Jan. 16, 1945. W. G. WILLIAMS 2,367,253

TIE RACK

Filed Aug. 20, 1943

Fig. 1.

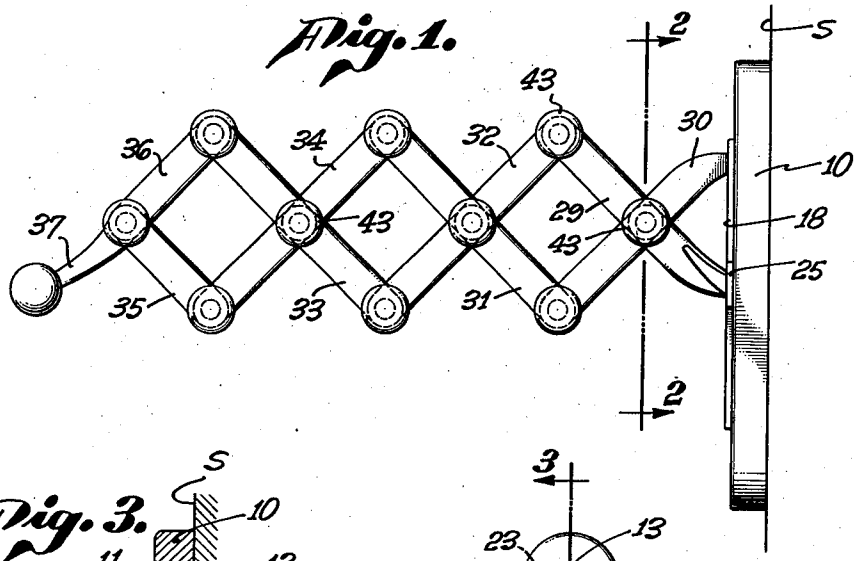


Fig. 3.

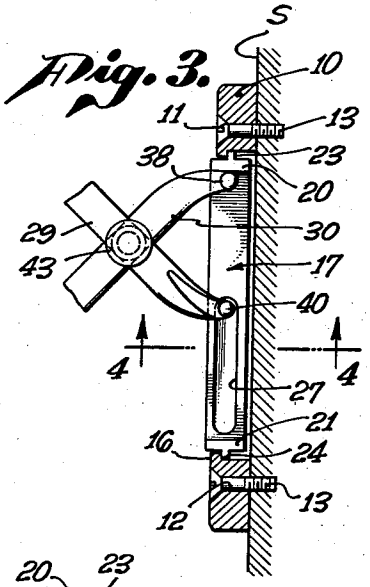


Fig. 2.

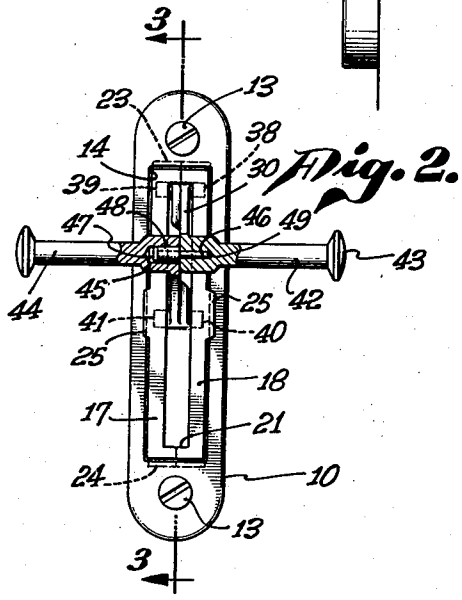


Fig. 5.

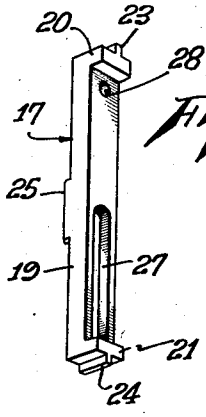
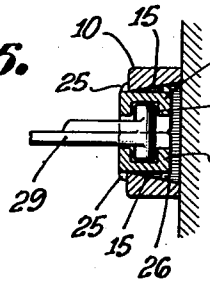


Fig. 4.



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TIE RACK

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8 Claims. (Cl. 211—105)

This invention relates to improvements in tie racks, and like devices.

Heretofore tie racks have been constructed wherein there is an attaching bracket or support that is attachable to any upright supporting surface, and a toggle link structure mounted thereon which can be advanced or retracted therefrom, the toggle link structure carrying laterally extending bars or pins on which ties or like articles may be positioned.

A primary object of the present invention is to provide an improved tie rack of this character wherein a simple, inexpensive mechanism is employed to mount or attach the inner end of the toggle link structure to the attaching bracket, and which will provide for the required extended and collapsing movements thereof.

Another object of the invention is to provide a novel means of assembling the links of the toggle link structure which will facilitate the assembly and projecting relatively to each other.

With the foregoing and other objects in view which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawing for an illustrative embodiment of the invention, wherein:

Figure 1 is a view in side elevation of the tie rack embodying the present invention, the toggle structure being shown in extended position;

Fig. 2 is a sectional view taken substantially upon the line 2—2 upon Fig. 1 in the direction indicated;

Fig. 3 is a vertical section taken substantially upon the line 3—3 upon Fig. 2 in the direction indicated;

Fig. 4 is a horizontal section taken substantially upon the line 4—4 upon Fig. 3; and

Fig. 5 is a perspective view of one of the opposed members employed to attach the inner end of the toggle link structure to the attaching bracket.

Referring to the accompanying drawing wherein similar reference characters designate similar parts throughout, the improved tie rack comprises a slotted elongated attaching bracket 10 having apertures 11 and 12 adjacent its top and bottom providing for the insertion of attaching screws 13 or the equivalent fastening elements for mounting the attaching bracket on any upright supporting surface indicated at S.

The slot 14 formed through the attaching bracket a major portion of its length is preferably formed with rearwardly divergent sides 15. At the top and bottom thereof there are inwardly extending lips or flanges 16. Within the slot there are disposed two opposed members which in the preferred form of construction, are exact duplicates of each other so that but a single mold or die is required to mold them. These members indicated at 17 and 18 are illustrated in detail in Figs. 2 to 5, inclusive. Each member comprises an elongated body 19 having at the top and bottom thereof inwardly extending flanges 20 and 21 which, when the two members are assembled together in the slot 14, are arranged in abutment as shown in Fig. 2. Small beads or lips 23 and 24 are formed centrally of the flanges 20 and 21 on the top and bottom thereof, respectively. These lips are arranged to engage the lips or flanges 16 at the top and bottom of the slot to hold or lock the members against withdrawal forwardly through the slot.

On the outer side of each body 19 there are formed two short snapover lips 25 and 26. One of these lips, depending upon whether the member on which it is formed is on the right or left-hand side of slot 14, is designed to be snapped over against the forward face of the attaching bracket 10 so as to lock the members against rearward movement through the slot. On the inner face of each body 19 there is formed an elongated recess 27 and a circular recess 28. When the two members 17 and 18 are positioned in and locked in the slot 14 the elongated recesses 27 are arranged in opposition to each other. Similarly the circular recesses 28 are also arranged in opposition to each other.

A toggle link structure is provided which is made up of links pivotally connected together adjacent their centers and adjacent their ends. While the toggle link structure may be of any desired length the structure illustrated is composed of links 29, 30, 31, 32, 33, 34, 35, and 36.

Link 36 which is one of the outermost links is equipped with a handle 37 by which the toggle link structure may be expanded or collapsed. One of the innermost links 30 has laterally extended gudgeons 38 and 39 which rotatably fit in the opposed recesses 28 of the members 17 and 18. Similarly, the innermost link 29 is equipped with laterally extending gudgeons 40 and 41 which fit in the opposed recesses 27 of the members 17 and 18. These gudgeons are slidable as well as slightly rotatable in the elongated recesses 27, but have a frictional engagement with the sides thereof that is sufficient to maintain the toggle link structure in any adjusted position.

The links 32 and 34 which are disposed on one side of the toggle link structure have outwardly

extending pins 42 formed integral therewith at their ends and adjacent the center thereof. These pins are preferably equipped with knobs 43 at their outer ends that serve to retain ties or similar articles thereon. Similarly, the links 31 and 33 are equipped with pins 44 adjacent their ends and adjacent the center thereof which extend outwardly from the opposite side of the toggle link structure. The end links 30 and 36 have knobs only adjacent one end and adjacent the center thereof. Similarly, the end link 29 has pins extending outwardly adjacent one end and adjacent its center and link 35 has pins adjacent its ends only. In this manner pins serving as tie supports extend laterally from both sides of the toggle link structure at all pivot points.

A feature of the invention resides in the manner in which the links making up the toggle link structure are pivotally assembled together. At the bases of all of the pins 44 there are drilled or otherwise formed, holes or recesses 45. Pivot pins 46 are provided having heads 47. Bushings 48 are positioned on the shanks of the pivot pins 46 against the heads. These bushings have approximately the same diameter as the heads but are preferably slightly larger than the heads. The bushings are designed to have a pressed fit with the interiors of the holes 45. At the bases of the pins 42 there are formed holes or recesses 49 into which the shanks of the pivot pins may be pressed.

In assembling the toggle link structure the pins with the bushings applied thereto are first pressed firmly into the holes 45 and the bushings are thus firmly held in place with the pivot pins capable of rotating therein. The links with the pivot pins thus applied are brought into opposition to the links having the holes 49 and the shanks of the pivot pins are then pressed into these holes. This forms a very quick method of assembly whereby all of the links are pivotally connected together. Inasmuch as the bushings are pressed into the holes 45 and the shanks of the pins are pressed into the holes 49, the links are not only pivotally connected together but are held against separation.

The attaching bracket, the opposed members 17 and 18 and the links of the toggle link structure may be made of any desired material. Preferably a plastic is employed susceptible of being molded or die cast. If the structure is made of plastic it is desirable to have the mold cavities for all the parts arranged in a single mold. However, if individual molds are employed, both of the members 17 and 18 may be made in the same mold. In a similar manner the links 29 and 30 which are exact duplicates of each other can likewise be made in the same mold. Links 31, 32, 33, and 34 are substantially duplicates of each other the only difference being in the size of the holes 45 and 49. If the mold has replaceable cores for coring out these holes the same mold may be utilized for all of these links. Separate molds are, of course, required for links 35 and 36. Inasmuch as the links 31, 32, 33, and 34 are integral structures in themselves, each having three pins 42 and 44 integral therewith at the ends as well as the centers, the construction of the toggle link structure is greatly simplified.

In assembling the tie rack the links of the toggle link structure can be easily and quickly assembled together so that they may pivot relatively to each other. The inner ends of the innermost links 29 and 30 may then be extended through the slot 14 and two of the opposed members 17 and 18 applied to the opposite sides thereof. The opposed members 17 and 18 are then forced forwardly in the slot until the lips 23 and 24 engage the flanges 16. The members on being forced forwardly are sprung slightly so that the foremost snapover lips 25 or 26, as the case may be, are snapped over the forward face of the attaching bracket. This completes the entire assembly of the tie rack.

It will be appreciated that the improved tie rack can be constructed very economically and that the assembling cost is reduced to a minimum.

Various changes may be made in the details of the construction without departing from the spirit and scope of the invention as defined in the appended claims, wherein I claim:

1. A tie rack comprising a slotted attaching bracket attachable to a support, a toggle link structure, opposed members on opposite sides of the innermost links of the toggle link structure, said members being mounted within the slot of the attaching bracket and providing a pivotal mounting for the inner end of one of the innermost links of the toggle link structure, and a slidable mounting for the other innermost link of the toggle link structure.

2. A tie rack comprising a slotted attaching bracket, opposed members disposed in the slot of the bracket, a toggle link structure having the inner ends of its innermost links disposed between said opposed members, laterally extending gudgeons on the inner ends of said links, there being opposed pairs of recesses in said members accommodating said gudgeons, one of said pairs of recesses being elongated so that its gudgeons may slide as well as turn therein.

3. A tie rack comprising a slotted attaching bracket, opposed members disposed in the slot of the bracket, a toggle link structure having the inner ends of its innermost links disposed between said opposed members, laterally extending gudgeons on the inner ends of said links, there being opposed pairs of recesses in said members accommodating said gudgeons, one of said pairs of recesses being elongated so that its gudgeons may slide as well as turn therein, said members having portions engaging the bracket to prevent withdrawal from within the slot.

4. A tie rack comprising a slotted attaching bracket, opposed members disposed in the slot of the bracket, a toggle link structure having the inner ends of its innermost links disposed between said opposed members, laterally extending gudgeons on the inner ends of said links, there being opposed pairs of recesses in said members accommodating said gudgeons, one of said pairs of recesses being elongated so that its gudgeons may slide as well as turn therein, said members having portions engaging the bracket to prevent withdrawal from within the slot, and other portions locking said members against reverse movement through the slot.

5. A tie rack comprising an attaching bracket having a slot therein, lips at the top and bottom of the slot, a pair of opposed members in the slot having flanges engageable with the lips to prevent their being withdrawn from the slot, a toggle link structure, the innermost links of the toggle link structure having laterally extending gudgeons, pairs of opposed recesses in the opposed members in the slot accommodating the gudgeons, one pair of the opposed recesses being elongated.

6. A tie rack comprising an attaching bracket having a slot therein, lips at the top and bottom

of the slot, a pair of opposed members in the slot having flanges engageable with the lips to prevent their being withdrawn from the slot, a toggle link structure, the innermost links of the toggle link structure having laterally extending gudgeons, pairs of opposed recesses in the opposed members in the slot accommodating the gudgeons, one pair of the opposed recesses being elongated, said opposed members having snap-over lips engageable with the forward face of the attaching bracket to retain said members in the slot against rearward movement therethrough.

7. In a tie rack or the like, a toggle link structure having links pivotally connected together, pivot pins having heads thereon, bushings positioned about the pivot pins against the heads and pressed into recesses in means on some of the links, said pivot pins having shanks pressed into recesses of opposed links.

8. In a tie rack or the like, a toggle link structure having links pivotally connected together, supporting pins integral with the links and arranged adjacent the point of pivotal connection between the links, pivot pins having heads thereon, bushings positioned about the pivot pins against the heads and pressed into recesses in the supporting pins integral with some of the links, said pivot pins having shanks pressed into recesses in the supporting pins of opposed links.

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