

(No Model.)

2 Sheets—Sheet 1.

L. R. NAEF.
PHOTOGRAPHIC VIGNETTER.

No. 567,496.

Patented Sept. 8, 1896.

Fig. 1.

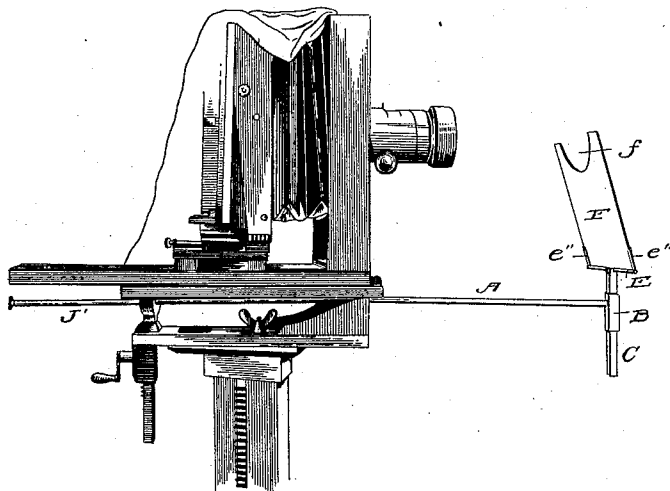


Fig. 3.

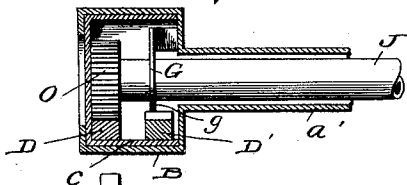


Fig. 4.

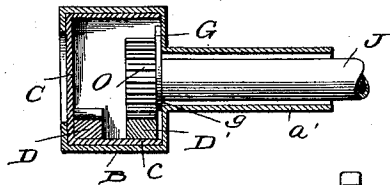
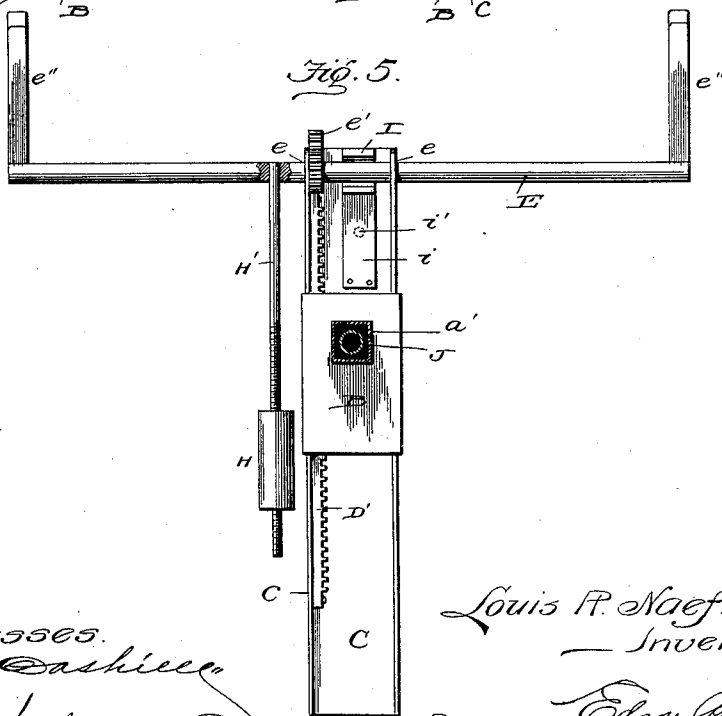


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

LOUIS R. NAEF, OF CONNEAUT, OHIO, ASSIGNOR OF ONE-HALF TO CHARLES S. PUTNAM, OF SAME PLACE.

PHOTOGRAPHIC VIGNETTER.

SPECIFICATION forming part of Letters Patent No. 567,496, dated September 8, 1896.

Application filed April 1, 1896. Serial No. 535,822. (No model.)

To all whom it may concern:

Be it known that I, LOUIS R. NAEF, a citizen of the United States, residing at Conneaut, in the county of Ashtabula and State of Ohio, have invented certain new and useful Improvements in Vignetting Appliances for Photographic Cameras; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention is a vignetting attachment for photographic cameras by which a vignette may be produced on the negative, or the full view obtained at the will of the operator; and the object that I have in view is to provide a simple and inexpensive appliance which may readily be attached to any photographic camera used in studio-work and which appliance is under the direct and immediate control of the operator while his head is under the camera-cloth engaged in adjusting the instrument.

A further object of my invention is to provide an attachment for carrying a recessed or cut mask, card or shield, which attachment is capable of three several and independent adjustments useful to the operator preliminary to making the exposure to secure a vignette on the negative, namely, of adjusting the mask, card, or shield to and from the lens of the instrument, in raising or lowering the mask or shield to bring more or less of the sitter or person within the field of the lens, and to tilt or swing the mask or shield toward or from the sitter or person more or less and thereby reflect and blend the light with the background to the best advantage; all or either of which adjustments may be quickly performed by the operator while his head is concealed by the camera-cloth by proper manipulation of a signal controlling-stem at all times within convenient reach.

To the accomplishment of these ends my invention contemplates the provision of an extensible arm or bar adapted to have one member fastened or clamped to a camera bed or stand and its other member slidably fitted in said fixed member of the extensible arm or bar, said slidable member carrying a vertical guide or head at its outer end, which may be drawn toward or moved away from the

camera lens by sliding the movable member in or out of the fixed member, a vertically-adjustable carrier fitted in said head of the extensible member of said arm or bar, a rock-shaft mounted in said vertically-adjustable carrier and having means for clamping or holding a vignetting mask or shield, and a single operating rod or stem fitted in the extensible bar or arm and having suitable connections whereby said stem or rod may be thrown into operative engagement either with the carrier or with the rock-shaft at the will of the operator.

My invention further consists in so mounting the rod or stem in the extensible arm that it can have a limited endwise movement, as well as a rotary or axial movement, within said extensible arm, for the purpose of adjusting a gear-pinion on the stem or rod in mesh with a fixed rack on the vertically adjustable carrier, or causing said gear-pinion to mesh with a slidable rack guided in the carrier and which rack meshes with a gear fixed on the rock-shaft, whereby the operating stem or rod may be rotated to adjust the carrier vertically or to tilt and swing the rock-shaft according as the gear thereon meshes with the rack which is fixed to the carrier or the rack which is slidably fitted in said carrier.

My invention further consists in a novel form of brake device which is thrown into engagement with the rack of the carrier when the operating-stem is geared to the slidable rack that turns the rock-shaft for the purpose of holding the carrier in position when the stem or rod is rotated to tilt the vignetting card or shield; in the construction of a balanced device for holding the tiltable card or shield; and in a construction of an extensible operating rod or stem with a novel locking mechanism which can easily be manipulated by the operator to make the stem or rod longer or shorter according to the distance of the vignetting card or shield from the camera-lens; and the invention further consists in the novel combination of devices, and in the construction and arrangement of parts, which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings,

forming a part of this specification, and in which—

- Figure 1 is a view showing my vignetting attachment applied to an ordinary camera.
 5 Fig. 2 is a longitudinal sectional view through the appliance. Figs. 3 and 4 are horizontal transverse sectional views on the line $x x$ of Fig. 2, Fig. 3 showing the operating-stem adjusted so its gear-pinion meshes with the rack attached to the vertically-adjustable carrier, and Fig. 4 showing the stem adjusted to have its gear-pinion meshing with the vertically-slidable rack that actuates the rock-shaft carrying the vignetting mask or shield.
 10 Fig. 5 is a vertical cross-sectional elevation on the plane indicated by the dotted line 5 5 of Fig. 2, looking in the direction indicated by the arrow X. Fig. 6 is a detail view of the extensible operating stem or rod showing the parts detached or separated.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the extensible supporting arm or bar for a vignetting attachment embodying my improvements. This arm or bar is made in two parts or members $a a'$, which are slidably or telescopically fitted together for the purpose of projecting the vignetting attachment more or less beyond the lens of the camera to which the attachment is applied. I prefer to attach the outer member a rigidly to the bed of the camera, or to the stand on which the camera is mounted, by any suitable means, as, for instance, by means of a screw which passes through a perforated ear on the member a and is embedded in the camera bed or stand and by a suitable form of clamp, although the means for attachment of the stationary member of said arm may be varied as desired by a skilled mechanic. The slidable member a' of the extensible arm or bar is fitted inside of the stationary member a in a manner to adapt it to slide freely back and forth therein, and to keep the parts $a a'$ in proper position and prevent the member a' from turning axially I make the members $a a'$ of square form in cross-section, or of any other appropriate angular or polygonal cross-sectional form, whereby the member a' is adapted to be adjusted back and forth without turning to throw the vignetting-shield out of position.

The member a' of the extensible arm carries at its outer end a vertical guide or head B, of square or other polygonal form, and this head or guide B is hollow and open at its upper and lower ends to receive the vertically-adjustable carrier C. This carrier C is of elongated box-like form and of proper cross-sectional shape and size to fit snugly within the vertical head or guide B, and said carrier is adapted to slide freely through said head or guide when it is actuated by the gear-pinion on the operating-stem. The side of the box-like carrier which faces the extensible arm or bar A is open throughout its length for the gear-pinion and

end of the operating-stem to play therein when the carrier is being raised or lowered. To one of the side walls c of this carrier is applied 70 toothed bars or racks $D D'$, which lie parallel with each other, one rack, D, being near the closed rear side of the carrier and the other rack, D' , being near the open front side of the carrier, as shown by Figs. 3 and 4. The rack 75 D' is rigidly fastened to the carrier C in a suitable way, as, for instance, by means of screws, so that the rack D' and carrier C are adapted to move together when the gear-pinion on the operating-stem is adjusted to mesh with the rack D' and the stem is rotated to turn the gear for the purpose of raising or lowering the carrier C in the head or guide B. The other rack, D, however, is not fixed to the carrier C, but it is slidably fitted in suitable guides or 80 keepers d , fixed within the carrier near the upper and lower ends thereof, and this rack D is adapted, when engaged by the gear-pinion, to be raised and lowered within said carrier without affecting or changing the position 85 of the carrier C.

E designates the rock-shaft, which is arranged in a horizontal position at right angles across the vertical carrier and the extensible arm. This rock-shaft E is journaled in suitable bearings e , provided in or on the upper 95 end of the vertical carrier C, and on the rock-shaft is a gear-wheel e' , which rotates or turns with the shaft E and which meshes with the slidable rack D. The shaft E and rack D are 100 thus geared together, so that when the rack D is moved endwise it will turn the shaft E in its bearings more or less, according to the play of the rack D, and the rock-shaft is rocked or turned toward or from the camera according 105 as the rack D is raised or lowered. This rock-shaft carries the clips e' , which are suitably attached to the ends of said rock-shaft and which stand or project outwardly therefrom substantially at right angles to the axis of the shaft E. These clips are constructed to clasp 110 the shield or mask F, and the clips are arranged in line with each other, as shown, to adapt them for use in connection with a straight mask or shield. Said mask or shield 115 preferably consists of a sheet or card of paper, or other appropriate material, as at F, which is cut out or recessed in its upper edge, as at f . This shield is fitted in the clips e' and thus detachably connected to the rock-shaft, and 120 as the shaft is rocked in its bearings the mask or shield is swung or tilted toward or from the lens of the camera. I prefer to make one side of the shield or mask of dark color, while the reverse side is of light color. The mask or 125 shield can easily be slipped out of the clips for the purpose of reversing it to make either the light or dark side thereof face the sitter or person whose picture is to be taken.

In the operation of posing the sitter it frequently becomes necessary to raise or lower 130 the carrier and to swing the mask or shield back and forth in order to attain the proper reflection or blending of light with the back-

ground, and in these operations of the carrier and the rock-shaft it is or may be necessary to disengage the gear-pinion from and engage it with the two racks $D D'$ quite often.

5 To prevent the carrier C from dropping out of position when the gear-pinion is disengaged from the rack D , a spring detent or brake G is provided. The rock-shaft E is balanced against the weight of the vignetting shield or mask and the clips e by means of a weight H , screwed on a threaded arm H' , which is attached to the rock-shaft, said weight H being adjustable back and forth on the threaded arm to counterbalance masks or shields of
15 different heaviness, which may be attached to the clips e on the rock-shaft. As a further means for holding the rock-shaft in place and against displacement by extraneous forces, as, for instance, by a gust of wind against the
20 shield or mask, a brake-shoe I may be arranged on the carrier C to press against the rock-shaft with sufficient force to overcome any tendency of the shaft E and mask F to be accidentally turned out of place, but the
25 pressure of this brake-shoe should, of course, not be such as to prevent the shaft E being turned when the rack D is raised or lowered.

If desired, the brake-shoe I may be carried by a spring i , attached to the carrier C , and a threaded stem or nut i' may be used to regulate the tension of the spring and the pressure of the brake-shoe against the rock-shaft.

The operating stem or rod is an extensible device, consisting of two members $J J'$, which
35 are adapted to be detachably interlocked together at different points for the purpose of making the rod long or short, according to the extent of projection of the vignetting mask or shield F from the camera. The member J of the extensible stem or rod is hollow
40 practically throughout its length, and in one side thereof is produced a longitudinal slot j and a series of notches j' , which notches are spaced at suitable intervals along the length
15 of the rod member J , and which notches j' open into or communicate with the slot j . The other member J' of said extensible rod or stem is preferably a solid rod, which is adapted to fit and slide freely within the tubular member J when the locking device K is released
50 from the notches j' . This locking device K consists, preferably, of a bent spring of the form shown by Fig. 6, said spring having the swell k and the enlarged head k' at its free
55 end. The solid rod member J' is coupled to the tubular slotted member J in a manner to rotate the same by means of the key or spline l , which is rigid with the member J' , and which fits in the slot j of the tubular member, so
60 that the two members are connected to turn or rotate axially, no matter what may be the longitudinal adjustment of the rod member J' relative to the tubular rod member J . The locking device K is used to prevent endwise
65 movement of the member J' within the hollow member J when the rod is to be used, because the head k' of the locking-spring is adapted

to take or fit in any one of the notches j' in the slotted member J , and thereby prevent the member J' from drawing out of the member J when the whole rod or stem is pulled or pushed endwise to throw the gear-pinion thereon into or out of engagement with either of the racks $D D'$.

It is necessary to provide means whereby
75 the locking-spring K of the rod member J' can easily be disengaged from the notched tubular member J , in order that the rod or stem may be lengthened or shortened according as the vignetting mask or shield is projected or moved away from the camera or drawn toward the same; and, as a convenient means for releasing the locking-spring, I have provided the releasing sleeve or tube L , which is of such size as to fit snugly over the tubular member J of the operating-stem. This releasing-sleeve L is fitted on the solid member
85 J' of the stem or rod with one end over the tubular slotted and notched member J , and said sleeve L is designed to be moved back and forth with the member J' , although the sleeve is capable, in the hands of an operator, of a limited endwise movement on the rod or stem $J J'$, in order that the sleeve L may be adjusted to ride upon the swell k of
95 the locking-spring, for the purpose of pressing said spring back within the tubular member J , and thereby release the head k' of the locking-spring K from the notch j' in the member J , so that the member J' and the sleeve
100 L may be moved lengthwise to lengthen or shorten the rod or stem. It will be seen that the locking-spring K connects the two members $J J'$ in a manner to cause them to move endwise simultaneously, and said spring K
105 and the key or spline l couple the members $J J'$ to insure simultaneous rotation of the members. The member J' can be drawn in or out of the member J after the sleeve L has been adjusted to press on the swell k of the spring K , and thus press the head k' of the spring out of the notch j' in the member J . The member J' is drawn lengthwise until the spring K snaps out into engagement with
115 another notch j' in the member J to again couple the two members together against the extension, and if necessary the release-sleeve L can again be operated to press the spring K out of the notch j' in the member J to permit the rod or stem to be further shortened or lengthened.
120

The member J' of the rod or stem is provided with a suitable head or knob m for its convenient manipulation.

O is the gear-pinion, which is rigidly attached to the outer end of the tubular member J of the operating rod or stem, and this gear-pinion O is arranged in the carrier C . The member J of the rod or stem passes through the hollow extensible arm or bar A , and said rod or stem $J J'$ can be lengthened
130 or shortened according as the rod or bar A is lengthened or shortened in adjusting the vignetting attachment toward or from the camera-lens.

The members J J' of the rod or stem being rigidly coupled together as against endwise movement by the locking-spring K, said rod or stem can be moved endwise to move the pinion O transversely within the carrier C, so that the pinion O may be adjusted to mesh with the rack D in order to raise or lower the carrier C, or said rod may be moved endwise to disengage the pinion O from the rack D and throw it into engagement with the rack D' for the purpose of raising or lowering the latter rack D', and turn the rock-shaft E so as to tilt or swing the vignetting mask or shield. While the rod or stem J J' is coupled as against endwise movement of its members relative to each other, the members are also connected or jointed to insure their simultaneous rotation by the key or spline l and the spring K fitting in the slot j of the member J, and said rod or stem may thus be rotated axially to turn the gear-pinion O for the purpose of raising or lowering the carrier or of tilting the vignetting mask or shield.

The spring-detent G, which serves to hold the carrier C in the head or guide B when the gear-pinion O is disengaged from the rack D', is preferably a leaf-spring, which is attached or fastened at one end to the guide or head B. The free end of this spring-detent is arranged to lie in the path of the gear-pinion O by making the spring to span or fit around the operating stem or rod, and said spring-detent is fashioned to provide a tooth or prong g, which is adapted to fit in between the teeth of the rack D'. This spring-detent engages with the rack D' and holds the carrier C against the vertical movement in the head or guide B when the stem or rod and the gear-pinion are adjusted to connect with the rack D that operates the rock-shaft; but when the rod or stem is pulled endwise to disengage the gear-pinion O from the rack D and move the pinion O into mesh with the rack D', said pinion O presses against the spring-detent G and moves the same to force the prong g thereof out of engagement with the rack D' at the time the pinion O engages with the rack-bar D' to adjust the carrier C. When the gear-pinion O is engaged with the rack on the carrier C, the operator should pull slightly on the rod or stem at the same time that he rotates it, in order that the spring-detent G may be kept out of engagement with the rack D' and thereby be prevented from interfering with the adjustment of the carrier.

This being the construction of my vignetting appliance for cameras, the operation may be briefly described as follows: The extensible arm or bar is fastened to the camera bed or stand, the rock-shaft and mask or shield are properly adjusted in front of the camera, and the stem or rod J J' is arranged to extend alongside of the camera within convenient reach of the operator, as indicated by Fig. 1. The arm member a' may easily be shoved out or drawn in by shoving or pressing on the rod

or stem to move the pinion O against the outer closed side of the box-like carrier or against the guide or head where attached to the arm a'. The carrier may be raised or lowered by adjusting the stem or rod to throw the pinion O into engagement with the rack D' and by rotating the stem or rod and gear O to move the rack and carrier up or down to make the mask or shield conceal more or less of the bust of the sitter. The vignetting mask or shield may be tilted toward or from the sitter so as to blend the light-rays with the background to the best advantage by moving the rod or stem endwise to throw the gear O into mesh with the rack D and then rotating the rod or stem and the gear to raise or lower the rack D to the desired extent, and thus move the shaft E and mask or shield to the proper position. The rod or stem J J' may be lengthened or shortened, according to the adjustment of the arm or bar A, by means of the sleeve L, which manipulates the spring K that locks the two members J J' together. It will thus be seen that all of the adjustments of the vignetting attachment are effected by the single rod or stem J J', and that the rod or stem is at all times within easy reach and under the direct control of the operator when he is engaged in focusing or adjusting the instrument and while his head is covered by the camera-cloth. The operator is enabled to adjust the entire vignetting appliance to the best advantage, because he can view the sitter while moving the vignetting mask or shield toward or from the person, up or down to expose more or less of the bust, or tilt the same to blend or reflect the light on the background to the best advantage.

After the vignetting appliance has been adjusted as desired, the camera is operated in the usual way to make the exposure on the plate, which, when developed and fixed, contains the vignette in the negative, thus enabling the vignette picture to be printed direct from the negative without the use of troublesome and expensive vignetting appliance in printing-frames.

In case it is not desired to take a vignette on the plate, the bar or arm A can be drawn in and the rod or stem operated to turn the rock-shaft to a position where the mask or shield F assumes a horizontal position out of the field of view of the lens attached to the camera.

I am aware that changes in the form and proportion of parts and in the details of construction of the devices herein shown and described as the preferred embodiment of my invention may be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such modifications and alterations as fairly fall within the scope of my invention.

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

1. A vignetter for photographic cameras comprising a supporting arm or bar, a vertically-adjustable carrier guided on said arm or bar to move in a plane substantially at right angles to the arm or bar, a tiltable mask or shield mounted on the carrier, and a single operating-stem fitted to the arm or bar and having operative connections with the carrier and the mask or shield to adjust either device independently, as and for the purposes described.

2. A vignetter for photographic cameras comprising an extensible arm or bar, a vertically-movable carrier guided on said arm or bar to move in a plane substantially at right angles to the length of the same, a tiltable mask or shield mounted on said vertically-adjustable carrier, and means for raising or lowering the carrier, for tilting the mask or shield, or for adjusting the mask or shield with the carrier and extensible bar toward or from a camera, as and for the purposes described.

3. The combination of a supporting arm or bar provided with a vertical guide, a vertically-adjustable carrier fitted in said guide, a rod or stem journaled to the arm or bar and operatively connected with the carrier to raise or lower the same through the guide, and a vignetting mask or shield mounted on the carrier, as and for the purposes described.

4. The combination with a support, of a tiltable mask or shield, a rotatable operating-stem journaled to the arm or bar, and means connecting said rotatable stem with the mask or shield whereby the latter may be tilted by rotating the operating-stem, as and for the purposes described.

5. The combination with a suitable support and a carrier thereon, of a rock-shaft journaled on said carrier and provided with means for holding a mask or shield, a rack geared to said rock-shaft, and an operating-stem having a gear meshing with said rack, as and for the purposes described.

6. The combination with a suitable support, of a rock-shaft having means for carrying a vignetting mask or shield, means for counterbalancing said rock-shaft, and means for operating the rock-shaft, as and for the purposes described.

7. The combination with a suitable support, of a counterbalanced rock-shaft having retainers for a vignetting mask or shield, a brake for said rock-shaft, and means for rocking the shaft, as and for the purposes described.

8. The combination with a suitable support, of a vertically-adjustable carrier provided with a rack, a slidable rack guided in said carrier, a tiltable vignette mask or shield mounted on said carrier and engaging with said slidable rack, and a single operating-stem having a gear adapted to mesh either with the

slidable rack or with the rack of the carrier, as and for the purposes described.

9. The combination with a suitable support, of a carrier having a rack, a tiltable vignette mask or shield, a rack for moving said mask or shield, and an operating-stem having a gear and mounted to have both rotary and endwise movement, whereby the gear may be interchangeably engaged with either of said racks, as and for the purposes described.

10. The combination of a carrier having a rack, a tiltable vignette mask or shield, a rack for moving said mask or shield, an operating stem or rod having a gear, and a detent for holding the carrier when the gear is free from its rack, as and for the purpose described.

11. The combination of a carrier having a rack, a balanced rock-shaft provided with means for holding a vignetting mask or shield, a stem or rod having a gear, a slidable rack geared to said rock-shaft, and a spring-detent arranged to engage with the rack of the carrier and to be thrown out of gear therewith by said rod or stem, as and for the purposes described.

12. The combination of an extensible supporting arm or bar, a vignetting mask or shield carried thereon, and an extensible rod or stem operatively connected with said mask or shield, as and for the purposes described.

13. The combination of an extensible arm or bar, a vignetting mask or shield, and an extensible rod or stem comprising a tubular member, a slidable member coupled to said tubular member to rotate therewith, and a locking device to connect the two members against endwise movement, as and for the purpose described.

14. The combination with an extensible arm or bar and a vignetting mask or shield, of an operating stem or rod comprising a slotted and notched member, another member carrying a spring locking device, and a suitable releasing device for depressing the spring-lock from engagement with said tubular member, as and for the purposes described.

15. A tiltable vignetting shield or mask carried by devices substantially such as described for moving the same toward or from a camera, and vertically with respect to said camera, combined with a single operating-rod arranged within convenient reach of an operator stationed at the camera, and connections between the mask or shield and said operating-rod whereby the mask or shield may be adjusted as desired while the operator is engaged in manipulating or adjusting the instrument.

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

LOUIS R. NAEF.

Witnesses:

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