

R. KROEDEL.  
 FOCUSING DEVICE.

APPLICATION FILED OCT. 5, 1908.

933,713.

Patented Sept. 7, 1909.

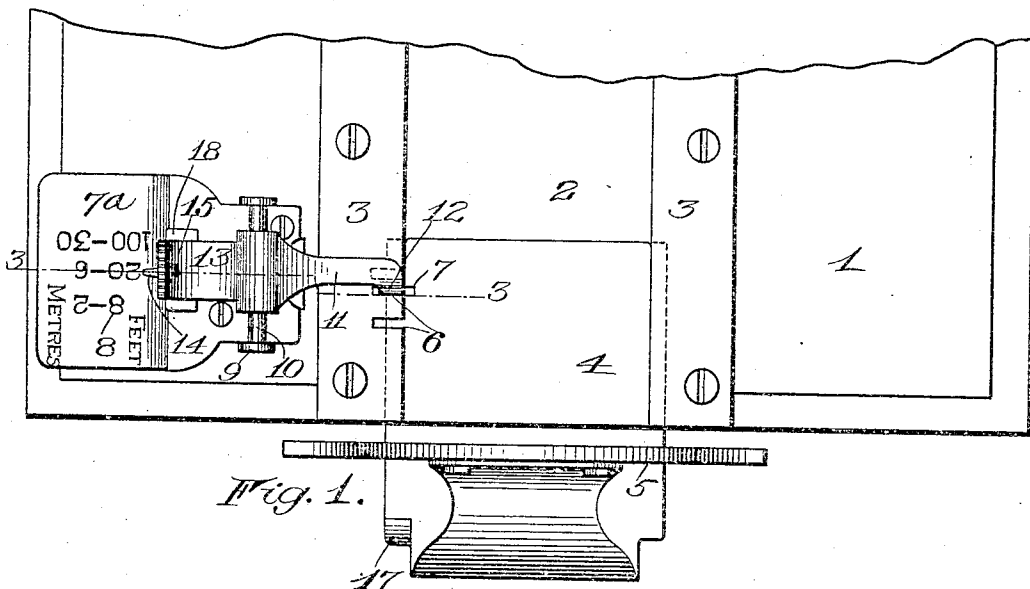


Fig. 1.

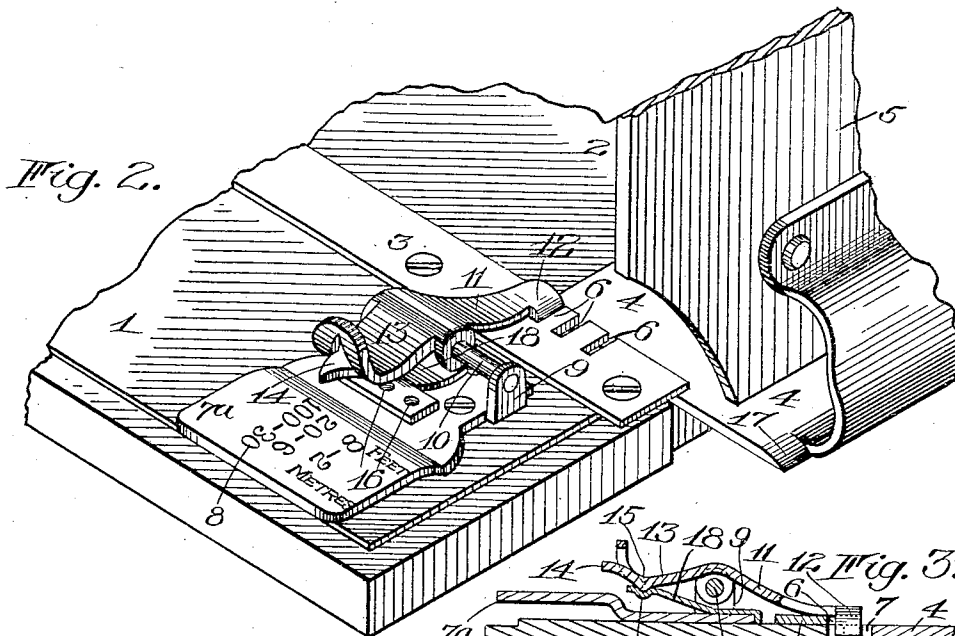


Fig. 2.

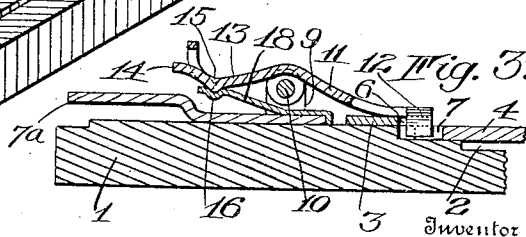


Fig. 3.

Witnesses  
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# UNITED STATES PATENT OFFICE.

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## FOCUSING DEVICE.

933,713.

Specification of Letters Patent. Patented Sept. 7, 1909.

Application filed October 5, 1908. Serial No. 456,147.

To all whom it may concern:

Be it known that I, ROBERT KROEDEL, of Rochester, in the county of Monroe and State of New York, have invented certain  
5 new and useful Improvements in Focusing Devices; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of  
10 this specification, and to the reference-numerals marked thereon.

My present invention relates to photography and it has for its object to provide a focusing attachment for photographic  
15 cameras and like apparatus through the medium of which attachment, the relatively movable parts of the instrument, that enter into the focusing operation may be quickly and accurately positioned for objects at  
20 various distances and further objects of my invention are to provide a device that will be simple in structure and operation and capable of convenient manipulation and which will automatically lock the adjusted  
25 parts in a predetermined relation.

To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being  
30 pointed out in the claims at the end of the specification.

In the drawings:—Figure 1 is a top plan view of a portion of a camera bed and of a focusing device thereon constructed in accordance with and illustrating one embodiment of my invention. Fig. 2 is a perspective view thereof and Fig. 3 is a transverse section taken through the focusing stop and adjacent parts substantially on the line  
40 3—3 of Fig. 1.

Similar reference numerals in the several figures indicate similar parts.

Cameras are usually fitted for the focusing operation with either a stationary lens  
45 support and a relatively movable screen (whether the latter be sensitized material or ground glass or its equivalent) or with a fixed screen and movable lens support and the camera with which I have, in the present  
50 instance, shown my improvements in combination is of the latter type.

Referring more particularly to the draw-

ings, 1 indicates the camera bed having a channel 2 therein and secured to the bed at the sides of the channel to overhang the  
55 same are parallel plates 3 that thus cooperate with the channel to form a track or way for a plate 4 constituting a carriage slidable thereon and carrying the camera front or lens board 5. One of the plates 3 is provided with a series of notches or serrations 6 forming engaging portions with each of which is adapted to register a similarly  
60 formed engaging portion or abutment 7 on the proximate side of the carriage 4.

Preferably at one side of the track is arranged a scale plate 7<sup>a</sup> having a series of characters 8 thereon, graduated to correspond with the engaging portion 6 on the track plate 4 and running parallel with the latter  
70 and hence with the path of movement of the carriage.

Intermediate the scale and track and preferably supported upon upwardly extending ears 9 on the scale plate 7 is a guide bar 10, also extending parallel to the track. Pivoted on the guide bar at a point intermediate its ends is a stop lever 11 having one arm 12 projecting toward, and provided with a downward extension 12 for engagement with  
80 the notches 6 of the track plate 3 and the notch 7 on the carriage when in register therewith while the opposite arm 13 forms a means for oscillating the other into and out of such engaging position. The stop is also adjustable longitudinally of the bar 10 whereby the portion 12 can be moved to the several positions for cooperation with any one of the notches 6 and thereby halt the carriage at different points on the bed at the  
90 selection of the operator. The arm 13 of the stop is fitted with an indicator or pointer 14 that cooperates with the scale 7<sup>a</sup> and registers with the different characters 8 thereon as the opposite engaging arm moves to its several positions, the reading of the indicator showing the distance of the objects that are in focus with the camera.

In practice, to set the focus the indicator arm 13 is depressed to disengage the engaging arm 12 and the stop moved longitudinally of the bar until the indicator reads at the character corresponding with the distance from the camera that the operator has  
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estimated his object to be. To facilitate the centering of the stop in proper register during such times, I provide a leaf spring 18 on the bed above the plate 7<sup>a</sup> that bears upon the under side of arm 13 and tends to normally maintain arm 12 in engaging position in the path of the carriage 5 and the arm 13 and the said spring have projecting and depressed portions 15 and 16, respectively that cooperate when the indicator 14 is at each character but yield under pressure when further adjustment is intended.

As the focusing device is set before the camera front is extended for an exposure, the portion 12 of the stop is in the path of the carriage as a whole and must be lifted before the notch 7 comes in register. To accomplish this automatically I provide a cam 17 on the forward end of the carriage that temporarily displaces the stop against the tension of spring 18 until the forward portion of the carriage has passed thereunder whereupon the stop snaps into the notch and locks the carriage against movement in either direction. This last mentioned feature renders my present invention particularly advantageous in the more inexpensive cameras as there need be no other provision made for locking the front on the bed such as clamping members on the carriage commonly employed in this capacity.

It will be noted that as the cooperating elements on the carriage or front and the camera bed combine to indicate and control the relative movement and adjustment of these parts, it is obvious that substantially identical results would be accomplished in substantially the same manner by interchanging the locations of the said elements as herein shown, all without departing from the spirit of my invention.

I claim as my invention:

1. In a focusing device, the combination with a camera bed, a track thereon and a carriage movable on the track, the track and carriage being each provided with engaging portions, of a pivoted stop mounted on one of said members and adapted to cooperate with the said engaging portions of the track and carriage to lock the latter to the track.

2. In a focusing device, the combination with a camera bed having a track thereon and a carriage movable on the track, the track and carriage being each provided with engaging portions adapted to register, one with the other, of a movable stop on one of said members adapted to cooperate simultaneously with the engaging portions of the track and carriage when in register to lock the latter to the track.

3. In a focusing device, the combination with a camera bed having a track thereon and a carriage movable on the track rela-

tively to the bed, the track and carriage being each provided with an engaging portion, of a movable stop on one of said relatively movable members adapted to cooperate with said engaging portions of the track and carriage to lock the latter on the track, means tending to maintain the stop in such cooperative position and tending to normally maintain it in the path of the other member and means on the latter for displacing the stop from the path thereof until its engaging portion is in position for cooperation therewith.

4. In a focusing device, the combination with a camera bed having a track thereon provided with a recess forming an engaging portion and a carriage movable on the track and embodying a base plate having a similarly formed engaging portion adapted to register with that on the track, of a movable stop on the bed adapted to cooperate with the engaging portions of the track and carriage when in register to lock the latter on the track, means tending to move the stop into such cooperative position and tending to normally maintain it in the path of the carriage and a cam on an advance portion of the carriage for displacing the stop from the path thereof until its engaging portion is in position for cooperation therewith.

5. In a focusing device, the combination with a camera bed and a carriage movable thereon, of a guide bar mounted on the bed parallel with the path of movement of the carriage, a stop pivoted on the guide bar to oscillate into and out of position for engagement with the carriage, said stop being also adjustable longitudinally of the guide bar to engage the carriage at different points on the bed and a leaf spring carried by the latter and engaging the stop to force it into position for engagement with the carriage, said stop and spring being provided with cooperating projecting and recessed portions for centering the stop in its different positions of adjustment on the guide.

6. In a focusing device, the combination with a camera bed, a scale thereon and a carriage movable on the bed, of a guide arranged intermediate the scale and the path of the carriage and parallel with the latter and a stop adjustable longitudinally of the guide having oppositely projecting portions, one cooperating with the scale and the other extending into the path of the carriage.

7. In a focusing device, the combination with a camera bed having a track thereon provided with a series of engaging portions, a carriage movable on the track and having an engaging portion adapted to register with those on the track, and a scale on the bed having graduations corresponding with the engaging portions on the track, of a guide

bar arranged intermediate the track and  
scale and a stop pivotally and slidably  
mounted on the guide bar and having por-  
tions projecting on opposite sides thereof,  
5 one of said portions being adapted to be ro-  
tated into and out of coöperation with the  
engaging portions of the track and carriage

to lock the latter on the track and the other  
to coöperate with the several graduations of  
the scale.

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Witnesses:

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