No. 658,911. Patented Oct. 2, 1900.

G. W. HALL.

CLAMPING SOCKET AND SUPPORT FOR CAMERAS.

(Application filed Jan. 19, 1900.

(No Model.)

Fig. 1.

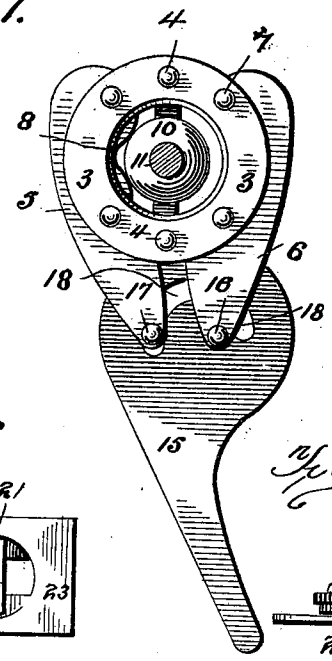


Fig. 2.

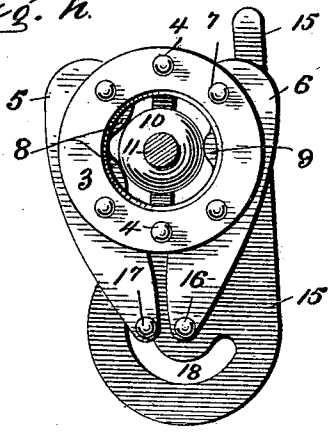


Fig. 6

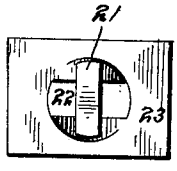


Fig. 3.

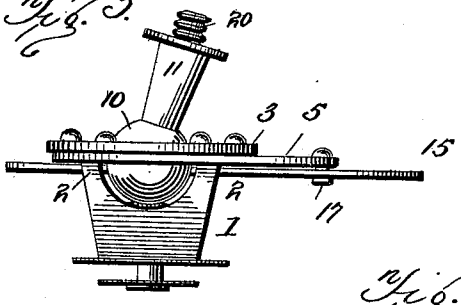


Fig. 5.

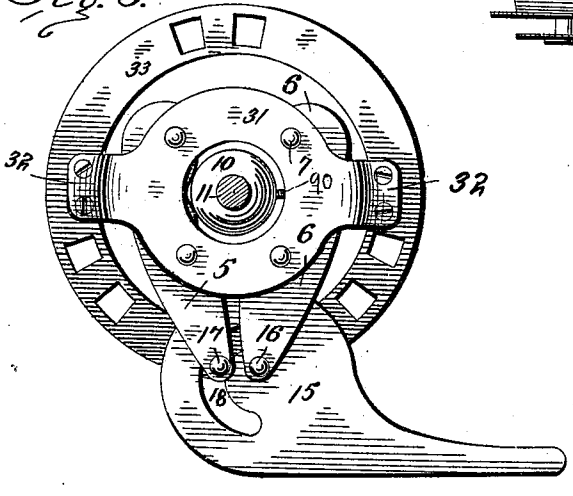
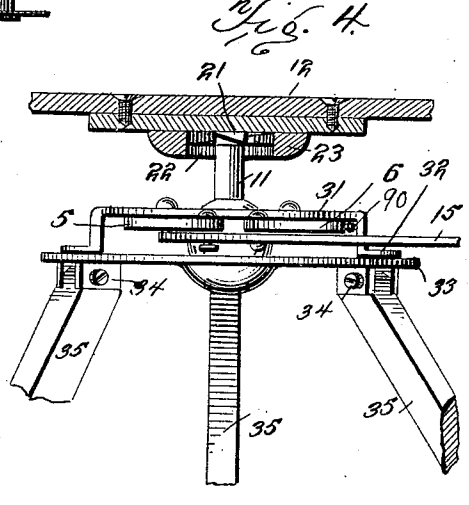


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE W. HALL, OF HERMON, MAINE.

CLAMPING SOCKET AND SUPPORT FOR CAMERAS.

SPECIFICATION forming part of Letters Patent No. 658,911, dated October 2, 1900.

Application filed January 19, 1900. Serial No. 2,078. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. HALL, a citizen of the United States, residing at Hermon, Maine, have invented certain new and useful Improvements in Clamping Sockets and Supports for Cameras, &c., of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an adjustable socket and holder applicable to tripods and similar stands and adapted to support a camera or other instrument in vertical or inclined position or at any angle relatively to the support.

The object of the invention is to produce a strong and desirable device whereby a camera or other instrument can be rotated or adjusted at any angle within the range of the holder and there firmly held by a simple lever movement; and the invention consists in the construction and combination of the various parts.

Figure 1 is a plan and partial section of the ball and socket and holder, the clamping jaws or levers being spread away from the ball. Fig. 2 is a similar plan of the instrument, showing the jaws clamped on the ball. Fig. 3 is a side elevation of the device of Figs. 1 and 2. Fig. 4 is a partial section and partial elevation of a modification, showing a portion of the base of the camera and upper end of tripod. Fig. 5 is a top plan of the modification of Fig. 4, omitting camera and tripod. Fig. 6 is a plan of a coupling which may be substituted for the screw for attachment to base of camera.

A yoke or base-piece 1 is to be attached to the stand or tripod in any usual way. This base-piece has arms 2 2, which are riveted, as at 4, or otherwise held to the socket-ring 3. The base piece or yoke forms a socket or rest for a ball 10, as indicated in Figs. 1, 2, and 3. Beneath the socket-ring 3 are two jaws. One of these jaws, as 5, is rigid with the socket-ring, being attached by pins, rivets, or other devices or being cast or struck up integral with the socket-ring. The other jaw 6 is pivoted at 7 to the socket-ring, so that its free end may swing toward or from the jaw 5. One of the jaws has a notch, as 8, therein at the edge which is toward the other jaw. The opposing jaw has a projection, as 9, facing toward the notch in the opposite jaw. In Figs. 4 and 5 this is a screw 90. The ball 10 is constructed to enter the socket or space between the holding-jaws. Preferably the ball will pass below its center and being grasped by the turning of jaw 6 toward jaw 5 will be thus held and secured against escape. Ball 10 has a stem 11, to which the camera 12 or other article may be attached. The free end of jaw 6 is swung toward jaw 5 by the operation of cam-lever 15. This lever is pivoted at 16 to movable jaw 6, and a boss or pin 17 on jaw 5 enters a snail or cam slot 18 in said lever 15. As this snail-cam is eccentric to the pivot of lever 15, the turning of said lever on its pivot will swing the free end of the pivoted jaw toward or from the fixed jaw, thus in closing causing the jaws to bite ball 10 with force enough to hold said ball in any adjusted position. The cam engagement of the lever 15 with the boss on jaw 5 serves to lock the jaws in any position to which they may be adjusted by the swing of said lever. The lever preferably swings toward the ring or socket, so as to lie close alongside the same when the ball is fastened in any position.

The camera or other instrument may be attached to the stem by a screw-thread, as at 20, or other form of attaching mechanism may be used. In Figs. 4 and 6 I show the stem 11 provided with a cross-bar 21, which bar has its under surface inclined. The bar may pass through slot 22 in a plate 23, which plate is attached to the bottom of the camera 12 by any suitable means. The plate 23 has inclined surfaces alongside the slot 22, so that a partial turn of the plate will lock it firmly to the head 21. This makes a very speedy and effective means for attaching the camera to the ball and stem. Habitually the ball may remain attached to the camera; but sometimes it is desirable to remove it, so that the camera may have a steady supporting-base.

In Figs. 4 and 5 I show the ring 31 as made with lugs 32, which lugs turn down and are attached to a ring 33. The ring 33 has wings 34 cut out of its substance and turned down to form means for attachment of the tripod-legs 35. A socket or cup 36 may also be formed of metal struck down from or attached to the ring 33.

The whole device may be formed of a metal which is not easily corroded, as brass or nickel. For light structures it may be made of hard rubber; but metal is generally preferable.

Most of the parts can be struck up from metallic plate, so that the cost of construction in this way is small.

I am aware that a ball-and-socket construction for similar purposes is old in which the ball is held in socket by set-screw, and perhaps by other means, to secure a like result as to adjustment. I therefore claim only such improvements of my own invention as I have herein specifically enumerated in the claims.

What I claim is—

1. In a support as described, a yoke or base-piece having a socket for a ball, a horizontal ring rigidly connected to said base-piece and having a fixed jaw at one side and a movable jaw at the other side of the ball-socket, a cam-lever connected to one jaw and acting on the other to close said jaws, and a ball provided with means for attachment to an instrument, all combined substantially as described so that the ball may be removed from the socket, or entered between said jaws, and clamped to hold the instrument in perpendicular or any inclined position.

2. In a support as described, a metallic yoke having a ball-socket, a horizontal ring rigidly connected to said yoke and having its opening over the socket, a fixed jaw at one side of the ring and a movable jaw at the other side of the ring, a ball adapted for removal or to enter between the jaws, and means for closing the jaws onto the ball to hold said ball and its attachment in any adjusted position, substantially as described.

3. In a socket as described, the ball-socket rigidly connected to a horizontal ring, a fixed jaw rigidly connected to the ring at one side and a movable jaw pivoted to the ring at the other side, a cam-lever pivoted to one jaw and engaging the other to open or close the movable jaw, and a ball having a stem attachment for an instrument, and adapted for removal or for entry into the socket between said jaws, whereby the instrument may be held in any adjusted position by the clamping of the ball, substantially as described.

4. In a support as described, the socket, the upper ring having a jaw fixed and a jaw pivoted thereto, and a cam-lever pivoted to one jaw and engaging the other, said ring having lugs by which it is supported, and a second lower ring connected to said lugs and having wings for leg attachment, and a stemmed ball adapted to enter said socket, all combined substantially as described.

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

GEORGE W. HALL.

Witnesses:
W. A. BARTLETT,
CHAS. K. DAVIES.