May 20, 1930. G. R. MAYER 1,759,165

PLATE SUPPORTER

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Fig. 1.

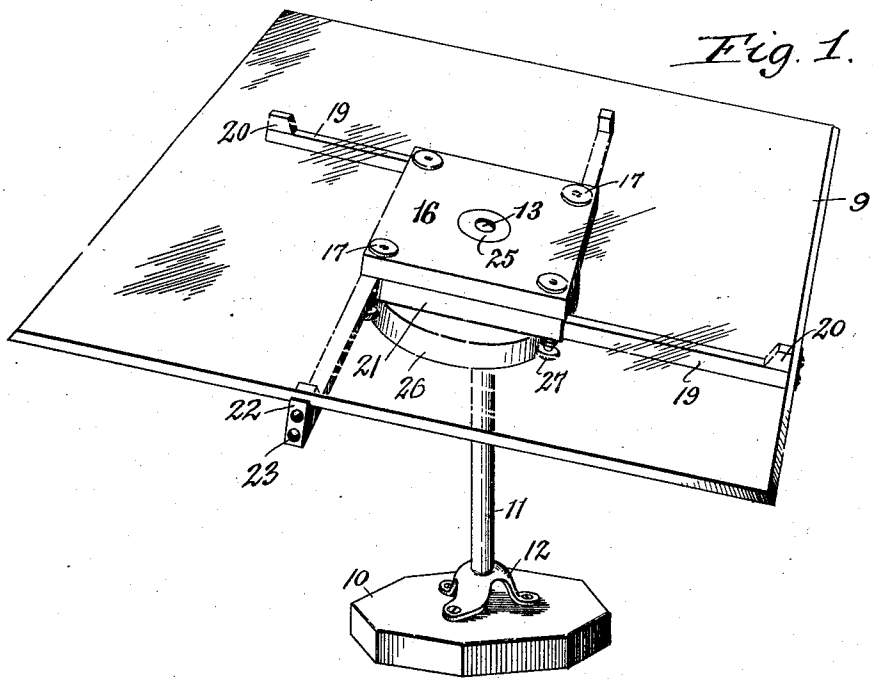


Fig. 2.

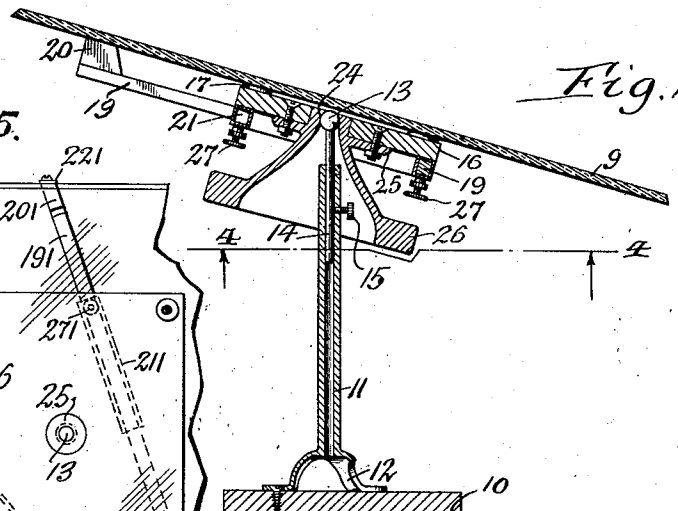
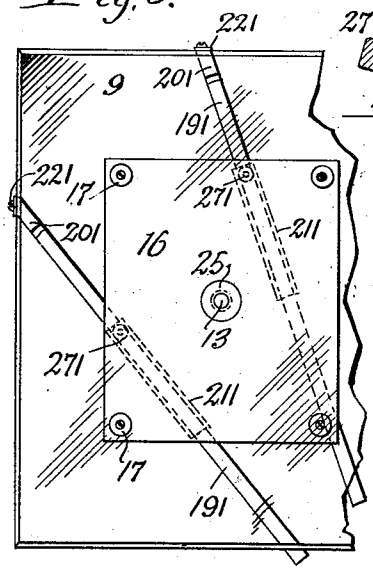


Fig. 5.



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Fig. 3.

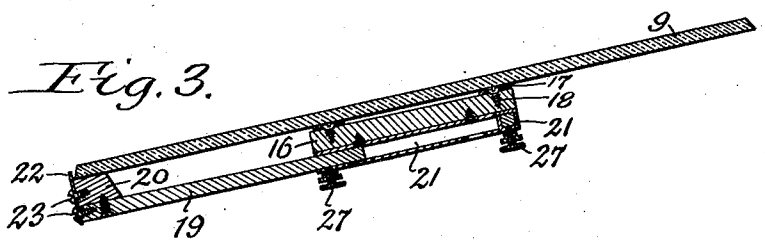
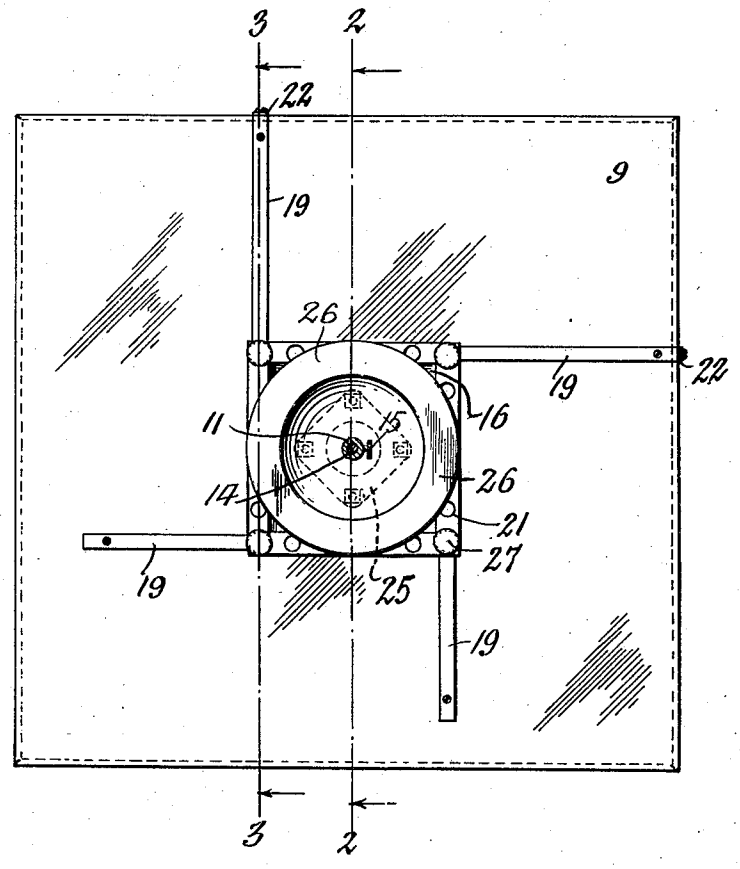


Fig. 4.



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UNITED STATES PATENT OFFICE

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PLATE SUPPORTER

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This invention relates to a plate supporter and more particularly to a supporter whereby glass plates used in photography for making printing plates may be supported in such manner that they are counterbalanced and thereby permit of easily, conveniently and safely supporting plates of this character while tipping the same in various directions for the purpose of flowing over these plates collodion, varnish or other liquid in order to develop, intensify or protect the photographic image on the plates.

The object of this invention is to provide a supporter for this purpose which is simple and inexpensive in construction, which can be quickly set up or taken apart and stored away compactly when not in use, and which permits of easily and conveniently rocking or manipulating the plate without involving any heavy work on the part of the operator, which permits of rocking the plate for distributing the liquid over the surface, and also draining the surplus liquid therefrom when the work is completed without liability of breaking the plate.

In the accompanying drawings:—

Figure 1 is a perspective view of a plate supporter embodying a satisfactory form of my invention.

Figures 2 and 3 are vertical sections taken on the correspondingly numbered lines in Fig. 4.

Figure 4 is a horizontal section taken on line 4—4 Fig. 2 looking upwardly.

Figure 5 is a plan view showing a modified form of the supporting head.

Similar characters of reference indicate like parts in the several views of the drawings.

This plate supporter may be advantageously employed for supporting a plate of any suitable character which must be oscillated, rocked or tipped in different directions for the purpose of treating the same, but in the present case it will be assumed that a photographic plate 9 of rectangular form is mounted on this supporter, which photographic plate is made of glass and adapted to have its upper surface coated with collodion, varnish or other liquid for the purpose of developing, intensifying or protecting the image on the surface of this plate, and render the same more suitable for use in the manufacture of printing plates therefrom.

In its general organization this plate supporter consists of a stand, pedestal or stationary member which is adapted to be supported on a table or other suitable place, and a supporting head which is connected by means of a universal or swiveling joint with the stand or pedestal, and adapted to carry the plate which is to be coated with the desired liquid, by rocking this head on this stand so as to distribute the liquid over the surface of the plate, and finally tipping the plate so that the excess liquid may be drained off into a bottle or other suitable receptacle provided for that purpose.

Although the stand may be variously constructed so far as its details are concerned, the same for example may be constructed as shown in the drawings, and as there shown the same comprises a base 10, a tubular column or post 11 rising from the base and preferably provided at its lower end with laterally projecting feet 12 which are secured to the base, and a ball or sphere 13 arranged at the upper end of the column, and preferably mounted thereon so as to be capable of vertical adjustment. This adjustment may be effected by any suitable means, but preferably by a stem 14 projecting downwardly from the underside of the ball 13 and secured at different heights in the hollow column 11 by means of a set screw 15.

The head may also be organized in various ways so as to accomplish the purpose of this invention, but as shown in Figs. 1–4 of the drawings the same preferably comprises a central plate-shaped body 16 which is adapted to engage the central part of the underside of the photographic plate by means of a plurality of flexible or soft cushions 17 having the form of disks secured to the upper side of the body 16, which disks may be made of rubber or similar material and secured to the body 16 by means of screws 18, as shown, or other suitable means.

On this body is mounted a plurality of supporting arms 19 which project laterally

therefrom and are adapted to support the photographic plate adjacent to its edges. In the preferred construction four of such arms are employed, the inner ends of which are capable of longitudinal adjustment on the supporting body 16, while the outer ends of these arms are provided with supporting blocks 20, each of which is adapted to engage with the underside of the photographic plate adjacent to one of its edges. The adjustment of each of these arms laterally with reference to the supporting body 16 may be effected by various means, so as to adapt this supporter to plates of different sizes.

The means for thus supporting each of the arms 19 on the body 16 which are shown in the drawings, consist of a tubular guideway 21 secured to the underside of the body 16 adjacent to one of its edges, in which guideway the inner part of one of the supporting arms 19 is adapted to slide lengthwise for the purpose of bringing its supporting block 20 into the desired relation to the underside of the photographic plate, for properly supporting the same. This supporting arm and the guideway in which it slides are preferably so constructed that this arm is permitted to slide in the guideway but prevented from turning therein, and this is preferably accomplished by making the supporting arm square in cross section and the guide-way 21 which receives the same of corresponding form in cross section, as shown in Fig. 2. Each of the supporting arms 19 is held in its adjusted position in the companion guideway 21 by means of a set screw 27 mounted on the underside of the respective guideway and engaging with the underside of the adjacent supporting arm, as best shown in Fig. 3.

In order to render the device compact and still permit of expanding the same so as to properly support photographic plates which are relatively large, the supporting body 16 is made of rectangular form and one of the guideways 21 is arranged on the underside of the body 16 along one of its edges, so that the front end of each guideway extends across the rear end of an adjacent guideway, and each supporting arm 19 sliding within one of the guideways 21 extends with its central part across the inner or rear end of the supporting arm in an adjacent guideway, as best shown in Figs. 1, 3 and 4.

In using this stand, the attendant holds the head of the supporter and the plate in a horizontal position or substantially so, while pouring the liquid over the upper surface of the plate which is to be treated and then rocks the plate as much as may be necessary and in the desired direction for the purpose of securing a uniform and even distribution of the liquid over the plate, and insure a uniform treatment or coating of the same in accordance with the effect which is desired. After the plate has been sufficiently treated with this liquid the same is tipped to one side so as to drain off the surplus liquid into a suitable receptacle.

The photographic plate is preferably placed upon the head of the supporter so that the part on one side of the center and leading to a corner of the same is slightly heavier than that part of the plate on the diametrically opposite side of the pivotal connection between the head and the stand, so that when free, this head and the plate resting thereon will tilt toward the heavier side and thereby permit any excessive liquid applied to the plate to be drained off into a bottle or other receptacle so that it can be saved and used over again, as above described.

In order to prevent the photographic plate while thus tilted toward its heavier side from sliding off the supporting head, the respective supporting arms and blocks which engage with the heavier part of the photographic plate are provided at their outer ends with stops 22 having preferably the form of metal fingers which are secured to the outer ends of the respective arms and blocks by means of screws 23, as shown in Figs. 1, 3 and 4, or by other suitable means, and are adapted to be engaged by the edges of the depressed portion of the photographic plate so that the latter is prevented from sliding off the head when left free.

Those supporting arms and blocks which engage with the lighter half of the photographic plate are not provided with stops similar to the stops 22, and these arms may therefore be so adjusted that the blocks engage with the underside of the lighter half of the glass plate at a distance from the outer edges of the same as may be most suitable for the particular plate which is being operated upon.

The supporting plate and the head resting thereon may be thus rocked in all directions by means of a pivotal connection between the supporting body 16 and the standard, which pivotal connection is preferably constructed in the form of a universal joint or a swiveling connection consisting in the present case of a spherical socket 24 arranged on the central part of the underside of the supporting body 16 and receiving the upper part of the ball 13 of the standard. This socket may be formed in any suitable manner, but in the preferred construction the same is formed in a plate 25 secured to the underside of the body 16 by means of screws, as shown.

In the absence of any provision to aid the operator, he would be obliged to manually support a considerable part of the load of the photographic plate which is being treated, which in the case of a very large and thick plate, is considerable.

In order, therefore, to relieve the operator from undue physical exertion and render the

work of rocking the plate comparatively easy, counterbalancing means are provided which operate to offset the weight of the photographic plate in any position which the same may be mounted on the head and any direction toward which the same may be tilted. In the preferred form of this universal counterbalancing means, the same consists of an annular skirt or bell-like extension or bell-shaped flange 26 of metal, extending downwardly from the underside of the supporting head and surrounding the ball 13 and the adjacent part of the supporting column.

This annular counterbalancing weight may be made of cast iron, lead or other heavy metal, and may be formed integrally with the plate 25 containing the socket, or may be made separate from the same.

Due to the annular form of this counterbalancing weight the same will tend to maintain the supporting head and the load resting thereon in a horizontal position at all times, and it therefore requires but little effort on the part of the operator to tilt or rock the photographic plate in any desired direction, thereby effecting a considerable saving in the labor which has heretofore been necessary in manipulating plates of this character, particularly those of large dimensions.

In addition to serving as a counterbalancing weight, the annular flange or skirt 26 is adapted to engage different parts of its lower edge with the adjacent side portions of the supporting column of the stand and thereby limit the rocking movement of the head and the plate resting thereon when left free by the operator, thereby enabling the plate to be maintained in a position of rest which is at the desired angle to properly drain the surplus or excess liquid from the top of the photographic plate into a receptacle arranged at the lowermost corner or depressed part of this plate.

Aside from the convenience and ease with which a plate of this character may be rocked for the purpose of flowing the liquid over different parts of the same, this supporter also enables this work to be done with greater safety inasmuch as the plate during this operation is reliably supported and incapable of sliding off the supporter and becoming broken as has been frequently the case when manipulating photographic plates in accordance with the methods heretofore commonly in use.

As a whole this plate supporter is exceedingly simple in construction, it has no parts which are liable to get out of order during ordinary use, and the same is also capable of being taken apart and folded compactly so that the same can be stored in a comparatively small space, either for storing the same when not in use or for shipping purposes.

In order to get the maximum benefit from the counterbalancing weight in the level and tilted positions of the same the axis of the pivotal connection between the stand and the supporting head should be placed as close to the load as possible and for this reason the socket 24 and the ball 13 are arranged immediately next to the underside of the plate 9 which is being supported, but preferably without actually touching the same so as not to interfere with the rocking movement of the plate or sliding the same onto and off the supporting head.

By this means the operator is relieved as much as possible from the weight of the plate and permits him to easily rock the plate with a minimum of effort and thereby enables him to devote his attention more closely to the progress of the work of treating the plate and getting the best results without unnecessarily tiring the operator.

Instead of providing the head with four supporting arms, as shown in Figs. 1 and 4, a different number of such arms may be employed. For example, in Fig. 5 a construction is shown in which two supporting arms 191 are mounted on the body 16 of the supporting head on opposite sides of the swiveling or universal joint between the head and standard so that these arms diverge from the inner ends toward their outer ends and are provided at their outer ends with suppporting blocks 201 and stops 221 adapted to engage with the adjacent underside and edge portions of the plate, as in the form shown in Figs. 1–4, and control parts of these arms are adjustable laterally relative to the body by sliding the same in guideways 211 of the underside of the body and holding the same in place by means of set screws 271, as in the construction shown in Figs. 1–4.

By sliding the arms inwardly or outwardly relative to the body the blocks 201 and stops 221 may be spread apart or brought closer together to suit the dimensions or shape of the plate which is being handled, or to suit other conditions.

I claim as my invention:

1. A plate supporter comprising a support, a ball arranged at the upper end of said support, a head upon which a plate is adapted to be carried, a spherical socket arranged adjacent to the upper side of said head and fitting over said ball so as to form a universal joint therewith, and a counterbalancing weight of annular form depending from said head around said ball and socket.

2. A plate supporter comprising a support, a body pivoted on said support and having edge portions arranged at an angle relatively to one another, guideways arranged on said body along the several edge portions thereof and each guideway having its front end extending past the rear end of an adjacent

guideway, and supporting arms adjustably mounted in said guideways and each arm having its central part extending across the rear end of another arm.

In testimony whereof I hereby affix my signature.

GUSTAV R. MAYER.