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G. BUCKY

ADJUSTABLE CARRIER FOR PHOTOGRAPHIC PLATE HOLDERS

Filed Sept. 24, 1925

2 Sheets-Sheet 1

Fig. 1.

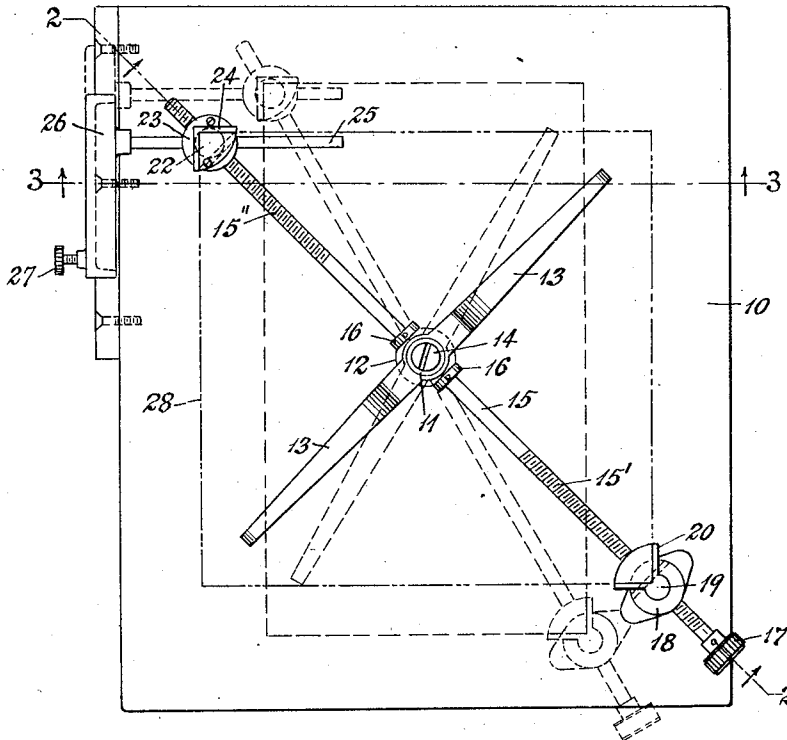
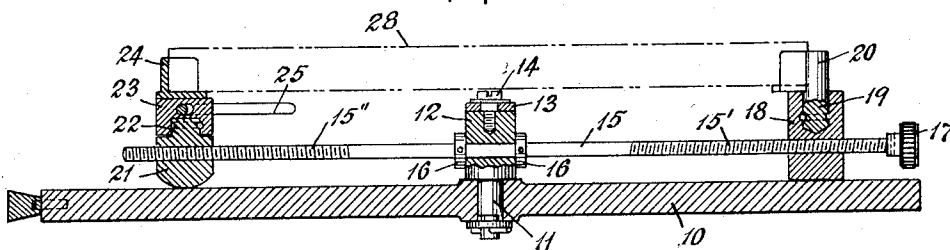


Fig. 2.



WITNESS

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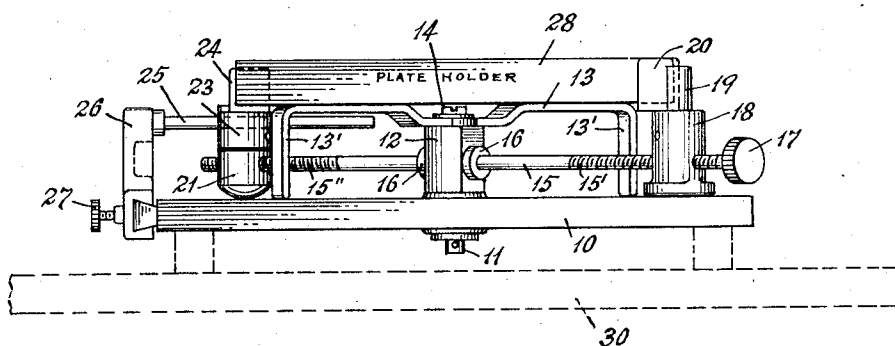
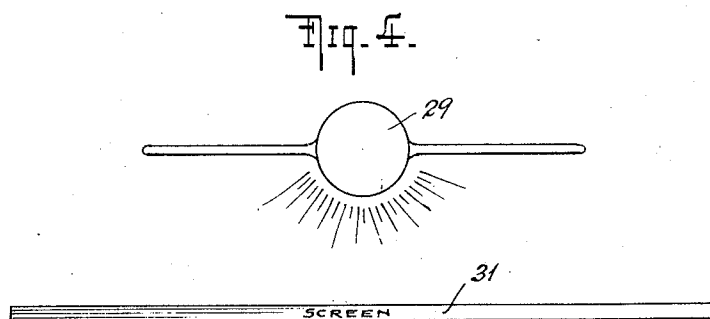
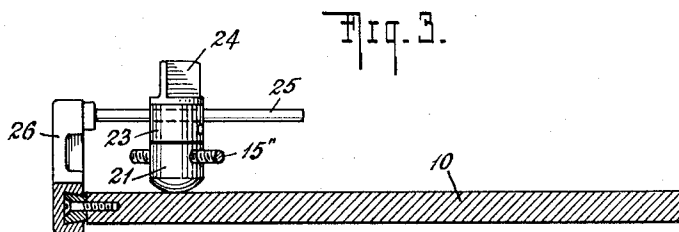
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WITNESS

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UNITED STATES PATENT OFFICE.

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ADJUSTABLE CARRIER FOR PHOTOGRAPHIC PLATE HOLDERS.

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My invention relates to devices for properly positioning photographic plate holders or film holders relatively to screens such as are used in taking X-ray pictures. The object of my invention is to provide a carrier for such holders which will be readily adjustable to holders of different sizes and will insure their symmetrical or central position. In the preferred form of my invention, the carrier is adjustable to take holders of different shapes and is so constructed that whatever such shape may be (whether square or other rectangular shape), the sides of the holder will be kept parallel to a definite direction.

A satisfactory and preferred embodiment of my invention is illustrated by the accompanying drawings, in which Fig. 1 is a plan view of the carrier; Figs. 2 and 3 are sections taken on lines 2—2 and 3—3 respectively of Fig. 1; and Fig. 4 is a diagrammatic elevation showing an example of the general arrangement of carrier, plate holder, X-ray tube, and screen.

The carrier shown comprises a plate or base 10, preferably rectangular, to which a support is pivoted to swing about an axis 11. In the embodiment illustrated, the support comprises a hub or boss 12 to which a bar 13 may be secured either rigidly or pivotally, as by a screw 14. In a direction transverse to the normal position of the bar 13 (preferably provided at its ends with feet 13' to engage the base 10), the hub 12 is provided with a smooth aperture or bearing for a spindle 15, held against longitudinal movement, as by means of collars 16. This spindle has oppositely threaded portions 15', 15'' of like pitch located on opposite sides of the hub 12, and is provided with a knob 17 for turning it. The portion 15' engages a correspondingly threaded nut or slide 18 having a flat bottom face in engagement with the base 10. To the upper surface of the slide 18 is pivoted at 19 an angle piece 20 the two members of which form a right angle with each other, the pivot 19 being preferably located at the corner of said angle piece and being parallel to the pivot axis 11. The portion 15'' of the spindle engages a corresponding internal thread on a nut 21 in sliding engagement with the upper face of the base 10. With the nut 21 is connected by a pivot 22, parallel to the pivots 19 and 11, a slide 23 to which is secured rigidly an angle piece 24 similar to

the angle piece 20, the pivot 22 being preferably in line with the corner of said angle piece. As shown in Fig. 4, the top of the bar 13 is flush or in the same plane with the upper surfaces of the horizontal bottom members or plates of the angle pieces 20 and 24. The slide 23 is movable lengthwise of a rod or bar 25 which extends at right angles from a head 26 to which such rod is secured rigidly, and said head is mounted to slide parallel to one of the edges of the base 10, so that the rod or bar 25 will remain parallel to the adjoining edge of said base. The angle piece 24 is secured to the slide 23 in such a manner that the members of said corner piece will be parallel to the two intersecting or meeting edges of the base 10.

Before the parts are mounted on the base 10, the two nuts or slides are adjusted so that the corners of the two angle pieces 20, 24 will be at exactly equal distances from the central pivot 11. If then the spindle 15 is turned, after the parts have been mounted, the angle piece 20 will always be at the same distance from the center as the angle piece 24, although such distance will increase or decrease according to the direction in which the spindle is rotated. A set screw 27 may be employed to lock the head 26 and thereby the entire mechanism in position after adjustment.

It will be evident that as long as the head 26 is free to move along the edge of the base 10, the support may be swung on the pivot 11, so that the spindle 15 may be brought to different positions, to form an angle of 45° with the edges of the base, or a smaller or a greater angle. Assuming that the spindle is in the 45° position, the device will be adapted to receive square plate holders, such as the one indicated at 28. At 29 (Fig. 4) I have indicated an X-ray tube, at 30 a support for the subject of which an X-ray picture is to be taken, and at 31 a screen of the type well-known in this art.

The spindle 15 being in the 45° position, one corner of the holder 28 would be placed in the angle piece 24, and the spindle 15 turned until the other angle piece 20 would be in clamping engagement with the diagonally-opposite corner of the plate holder 28, the pivot 19 enabling the angle piece 20 to adjust itself to the proper position. As the angle piece 24 moves toward or from the pivot 11, the slide 23 would move along the

bar 25 away from the head 26 or toward the same, and simultaneously the head 26 with the bar 25 and slide 23 would move in one direction or the other (downwardly or upwardly with reference to the showing in Fig. 1). The plate holder would be steadied by engagement with the bar 13.

As long as the spindle 15 remains in the 45° position (with the spindle axis bisecting the angle of the angle piece 24), the support or carrier would be in proper condition to receive square plate holders 28, of different sizes, within the range of adjustment of the distance between the angle pieces 20, 24.

If the plate holder is not square, but in the shape of a rectangle having unequal sides, the parts will be shifted to bring the spindle 15 from the 45° position to the one corresponding to the particular shape of the plate holder, and in this new position the spindle axis will no longer bisect the angle between the members of the angle piece 24. The bar 13 may be swung to form a different angle with the spindle 15, if desired, but in most cases I prefer to maintain a rigid connection between the hub 12 and the bar 13, as the latter will be in proper supporting or steadying engagement with the plate holder throughout the range of adjustment of the apparatus. The dotted lines in Fig. 1 indicate the position of the parts with a rectangular plate holder held between the angle pieces 20, 24.

Whatever the shape of the plate holder may be, it will be properly centered by the carrier, that is, the center of such holder will coincide with the pivot axis 11. Moreover, the members of the angle piece 24 will always remain parallel to the edges of the base 10, that is, the direction of said members will be preserved throughout any changes in their position, and thus in any adjustment of the apparatus, the directions in which the edges of the plate holder extend will remain the same. It is, of course, not essential that these directions be parallel to the edges of the base 10, since the shape of the latter is immaterial to my invention.

Various modifications may be made without departing from the nature of my invention as set forth in the appended claims.

I claim:

1. A carrier for photographic plate holders and the like, comprising a base, plate-holder engaging members movable toward and from each other relatively to said base, and an adjusting device in operative relation to both of said members to move them simultaneously toward or from each other.

2. A carrier for photographic plate holders and the like, comprising a base, plate-holder engaging members, and an adjusting device, mounted on said base in operative relation to said members, for increas-

ing or decreasing the distance between said members to enable the carrier to take plate holders of different sizes.

3. A carrier for photographic plate holders and the like, comprising a base, angular members adapted to engage a plate holder at diagonally opposite corners, and an adjusting device in operative relation to said members for increasing or decreasing the distance between said members.

4. A carrier for photographic plate holders and the like, comprising a base, a rotatable spindle carried by said base and held against longitudinal movement, said spindle having two portions with screw threads of like pitch but opposite direction, nuts in engagement with said threaded portions, and plate-holder engaging members carried by said nuts.

5. A carrier for photographic plate holders and the like, comprising a base, plate-holder engaging members, a swinging support for said members, and an adjusting device for increasing or decreasing the distance between said members, said device being mounted to swing in unison with said support.

6. A carrier for photographic plate holders and the like, comprising a base, a support mounted on said base movably so that it may take positions of different direction on said base, plate-holder engaging members mounted on said support, and an adjusting device for increasing or decreasing the distance between said members.

7. A carrier for photographic plate holders and the like, comprising a base, a hub pivoted thereto, a spindle journaled in said hub and held against longitudinal movement, said spindle being provided, at opposite sides of the hub, with screw threads of like pitch but opposite direction, nuts in engagement with said threads and also in engagement with the base to keep said nuts from turning, and plate-holder engaging members on said nuts.

8. A carrier for photographic plate holders and the like, comprising a base, a support mounted on said base movably so that it may take positions of different direction on said base, plate-holder engaging members mounted on said support, an adjusting device for increasing or decreasing the distance between said members, and a guide for keeping one of said members parallel to its original position notwithstanding any change in the position of said support.

9. A carrier for photographic plate holders and the like, comprising a base, a swinging support on said base, plate-holder engaging members mounted to swing with said support, an adjusting device for varying the distance between said members, a rod with which one of said members has a

sliding connection, and a head to which the rod is secured, said head being mounted to slide on said base in a straight line at an angle to the direction of said rod.

5 10. A carrier for photographic plate holders and the like, comprising a base, a swinging support on said base, slides mounted to swing with said support and movable toward and from each other, an adjusting
10 device for varying the distance between said slides, plate-holder engaging members pivoted to said slides about parallel axes, and a guide for keeping one of said members parallel to its original position notwith-
15 standing any swinging movement of said support.

11. A carrier for photographic plate holders and the like, comprising a base, plate-holder engaging members, an adjust-
20 ing device, mounted on said base, for moving companion plate-holder engaging members simultaneously away from, or toward, each other to increase or decrease the dis-

tance between said members, and an auxiliary plate-holder supporting member ex- 25
tending transversely to a line connecting the first mentioned members.

12. A carrier for photographic plate holders and the like, comprising a base, a hub pivoted thereto, a cross bar carried by 30
said hub to engage a plate holder, a longitudinal spindle journaled in said hub but held against longitudinal movement, said spindle being provided, on opposite sides of the hub, with portions having threads of 35
like pitch but opposite directions, nuts in sliding engagement with said base and fitted to said threaded portions, plate-holder engaging members pivoted to said nuts about axes parallel to the pivot axis of said hub, a 40
rod with which one of said members is in sliding engagement, and a head to which said rod is secured, said head being mounted to slide on said base in a straight line at an angle to the direction of said rod.

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