

(No Model.)

2 Sheets—Sheet 1.

A. MERKT.
STEREOPTICON.

No. 580,178.

Patented Apr. 6, 1897.

Fig: 1.

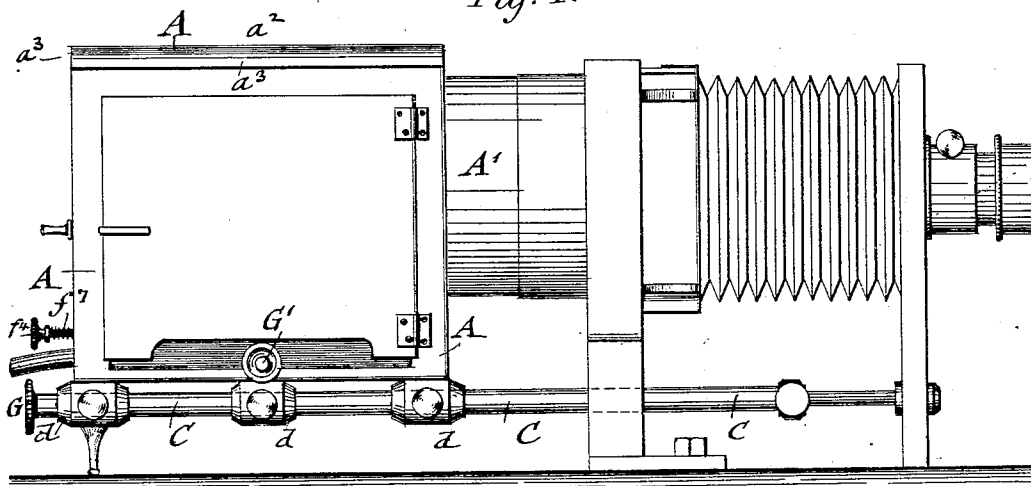
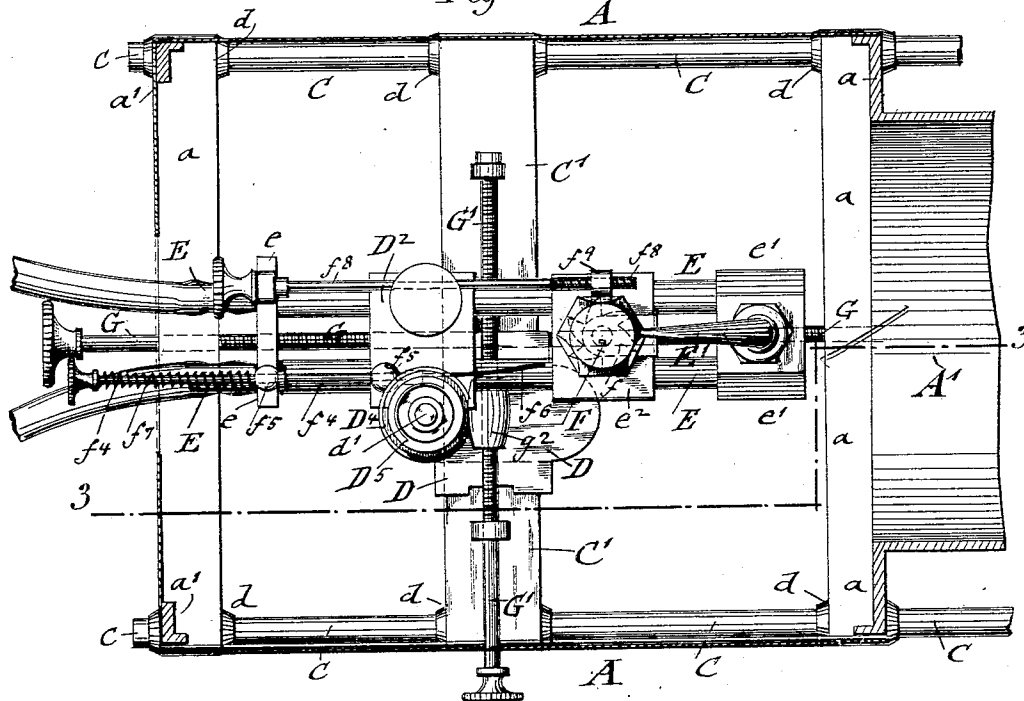


Fig: 2.



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Fig. 3.

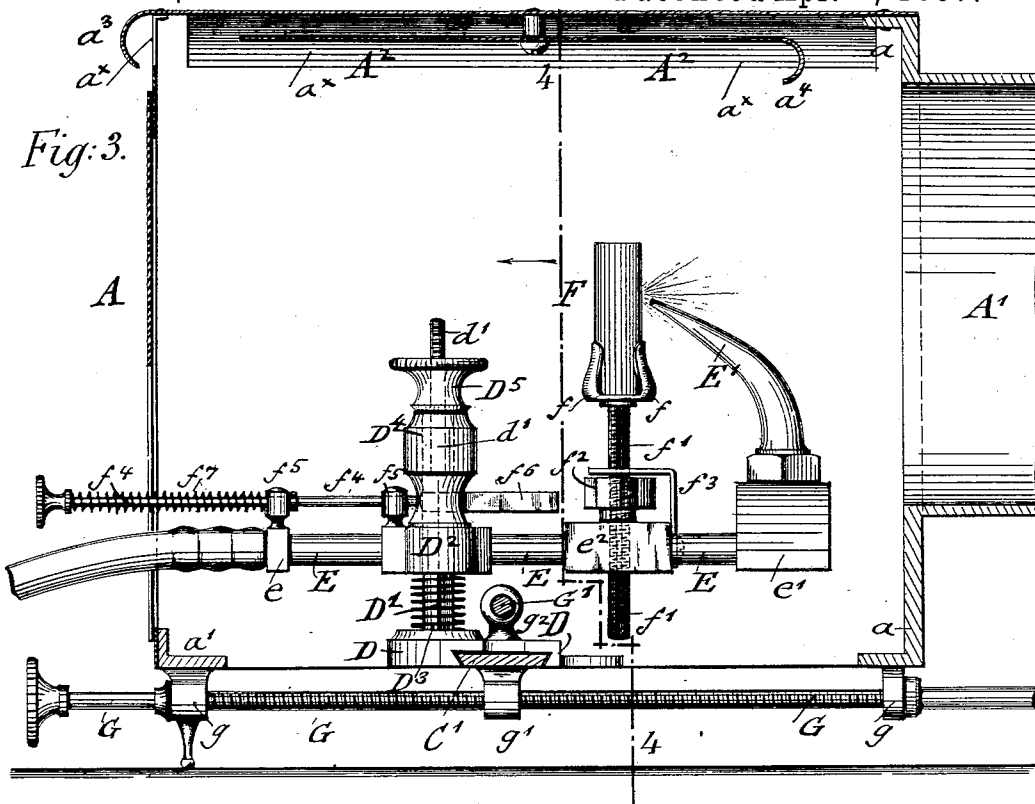
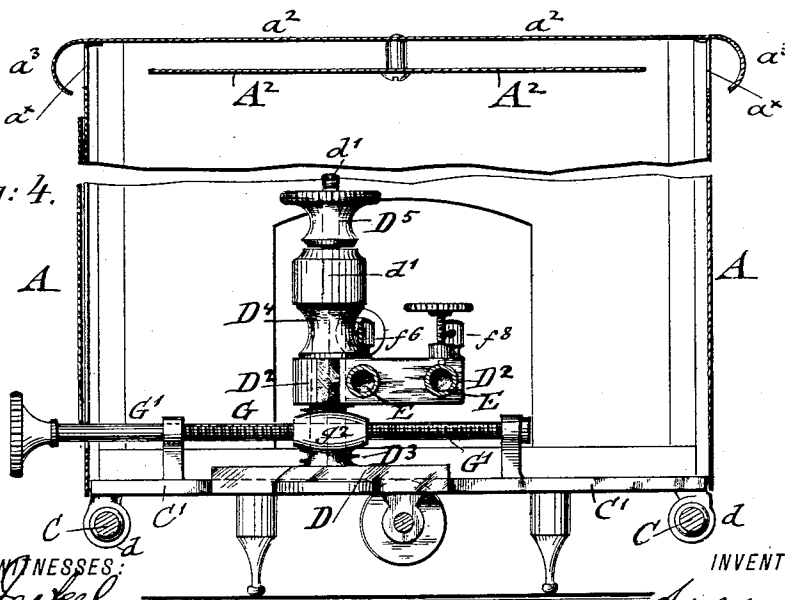


Fig. 4.



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UNITED STATES PATENT OFFICE.

ADOLPH MERKT, OF BROOKLYN, NEW YORK.

STEREOPTICON.

SPECIFICATION forming part of Letters Patent No. 580,178, dated April 6, 1897.

Application filed March 19, 1896. Serial No. 583,903. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH MERKT, a citizen of the United States, residing in the city of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Stereopticons, of which the following is a specification.

This invention has reference to certain improvements in stereopticons by which not only the weight of the same is considerably decreased, but by which also the various working parts of the same are capable of convenient adjustment, so that the light can be readily kept in the focus of the lens, new portions of the lime pencil presented to the flame, and various other minor objections to the stereopticons heretofore in use done away with.

For this purpose the invention consists, first, of a new construction of light-casing for stereopticons whereby the blackening of the lens during the starting of the light is prevented.

The invention consists, secondly, of mechanisms by which the lime pencil can be readily turned on its axis and adjusted higher or lower, while the oxyhydrogen-burner can be adjusted either with the lime pencil or independently therefrom in vertical, longitudinal, and lateral directions, so that the proper focusing and steadiness of the light are obtained.

The invention consists, further, in certain details of construction which will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a side elevation of my improved stereopticon. Fig. 2 is a plan view of the operating parts and a horizontal section of the light-casing, taken on line 2 2, Fig. 1, and drawn on a larger scale. Fig. 3 is a vertical longitudinal section of the light-casing and the operating parts in the same on line 3 3, Fig. 2; and Fig. 4 is a vertical transverse section on line 4 4, Fig. 3.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the light-casing of my improved stereopticon, which is made of aluminium, so that its weight is considerably reduced. For this purpose the lens-supporting tube A' is cast integrally

with the rear wall a of the stereopticon, the front frame a' being likewise cast of aluminium, while the top and side plates, as well as the front and side doors, are made of sheet-aluminium. The top plate a^2 is provided with curved flanges a^3 at its front and sides, said flanges extending over slotted openings a^4 in the front and side walls, through which the heated air is passed off to the outside of the casing. Below the top plate a^2 of the casing and riveted thereto is arranged a plate A^2 , which is parallel with the top plate and provided at its rear edge with a curved flange a^4 , which serves as a guard for the flame when the oxyhydrogen flame is started before the same has developed sufficient heat to bring the lime pencil to incandescence. This starting-flame is usually projected toward the lens, whereby the carbon particles in the flame are condensed and a black film produced on the inner surface of the lens, whereby the brightness of the same in transmitting the light is impaired. This is entirely avoided by the plate A^2 and guard-flange a^4 , as by the same the hydrocarbon vapors are thrown in forward direction and carried away from the lens and through the upper front and side openings to the outside of the light-casing. The casing is preferably entirely open at the bottom, so that the air has free access to the lower part of the casing for producing the proper combustion of the oxyhydrogen flame.

By making the light-casing, the lens-tube, and the supporting parts of the stereopticon of aluminium the weight of the same is considerably diminished and the stereopticon thereby better adapted for general use as well as for the use of amateurs, who can thereby carry the stereopticon with greater facility to the place of use.

The light-casing A is supported by means of sleeves $d d$ at its lower part on parallel tubular rods C C. A dovetailed bridge C' extends transversely from one rod C to the other, said bridge serving as a support on which the different light-giving parts of the stereopticon are supported. On the bridge C' is guided a slide-piece D, which supports a square post D'. On this post is guided a block D², on which are mounted two parallel tubular rods E, which are parallel with the longitudinal axis of the casing, and which are

connected by a transverse plate e at their front ends and by a hollow block e' at their rear ends, to which the oxyhydrogen-burner E' is applied.

5 The burner E' is connected by the block e' with both tubes E . The burner E' is made of tapering shape and curved in backward direction toward the lime pencil F , which is supported in an upright holder f at the upper
10 end of a vertical spindle f' , that passes in downward direction through a threaded hole in a transverse block e^2 , which is arranged to slide on the tubes E . To the spindle f' is splined a ratchet-wheel f^2 , which is held in
15 position by a keeper f^3 , that is attached to the block e^2 , as shown in Fig. 3. The keeper f^3 prevents the ratchet-wheel f^2 from following the motion of the spindle f' in vertical direction, while by the spline connection of
20 the ratchet-wheel with the spindle f' the latter is compelled to follow the axial motion imparted to the ratchet-wheel f^2 . A spring-actuated rod f^4 is guided in suitable keepers f^5 on the plate e and block D^2 , said rod being
25 provided with a button at its outer end and a steel pawl f^6 at its inner end, which when its slide-rod is pressed inwardly against the tension of the helical spring f^7 , interposed between its button and the keeper f^5 , engages
30 one of the teeth of the ratchet-wheel, so as to turn the same, together with the spindle, on its axis. Simultaneously therewith the spindle is raised by its screw connection with the block e^2 , so that the lime pencil is not only
35 turned on its axis, but raised simultaneously by the action of the pawl-and-ratchet mechanism described. By this adjustment of the lime pencil a new portion of the same is from time to time acted upon by the oxyhydrogen
40 flame of the burner. This is repeated from time to time, so that thereby not only new portions of the lime pencil are successively presented to the flame, but also the formation of deep depressions or cavities on the lime pencil, which gradually impair the uniformity of
45 the light, is prevented. The lime pencil is thus gradually and evenly consumed and the injurious heating and bursting of the lens by the heat of the flame thrown on the same
50 when deep concavities are formed in the pencil entirely avoided. A forward-and-backward adjustment is imparted to the spindle of the lime pencil by means of a screw-rod f^8 , provided with a button at its front end and
55 a screw-thread on its rear end, which latter engages an interiorly-threaded keeper f^9 on the block e^2 , so as to produce the shifting of the block e^2 , with the spindle f and lime pencil, toward or away from the flame. Longi-
60 tudinal forward-and-backward motion is imparted to the gas-supplying tubes E , the burner E' , and lime pencil F by a central screw-spindle G , which is supported in keepers g at the under side of the light-casing A , and which engages a screw-nut g' at the under side of the bridge C' , so that the same is moved in forward direction with all the parts

supported thereon. The light-giving parts referred to are also adjusted in lateral direction by a screw-spindle G' , that turns in suitable lugs of the bridge C' and is adjusted from the side of the casing, said screw-spindle engaging an interiorly-threaded sleeve g^2 , supported on the bridge, so that thereby the light-giving parts are readily placed in the proper relative position to the lens.

The means by which the longitudinal and lateral adjustment is accomplished are well known and were used in stereopticons heretofore, and I therefore do not desire to claim this feature. The new feature, however, to which I desire to call special attention consists of the vertical adjustment of the light-giving parts, by which they can be quickly adjusted by opening the side door and without being interfered with by the heat of the flame at the inside of the light-casing. The vertical adjustment of the light-giving parts is accomplished in the following manner: The block D^2 , by which the gas-supply tubes
90 E are supported, is provided with a hollow pillar D^4 , that is guided on the square post D' , applied to the slide-piece D . A strong helical spring D^3 is interposed between the block D^2 and the slide-piece D , on which the entire weight of the gas-supply tubes and the light-giving parts is supported. The upper end d' of the upright post D' is reduced in size, made in round shape, and provided with a screw-thread. A screw-nut D^5 is placed on the threaded end d' and adapted to be raised or lowered, so as to adjust the pillar D^4 and block D^2 on the square portion of the post either by lowering the same against the tension of the spring D^3 or by raising the same
105 by the action of the spring on reversing the motion of the screw-nut, so that thereby the vertical motion of the light-giving parts is immediately and reliably controlled with but little effort. By this arrangement the light-giving parts are supported on the spring D^3 and readily adjusted on the upright post D' by the joint action of the spring D^3 and the adjusting screw-nut D^5 .

The position of the light-giving parts relatively to the lens can thus be easily, quickly, and reliably adjusted in any direction, and likewise the position of the lime pencil toward the flame, so that a bright and uniform light can be kept up. The front ends of the gas-supply tubes are connected by flexible tubes with the gas-cylinders, the front wall of the light-casing being recessed for permitting the passage of the tubes. The side wall of the light-casing is likewise recessed at its lower end for the lateral screw-spindle G' . Sufficient air is supplied through the open bottom to the inside of the light-casing for the proper combustion of the gas, the products of combustion being readily carried off by the upper current of air, which is deflected by the flanged guard-plate A^2 in forward direction, so that the casing is properly ventilated and the heat taken away from the con-

densing-lens, whereby the sweating of the latter is prevented. By the improved construction of the casing, as well as the facility by which the position of the light-giving parts
5 can be adjusted relatively to the focus of the lens, the light generated is utilized to its full extent for the proper illumination of the slide-pictures, which are thrown on the screen in the well-known manner.

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

1. A light-casing for stereopticons, provided with slots or openings in the sides of its upper part, inwardly-curved, downwardly-extending flanges arranged in front of said openings, and a guard-plate below the top plate provided with a curved guard-flange arranged
15 adjacent to and transversely of the lens-tube for directing the products of combustion away from the lens, substantially as set forth.

2. In a stereopticon, the combination with the light-casing, burner, and gas-supply tubes for the burner, of means for vertically adjusting the burner and tubes to which it is attached, consisting of a square post suitably supported at the bottom part of the casing and having a screw-threaded upper portion,
25

a block guided on the squared part of the post and through which said tubes pass and by which the same are supported, the hollow pillar mounted on said block at one side of the tubes also guided on the squared part of said post, a cushioning-spring coiled around the squared part of the post under the block
30 and acting on said block, and a screw-nut on the upper part of the post bearing on the upper end of the pillar, substantially as set forth.

3. In a stereopticon, the combination of a lime pencil, a spindle, means for supporting the spindle, a ratchet-wheel having a spline connection with the spindle, a keeper for preventing the upward movement of the ratchet-wheel on the spindle, and a longitudinally-guided and spring-actuated pawl for intermittently engaging the ratchet-wheel and producing the turning and elevation of the lime pencil on its axis, substantially as set forth.
40

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.
50

ADOLPH MERKT.

Witnesses:

PAUL GOEPEL,
GEORGE W. JAEKEL.