

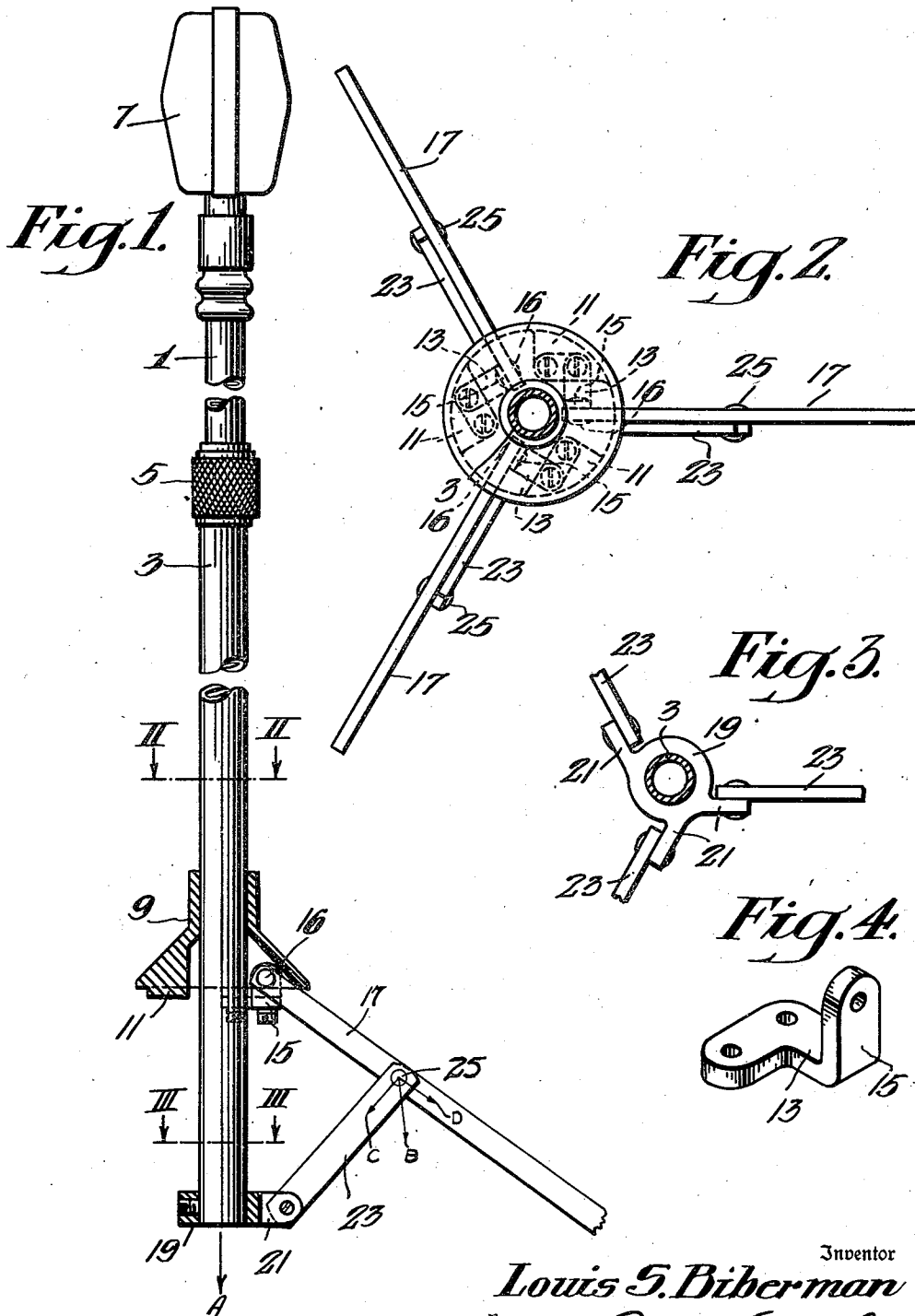
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COLLAPSIBLE SUPPORTING STAND

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## UNITED STATES PATENT OFFICE

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## COLLAPSIBLE SUPPORTING STAND

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3 Claims. (Cl. 248—171)

This invention relates to collapsible supporting stands for microphones, lamps, music racks, map holders, and the like, and more particularly to the supporting structure therefor.

Collapsible stands of this type having a plurality of supporting legs which may be spread apart from or folded up against the conventional supporting standard have been known for some time. In certain cases, as where the stand is used for the support of a microphone, it is sometimes necessary to make a quick adjustment of the height of the stand. Structures of the prior art with which I am familiar have all employed some sort of locking device which must first be loosened or unlatched before the stand can be adjusted to the proper height, and which must subsequently be relocked or related to maintain the stand in the adjusted position. Where time is an important factor, this constitutes a serious disadvantage.

The primary object of my invention is to provide an improved supporting stand of the character set forth which will be free from the aforementioned disadvantage.

More particularly, it is an object of my invention to provide an improved supporting stand of the character set forth which employs no locking means and which is entirely self-locking.

Another object of my present invention is to provide an improved supporting stand as set forth above which can be quickly and easily adjusted to desired height.

A further object of my invention is to provide an improved supporting stand as aforesaid which is simple in construction, firm and highly efficient in use.

In accordance with my invention, the improved stand includes an upright standard to the lower end of which is fixed a collar and upon which is loosely slidable a sleeve, preferably in the form of an inverted funnel. A plurality of supporting legs are circumferentially distributed about and pivotally connected to the slidable sleeve, and a like number of connecting links, circumferentially distributed about the fixed collar, are pivotally mounted on the collar at one end, and at their other ends, each one of said links is pivotally connected to one of the legs at a point substantially midway between the ends of the associated leg. The arrangement is such that, when pressure is applied to the standard in a downward direction, a force is produced on each of the links having a component which acts on the associated leg to swing the leg on its pivotal connection to the sleeve in a direction such that

the legs tend to close in on the standard. The pressure applied to the standard may result from the weight of the microphone, lamp, or such other device as may be supported thereon. To adjust the height of the standard (or, otherwise stated, the spread of the legs), it is merely necessary to slide the slidable sleeve along the standard in the desired direction. Once adjusted, the legs will remain in the adjusted position by reason of the aforementioned pressure which tends to close them back in on the standard, and no external locking means is required to lock the sleeve to the standard in the adjusted position.

The novel features that I consider characteristic of my invention are set forth with particularity in the appended claims. The invention itself, however, both to its organization and method of operation, as well as additional objects and advantages thereof, will best be understood from the following description of one embodiment thereof, when read in connection with the accompanying drawing in which

Figure 1 is a fragmentary elevation showing my improved stand,

Figure 2 is a sectional view thereof taken on the line II—II of Fig. 1 and looking in the direction of the appended arrows,

Figure 3 is a similar view taken on the line III—III of Fig. 1, and

Figure 4 is a detailed perspective of one of the bracket members coupling the legs to the slidable sleeve.

Referring more particularly to the drawing, wherein similar reference characters designate corresponding parts throughout the several views, there is shown a standard comprising a pair of telescoping tubes 1 and 3 adjustable relative to each other and adapted to be locked in adjusted position by a suitable friction coupling 5 in well known manner. The tube 1 may have mounted thereon a microphone 7, a lamp, a music rack, a map or book holder, or any other similar device.

Loosely fitted on and slidable along the tube 3 is a sleeve 9 having the shape of an inverted funnel and provided with a plurality (for example, three) inwardly extending blocks 11 to each of which is secured a bracket 13 formed with an upwardly extending offset ear 15. To each of the ears 15 is pivotally connected at 16 one end of a supporting leg 17, as clearly shown in Fig. 2, the upper ends of the legs 17 being concealed within the bell of the funnel, as best shown in Fig. 1.

Secured to the lower end of the tube 3 is a collar 19 having the same number of substantial-

ly tangentially, outwardly extending projections 21 as there are legs 17, and to each of the projections 21 is pivotally connected one end of a connecting link 23. The other end of each link 23 is pivotally connected to one of the legs 17 at a point 25 substantially midway between the ends of the leg, but in any case, the length of each link 23 from its pivotal connection with the projection 21 to the pivotal connection 25 with its associated leg 17 should be equal to the length of the portion of the leg 17 between the pivot 16 and the pivot 25, so that lines connecting these three pivot points will form at all times an isosceles triangle regardless of the position of the legs 17 relative to the tube 3.

When the stand is in collapsed condition, the sleeve 9 is in its most elevated position, and the legs 17 and links 23 lie substantially against the tube 3 in almost parallel relation. To set the stand up for operation, it is merely necessary to slide the sleeve 9 down along the tube 3 the desired extent, after which the stand remains firmly in position without requiring any locking means between the sleeve 9 and the tube 3, such as conventional stands of the prior art require. The explanation for this is as follows: The weight of the microphone or other similar device 7 and the tubes 1 and 3 and associated parts applies a force downwardly toward the floor or other support upon which the legs 17 rest in the direction of the arrow A. This force is transferred along the connecting links 23 to the pivotal connections 25 between the links 23 and the legs 17 where a force is applied which also acts in a downward direction, as shown by the arrow B. The force B may be resolved into two components C and D, the former of which acts in a direction normal to a line passing through the pivots 16 and 25 and the latter of which acts along the line connecting the pivots 16 and 25. It will be obvious that the force D has no effect upon the legs 17 insofar as their pivotal action on the pivots 16 is concerned. However, the force C tends to swing the legs 17 on their pivots 16 inwardly about the pivots 16 and toward closed relation with respect to the tube 3. It follows,

therefore, that the legs 17 are not spread apart but will remain in the adjusted position.

From the foregoing description it will be apparent to those skilled in the art, that I have provided an improved supporting stand which is simple to operate, which may be quickly and easily adjusted, and which is not subject to the disadvantages pointed out previously in connection with similar prior art stands. Although I have described but one embodiment of my invention, it will be obvious to those skilled in the art that many variations thereof are possible. Hence, I desire it to be understood that I do not wish to limit myself except insofar as is made necessary by the prior art and by the spirit of the appended claims.

I claim as my invention:

1. In a supporting device of the character described, the combination of a standard, a sleeve slidably carried thereon, a collar fixed to one end of said standard, a plurality of supporting legs circumferentially distributed about and pivotally mounted on said sleeve whereby they are adapted to be moved to spread apart from and close in on said standard, and a like number of connecting links pivotally mounted on and circumferentially distributed about said collar, one each of said links being pivotally connected to one each of said legs at points on said legs such that the length of each of said links between its pivotal connections to said collar and its associated leg is equal to the length of the portion of the leg between the pivotal connections of said leg with said sleeve and with said link whereby lines connecting said three pivotal connections form an isosceles triangle at all times regardless of the position of said legs relative to said standard.

2. The invention set forth in claim 1 characterized in that said sleeve is loosely slidable on said standard.

3. The invention set forth in claim 1 characterized in that said sleeve has the shape of an inverted funnel, and characterized further in that said legs are pivoted to said sleeve within the bell of the funnel.

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