

TITLE: UNIVERSAL MOUNT FOR A SPECIMEN HOLDER.

The present invention relates to utility holders and more particularly to a novel specimen holder that is readily positionable in connection with a camera lens useful in macro-photography incorporating a universal means for adjusting the specimen with regard to focus, side-position and elevation.

Although cameras have been employed for taking the picture of small specimen objects or subjects, it has been difficult to hold the subject or object in a proper position along the focal plane of the magnifying lens in the camera so that a proper picture can be taken. Usually, the camera is placed on a tripod for stability and held in a fixed position with respect to the subject or the object during the taking of the picture. However, when pictures of subjects or objects are needed in macro-photography, it is difficult to maintain the subject or object in position even though the camera is fixedly disposed on a tripod.

Furthermore, under such circumstances, it is necessary that the lens of the camera be placed very close to the specimen object being photographed and that the specimen subject be kept at the proper focal distance from the lens during the time that the picture is being taken.

Therefore, a long standing need has existed to provide a novel means for supporting or holding a specimen object or subject which may be readily adjusted by up and down movement as well as side-by-side movement and additionally by rotary movement so that the specimen subject or object may be properly placed with respect to the lens of a camera. In order to arrange such a means, the mounting means should be carried on the camera itself and should include cantilevered components which extend forward of the camera lens where azimuth and elevation adjustments can be made.

According to the present invention there is provided

5 a universal mount for use in combination with a conventional camera having an optical axis comprising: a base; fastener means operably carried on said base for releasably securing said base to the camera; telescoping means outwardly extending from a selected side of said base in a cantilevered manner; a movable rod carried on the free end of said telescoping means adjustable towards and away from the camera optical axis; and holder means
10 carried on a selected end of said rod for releasably holding a subject intended to be photographed.

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The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may best be understood with reference to the following description, taken in connection with the accompanying drawings in which:

FIGURE 1 is a front perspective view showing the novel universal mount for a specimen holder incorporating the present invention;

FIGURE 2 is a side elevational view, partly in section, of the novel universal mount for a specimen holder shown in FIGURE 1;

FIGURES 3, 4 and 5 are perspective views showing a variety of specimen holders that may be used on the end of the movable telescoping member in the universal mount shown in FIGURES 1 and 2.

Referring to FIGURE 1, the novel universal mount for a specimen holder is indicated in the general direction of arrow 10 which includes an elongated, box-like base 11 having a thumbscrew means 12 adapted to be releasably coupled with a tripod mount carried on the underside of a conventional camera, indicated by numeral 13. The camera 13 includes a lens 14 having an optical axis on which an object or specimen intended to be photographed is placed. In order to properly position the object or subject on the optical axis, the base 11 further includes a fixed barrel 15 that outwardly extends from the front of the base forwardly of the camera 13 in a cantilevered fashion. The barrel tube 15 slidably mounts a focus tube 16 in telescoping relationship so that the focus tube may be moved towards or away from the camera 13 during adjustment. The free end of the focus tube 16 is fixed with a specimen rod holder barrel 17 which includes a central bore having open ends into which a specimen holder rod 18 is slidably disposed. The end of the rod 18 is illustrated as carrying a specimen holder taking the form of a spring clip 20 which is suitable for holding a specimen on the optical axis of the camera lens 14 after adjustment.

The rod holder 18 may be employed to support one of several specimen or subject holders, such as the spring clip 20, a transparent box 21, as shown in FIGURE 3, a combination of spring clip and transparent box, as shown in FIGURE 4, and as further indicated in FIGURE 5.

As shown more clearly in FIGURE 2, the telescoping members 15 and 16 constituting the fixed barrel and the movable focus tube are arranged in coaxial relationship with respect to one another and are supported on bearings 22 and 23 so as to permit movement of the focus tube with respect to the fixed barrel. The tube and barrel are arranged in telescoping relationship so that the focus tube 16 may be extended outwardly from the fixed barrel 15 to a desired distance. Also, it is to be understood that similar journal bearings are provided within the open bore of rod holder barrel 17 so that the rod 18 may readily move therethrough through a desired or adjusted position.

As shown more clearly in FIGURE 3, the specimen holder rod 18 is smooth on its external surface so as to slide within the bore of the holder barrel 17 while carrying a box 21 composed of transparent material on its extreme end. The box 21 includes a removable cover or lid 24 adapted to snap onto or off of the sidewalls of the box to permit storing of a specimen within the box or the removal thereof.

FIGURES 4 and 5 show an alternate specimen holder wherein the specimen is retained in a fixed position within a box 25 composed of transparent material. In this latter instance, a clip similar to the clip 20 is carried on the end of the rod 18 with the box 25 being secured to one side of the clip element. The other side of the clip element carries a transparent plate 26 which is moved into or out of the box 25 from one side thereof. This relationship is more clearly shown in FIGURE 5 when

the spring clip 20 is compressed to permit the transparent panel 26 to be moved out of the cavity of box 25. This permits an object or subject to be introduced into the cavity or to be released therefrom.

In any event, the object, be it held in the box or by the clip, is intended to be adjusted by means of the focus tube and the rod 18 so that the object will lie on the optical axis and within focus of the camera lens 14. Therefore, it is important that the upper side of the base 11 be mateable with the underside of the conventional camera 13 whereby the central longitudinal axis of the focus tube and fixed barrel will be parallel to the optical axis of the camera. Such a parallel relationship will be established upon assembly of the universal holder of the present invention with the conventional camera 13. Once assembled, the focus tube may be either rotated or moved in and out of the barrel 15 to place the object in proper focus. The holder rod 18 may be either rotated or moved through the bore of the barrel 17 to further adjust positioning of the object or subject on the optical axis. Thereby, the specimen holder barrel as well as holder rod allows photographic subjects to be rotated and positioned by gripping the specimen holder rod where it extends below the barrel 17. Also, it is to be understood that the transparent box 21 may be of watertight construction so that aqueous subject matter can be examined and photographed.

In the practice of the present invention utilizing the combination of movements (in-out, up-down, side-to-side, and rotation around the central vertical axis) it allows the photographic subject, such as a flower, insect, gem, microscopic slide, etc. to be positioned in exactly the proper

orientation desired. The subject is held steady and positioned in the most advantageous lighting angles for photography and videography. This is totally achieved from the "hand-held" position allowing one-handed orientation and focusing of the subject while the other hand is free to operate camera controls. Because specimen and camera are locked together as one unit, steadiness of the photographic image is ensured while the photographer retains full freedom of movement so as to allow the photographer to change lighting and background at will.



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CLAIMS

1. A universal mount for use in combination with a conventional camera having an optical axis comprising:

a base;

5 fastener means operably carried on said base for releasably securing said base to the camera;

telescoping means outwardly extending from a selected side of said base in a cantilevered manner;

10 a movable rod carried on the free end of said telescoping means adjustable towards and away from the camera optical axis; and

holder means carried on a selected end of said rod for releasably holding a subject intended to be photographed.

15 2. A mount according to Claim 1 wherein:

said telescoping means includes a central longitudinal axis in parallel spaced-apart relationship with respect to the camera optical axis.

3. A mount according to Claim 2 wherein:

20 said telescoping means includes a fixed barrel outwardly projecting from said base and a movable focus tube extending from and carried by said fixed barrel so as to adjustably extend and shorten the overall length of said telescoping means.

25 4. A mount according to Claim 3 wherein:

said focus tube mounts in friction bearings are carried by said fixed barrel.

5. A mount according to Claim 4 including:

30 an open-ended barrel carried on the end of said focus tube having a central axis normal to the axis of said telescoping means; and

a rod slidably and rotatably carried on said open-ended barrel.

6. A mount according to Claim 5 wherein:

35 said holder means is selected from a transparent



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box and a manual clip carried on the end of said rod adjacent to the camera optical axis.

7. A universal mount for a specimen holder substantially as herein before described with reference to
- 5 the accompanying drawings.
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