(No Model.)

C. D. OATMAN.

TRIPOD HEAD.

No. 385,567. Patented July 3, 1888.

Fig. 3.

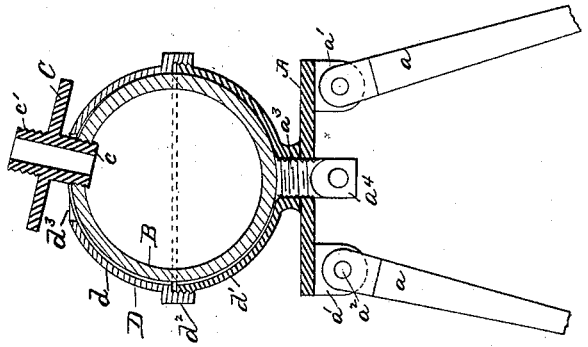


Fig. 2.

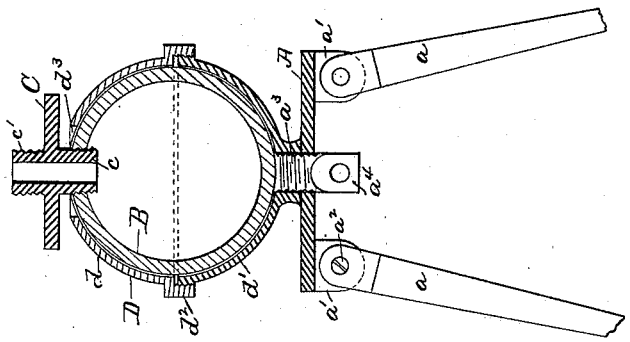
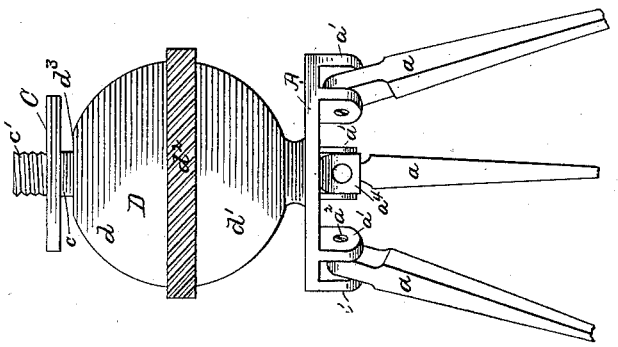


Fig. 1.



WITNESSES:

C. W. Benjamin.

A. T. Hales.

INVENTOR.

Charles D. Oatman.

BY

Arden A. Fitch,

his ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES D. OATMAN, OF BROOKLYN, NEW YORK.

TRIPOD-HEAD.

SPECIFICATION forming part of Letters Patent No. 385,567, dated July 3, 1888.

Application filed December 24, 1887. Serial No. 258,871. (No model.)

To all whom it may concern:

Be it known that I, CHARLES D. OATMAN, of Brooklyn, county of Kings, State of New York, a citizen of the United States, have invented certain new and useful Improvements in Tripods, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a tripod for optical instruments—such as surveyors' lenses and others which require in use a careful and accurate fixed adjustment on their mountings or standard; and my invention consists in the combination of devices, hereinafter at length described, and as more at length recited in the claims.

Figure 1 is a view of a tripod in elevation containing my invention. Fig. 2 is a central vertical sectional view of the same, and Fig. 3 is a similar view showing the parts adjusted in a position different to that shown in Figs. 1 and 2.

Similar letters of reference indicate similar parts throughout the figures of the drawings.

A is the tripod-standard, to which are pivoted or hinged the tripod-legs *a*, as by means of the usual lugs, *a'*, and screw-pins a^2.

B is a globe or ball, preferably hollow, as shown, and to this ball is firmly attached a disk or plate, C, as by means of a threaded nipper or boss, *c*, on the under side of the plate, which screws tightly into a threaded opening in the ball, as shown. The disk or plate C is provided with means for attaching detachably thereto a surveyor's glass or other instrument, and this may be accomplished by forming or providing the threaded nipple or boss *c'* on the upper side of the disk or plate, the same being adapted to screw into a threaded socket which may be provided on the instrument. It is obvious that this disk and its two nipples or bosses may be formed or cast in one piece, as shown.

D is a globular socket adapted to receive and contain the ball B. The socket is made in two substantially equal parts or halves, the socket being bisected horizontally. These two halves *d* and *d'* are united at their rims by a screw-joint, so that they are adjustable upon each other. This may be accomplished by means of an annular internally-threaded flange, d^2, upon the rim of the upper half, *d*, adapted to fit over the rim of the lower half, *d'*, which is threaded, as shown, to screw into the flange. The internal diameter of the socket when its upper half is fully screwed down upon its lower half is somewhat less than the diameter of the ball B, whereby when the ball is seated in the socket the turning down of the upper half, *d*, upon the lower, *d'*, will operate to clamp the ball firmly to the walls of the socket, and thus hold it in a desired position in the socket.

The lower half, *d'*, of the socket is mounted rigidly upon the standard A, as by means of a screw-plug or pin, a^3, which passes upward through a threaded opening in the standard and into a threaded opening in the socket-wall. The head of this plug a^3 may be furnished with a loop or hook, a^4, so that a weight may be suspended centrally from the under side of the standard to serve to steady the tripod when set up.

The nipple or boss *c* extends through an aperture, d^3, in the upper section of the socket from the ball to the disk, and this aperture is of greater diameter than that of the said boss or nipple.

It is evident that the disk C, which carries the glass or other instrument, and which in turn is carried by the ball B, may be adjusted laterally and horizontally upon the tripod, after the tripod is set up, by loosening or unscrewing the upper movable section, *d*, of the socket D and then turning the ball therein, thus revolving the disk horizontally or tilting it laterally, as shown in Fig. 3, and then, when the disk is in the desired position or adjustment, screwing down the upper section of the socket and clamping the ball tightly between the sections of the socket. The disk and the instrument carried thereby are thus capable of very careful and fine adjustment upon the tripod, and the employment of the usual frame and radial and vertical adjusting-screws working therein is wholly avoided. The described sectional socket, with one section fixed on the standard and the other screw-jointed to said fixed section, together with the ball seated in the socket, not only serve to support upon the tripod-standard the instrument carried by the

disk or plate, as described, but the movable section of the socket also serves to clamp the parts in desired adjustment.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a tripod, the combination, with the standard, of a horizontally-bisected globular socket, the lower section of which is fixed on the standard and the upper section screw-jointed to and movable upon said fixed section, a ball adapted to fit within the socket and be clamped between the said sections thereof, and a disk rigidly connected to said ball and adapted to receive and sustain fixedly an instrument of the character stated, as and for the purpose specified.

2. In a tripod, the combination, with the standard A, of the horizontally-bisected socket D, the lower section, d', of which is fixed on the standard and is screw-threaded at its rim, and the upper section, d, of which is provided with the internally-threaded annular flange d^2 and seated thereby upon the said fixed section, the ball B, adapted to fit within and be clamped between the sections of the socket, together with the disk C, provided with the connection c, extending through an aperture, as described, in the upper socket-section, to and fixed in said ball, and having upon its top a device, c', for rigidly attaching thereto an instrument of the character stated, all constructed and arranged to operate substantially as and for the purpose specified.

3. In a tripod, the combination, with the standard and the ball, to which is rigidly attached the disk, adapted for the mounting thereon of an instrument of the character stated, of a horizontally-bisected socket adapted to receive the ball, and the lower section of which is fixed to said standard, while the upper section is screw-jointed to said fixed section and adapted to clamp the contained ball between it and said lower section, as and for the purpose set forth.

CHARLES D. OATMAN.

Witnesses:
A. S. FITCH,
A. T. FALES.