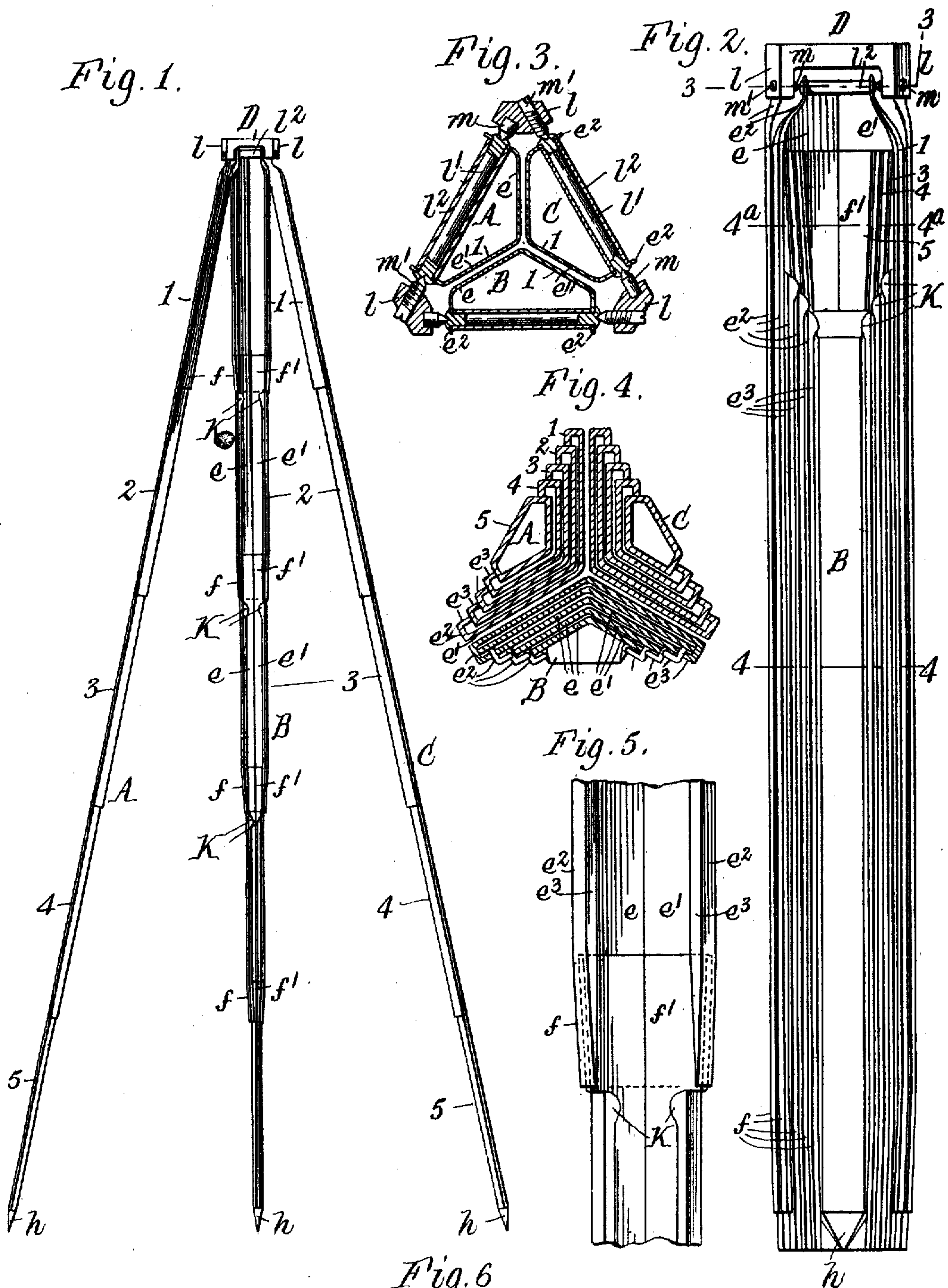
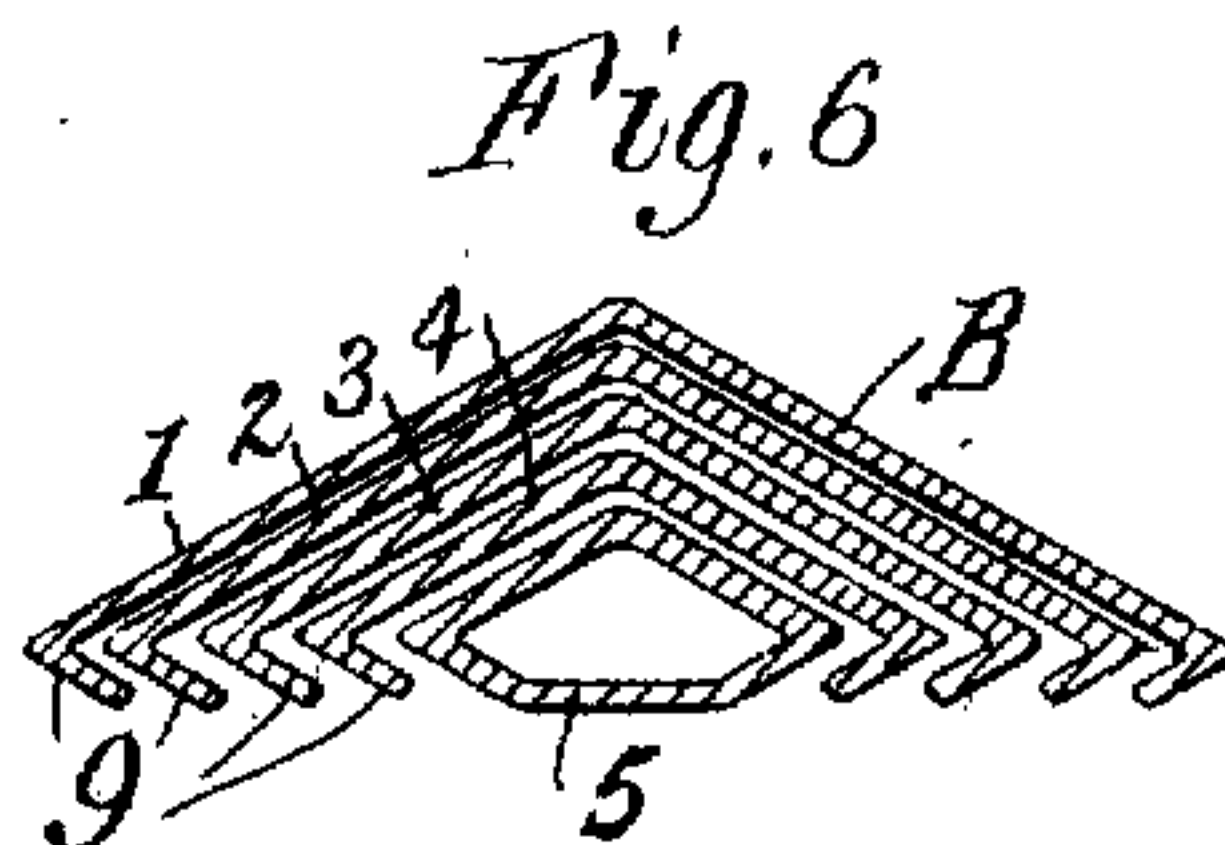


G. D'W. MARCY.
TRIPOD.

APPLICATION FILED APR. 19, 1906.



Witnesses:
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UNITED STATES PATENT OFFICE.

GROSVENOR D'W. MARCY, OF BUFFALO, NEW YORK.

TRIPOD.

No. 829,411.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GROSVENOR D'W. MARCY, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Tripods, of which the following is a specification.

This invention relates to portable tripods or stands of that kind comprising legs composed of telescoping sections which are hinged together or movably connected, so as to be capable of being extended and set in supporting position and to be collapsed or telescoped and folded into compact form for transportation.

The primary object of the invention is to produce such a portable tripod or stand, made of sheet metal, which will be very light and capable of collapsing into a small compact package, but which will be very firm and rigid and afford a perfectly stable support in use.

Other objects of the invention are to make the legs of trough or angle shaped sections instead of tubular sections, and thereby produce a lighter, more rigid, and less expensive stand; to provide the leg-sections with joints or connections which will enable them to be easily fixed in the extended relation and as easily telescoped without danger of accidental collapse when in use, and to provide a simple and inexpensive joint for the legs with the top or table of the stand which can be adjusted to take up any play, and thereby increase the stability of the stand.

In the accompanying drawings, Figure 1 is an elevation, on a reduced scale, of a tripod or stand embodying the invention. Fig. 2 is an elevation, on a larger scale, of the same collapsed. Fig. 3 is a section in line 3 3, Fig. 2, showing the hinge-joints of the legs with the top or table. Fig. 4 is a sectional view of the collapsed tripod, two of the legs being in section on the line 4 4, Fig. 2, and the section of the other leg being taken on line 4^a 4^a, Fig. 2. Fig. 5 is an elevation of the adjoining ends of two leg-sections, showing the wedge-joint for the same. Fig. 6 is a sectional view of one of the legs, showing a modified form of the guide-flanges.

Like characters of reference refer to like parts in the several figures.

A B C represent the three legs or members of a tripod or stand, and D the top or table to which the legs are connected at their upper

ends, so that they can be spread apart or set in supporting or operative position—for instance, as shown in Fig. 1—or folded in parallel with and against each other for transporting. Each leg consists of a plurality of telescoping sections 1, 2, 3, 4, and 5, adapted to be extended and secured in the extended position, as shown in Fig. 1, or to be telescoped or collapsed one within the other, as shown in Figs. 2 and 4. In the tripod shown each leg has five sections, which enable the tripod to be telescoped into a very short package; but this number of sections in the leg is not essential, and any other desired number could be employed. Each leg-section, with the exception of the foot-section 5, consists of a piece of sheet metal bent into angular or trough shape—that is, having a back or web which in the construction shown consists of two portions e and e' , joining centrally at an angle of one hundred and twenty degrees, and flanges e^2 , which project outwardly or forwardly from the sides of the web or back and which preferably have, as shown in Fig. 4, lips e^3 , which extend toward each other from the outer edges of the side flanges. Each section, except the foot-section 5, has a tapered or narrowing lower end f , and each section, except the top section, has a diverging or widening upper end f' , and between these portions the section is of uniform width, or its two flanges are parallel. The flanges extend from the lower end of the section to and terminate at the base of the widening upper end f' . Each section is confined and adapted to slide lengthwise in the next section above, and as the web of each section is of greater width than the space between the lips of the flanges of the section in which it slides it cannot escape or be removed therefrom through said space. It is not necessary for the lips of one section to overhang or extend in front of the flanges of the section confined therein; but the lips do overhang the inclined edges of the flangeless upper end f' of the confined section. When the sections are drawn out or extended, the widened upper end of each section will wedge and bind so tightly between the tapered flanges of the lower end of the section containing it, as to retain the leg extended under a considerable weight or load on the tripod or stand. The construction described in which the side flanges have the inwardly-projecting lips is preferred, because it gives

a more finished appearance to the tripod and adds to the stiffness of the legs; but the lips could be dispensed with and flanges employed which project outwardly and incline toward each other from the side edges of the web, as shown at *g* in Fig. 6. Each of the sections, except the top and foot sections, is provided at or near its upper end with stop lugs or projections *K*, adapted to strike the corresponding lugs or other part of the section sliding therein to prevent the removal of the latter section through the upper end of the other section. These stop-lugs are not necessary on the top section, as the top or table will prevent the removal of the other section through the upper end thereof. The foot-section being narrower than the others is preferably made tubular, as shown, instead of trough shape to secure greater rigidity and is provided at its lower end with a pointed steel plug or foot *h*. This foot-section is triangular in shape, with its inner sides or faces parallel with web portions of the other sections.

By forming the opposite portions of the backs of the sections at an angle of one hundred and twenty degrees, as explained, the legs will fold in close together without intervening spaces, thus enabling the legs to be made of greater width and strength without increasing the bulk of the collapsed tripod. The angularity of the portions of the back also adds to the stiffness of the legs, so that the necessary rigidity is secured with narrower side flanges *e*² than would otherwise be required. While leg-sections of trough or channel shape somewhat different from that shown and described would give fairly good results, yet the shape shown is best in tripods for the reasons stated. The legs of this shape are also stiffer and stronger than tubular legs of the same weight of metal and are lighter and more compact when collapsed than tubular legs of similar size and triangular in cross-section, because one side is omitted from each section and only the width of one section has to be increased to receive the section which slides therein, whereas with tubular sections the thickness as well as the width of the sections, would have to be increased.

The legs are preferably hinged at their upper ends to the top or table *D*, as shown in Fig. 3. The side flanges *e*² of the upper section of the leg extend up between depending hinge-lugs *l* on the top or table *D*. The two flanges at the upper end of each leg are connected by and support a hinge-pin *l'*, which in the construction shown is riveted to the two flanges, a spacing-sleeve *l*² surrounding the pin between the flanges to hold the latter in proper relation, and the pin is pivotally held between oppositely-arranged bearing studs or parts *m m'*, secured in the hinge-lugs at opposite sides of the leg. Hardened-steel bearing-studs with conical ends bearing

in conical seats in the ends of the hinge-pin are preferably employed, and at least one of the studs—for instance, the stud *m'*—consists of a screw working through a threaded hole in the hinge-lug. By properly adjusting this screw-stud the hinge-joint can be loosened or tightened to make the leg swing as freely as desired without side play or motion. A screw-stud for each end of the hinge-pin could be used; but this is not necessary. When the hinges are adjusted to eliminate side play of the legs, as explained, the top or table cannot twist or wobble on the legs, and the tripod is thus made much more stable and affords a perfectly firm support, which is very essential in a stand for photographic cameras and other instruments of precision.

Tripods are most commonly used for portable stands, and the invention is described in connection with a tripod; but the features of construction herein described with obvious changes in shape of the trough-shaped legs could be utilized in stands having a different number of legs.

I claim as my invention—

1. A supporting member comprising telescoping sheet-metal sections having webs and longitudinal flanges projecting from opposite sides of said webs, substantially as set forth.

2. A supporting member comprising telescoping trough-shaped metal sections having webs and longitudinal flanges projecting from opposite sides of said webs, one of said sections being narrower than the other and confined between the flanges of said other member, substantially as set forth.

3. A leg for portable stands comprising telescoping metal sections having webs and longitudinal flanges projecting from opposite sides of said webs, substantially as set forth.

4. A leg for portable stands comprising telescoping metal sections having webs and longitudinal flanges which project from opposite sides of said webs and are provided at their outer edges with oppositely-extending lips, substantially as set forth.

5. A leg for portable stands comprising telescoping metal sections having webs and longitudinal flanges which project from opposite sides of said webs, said sections having parts at opposite ends which engage to hold said sections extended, substantially as set forth.

6. A leg for portable stands comprising telescoping metal sections having webs and longitudinal flanges which project from opposite sides of said webs, said sections having wedge-shaped parts at opposite ends which frictionally engage to hold said sections extended, substantially as set forth.

7. In a tripod, the combination of connected legs, each comprising telescoping metal sections having webs with portions arranged at an angle of one hundred and twenty

degrees, and longitudinal flanges which project from opposite sides of said webs, substantially as set forth.

8. In a portable stand, the combination of
5 a top, legs having webs and longitudinal flanges projecting from said webs, a hinge part connecting and bracing said flanges of each leg, and bearings on said top pivotally engaging said hinge parts, substantially as
10 set forth.

9. In a portable stand, the combination of a top, legs having webs and longitudinal

flanges projecting from said webs, a hinge part connecting and bracing said flanges of each leg, and bearings on said top pivotally
15 engaging said hinge parts, one of said bearings being adjustable to take up play in the hinge-joint, substantially as set forth.

Witness my hand this 14th day of April, 1906.

GROSVENOR D'W. MARCY.

Witnesses:

EDWARD C. HARD,
A. L. MCGEE.