(No Model.) 2 Sheets—Sheet 1.

W. F. CARLTON.

TRIPOD STAND FOR PHOTOGRAPHIC CAMERAS.

No. 581,808. Patented May 4, 1897.

Fig. 1.

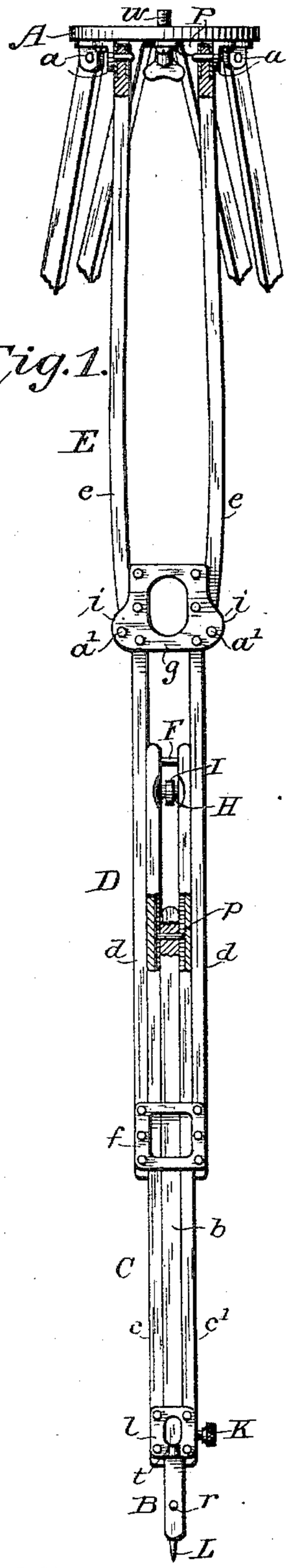


Fig. 2.

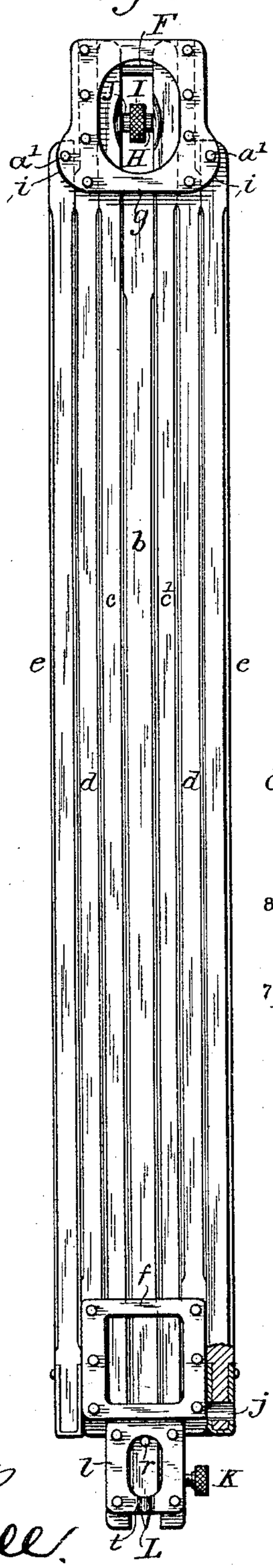


Fig. 3.

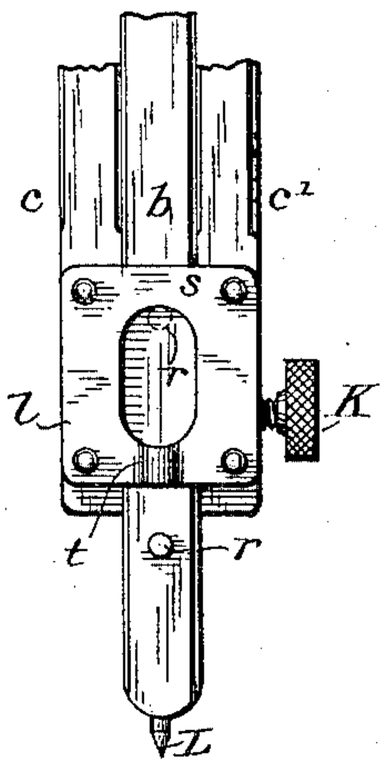


Fig. 4.

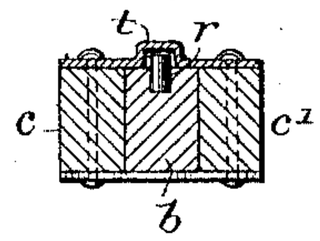


Fig. 5.

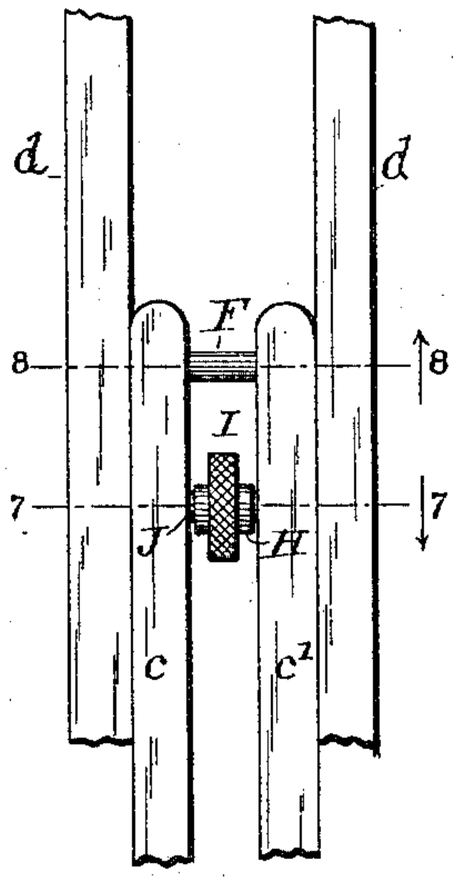
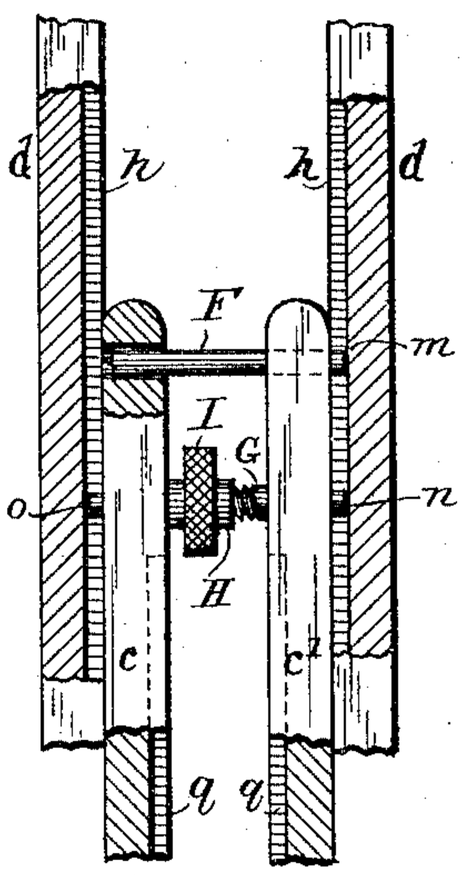


Fig. 6.



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(No Model.) 2 Sheets—Sheet 2.

W. F. CARLTON.

TRIPOD STAND FOR PHOTOGRAPHIC CAMERAS.

No. 581,808. Patented May 4, 1897.

Fig. 7.

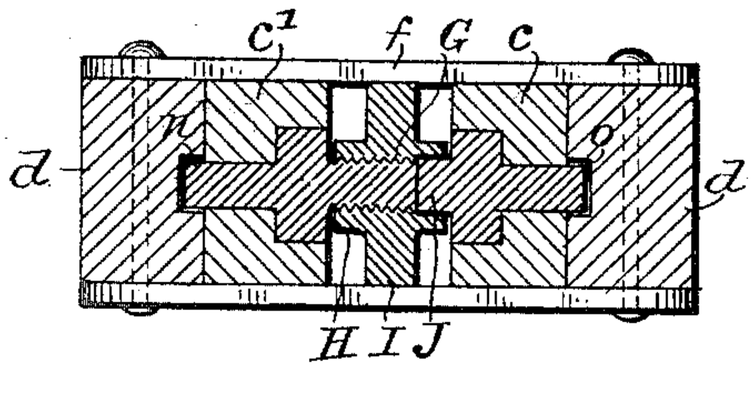


Fig. 8.

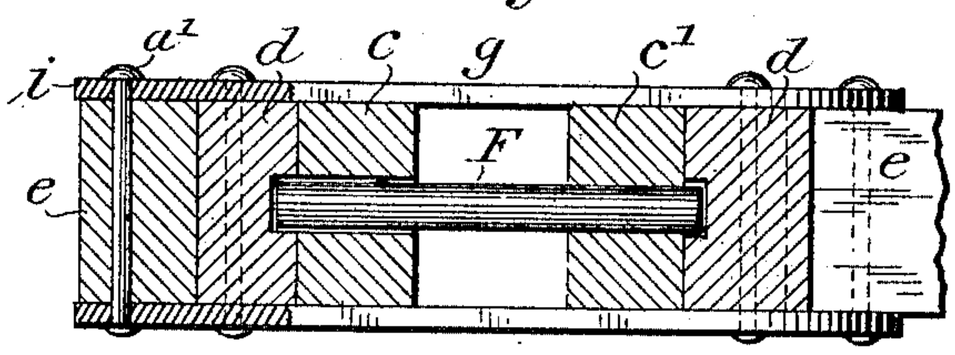


Fig. 9.

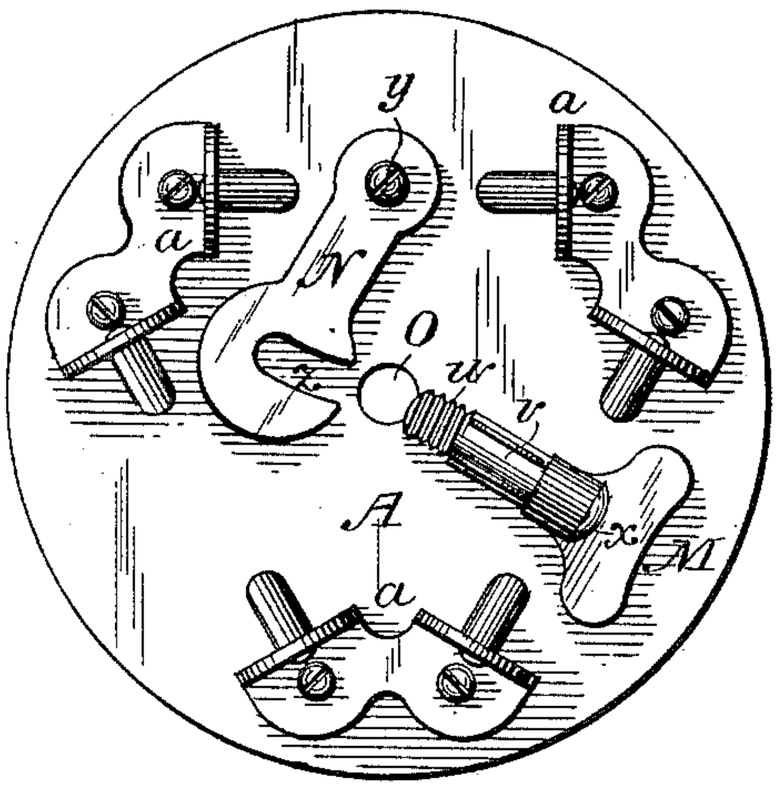


Fig. 10.

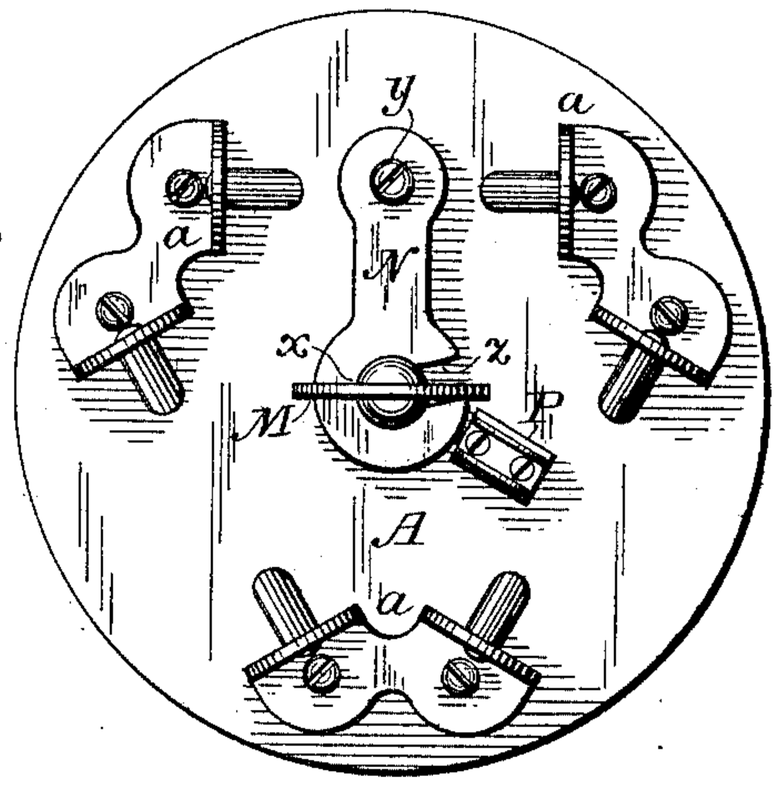


Fig. 11.

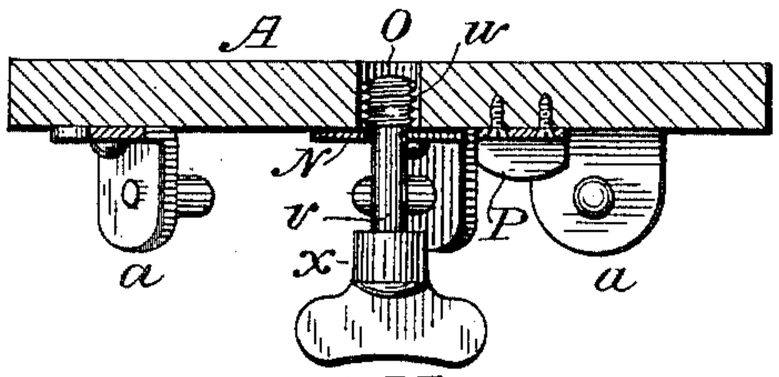
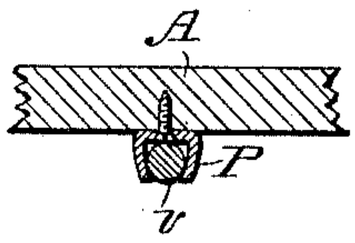


Fig. 12.



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Inventor
William F. Carlton
by Arthur O. Brown
his Attorney

UNITED STATES PATENT OFFICE.

WILLIAM F. CARLTON, OF ROCHESTER, NEW YORK.

TRIPOD-STAND FOR PHOTOGRAPHIC CAMERAS.

SPECIFICATION forming part of Letters Patent No. 581,808, dated May 4, 1897.

Application filed January 20, 1897. Serial No. 619,966. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. CARLTON, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Tripod-Stands for Photographic Cameras and the Like, of which the following is a specification.

The present improvements relate to the construction of the collapsible legs of a tripod for photographic cameras and the like and to the construction of the tripod-head, the objects of the improvements being to enable the legs to be nested into compact shape, to maintain the legs firmly in place when in use, and to furnish effective means for holding the camera on the tripod-head.

The improvements are illustrated in the accompanying drawings, in which—

Figure 1 is an elevation of the improved tripod-stand, only one of the legs being shown in full. Fig. 2 is a face view, on a large scale, of one of the legs when collapsed or nested. Fig. 3 is an enlarged face view of the lower end of one of the legs. Fig. 4 is a sectional view of the parts shown in Fig. 3. Figs. 5, 6, 7, and 8 are detail views showing the clamping mechanism between two sections of the leg, Fig. 7 being a section on the line 7 7 in Fig. 5, and Fig. 8 being a section on the line 8 8 in Fig. 5. Figs 9 and 10 are bottom views of the tripod-head, showing the parts thereof in different positions. Figs. 11 and 12 are vertical sections of portions of the tripod-head.

A is the tripod-head, having, as usual, on its under side pintles *a*, upon which the legs are journaled and to which they are detachably secured.

Each of the legs is composed of four sections B, C, D, and E, respectively. These leg-sections are composed of strips of some slightly-elastic material, such as wood. Generally speaking, the lower section B slides longitudinally or telescopes within the next uppermost or intermediate section C, the said intermediate section C slides or telescopes within the third or body section D, and the bars of which the fourth or upper section E is composed are pivoted near the upper end of the said body-section D. The four leg-sections are shown nested together in Fig. 2, and as thus nested they are in a small and compact shape, convenient for packing and carrying.

The detail construction of the several sections of the leg can be most conveniently described by first referring to the section D, which can appropriately be called the "body" section. This body-section is composed of two longitudinal bars or strips *d d*, which are suitably spaced apart to receive the intermediate section C, and are joined together near their ends by metallic plates *f f g g*. Each of the bars *d* is provided with a longitudinal guide-groove *h* on its inner face, as shown in Figs. 6, 7, and 8, the purpose of which will hereinafter appear.

The upper section E is composed of two longitudinal bars *e e*, pivoted near their lower ends at *a'* to and between ears *i* of the upper plates *g* of the body-section D. When the leg is in use, these bars *e* are turned upwardly and connected with the pintles *a* of the tripod-head, being provided with journal-apertures *j* for this purpose. When the leg is not in use, the bars *e* are folded down parallel with, exterior to, and against the bars *d* of the body-section, as shown in Fig. 2.

The section C, which may appropriately be termed the "intermediate" section, is composed of two longitudinal strips *c c'*, which are spaced a sufficient distance apart to accommodate between them the bottom section B. At their lower ends the bars *c c'* are connected together by metallic plates *l*, but at their upper ends they are free to be moved to and from each other. One of the bars, as *c'*, carries rigidly secured thereto near its upper end a pin or spindle F, which has a projecting guide end *m* outside of the bar *c'*, which fits and slides within the longitudinal guide-groove *h* of the corresponding adjacent bar *d* of the body-section D. The opposite end of the pin or spindle F plays freely in an aperture in the upper end of the other bar *c*. In this way the two bars *c c'* are connected together at their upper ends and yet are left free to move to and from each other. The purpose of this to-and-fro movement is to enable the intermediate section C to be effectively clamped in any desired position within the body-section D by expanding or spreading apart the upper ends of the bars *c c'* so that they frictionally grasp and bind tightly

against the inner walls or faces of the bars *d d* of the body-section D. When, however, the expansive force applied to the bars *c c'* is removed, said bars are free to approach each other, thus unclamping themselves and rendering it easy to slide the intermediate section C freely up and down within the body-section D.

The means employed for thus expanding and clamping the upper ends of the bars *c'* are as follows: One of the bars, as *c'*, has rigidly secured thereto a spindle G, having a projecting guide end *n*, projecting from the outer face of the bar *c'*, which fits and slides within the groove *h* of the adjacent bar *d*. This spindle also projects inwardly and is screw-threaded. Turning on the screw-threaded spindle is an expanding clamping-sleeve H, having a milled manipulating-wheel I, by which said sleeve may be adjusted upon said spindle. The other bar *c* carries fixed thereto a stud J, projecting inwardly and in line with the spindle G and the screw-threaded aperture of the clamping-sleeve H, but sufficiently smaller so that said sleeve may slip freely over it. The outer guide end *o* of said stud J projects outwardly beyond the bar *c* and fits and slides within the groove *h* of the adjacent side bar *d*. The projections *n o* thus constitute guide-pins for the intermediate section C and maintain the said section in proper relation to the body-section D.

The operation of the clamping-sleeve H is to expand the bars *c c'* when it is turned in one direction, since it thereby moves along the spindle G, encounters the adjacent wall of the bar *c*, and forces the same outwardly until it binds tightly against the adjacent bar *d*. When, however, the clamping-sleeve H is turned in the opposite direction, the bars *c c'* are released from pressure and are free to approach each other, whereupon the intermediate section C can be freely moved up and down within the body-section D. One purpose of the stud J is to prevent the sleeve H becoming detached in case it should screw entirely off from the spindle G, and another object is to abut against the inner end of the spindle G when the bars *c c'* are sufficiently relaxed, thereby serving as a stop to prevent the displacement of the guide-pins *n o* from their respective grooves *h h*.

The milled turning wheel I of the expanding clamping-sleeve H is located wholly within the channel formed by the bars *c c'*, so that the presence of the expanding or clamping mechanism does not prevent the sliding of the intermediate section C up and down between the connecting-plates *f f* and *g g* of the body-section D.

The bottom section B consists of a single bar *b*, sliding telescopically within and between the bars *c c'* of the intermediate section C and between the bottom plates *l l* of said intermediate section. The bar *b* has near its upper end a guide-pin *p*, projecting laterally on both sides, which slides within guide-grooves *q q* on the inner faces of the bars *c c'*, and the bar *b* is clamped in any desired position relatively to the intermediate section C by means of a clamp K, carried by the intermediate section C, in which respects the bottom section is similar to previously-known constructions.

The inward or nesting movement of the lower section B within the intermediate section C is limited by a stud *r*, projecting from the bar *b*, which, when the lower section is slid home within the intermediate section, abuts against the upper cross-bar *s* of one of the plates *l*, this abutting occurring when the point L of the lower section B is wholly inclosed within and protected by the intermediate section C. The bottom bar or rail of the plate *l* is arched at *t* to permit the free passage of the stop *r*.

It will be noted that the leg is composed of four sections which can be compactly nested together into a small space, as shown in Fig. 2. This is rendered possible largely by the interior location of the clamping mechanism for the intermediate and body sections between the side bars of the intermediate section. Owing to this location the clamping mechanism does not interfere with the swinging of the bars of the upper section down against the sides of the body-section, nor does it prevent the compact telescoping of the bottom section within the intermediate section.

Referring now to Figs. 9, 10, 11, and 12 of the drawings, illustrating the tripod-head A in detail, the improved means for holding the camera thereon will be described. The tripod-head has a single vertical aperture O extending therethrough, through which the camera-fastener M is introduced from beneath. This fastener M has on its upper end a screw-threaded portion or head *u*, which is adapted to screw into a suitable socket on the bottom of the camera. At its lower end the fastener has a wing-handle *x* for manipulating the same. The handle *x* and screw-head *u* are connected by a reduced section or shank *v* of lesser diameter than the screw-head *u* or the base of the handle. The aperture O in the tripod-head is of a sufficient diameter to permit the free passage of the screw-head *u*. In order to hold the fastener M in position when the camera is being placed on the tripod-head, a movable plate N is fastened to the under side of the tripod-head, preferably by being pivoted at *y* thereto. This movable plate N has an open-mouthed slot *z*, which, when the plate N is moved in the proper direction, straddles the reduced section *v* of the fastener M. The width of the slot *z* is smaller than the diameter of the screw-head *u*, so that when the slot *z* is straddling the shank *v*, as shown in Figs. 10 and 11, the fastener M cannot drop out of place, since the screw-head *u* cannot pass through said slot. It will be noted that the length of the reduced section or shank *v* is sufficient to enable the screw-

head to be screwed completely in and out of its socket while the slot *z* is in position straddling said shank.

When the camera is not in use, the fastener M is detachably secured to the tripod-head by means of a clamp P, of resilient metal, secured to the bottom of the tripod-head, the arms of which are arranged to grasp the reduced section or shank *v* of the fastener, as indicated in Figs. 9 and 12. The resilience or elasticity of the arms of the clamp P is sufficient to efficiently grasp and hold the fastener in place. When the fastener is thus held in place, it is entirely out of the way.

I claim as my invention—

1. The combination of the two tripod-leg sections C, and D, said body-section D, being composed of two longitudinal bars connected together, and having guide-grooves *h*, respectively on their inner faces, and the other or intermediate section C, being composed of two longitudinal bars *c*, *c'*, spaced apart, connected at their lower ends, and free to move to and from each other at their upper ends, said bars *c*, *c'*, being adapted to slide longitudinally between the two bars of said body-section, said bar *c'*, carrying at or near its free end a pin F, which plays freely in an aperture in the upper end of the other bar *c*, a spindle G, secured to said bar *c'*, having a projecting end *n*, projecting from the outer face of said bar *c'*, and constituting a guide-pin fitting and sliding within the groove *h*, of the adjacent bar *d*, and having also an inwardly-projecting screw-threaded end; a stud J, carried by the opposite bar *c*, projecting inwardly and in line with the said spindle G, and having an outwardly-extending projection constituting a guide-pin *o*, fitting and sliding within the longitudinal groove *h*, of the adjacent side bar *d*, and an expanding clamping-sleeve H, having a milled manipulating-wheel I, said sleeve screwing upon said spindle G, and sliding freely over the inwardly-projecting end of said stud J, whereby the free ends of said bars *c*, *c'*, may be clamped against the bars *d*, *d*, substantially as set forth.

2. The combination of the two tripod-leg sections C, and D, said body-section D, being composed of two longitudinal bars connected together, and having guide-grooves *h*, respectively on their inner faces, and the other or intermediate section C, being composed of two longitudinal bars *c*, *c'*, spaced apart and connected at their lower ends and free to move to and from each other at their upper ends, said bars *c*, *c'*, being adapted to slide longitudinally between the two bars of said body-section; a spindle G, secured to said bar *c'*, having a projecting end *n*, projecting from the outer face of said bar *c'*, and fitting and sliding within the groove of the adjacent bar *d*, and having also an inwardly-projecting screw-threaded end, a stud J, carried by the opposite bar *c*, projecting inwardly and in line with the said spindle G, and having an outwardly-extending projection constituting a guide fitting and sliding within the longitudinal groove of the adjacent side bar *d*, and a clamping-sleeve H, screwing upon said spindle G, and sliding freely over the inwardly-projecting end of said stud J, whereby the free ends of said bars *c*, *c'*, may be clamped against the bars *d*, *d*, substantially as set forth.

3. The combination of the two tripod-leg sections C, and D, said body-section D, being composed of two longitudinal bars connected together, and the other or intermediate section C, being composed of two longitudinal bars *c*, *c'*, spaced apart and connected at their lower ends and free to move to and from each other at their upper ends, said bars *c*, *c'*, being adapted to slide longitudinally between the two bars of said body-section; a spindle G, secured to said bar *c'*, having an inwardly-projecting screw-threaded end; a stud J, carried by the opposite bar *c*, projecting inwardly and in line with the said spindle G; and a clamping-sleeve screwing upon said spindle G, and sliding freely over said stud J, whereby the free ends of said bars *c*, *c'*, may be clamped against the bars *d*, *d*, substantially as set forth.

4. A tripod-leg having, in combination, a body-section, an intermediate section composed of two bars, sliding telescopically within said body-section, and a central clamping device for clamping said body-sections together, said clamp being located between said two bars and acting to spread them apart to frictionally grasp the inner walls of said body-section, substantially as set forth.

5. The section C, having the spaced bars *c*, *c'*, and the plates *l*, *l*, connecting their lower ends together, one of said plates *l*, having upper cross-bar *s*, and lower cross-bar, said lower cross-bar having the arch *t*, in combination with the section B, sliding telescopically within and between said bars *c*, *c'*, and said plates *l*, *l*, said section B, having projecting stop *r*, near its lower end which passes through said arch *t*, and abuts against the upper cross-bar *s*, to limit the inward movement of said lower section, substantially as set forth.

6. The section C, having the spaced bars *c*, *c'*, and a plate connecting their lower ends together having upper and lower cross-bars, said lower cross-bar having an arch, in combination with the section B, sliding telescopically within and between said bars *c*, *c'*, and beneath said plate, said section B, having a projecting stop near its lower end which passes through said arch and abuts against said upper cross-bar to limit the inward movement of said lower section, substantially as set forth.

7. The tripod-head having a central aperture, and the fastener for screwing a camera to said head, said fastener having an enlarged screw-threaded head, a wing-handle, and an

elongated reduced section or shank connecting said handle and said screw-threaded head, in combination with a movable plate on the bottom of said tripod-head having an open-mouthed slot adapted to straddle said reduced shank but being of lesser width than the diameter of said screw-head, substantially as set forth.

8. The tripod having a central aperture, and the fastener for screwing a camera to said head, said fastener having an enlarged screw-threaded head, a handle, and an elongated reduced section or shank connecting said handle and head, in combination with a movable plate on the bottom of said tripod-head having an open-mouthed slot adapted to straddle said reduced shank but being of lesser width than the diameter of said screw-head, substantially as set forth.

9. The fastener M, having reduced shank *v*, in combination with the tripod-head having the open clamp P, having two separated resilient arms adapted to grasp the said reduced shank, and so hold said fastener in place when not in use, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM F. CARLTON.

Witnesses:
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GEO. J. MCLAUGHLIN.