(No Model.) 2 Sheets—Sheet 1.

S. J. OSBORNE.

TRIPOD.

No. 464,384. Patented Dec. 1, 1891.

Fig. 5.

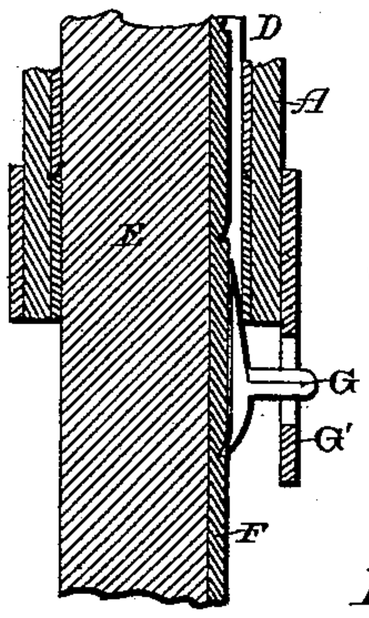


Fig. 1.

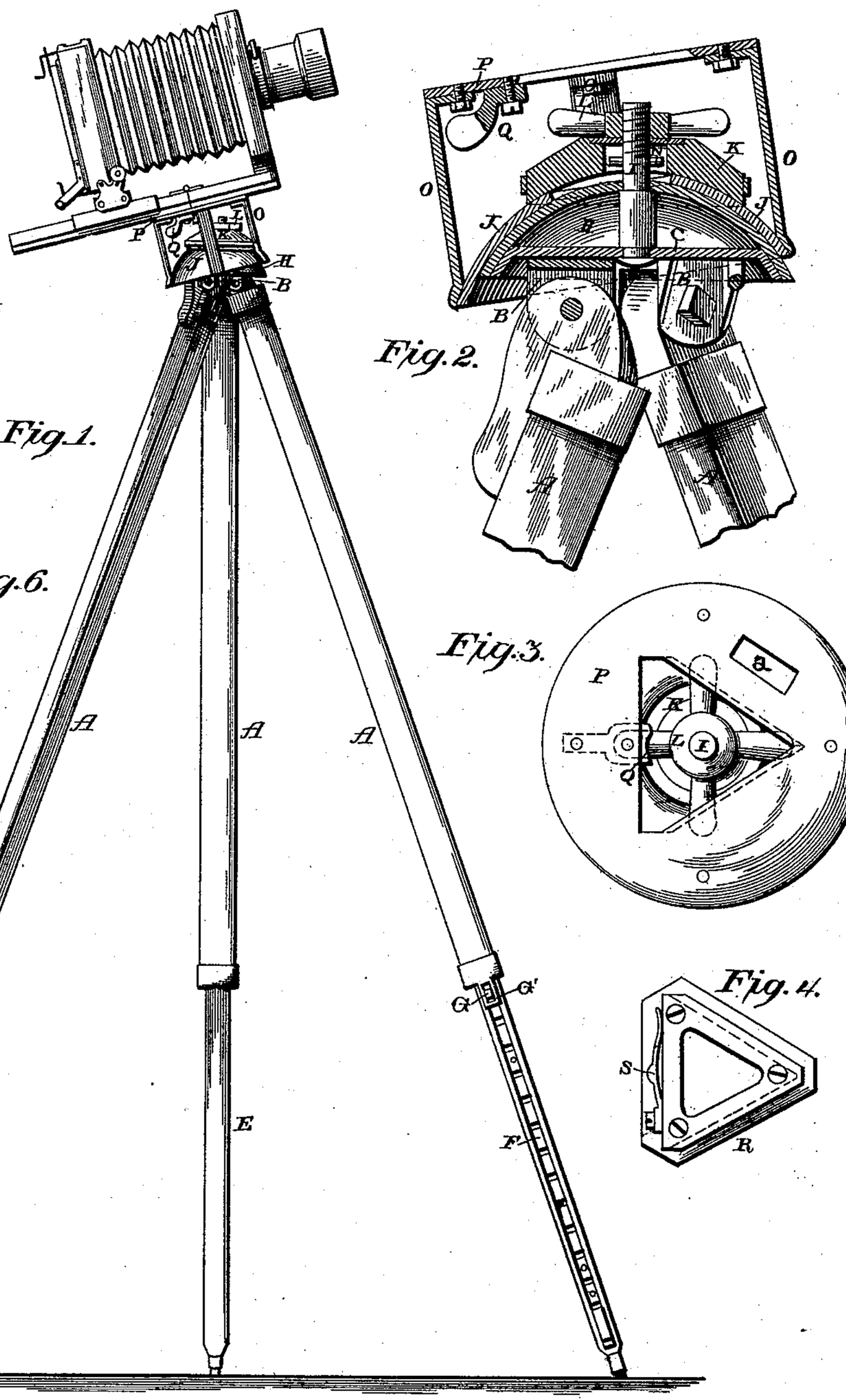


Fig. 2.

Fig. 6.

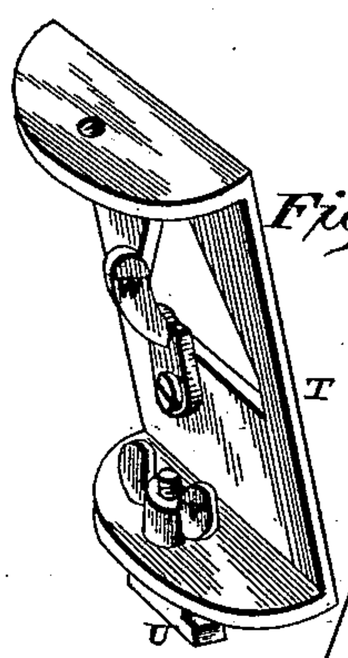
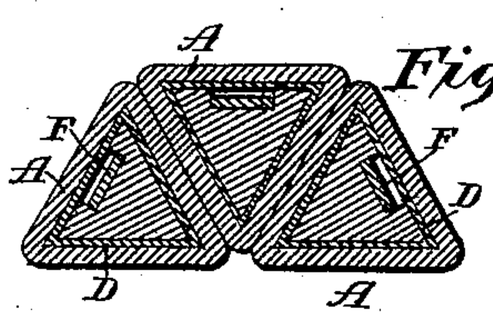


Fig. 3.

Fig. 4.

Fig. 7.



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(No Model.) 2 Sheets—Sheet 2.

S. J. OSBORNE.

TRIPOD.

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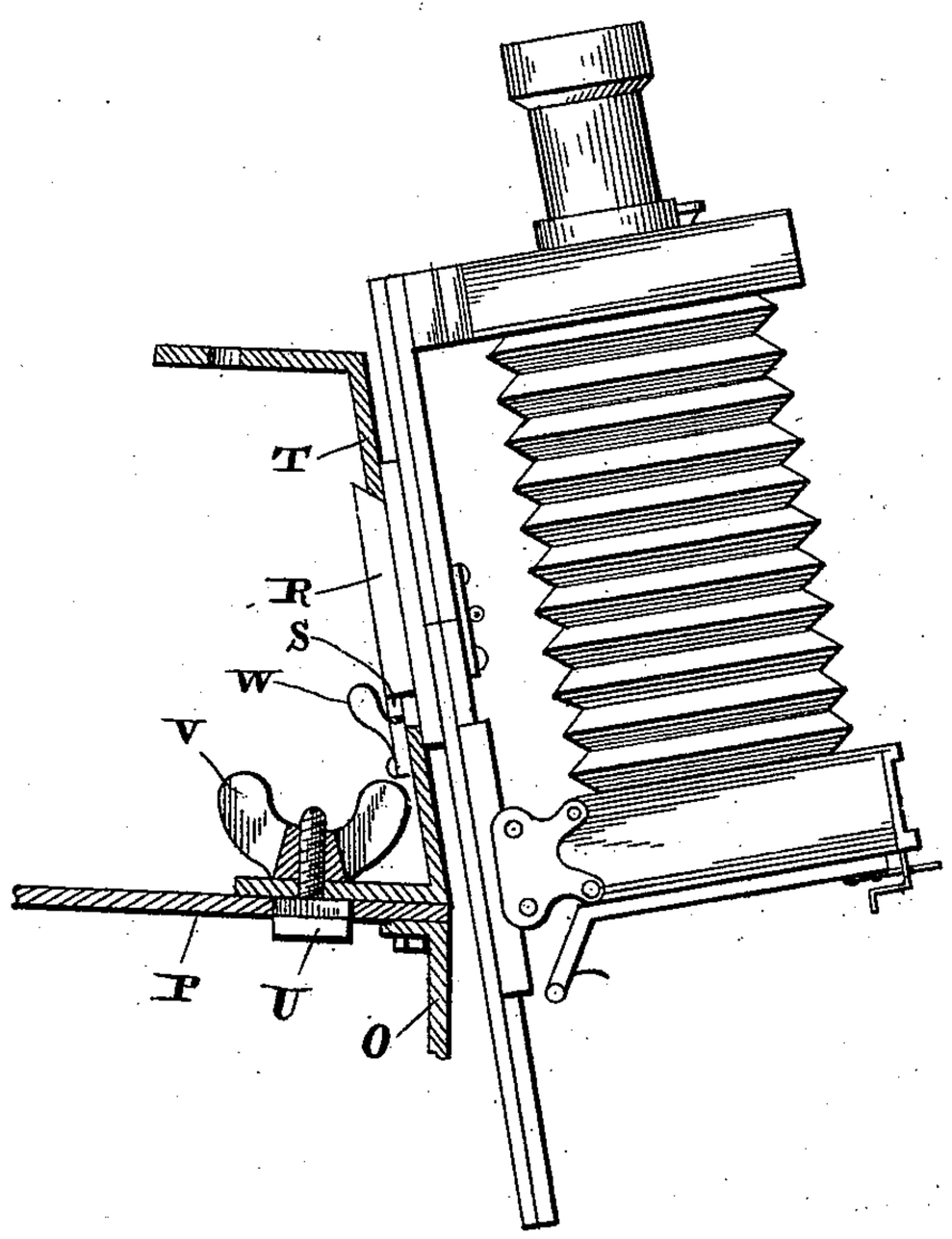
Fig. 8.



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UNITED STATES PATENT OFFICE.

SAMUEL J. OSBORNE, OF ALLEGHENY, PENNSYLVANIA.

TRIPOD.

SPECIFICATION forming part of Letters Patent No. 464,384, dated December 1, 1891.

Application filed February 25, 1891. Serial No. 382,761. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. OSBORNE, of Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Tripods for Cameras, Surveying-Instruments, and other Purposes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in tripods for cameras, surveying-instruments; and other purposes; and it consists in the construction and arrangement of parts, which will be fully described hereinafter, and particularly referred to in the claims.

The objects of my invention are to provide a means for quickly adjusting the camera at any desired angle or position for the purpose of taking views of clouds or other elevated objects or of objects at a distance below the camera; to so construct the parts that the camera can be turned as upon a pivot and adjusted to any desired level or position, and to produce a tripod which is sufficiently light to be readily and freely carried around with but very little inconvenience to the operator.

Figure 1 is a side elevation of a camera to which my invention is applied. Fig. 2 is a vertical section of the upper portion of the tripod. Fig. 3 is a plan view of the upper portion of the tripod alone. Fig. 4 is an inverted view of the plate secured to the under side of the camera. Fig. 5 is a vertical section of a portion of the legs and pawl. Fig. 6 is a perspective of the plate that is attached to the top of the tripod. Fig. 7 is a horizontal section taken through the legs and showing them folded together. Fig. 8 is a view showing the plate T, carrying the camera, secured in place upon the disk P.

A represents the hollow legs of the tripod, which are pivoted at their upper ends to suitable lugs B, secured to the under side of a plate C, and which legs form an equilateral triangle in cross-section. While these legs may be formed of aluminum or other light material, they are here shown as being made of wood, paper, and cloth. The strips of wood D are placed upon the sides of the mandrel, and then the paper alone or paper and cloth are wrapped around the revolving mandrel after having been properly glued, pasted, or cemented, so as to form practically a solid substance. Legs thus formed of paper or paper and cloth are tough, light, cheap, and not easily affected by the weather nor liable to be broken. The telescopic legs E are also made triangular in cross-section, and each one has a recessed plate F inserted in one of its sides, so that a wedged-shaped pawl G can catch therein and hold the leg in any position desired. In order to support these pawls, which have an endwise movement, a slotted plate G′ is secured to each one of the hollow legs, and a knob, handle, or projection formed upon the outer side of the pawl passes through the slot in the plate G′. Each one of the telescopic legs can be drawn freely outward; but owing to the catching of the lower ends of the pawls in the recessed plates F the legs can only be forced up into the hollow legs when the pawl is drawn outward and held out of contact with the plates. These pawls being wedge-shaped and having an endwise movement they wedge in position and their lower ends are forced into the notches of the plates, so that there is no danger of one of the telescopic legs ever moving after the tripod is once set in position, no matter what weight is placed upon them. The plate C is riveted or otherwise secured in the lower edge of the convex bearing H, which forms a segment of a perfect sphere and up through the center of which extends the screw I. This screw has its lower end extending down through the center of the plate C and is firmly riveted or otherwise secured thereto. Placed upon the top of the bearing H is the concavo-convex adjusting-plate J, which fits perfectly to the surface of the spherical bearing H, and which has a circular opening of any desired size through its center and through which the screw I passes. This opening is sufficiently large to allow the plate J to be moved freely in every direction, so that the camera which is supported by this plate can be adjusted into any desired position. In order to hold this plate J in any position into which it has been adjusted, the clamping-plate K is used and which is forced down upon the top of the

plate J by means of a wing-nut L, that is placed upon the screw I. This clamping-plate K forces the plate J against its bearing H with such force that the camera cannot be moved until the nut L has been loosened. In order to prevent the plate K from rotating around the screw I, it is provided with wings or projections N, which catch in corresponding recesses in the plate, and thus prevent it from having any turning movement upon the screw.

Secured to the outer edges of the plate J are the standards O, and to the upper ends of these standards is secured the disk P, which has a triangular opening made through its center. To the under side of this disk P is pivoted a locking-cam Q, and which is brought into play when the camera is to be attached to the disk.

To the under side of the camera is secured a triangular plate or casting R, which passes down through the triangular-shaped opening in the disk, and which plate or casting R has two of its sides beveled, so as to catch against correspondingly-beveled edges of the disk P. To one side of this casting R is also fastened a spring S, against which the cam Q bears when the camera is being locked in position. As shown in Fig. 1 the camera is placed upon the top of the disk P, then the triangular-plate R on its under side passes through the opening in the disk, and then the cam is turned against the spring which forces the beveled edges of the plate R under the bevel edges of the disk P, the spring holding the parts in place, thus locking them against detachment until the cam is turned, as will be understood. By loosening the wing-nut L the plate J is released sufficiently to allow the camera to be freely revolved, raised or depressed, or adjusted into any position desired, giving a universal movement as far as the opening in the plate J will permit.

When it is desired to take a photograph of the clouds or of any elevated object or of any objects below the camera at a distance, the camera is removed from the disk P, and then the plate T, having its ends turned at an angle and also having a triangular opening through its center, is fastened to the disk P by means of a headed screw U, which is passed through a slot *a* in the disk P, and upon which screw U is placed a thumb-nut V. The two ends of this plate T are inclined in opposite directions and either end can be secured to the disk P, according as it is desired to incline the camera upward to take an elevated view or downward to take a view of something below. The camera has its plate or casting R forced through the opening in the center of the plate T, and it is then locked in position by a cam W in the usual manner, as upon the disk P.

It will be seen from the above description that a zone-joint is formed by the construction here shown and that the camera is given as free a universal movement as can be done with a ball-and-socket joint, and that without any of the inconveniences connected with a joint of that nature.

Having thus described my invention, I claim—

1. In a tripod for cameras, a spherical bearing having an upwardly-projecting screw-bolt, a second spherical bearing placed thereon and having an enlarged opening through which the screw-bolt passes, a frame secured to the said second bearing, a clamping-plate and nut, the said frame having a disk with an opening, a camera-frame having a plate placed in the said opening, and a means for holding the plate in position, all combined substantially as described.

2. In a tripod for cameras, hollow legs, the legs placed therein having a recessed plate, a dog which engages the said recesses and having a wedge-shaped end and a projection, and a supporting-plate secured to the said hollow legs, having an opening for the dog projection, all combined as shown.

3. The globular bearing H, the screw which extends from the top of the bearing, the perforated concave plate placed upon the top of the bearing, the clamping-plate, and the nut applied to the screw, combined with the standards, the disk P, having an opening through its center, and the plate or casting secured to the under side of the camera, substantially as described.

4. The disk P, provided with a slot, combined with the plate T, having its ends turned at an angle, means for securing the plate to the disk, and the casting or plate secured to the under side of the camera, whereby the camera may be inclined either up or down, substantially as set forth.

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

S. J. OSBORNE.

Witnesses:
E. P. ELLIS,
R. J. BEALL, Jr.