

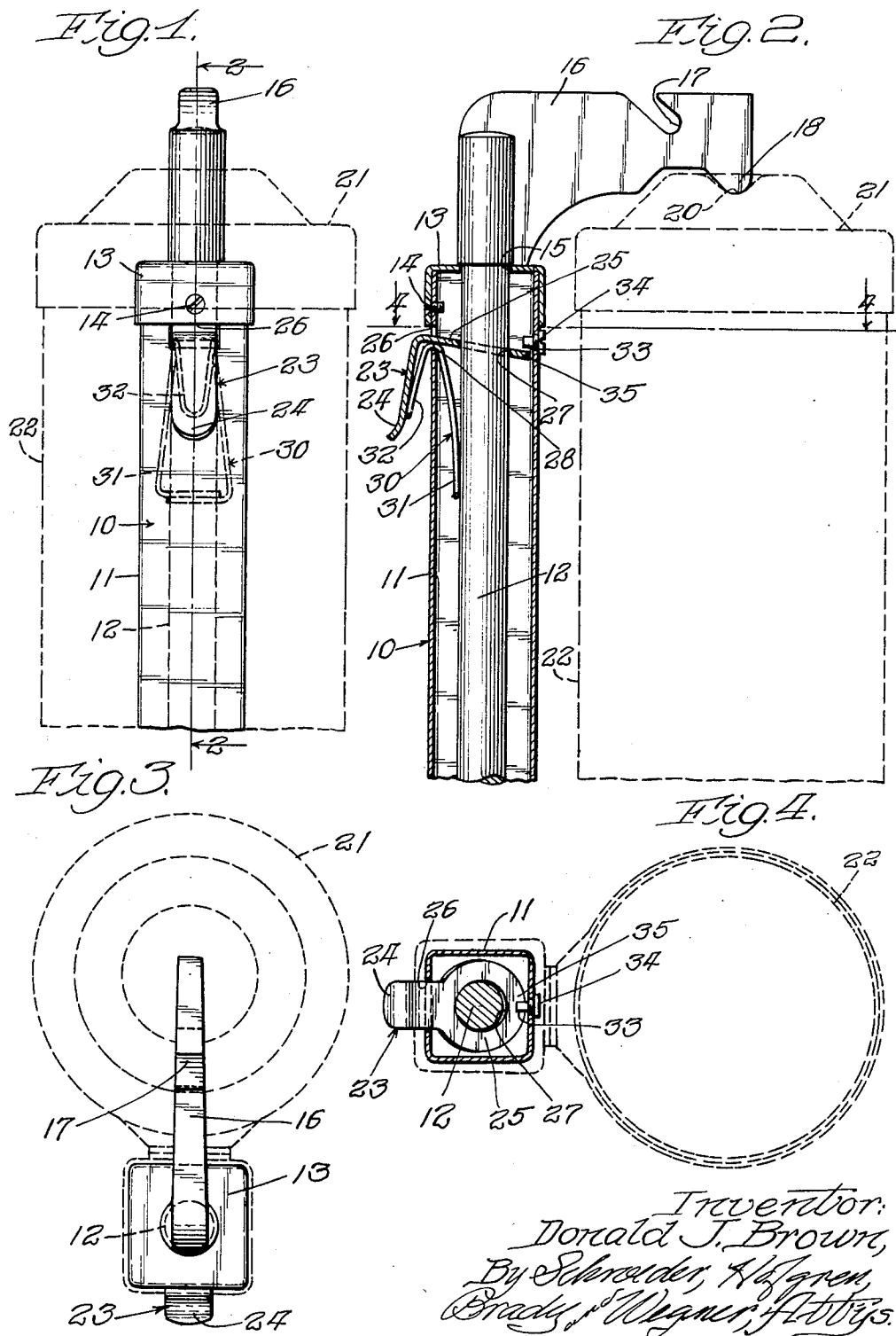
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TWO-WAY LOCK FOR TELESCOPING STAND

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TWO-WAY LOCK FOR TELESCOPING STAND

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9 Claims. (Cl. 287—58)

This invention relates to portable stands and, more particularly, to a two-way locking mechanism for a telescoping picture screen stand.

Most portable picture screen stands on the market utilize a pair of telescoping rod members which are longitudinally adjustable for supporting the picture screen in open position. Adjustment of the rod members has commonly been provided by a clamping member which is positioned on one rod member and has a portion embracing the other rod member. The embracing portion is normally tipped by a spring member so as to frictionally engage the other rod member. Such clamping members were capable of maintaining the rod members against relative movement in one direction only.

When displaying a picture screen in a camera shop, it is desirable that the telescoping rods be held against relative movement in both directions so that the head of one of the telescoping rods will remain in firm engagement with the end of a screen casing, until released. The present invention provides a particularly unique and inexpensive structure for accomplishing this two-way locking.

The primary object of the present invention is to provide a new and improved locking mechanism for a telescoping stand.

Another object is to provide a locking mechanism which is adapted to hold a pair of telescoping members against longitudinal movement in either of two opposite directions.

A further object is to provide a locking mechanism having a single clamping member mounted for slight longitudinal movement on a tubular rod member so as to utilize two points of pivot for biasing the clamping member into gripping engagement with a second rod member, the clamping member pivoting from one point to maintain gripping engagement when the second rod member is urged in one direction, and having a second point of pivot to maintain gripping engagement when the rod member is urged in an opposite direction.

The invention is illustrated in a preferred embodiment in the accompanying drawings, in which:

Fig. 1 is a fragmentary side elevational view of the locking mechanism showing the spring and screen casing in dotted outline;

Fig. 2, a sectional view taken as indicated on line 2—2 of Fig. 1 and showing a projection of the bail support engaging an end cap of the screen casing;

Fig. 3, a top plan view; and

Fig. 4, a sectional view taken as indicated on line 4—4 of Fig. 2.

In the embodiment illustrated, and as best seen in Fig. 2, an upright standard, generally designated 10, is formed from a pair of elongated rod members 11 and 12 which are conventionally supported in upright position by a conventional base member, not shown. The rod member 11, preferably made from metal, is tubular and of a size to telescopingly receive the extensible rod member 12. The lower end of the rod member 12 may be centered and guided within the tubular rod member 11 in a man-

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ner conventional in the art. The upper end of the tubular rod member 11 is preferably provided with a cap member 13 which is secured in place by one or more cap screws 14. The cap member 13 is apertured, as at 15, to make a close sliding fit with the extensible rod member 12.

A conventional bail support 16 may be secured to the upper free end of the rod member 12. The bail support 16 is notched as at 17 for receiving the bail of a picture screen, not shown, and it has a projecting nose 18 adapted to fit into a depression 20 of an end cap 21. The engagement of the bail support 16 and the end cap 21 holds the screen casing 22 in secure alignment adjacent the standard 10 when it is desired to place a screen stand on display or in carrying position.

Means are provided for locking the rod member 12 in varying degrees of extended position with respect to the tubular rod member 11. As herein best shown in Fig. 2, a clamping member, generally designated 23, and preferably L-shaped in configuration, is provided with an actuating finger element 24 and a gripping portion 25. The gripping portion 25 projects through a slot 26 in the lateral surface of the tubular member 11 and extends transversely across the interior of the tubular rod member 11. The gripping portion 25 may have an opening 27 so as to loosely embrace the rod member 12. Since the clamping member 23 is normally fulcrumed or pivoted at 28 about the lower edge of the slot 26, the peripheral surface of the gripping portion 25 about the opening 27 will frictionally engage the rod member 12 when the gripping portion 25 is pivoted downwardly, as shown in Fig. 2. By moving the gripping portion 25 to a position perpendicular to the rod member 12, the rod member 12 is free to be moved upwardly or downwardly within the tubular rod member 11 to the desired degree of extension.

Spring means is preferably provided normally to bias and urge the gripping portion 25 into frictional engagement with the rod member 12. As herein shown, a resilient wire spring 30 may be bent into a generally U-shaped configuration and inserted through the slot 26 so that spring arms 31 and 32 bear in opposite directions upon the rod member 12 and the finger element 24, respectively, causing the clamping member to be biased into gripping engagement to hold the rod member 12 from telescoping into the tubular rod member 11. Downward forces upon the rod member 12 tend to pivot the clamping member 23 about point 28 into even firmer gripping engagement.

To effect a two-way locking, the structure of the present invention is arranged to reverse the point of pivot of the clamping member 23 when upward forces are exerted upon the rod member 12 so that the clamping member is retained in gripping engagement. To this end a shoulder 33 is preferably provided in the tubular rod member 12 opposite the slot 26 for engaging an end 35 of the clamping member 23. The shoulder 33 may be struck inwardly from the tubular rod member 11, or the tubular rod may be slotted to accommodate a projection from the end 35 of the clamping member 23.

As herein shown, the shoulder 33 is provided by a machine screw 34 secured to the tubular rod member 11. When the rod member 12 is pulled upwardly, the slot 26 permits slight longitudinal movement of the rod member 12 together with the clamping member 23. During this movement the clamping member 23 remains in gripping engagement with the rod member 12 because of the action of the spring 30.

The shoulder 33 is positioned so that it contacts the end 35 of the clamping member 23 before the clamping member 23 reaches the upper end of the slot 26 to limit the longitudinal movement. Thus, as best seen in Fig. 2, upward forces on the rod member 12 tend to pivot the

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clamping member 23 counterclockwise into even firmer gripping engagement with the rod member 12. By providing a structure adapted to shift the pivoting of the clamping member 23 between opposite sides of the extensible rod member 12, gripping engagement of the clamping member is maintained against forces in opposite longitudinal directions, and a two-way locking is effected. If the longitudinal movement were not provided, upward forces on the rod member 12 would simply overcome the force of the spring 26 and pivot the clamping member 23 on the edge of the slot above the clamping member which would disengage the rod member 12.

It should be further noted that the shoulder 33 is positioned to permit manual pivoting of the clamping member 23 from a gripping to a non-gripping position when the clamping member is resting at the lower end of the slot 26. To extend, or to telescope, the rod member 12 it is merely necessary to pivot the clamping member by the finger element 24, and move the rod member to the desired degree of extension.

Although not shown, it is conventional to pivot the screen casing 22 to a bracket on the tubular rod member 11. This permits the screen casing to be positioned parallel to the two rod members when it is desired to display the screen or to carry it. As can be seen in Fig. 2, the distance which the projecting nose 18 fits into the depression 20 is slightly greater than the longitudinal movement provided by the slot 26 and shoulder 33 so that the nose of the bail support will remain firmly in engagement with the end cap 21 of the casing 22 until released by the finger element 24.

The foregoing detailed description is given for clearness of understanding only and no unnecessary limitations should be understood therefrom as some modifications will be obvious to those skilled in the art.

I claim:

1. An extensible rod assembly, comprising: a pair of elongated rod members, the first of said rod members being tubular and having an end for telescopically receiving the second rod member, said tubular rod member having a slot in its lateral surface; a clamping member pivoted on an edge about said slot and having a transversely extending end provided with a gripping portion for engaging the second rod member, said gripping portion being movable between a tilted gripping and a non-gripping position by pivoting the clamping member, said slot being of a size to permit slight longitudinal movement of the clamping member when in gripping engagement with the second rod member; a spring normally yieldingly pivoting said clamping member on the edge of said slot to urge said gripping portion into said gripping position to hold said second rod member against movement in one direction; and a shoulder on the tubular rod member spaced laterally from the slot for engaging said end of the clamping member to limit said slight longitudinal movement of the clamping member, the engagement of the shoulder and the end of the clamping member retaining said gripping portion in tilted gripping position to hold said second rod member against movement in an opposite direction.

2. An extensible rod assembly as specified in claim 1, in which the shoulder projects inwardly of the tubular rod member and is positioned to engage the end of the clamping member during said slight longitudinal movement.

3. An extensible rod assembly as specified in claim 1, in which the gripping portion of the clamping member is provided with an opening, and the second rod is longitudinally slidable through said opening when the gripping portion is moved to non-gripping position, the spring normally pivoting the clamping member so that the gripping portion about said opening engages and holds the second rod member.

4. An extensible rod assembly as specified in claim 1, in which the clamping member is provided with a finger

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element for manually pivoting the gripping portion to its non-gripping position.

5. An extensible rod assembly as specified in claim 4, wherein the spring has two arms arranged in a U-shaped configuration, the spring extending through the slot in the tubular rod member and having one arm bearing outwardly against the finger element and the other arm bearing against the second rod member normally to pivot said clamping member and gripping portion into gripping position.

6. A telescoping stand adapted to be supported in an upright position, comprising: an elongated tubular rod member having a longitudinally extending slot adjacent its upper end portion; a second rod member telescopically received in said tubular rod member; a clamping member projecting through said slot and having a gripping portion for frictionally engaging said second rod member, said clamping member being manually movable between a tilted gripping and a non-gripping position, the slot being of a size to permit slight longitudinal movement of the clamping member and the second rod member when in gripping engagement; a cooperating spring normally biasing the clamping member into frictional gripping engagement to hold said second rod member against movement in one direction, said spring holding the clamping member in gripping position with the second rod member during said slight longitudinal movement; and a shoulder on the tubular rod member for engaging said end of the clamping member to limit said slight longitudinal movement of the clamping member, the engagement of the shoulder and the end of the clamping member retaining said gripping portion in gripping position to hold said second rod member against movement in an opposite direction.

7. A telescoping stand adapted to be supported in an upright position, comprising: an elongated tubular rod member, having a longitudinally extending slot and an oppositely disposed shoulder in its upper end portion; a second rod member slidably received in said tubular rod member, said second rod member being movable between telescoped position and a plurality of extended positions; and a clamping member projecting through said slot inwardly of the tubular rod member and normally urged into frictional gripping engagement with said second rod member, said clamping member being pivoted upon an edge of said slot for manual movement between a tilted gripping and a non-gripping position, said edge of the slot and said shoulder providing a pair of pivots for the clamping member whereby downward forces on said second rod member pivot said clamping member about said slot edge toward gripping position, and upward forces on said second rod member carry the clamping member upwardly in said slot into engagement with said oppositely disposed shoulder to pivot said clamping member toward gripping position.

8. An extensible rod assembly adapted to be supported in an upright position, comprising: a pair of elongated rod members, the first of said rod members being tubular and having an end for telescopically receiving the second rod member, said tubular rod member having a longitudinal slot in its lateral surface; a clamping member pivoted on an edge about said slot and having a transversely extending end provided with a gripping portion for engaging the second rod member, said gripping portion being movable between a tilted gripping and a non-gripping position by pivoting the clamping member, said slot being of a size to permit slight longitudinal movement of the clamping member upwardly when in gripping engagement with the second rod member; a spring normally yieldingly urging said gripping portion into said gripping position so that downward forces on the second rod member tend to pivot the gripping portion about the edge of the slot toward gripping position; and a shoulder on the tubular rod member spaced laterally from the slot and positioned upwardly from said edge of the

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slot on which the clamping member is pivoted so that the gripping portion of the clamping member can be manually pivoted to a non-gripping position, said shoulder being positioned for engagement with the transversely extending end of the clamping member so as to limit said slight longitudinal movement of the clamping member when the second rod member is pulled upwardly whereby the clamping member is caused to bear against said shoulder and retain the clamping member in gripping position to effect locking against upward movement of said second rod member.

9. An extensible rod assembly adapted to be supported in an upright position, comprising: a pair of elongated rod members, the first of said rod members being tubular and having an end for telescopingly receiving the second rod member, said tubular rod member having a longitudinal slot in its lateral surface; a clamping member pivoted on an edge about said slot and having a transversely extending end provided with a gripping portion for engaging the second rod member, said gripping portion being movable between a tilted gripping and a non-gripping position by pivoting the clamping member, said slot being of a size to permit slight longitudinal movement

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of the clamping member upwardly when in gripping engagement with the second rod member; a spring normally yieldingly urging said gripping portion into said gripping position; and a shoulder on the tubular rod member spaced laterally from the slot and being positioned upwardly from said edge of the slot from which the clamping member is pivoted for engagement with the transversely extending end of the clamping member, said edge of the slot and said shoulder providing a pair of pivots for the clamping member whereby downward forces on said second rod member pivot said clamping member about said slot edge toward gripping position, and upward forces of said second rod member carry the clamping member upwardly in said slot into engagement with said shoulder to pivot and urge said clamping member toward gripping position.

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