No. 740,459. PATENTED OCT. 6, 1903.

H. H. McNAUGHTON.

TRIPOD.

APPLICATION FILED OCT. 22, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 6.

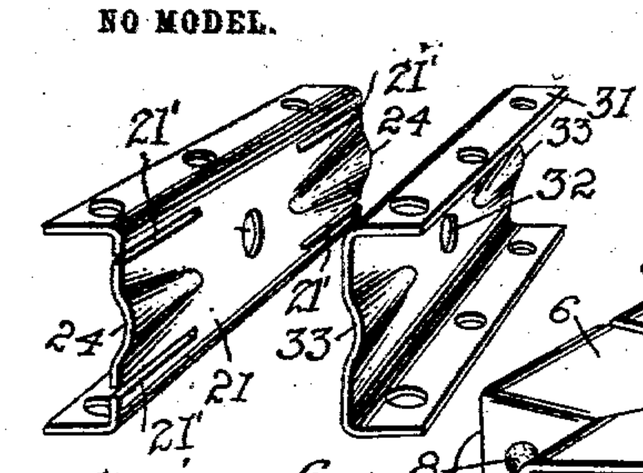

Fig. 1.

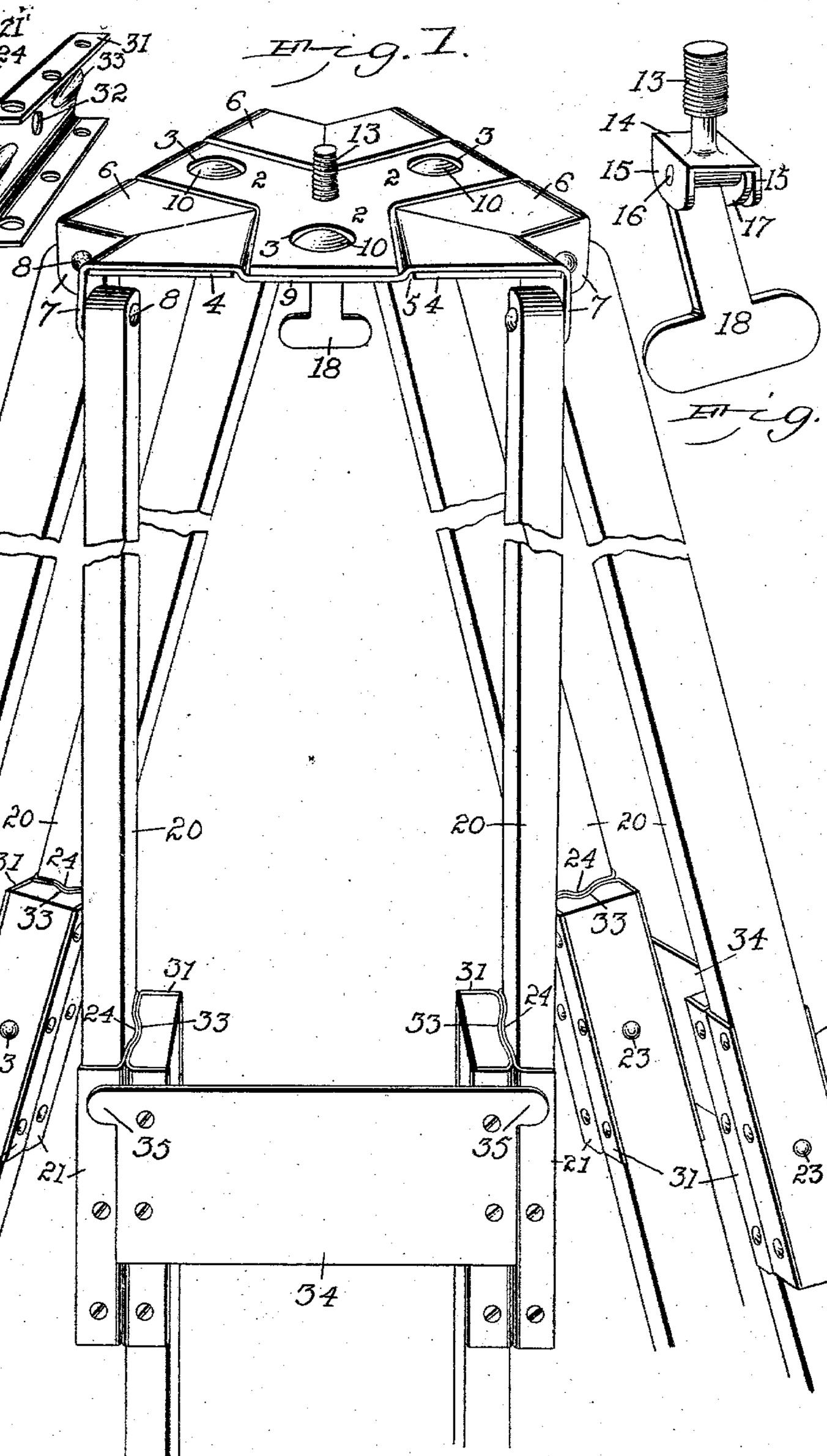

Fig. 8.

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NO MODEL. 2 SHEETS—SHEET 2.

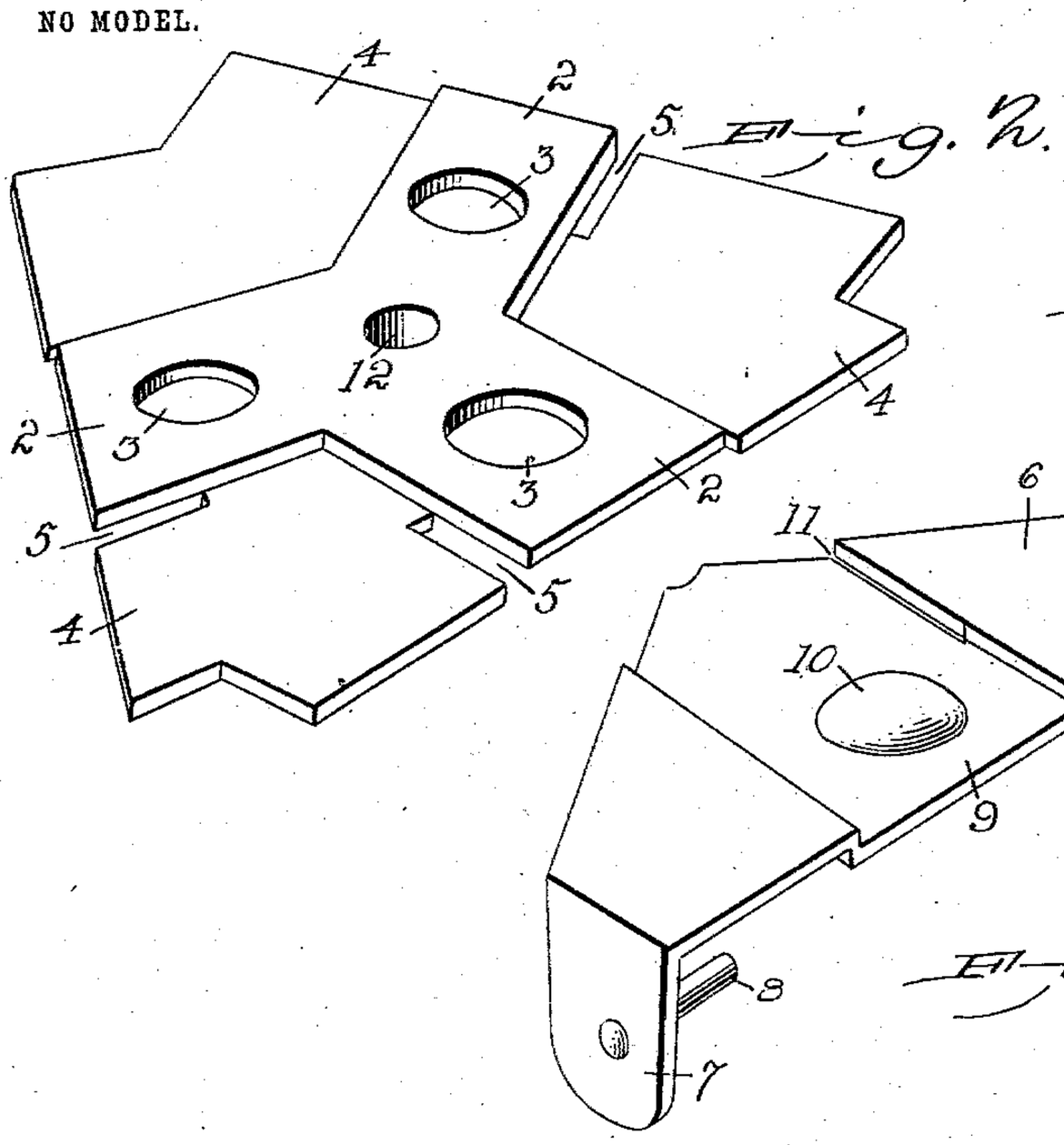

Fig. 2.

Fig. 3.

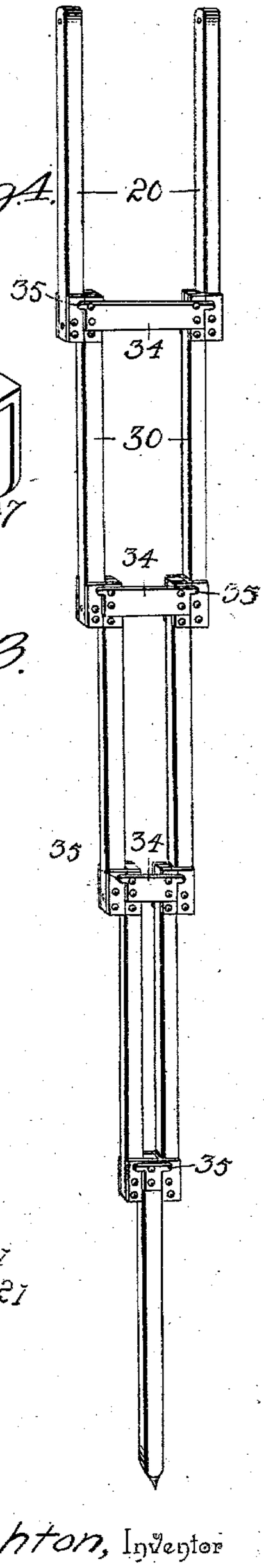

Fig. 4.

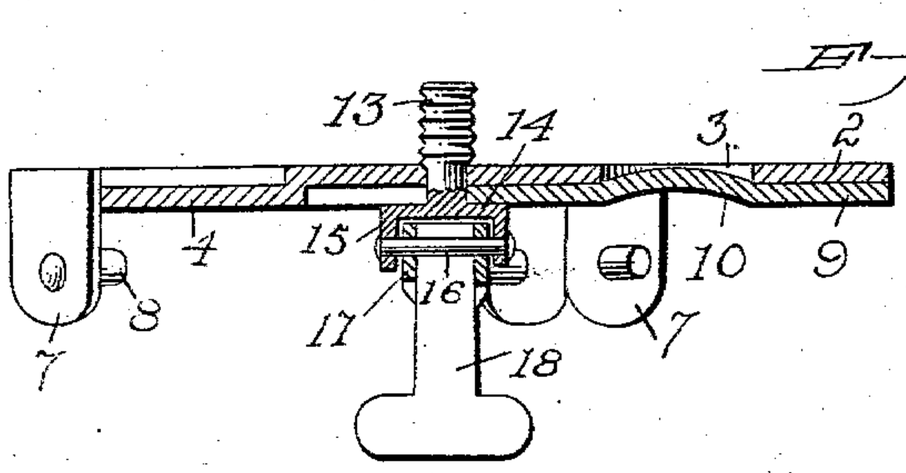

Fig. 7.

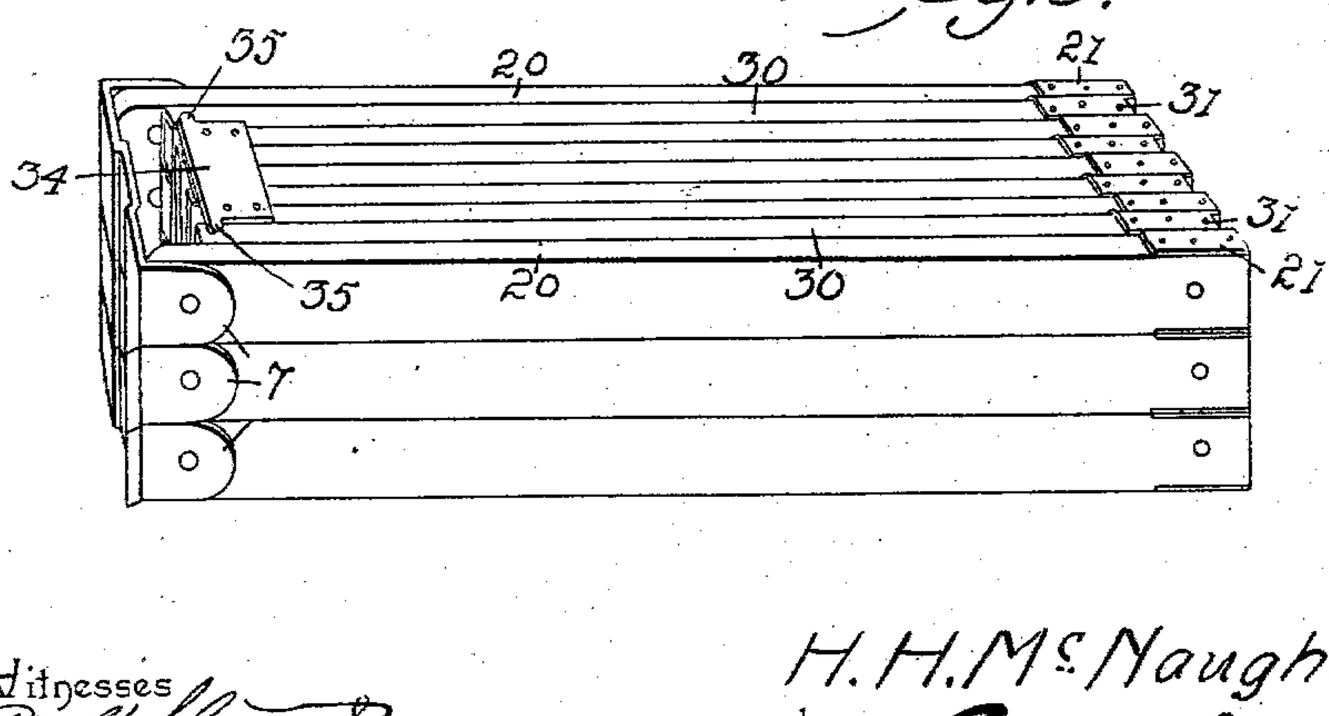

Fig. 5.

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No. 740,459. Patented October 6, 1903.

UNITED STATES PATENT OFFICE.

HART H. McNAUGHTON, OF CHARLOTTE, MICHIGAN.

TRIPOD.

SPECIFICATION forming part of Letters Patent No. 740,459, dated October 6, 1903.

Application filed October 22, 1902. Serial No. 128,326. (No model.)

To all whom it may concern:

Be it known that I, HART H. McNAUGHTON, a citizen of the United States, residing at Charlotte, in the county of Eaton and State of Michigan, have invented a new and useful Tripod, of which the following is a specification.

The principal object of the invention is to construct a tripod which may be readily folded in compact form for transportation and in which the members may be readily unfolded and connected together for use.

A further object of the invention is to provide an improved construction of tripod-leg formed of a number of sections that may be readily folded or unfolded and automatically locked in either position and in which the use of thumb-screws or other auxiliary fastening devices is disposed with.

A still further object of the invention is to so arrange the tripod-head that the latter may be folded up with one of the leg members without material increase in the bulk of the package, and thus render it unnecessary to detach and carry the tripod separately, as usual.

With these and other objects in view the invention consists in the novel construction and arrangement of parts hereinafter described, illustrated in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that various changes in the form, proportions, size, and minor details of the structure may be made without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a perspective view of the upper portion of a tripod constructed in accordance with the invention. Fig. 2 is a similar view of the head or top plate detached. Fig. 3 is a view similar to Fig. 2, illustrating one of the leg-attaching plates. Fig. 4 is a perspective view of one of the tripod-legs. Fig. 5 is a view illustrating the three tripod-legs in folded position. Fig. 6 is a detail perspective view of the interlocking end plates carried by the sections of the tripod-legs. Fig. 7 is a sectional elevation through the central portion of the tripod-head. Fig. 8 is a detached perspective view of the camera-screw.

Similar numerals of reference are employed to indicate corresponding parts throughout the several figures of the drawings.

The main plate, which forms a part of the tripod-head, is of the construction best shown in Fig. 2, being triangular in general contour and having its surface arranged in two different planes, of which the upper is formed of a plurality of radiating arms 2, having parallel sides and each provided with an opening 3. The remaining portion of the plate is depressed to form corner-pieces 4, and between the corner-pieces and the arms or ribs are notches 5 of a length about equal to one-half of the length of the ribs. This plate is preferably die-formed from sheet metal, and the formation of the ribs materially strengthens and adds to the rigidity of the plate and at the same time forms a means for conveniently attaching the leg members.

To each of the leg members of the tripod is pivoted a plate 6 of triangular form in general contour and provided at opposite ends with depending ears 7, having inwardly-projecting pivot-pins 8, adapted to suitable openings in the upper ends of the leg members, the connection being preferably a permanent one, although the legs may be detachable from the plates, if desired. The central portion of each plate is depressed to form a downwardly-projecting strengthening-rib 9, and a portion of the metal is struck up to form a small dome 10, which engages in one of the openings 2 of the main plate to interlock and hold the members together. At the juncture of the ribbed portion 9 and the main body of the plate 6 is a slot or recess 11 of a length about equal to one-half of the length of the rib, and the two notches or slots 5 and 11 and the ribs of the plate and those of the members 6 are so related as to permit the interengagement of the plates 6 with the main plate 2 to form a strong and rigid camera-head capable of supporting the weight of any ordinary camera, telescope, or instrument of similar character. When the members of the head are interlocked, the edges of the plate 6 abut, as shown in Fig. 1, in order to form a smooth and level bed, while the parts are held interlocked by the engagement of the domes 10 in the openings 3.

At the central portion of the main plate is a threaded opening 12, and a similar opening

is formed by slightly recessing the inner end of each of the members 6, as shown in Fig. 3. In some cases, as shown in Fig. 7, the opening may be formed without threads for the reception of the smooth circular shank of a camera-screw 13, so that the latter will always be in proper position. To the lower portion of the screw is secured a plate 14, having lugs or ears 15 for the reception of a pivot-pin 16, which also passes through pivot-ears 17, formed on a strip 18, having laterally-extended portions for convenience in engaging the strip and turning the screw. This arrangement permits of the ready folding of the strip or handle portion of the screw in a plane parallel with that of the tripod-head, the whole coming within the general outlines of the plate or head and taking up but very little space.

Each of the tripod-legs is formed of any desired number of sections, the sections being similar in construction and preferably of equal length, differing only in the matter of width, and this for convenience in folding, the bottom section folding into or between the members of the second section and the second section folding between the members of the third section, and so on, the upper section receiving all of the lower sections, as shown in Fig. 5.

The upper section of each leg is formed of two members 20, each provided at its lower end with a plate 21 of channel shape, adapted to embrace three sides of the member and provided with a central opening 22 for the passage of a pivot-pin 23. The inner face of the plate is provided with a pair of projecting ribs 24, preferably tapering in form and of decreasing height from the ends of the plate toward the central pivot-pin opening 22. On the outer edge of the upper portion of each of the members 30 of the next lowest section is secured a plate 31, also of channel shape in cross-section and provided with a pivot-pin opening 32. This plate is provided with depressions or recesses 33 corresponding in shape and size to the ribs 24 and adapted to receive and interlock with the ribs, and the leg members are in either open or closed positions. These small plates are formed of stamped sheet metal and are sufficiently yielding and elastic to permit the members to be readily turned to either open or folded position, the ribs entering the depressions or recesses and automatically interlocking, while the plate 21 is provided with slits 21′ to permit free yielding of the ribs.

To prevent the collapse of the legs under excessive weight, each of the sections is provided with a cross-plate 34, having laterally-extended portions 35, adapted to overlap the inner edges of the upper section, to which they are pivoted at a point above the pivot-pin, and resist inward bending movement, while permitting free bending in the opposite direction when it is desired to fold the legs for transportation.

Each of the legs is preferably attached to one of the plates 6 in such manner as to prevent the latter being accidentally separated, while permitting the necessary pivotal movement to adjust the position of the instrument carried by the tripod, while the head-plate proper is preferably left attached to one of the plates 6, or it may be formed integral with or permanently secured to said plate.

The tripod is of the most simple construction and comparatively inexpensive, all of the parts with the exception of the wooden strips that form the members of the legs being made of stamped sheet metal, and there is little or no work or expense in assembling the parts.

Having thus described my invention, what I claim is—

1. The combination in a tripod, of a central head-plate having a plurality of radiating ribs arranged in a plane different from that of the plate, a plurality of leg-attaching plates each provided with a ribbed portion in a plane different from that of the main body of the plate of which it forms a part, the several plates being provided with interfitting notches adjacent to the edges of the several ribs, and legs carried by said leg-attaching plates.

2. The combination with a tripod, of the legs, a head-plate provided with portions disposed in planes different from that of the main body of the plate and arranged to form radiating ribs, a plurality of leg-attaching plates also provided with portions offset from the plane of the plates and forming ribs, the ribs of the head-plate being disposed opposite those of the leg-attaching plates, and all of the plates being provided with interfitting slotted portions.

3. The combination in a tripod, of the legs, a head-plate formed of sheet metal stamped to form a plurality of substantially radial ribs, a plurality of leg-attaching plates also formed of sheet metal stamped to form ribs, the several plates being each provided with slots arranged adjacent to the ribs to permit the plates to engage with each other, and thereby form a tripod-head.

4. A tripod-head comprising a plurality of interengaging plates formed of stamped sheet metal and movable laterally into engagement with each other, one of said plates having an opening and the other being provided with an integral enlargement or dome adapted to engage in said opening and form an automatic spring-lock for holding the plates together.

5. A tripod-leg formed of a plurality of pivotally-connected sections movable to open or to closed position, and means for automatically interlocking said sections in either position, said interlocking means being released when force is applied to either fold or unfold the sections of the leg.

6. A tripod-leg formed of a plurality of pivotally-connected sections, locking-plates disposed on the outer portions of one section and

similar plates disposed on the inner portions of the next adjacent section, said plates being provided with interengaging rib and depressed portions and adapted to interlock in the open and folded positions.

7. A tripod-leg formed of a plurality of pivotally-connected sections, interlocking plates on the adjacent faces of connected sections, said plates being provided with central openings for the passage of the pivoting means and being further provided with ribbed and grooved portions of gradually-tapering form extending from the end of the plates toward the said central openings, the plates interlocking automatically in both open and folded positions.

8. A tripod-leg formed of a plurality of pivotally-connected sections, of which each section except the lowermost is formed of two spaced bars disconnected from each other at their lower ends, plates extending across and connecting the upper ends of said bars, the end portions of the plates being extended to overlap the bars of the next adjacent section, and interlocking plates on the adjacent sides of the bars or connected sections, substantially as specified.

9. A tripod-leg formed of a plurality of pivotally-connected sections, interlocking plates disposed respectively on the outer portions of one section and on the inner portions of the next adjacent section, said plates being provided with interengaging ribbed and depressed portions, the ribbed plates being slit to permit free yielding movement of the ribs.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HART H. McNAUGHTON.

Witnesses:
C. W. MORRELL,
ESTELLA KLAISS.