8 is an enlarged detail vertical section at line $x'''-x'''$, Fig. 6, of the means for imparting vertical adjustment to the lime-light fixture.

Similar numerals of reference indicate like parts in the several views.

Referring to the drawings, 1 represents the rear portion of the lens-box of an ordinary stereopticon supported by one or more vertical end members 2 on the horizontal cylin-

drical members 3 of the supporting frame or base of the stereopticon.

4 represents a pair of separated tubular slideways secured to the stereopticon-base aforesaid in a horizontal position and extending longitudinally of the apparatus.

5 is the main carrying frame or head of the present lime-light mechanism, preferably of the stirrup form, (shown in Fig. 3,) with a view to permit of a compact and convenient arrangement of the different adjusting means hereinafter described.

6 represents a pair of horizontal guide-rods secured to the frame or head 5 and sliding longitudinally in the tubular slideways 4 aforesaid to afford a horizontal adjustment of the lime-light mechanism in the longitudinal plane of the apparatus.

7 represents a pair of vertical posts on the frame or head 5 for the attachment of the hereinafter-described secondary frame or head of the lime-light mechanism in a pivotal manner and with the pivot axis on a plane with the optical axis of the apparatus.

8 is a cross-head adjustable longitudinally and provided with a lateral pin or projection for engagement in an open top recess in a web extension of the frame 5 to constitute a readily-detachable connection between the parts, as illustrated in Fig. 4 of the drawings.

11 is a screw-shaft engaging the cross-head 8 and adapted to impart longitudinal adjustment thereto.

12 is a longitudinal bar detachably secured to the stereopticon-base, as hereinafter described, and provided with bearing-brackets for the screw-shaft 11 aforesaid.

14 is a stirrup-shaped head secured to one end of the bar 12 and provided with lateral pins 15, which project in the same direction from the parallel members of the head 14.

16 represents orificed lugs on the stereopticon-base, in the orifices of which the lateral pins 15 aforesaid are adapted to be engaged by a lateral movement of the head 14.

17 is a lug arranged in spaced relation to one of the orificed lugs 16 aforesaid and in a plane below the same, so that the head 14 will be required to be turned up from a horizontal

position in effecting the above-mentioned engagement of said head with the lugs 16. After such engagement and as the head 14 is brought back to a normal horizontal position the lug 5 17 is adapted to prevent accidental lateral disengagement of the parts.

18 is the secondary frame of the lime-light mechanism, and 19 represents a pair of vertical posts on said frame, the upper ends of 10 which have pivotal connection with the upper ends of the posts 7 of the main frame 5, with the pivot axis on a plane with the optical axis of the apparatus, as illustrated in Figs. 1 and 3, and so that with a swinging adjust- 15 ment of the frame 18 by means hereinafter described the incandescent spot of the lime-light will be moved in a substantially vertical direction or plane with relation to the optical axis of the apparatus.

20 20 is a vertical post attached to the secondary frame 18. Such post is adapted to carry the lime-light fixture in a manner which permits of the same receiving an adjustment in a horizontal plane.

25 21 is the lime-block holder, and 22 the burner jet or nozzle of the lime-light fixture just referred to.

23 is an oscillatory arm carried by the frame of the lime-light fixture and extending later- 30 ally therefrom with its free end provided with a wrist-pin 24, as shown in Figs. 6 and 7.

25 is a longitudinally-adjustable head provided with a transverse slot in which the wrist-pin 24 aforesaid has engagement to oper- 35 atively connect said head with the aforesaid arm 23 of the lime-light fixture.

26 is a screw-shaft journaled on the secondary frame 18 and operatively engaging the 40 head 25 to impart longitudinal adjustment to the same by a manual rotation of said screw-shaft. Such mechanism is adapted to effect an adjustment of the lime-block of the lime-light fixture in a horizontal plane and trans- 45 verse to the optical axis of the apparatus.

27 is a longitudinal adjustable head carried by the secondary head 18 in the manner here- 45 inafter described and having an abutment connection with the main frame 5 by a radius link 28, as shown.

50 29 is a tubular screw-shaft turning upon the shaft 26, above described, and held from longitudinal movement thereon by an abutment-collar on the shaft 26 and an abutment-shoulder on the frame 18, as illustrated more 55 particularly in Fig. 8. The screw-threaded periphery of the shaft 29 has operative engagement with the correspondingly-formed bore of the head 27, so that by the manual rotation of such shaft a longitudinal move- 60 ment is imparted thereto, which in turn imparts an oscillatory movement to the frame 18 upon its pivot connection to the frame 5 and is adapted to effect an adjustment of the lime-block of the lime-light fixture in a ver-

tical curved plane and transverse to the opti- 65 cal axis of the apparatus.

30 and 31 are a pair of parallel tubes con- 65 nected at one end to the combining-head 32 of the burner-jet 22 of the lime-light fixture, the other ends of said tubes being adapted 70 for the attachment of the flexible tubes by which the gases are supplied to the burner-nozzle.

33 is a bracket member fitting the vertical post 20, before described, and provided with 75 horizontal orifices in which the tubes 30 and 31 have horizontal adjustment and are clamped in position by a set-screw 34.

35 is a block sliding on the tubes 30 and 31 and secured at its required adjustment by a 80 set-screw 36.

37 is a vertical screw-threaded stem fitting a screw-threaded orifice in the block 35 and carrying at its upper end the holding-basket 85 21 of the lime-block, before described.

38 is a bevel gear-wheel having operative engagement with the lower portion of the stem 37 by means of a pin or set-screw in en- 90 gagement with a longitudinal groove in said stem, as illustrated in Fig. 1, and so that the said gear-wheel in its rotation will impart ro- 95 tation to said stem, while at the same time the said stem will have a corresponding vertical travel in the block 35 aforesaid.

39 is a bevel-gear meshing with and driv- 95 ing the bevel-gear 38 aforesaid.

40 is a shaft journaled in the bracket 33 and block 35 and carrying at one end for conven- 100 ient manipulation and at the other end the bevel gear-wheel 39 aforesaid.

Having thus fully described my said inven- 100 tion, what I claim as new, and desire to secure by Letters Patent, is—

1. In a light mechanism for stereopticons, the combination of a light-fixture, a main 105 frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame, and means for imparting longitudinal adjustment to said frames and light-fixture as a whole, 110 substantially as set forth.

2. In a light mechanism for stereopticons, the combination of a light-fixture, a main 115 frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame, and means for imparting longitudinal adjustment to said frames and light-fixture as a whole, the same comprising an adjustable cross-head 120 having detachable connection to the main frame, a longitudinal bar connected to the stereopticon-frame and carrying said cross-head, and a screw-shaft journaled on said bar and having operative engagement with said 125 cross-head, substantially as set forth.

3. In a light mechanism for stereopticons, the combination of a light-fixture, a main 125 frame carried by the stereopticon-frame, a sec-

ondary frame carrying the light-fixture and pivotally connected to the main frame, and means for imparting longitudinal adjustment to said frame and light-fixture as a whole, the same comprising an adjustable cross-head having detachable connection to the main frame, a longitudinal bar detachably connected to the stereopticon-frame and carrying said cross-head, and a screw-shaft journaled on said bar and having operative engagement with said cross-head, substantially as set forth.

4. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, and means for imparting longitudinal adjustment to said frames and light-fixture as a whole, substantially as set forth.

5. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, and means for imparting longitudinal adjustment to said frames and light-fixture as a whole, the same comprising an adjustable cross-head having detachable connection to the main frame, a longitudinal bar connected to the stereopticon-frame and carrying said cross-head, and a screw-shaft journaled on said bar and having operative engagement with said cross-head, substantially as set forth.

6. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, and means for imparting longitudinal adjustment to said frames and light-fixture as a whole, the same comprising an adjustable cross-head having detachable connection to the main frame, a longitudinal bar detachably connected to the stereopticon-frame and carrying said cross-head, and a screw-shaft journaled on said bar and having operative engagement with said cross-head, substantially as set forth.

7. In a light mechanism, the combination of a stereopticon-frame provided with a pair of orificed lugs and a lug arranged in spaced relation to one of said lugs and in a plane below the same, a longitudinal bar carrying the

longitudinal adjusting means of the mechanism, and a stirrup-shaped head carried on one end of said bar and provided with lateral pins adapted for lateral engagement with the orificed lugs, substantially as set forth.

8. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, and means for imparting a pivotal adjustment to the secondary frame in a vertical plane, substantially as set forth.

9. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, and means for imparting a pivotal adjustment to the secondary frame in a vertical plane, the same comprising an adjustable cross-head, a radius-link connecting said cross-head with the main frame, and a screw-shaft journaled on the secondary frame and having operative engagement with the cross-head, substantially as set forth.

10. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, and means for imparting pivotal adjustment to the secondary frame in a vertical plane, substantially as set forth.

11. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, and means for imparting pivotal adjustment to the secondary frame in a vertical plane, the same comprising an adjustable cross-head, a radius-link connecting said cross-head with the main frame, and a screw-shaft journaled on the secondary frame and having operative engagement with the cross-head, substantially as set forth.

12. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, and means for imparting a pivotal ad-

justment to the light-fixture in a horizontal plane, substantially as set forth.

13. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, and means for imparting a pivotal adjustment to the light-fixture in a horizontal frame, the same comprising an oscillatory arm on the light-fixture, an adjustable head engaging the free end of said arm, and a screw-shaft supported by the secondary frame and having operative engagement with the adjustable head, substantially as set forth.

14. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, and means for imparting pivotal adjustment to the light-fixture in a horizontal plane, substantially as set forth.

15. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, and means for imparting pivotal adjustment to the light fixture in a horizontal plane, the same comprising an oscillatory arm on the light-fixture, an adjustable head engaging the free end of said arm, and a screw-shaft supported by the secondary frame and having operative engagement with the adjustable head, substantially as set forth.

16. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, means for imparting a pivotal adjustment to the secondary frame in a vertical plane, and means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, substantially as set forth.

17. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, means for imparting a pivotal adjustment to the secondary frame in a vertical plane, the same comprising an adjustable

cross-head, a radius-link connecting said cross-head with the main frame, and a screw-shaft journaled on the secondary frame and having operative engagement with the cross-head, and means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, substantially as set forth.

18. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, means for imparting pivotal adjustment to the secondary frame in a vertical plane, and means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, substantially as set forth.

19. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, the same comprising an oscillatory arm on the light fixture, an adjustable head engaging the free end of said arm, and a screw-shaft carried by the secondary frame and having operative engagement with the adjustable head, and means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, substantially as set forth.

20. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, the same comprising an oscillatory arm on the light-fixture, an adjustable head engaging the free end of said arm, and a screw-shaft carried by the secondary frame and having operative engagement with the adjustable head, and means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, the same comprising an adjustable cross-head, a radius-link connecting said cross-head with the main frame, and a screw-shaft journaled on the secondary frame and having operative connection with the cross-head, substantially as set forth.

21. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-fixture and provided with a pair of vertical

posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, means for imparting a pivotal adjustment to the light-
 5 fixture in a horizontal plane, the same comprising an oscillatory arm on the light-fixture, an adjustable head engaging the free end of said arm, and a screw-shaft carried by the secondary frame and having operative engage-
 10 ment with the adjustable head, and means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, substantially as set forth.

22. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-
 15 fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, means for imparting a pivotal adjustment to the light-
 20 fixture in a horizontal plane, the same comprising an oscillatory arm on the light-fixture, an adjustable head engaging the free end of said arm, and a screw-shaft carried by the secondary frame and having operative engage-
 25 ment with the adjustable head, and means for imparting a pivotal adjustment to the light-
 30 fixture in a horizontal plane, the same comprising an adjustable cross-head, a radius-link connecting said cross-head with the main frame, and a screw-shaft journaled on the secondary frame and having operative connection with the cross-head, substantially as set forth.

23. In a light mechanism for stereopticons, the combination of a light-fixture, a main frame
 40 carried by the stereopticon-frame, a secondary frame carrying the light-fixture and pivotally connected to the main frame on a plane adjacent to the focal axis of the apparatus, means for imparting a pivotal adjustment to
 45 the light-fixture in a horizontal plane, the same comprising an oscillatory arm on the light-fixture, an adjustable head engaging the free end of said arm, and a screw-shaft carried by the secondary frame and having operative
 50 engagement with the adjustable head,

and means for imparting a pivotal adjustment to the light fixture in a horizontal plane, the same comprising an adjustable cross-head, a radius-link connecting said cross-head with the main frame, and a screw-shaft journaled
 55 on the secondary frame and having operative connection with the cross-head, the one operating screw-shaft having a tubular form and arranged upon the other operating screw-shaft, substantially as set forth. 60

24. In a light mechanism for stereopticons, the combination of a light-fixture, a stirrup-shaped main frame carried by the stereopticon-frame and provided with a pair of vertical posts, a secondary frame carrying the light-
 65 fixture and provided with a pair of vertical posts for pivotally connecting said secondary frame to the main frame on a plane adjacent to the focal axis of the stereopticon, means for imparting a pivotal adjustment to the light-
 70 fixture in a horizontal plane, the same comprising an oscillatory arm on the light-fixture, an adjustable head engaging the free end of said arm, and a screw-shaft carried by the secondary frame and having operative engage-
 75 ment with the adjustable head, and means for imparting a pivotal adjustment to the light-fixture in a horizontal plane, the same comprising an adjustable cross-head, a radius-link connecting said cross-head with the main frame,
 80 and a screw-shaft journaled on the secondary frame and having operative connection with the cross-head, the one operating screw-shaft having a tubular form and arranged upon the other operating screw-shaft, substantially as set forth. 85

25. In a light mechanism for stereopticons, the combination of a supporting base or frame, a horizontally-adjustable frame carried by said base, a secondary frame pivotally connected
 90 to said horizontally-adjustable frame on a plane adjacent to the focal axis of the stereopticon and a light-fixture carried by said secondary frame, substantially as set forth.

Signed at Chicago, Illinois, this 1st day of July, 1904.

ALVAH C. ROEBUCK.

Witnesses:

ROBERT BURNS,
 M. H. HOLMES.