J. L. SPENCE, JR.

CLAMP.

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1,394,691. Patented Oct. 25, 1921.

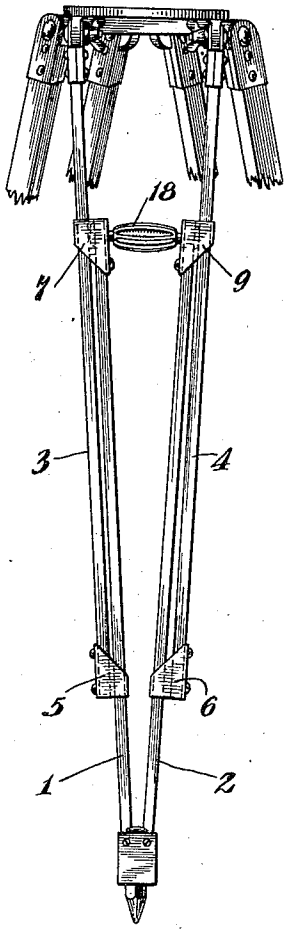


Fig. 1.

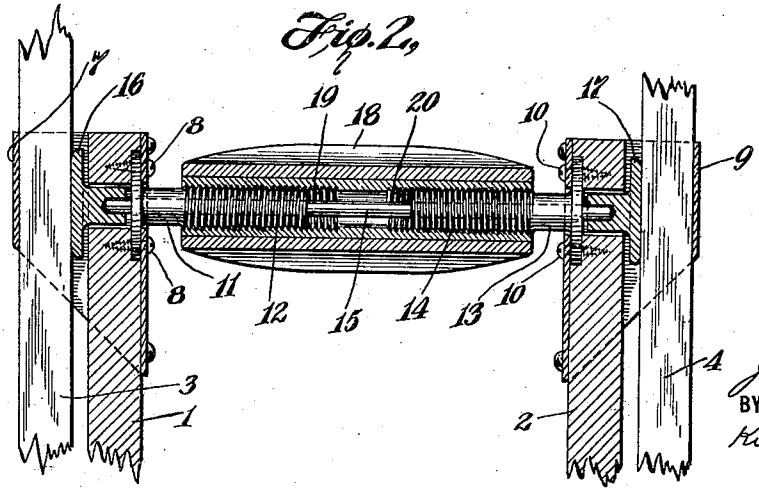


Fig. 2.

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CLAMP.

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To all whom it may concern:

Be it known that I, JOHN L. SPENCE, Jr., a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Clamps, of which the following is a specification.

My invention relates to an improvement in clamps or holding devices and an object thereof is the provision of means whereby two members which are adjustable relatively to each other may be easily and quickly clamped in place and wherein any wear in the members is automatically compensated for.

My invention is particularly useful in connection with tripods for cameras or other devices and a further object of my invention is the provision of means whereby the parts to be clamped, for instance the legs of a tripod, are frictionally held in adjusted position, thereby enabling the legs of the tripod or other device to be held in any position desired as distinguished from the usual type of clamp or holding device wherein the parts to be clamped can be held only in certain predetermined positions.

A further object of my invention is the provision of a device of the character indicated wherein the parts to be clamped need not necessarily be of any predetermined size so that should a part be broken it can be easily replaced.

In general, my invention comprises means for quickly and rigidly attaching two pairs of relatively movable members to each other to hold the same frictionally at any point desired throughout the length of the members to be clamped.

For convenience I have shown my device applied to the sectional legs of a tripod but it is to be understood that this is for the purposes of illustration only and that my device is capable of use in many other connections.

In the accompanying drawings,—

Figure 1 shows a tripod in elevation with my invention applied thereto; and

Fig. 2 shows my improved holding device or clamp in sectional elevation.

Referring to the drawings in detail, 1 and 2 designate respectively the lower parts of two legs of a tripod, 3 and 4 designating the upper portions or sections of said legs. It will be understood from the drawings that the sections 3 and 4 are adjustable vertically, relatively to the sections 1 and 2 respectively and that it is the purpose of my invention to provide means for holding or clamping the sections 3 and 4 with respect to the corresponding sections 1 and 2.

At the lower end of the section 3 I provide a band 5 which is secured to the section 3 and surrounds the leg section 1, this band functioning as a guide when the section 3 is adjusted relatively to the section 1. To the lower end of the leg section 4 I secure a similar band or guide 6, this band or guide functioning in all respects similarly to the band 5 already described.

Secured to the upper part of the leg section 1 is a pressure case or band 7, this band being secured to the leg section by rivets 8 or in any other convenient manner.

It will be seen from Fig. 2 that this pressure case or band surrounds the leg sections 1 and 3 and that the section 3 moves vertically therein when the legs of the tripod are adjusted. The leg section 2 is also provided with a pressure case or band 9, this case or band being secured thereto by rivets 10. This band surrounds the leg sections 2 and 4 and the latter is moved vertically therein when the tripod legs are adjusted. Secured to the upper end of the leg section 1 is a tubular member 11, this member being provided with left-hand threads 12 on its exterior. Secured to the leg section 2 is a tubular member 13 provided with right-hand threads 14 on its exterior.

A floating compensating rod 15 extends across the space between the leg sections 1 and 2 and is received by the tubular members 11 and 13. One end of this compensating rod passes through the leg section 1 and preferably carries a pressure plate 16, this plate being located intermediate the leg sections 1 and 3. The opposite end of the compensating rod 15 passes through the leg section 2 and carries a pressure plate 17, this pressure plate being located intermediate the leg sections 2 and 4.

Mounted upon the tubular members 11 and 13 is a handle 18 screw threaded at 19 and 20 so as to coöperate with the screw threads 12 and 14 on the members 11 and 13 respectively.

It will be seen that in operation the leg section 3 may be adjusted relatively to the leg section 1 and the leg section 4 adjusted relatively to the leg section 2 after which

the grip 18 may be rotated to draw the tubular members 11 and 13 toward each other. This movement of the members 11 and 13 will cause the compensating rod 15 to force the leg sections 3 and 4 against the plates 16 and 17 and to clamp these leg sections between the walls of the pressure cases or bands 7 and 9 as indicated in Fig. 2 and the pressure plates 16 and 17.

It will be seen from the foregoing that by the use of my improved holding device or clamp the leg sections 3 and 4 may be frictionally held in any desired position relative'y to the leg sections 1 and 2 in that the clamping of the sections is automatically equalized at all times. This last feature is of advantage in that no great care need be taken in forming the leg sections and should one become broken temporarily repairs may easily be made.

What is claimed is:

1. In combination, a pair of relatively movable members, a second pair of similar members, spaced from the first-mentioned pair, screw-threaded members one of which is secured to a member of one pair of relatively movab'e members and the other to the other pair of relatively movable members, a screw-threaded member received by the first-mentioned screw-threaded members for shortening the distance between the two pairs of relatively movable members, and a compensating rod for engaging a member of each pair when the space between the two pairs of relatively movable members is varied whereby the relatively movable members are clamped.

2. In combination, a pair of relatively movable members, a pressure casing surrounding said members and rigidly secured to one of said members, a second pair of re'atively movable members spaced from the first-mentioned pair, a pressure casing surrounding the second pair of members and secured to one of them, a screw-threaded member secured to the member of each pair of relatively movable members to which said pressure casing is connected, a compensating rod extending through said member of each pair of relatively movable members, and means coöperating with said screw-threaded members to force the other member of each pair of relatively movable members into engagement with the compensating rod to force said member of each pair into clamping engagement with said pressure casing.

3. In a tripod having a pair of sectional legs, a pressure casing surrounding the sections of each leg and secured to one section thereof, a tubular member secured to a section of each leg, a handle coöperating with said tubular members to draw a section of one leg toward a corresponding section of the other leg, and a compensating rod passing through a section of each leg the other section of each leg when the two legs of the tripod are drawn toward each other being frictionally engaged by said rod to force the sections of each leg into clamping engagement with said pressure casings.

4. In a tripod having a pair of sectional legs, the combination of a pressure casing secured to a section of each leg, a screw-threaded tube secured to said section of each leg, said tubes being oppositely threaded on their exterior, a screw-threaded handle for receiving said screw-threaded members, said handle being adjustable to cause said screw-threaded members and hence the leg sections secured thereto to approach each other, and a compensating rod passing through said tubular members and through the leg sections to which said tubu'ar members are secured, the other section of each leg being forced when the screw-threaded tubular members are drawn toward each said compensating rod into engagement with the other and into engagement with said pressure casing to clamp the leg sections.

This specification signed this 16 day of March, 1921.

JOHN L. SPENCE, Jr.