April 11, 1939. E. JOHANSON 2,153,893

VENETIAN BLIND CLAMP

Filed Nov. 19, 1938

Fig. 1

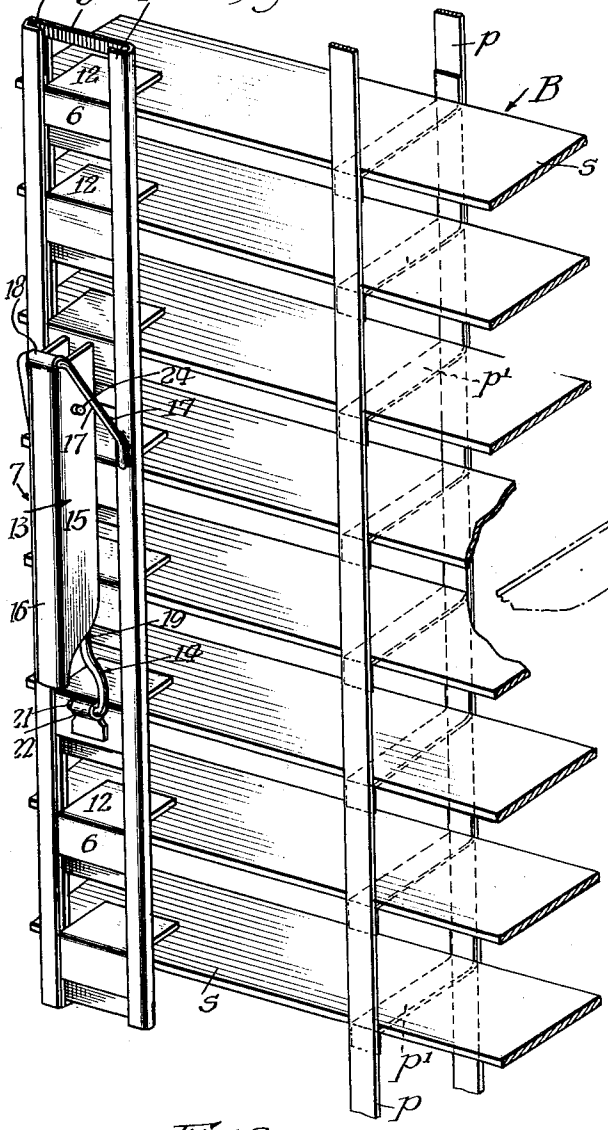


Fig. 2

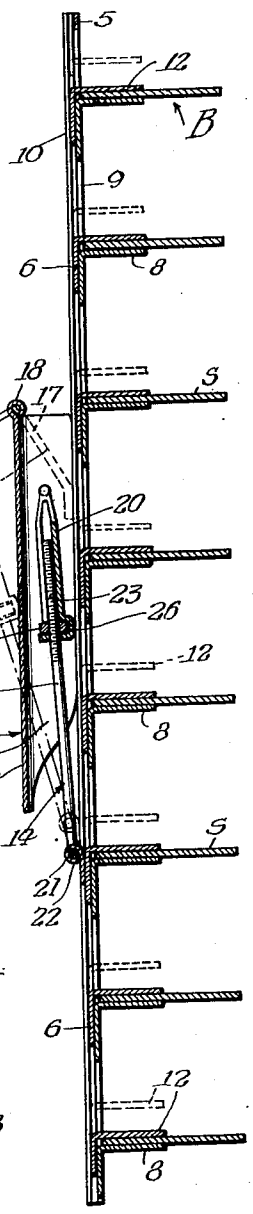


Fig. 3

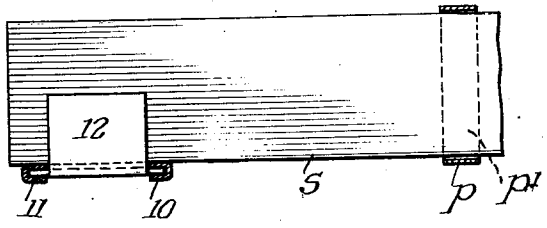
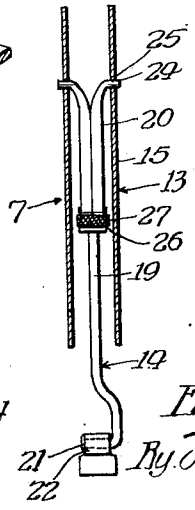


Fig. 4



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VENETIAN BLIND CLAMP

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10 Claims. (Cl. 156—17)

The present invention relates to clamps and one object thereof is to provide a clamp which is especially designed for use in connection with a Venetian blind and serves releasably to hold a plurality or group of the slats of the blind against tilting during cleaning or dusting thereof.

Another object of the invention is to provide a clamp of this type or character which comprises as its main elements or parts, a first elongated clamping member having a longitudinally arranged series of laterally extending clamp fingers for engaging the under faces of the blind slats, and a second elongated clamping member which is slidably connected to, and disposed in parallel relation with, the first member and has a longitudinally arranged series of complemental laterally extending clamp fingers for engaging the top faces of the blind slats and is adapted when slid in one direction to have its clamp fingers move toward the clamp fingers of the first clamping member in order to bring the slats in clamped relation between the two sets of fingers and when slid in the opposite direction to have its clamp fingers move away from the fingers of the first member in order to release the slats and thus permit of removal of the clamp from the blind.

Another object of the invention is to provide a Venetian blind clamp of the last mentioned character which in addition to the first and second finger equipped clamping members comprises a toggle joint consisting of a pair of pivotally connected arms for sliding the second clamping member into and out of its operative or clamping position.

Another object of the invention is to provide a Venetian blind clamp of the type and character under consideration in which the arms of the toggle joint are pivotally connected, one to the first clamping member and the other to the second clamping member, and are adapted to assume a dead center relation when the second clamping member is in its operative or clamping position.

A further object of the invention is to provide a clamp, as hereinbefore specified, wherein one of the arms of the toggle joint is extensible so that the amount of sliding movement of the second clamping member with respect to the first member may be controlled in order to adapt the clamp for use in connection with Venetian blinds having slats of different thickness.

A still further object of the invention is to provide a Venetian blind clamp which effectively and efficiently fulfills its intended purpose and is of such simple design and construction that it may be manufactured at a low and reasonable cost.

Other objects of the invention and the various advantages and characteristics of the present Venetian blind clamp will be apparent from a consideration of the following detailed description.

The invention consists in the several novel features which are hereinafter set forth and are more particularly defined by claims at the conclusion hereof.

In the drawing which accompanies and forms a part of this specification or disclosure and in which like numerals of reference denote corresponding parts throughout the several views:

Figure 1 is a perspective view showing a portion of a Venetian blind having applied thereto a clamp embodying the invention;

Figure 2 is a vertical longitudinal sectional view of the clamp showing the manner in which the clamp fingers of the two clamping members coact to hold the slats of the blind to which they are applied against tilting, and illustrating by dotted lines the position of the clamp when it is in its inoperative position;

Figure 3 is a horizontal sectional view on the line 3—3 of Figure 2; and

Figure 4 is a view showing the construction of the extensible arm of the toggle joint and the manner in which such arm is pivotally connected to the other arm of the joint.

The clamp which is shown in the drawing constitutes the preferred embodiment of the invention. It is adapted for use in connection with a Venetian blind B having a plurality of vertically spaced horizontally extending slats *s*, and serves, as hereinafter described, to hold a plurality or group of the slats against tilting during cleaning or dusting of the slats. The blind B is of conventional or standard design and includes a pair of vertically extending tape pieces *p*, and a vertical series of vertically spaced cross tape pieces p^1 for holding the slats *s* in vertically spaced relation. The tape pieces *p* are adapted as well understood in the art, to be shifted one upwards and one downwards in order to bring the slats into any desired tilted position. As its main parts, the clamp comprises an elongated clamping member **5**, an elongated clamping member **6**, and a toggle joint **7**. The clamping member **5** is in the form of a sheet metal stamping and is adapted when in use to extend vertically. It has a longitudinally arranged series of laterally extending substantially square clamp fingers **8** with substantially square openings **9** above the fingers

and embodies along the side margins thereof a pair of flanges 10. The fingers 8 project inwardly and are arranged in parallel relation. They extend at right angles to the main or body portion of the clamping member 5 and are formed by cutting U-shaped slits in the member 5 and then bending inwardly at right angles the metal which is bounded or defined by the slits. The spaces which are formed as a result of the inward bending of the clamp fingers constitute the openings 9. The clamp fingers 8 are adapted, as shown in Figure 2, to underlie and engage the undersfaces of the slats *s*. The flanges 10 along the side margins of the clamping member 5 are doubled back in that they extend outwardly and inwardly. They extend from one end of the member 5 to the other and together with the outer face of such member define a longitudinally extending slideway 11.

The clamping member 6, like the clamping member 5, is in the form of a one-piece stamping. It is substantially equal in length to the member 5 and is slidably mounted in the slideway 11 so that it is longitudinally slidable with respect to the clamping member 5. The side margins of the clamping member 6 are disposed within the doubled back flanges 10 along the side margins of the clamping member 5. The member 6 embodies a longitudinally arranged series of laterally extending clamp fingers 12 which correspond in number to, and are associated respectively with, the clamp fingers 8. The fingers 12 are arranged in parallel relation with the fingers 8 and overlie the latter. They extend at right angles to the main or body portion of the clamping member 6 and project inwardly through the substantially square openings 9 in the clamping member 5. As shown in Figures 1, 2 and 3 the clamp fingers 12 are adapted to overlie and engage the top faces of the slats *s* of the Venetian blind B. When the clamping member 5 is positioned with the clamp fingers 8 thereof in abutment with the undersfaces of the slats S of the Venetian blind and the clamping member 6 is shifted or slid downwards with respect to the member 5 the clamp fingers 12 are moved into abutment with the top faces of the slats *s* and the two sets of fingers hold the slats *s* in clamped relation against tilting and it is thus possible readily to clean or dust the bottom and top faces of the slats. When the clamping member 6 is shifted or slid upwardly with respect to the clamping member 5, the fingers 12 are shifted away from the clamp fingers 8, as shown by dotted lines in Figure 2, and the clamp is thus released from the slats.

The toggle joint 7 serves to shift the clamping member 6 into and out of its operative position and also to lock it in such position, and consists of a pair of elongated arms 13 and 14. The arm 13 is in the form of a sheet metal stamping and extends in parallel relation with the clamping member 5 when the joint is in its operative position. It is U-shaped in cross-section and embodies a pair of laterally spaced side walls 15 and an intermediate or connecting wall 16. The upper end of the arm 13 is pivotally connected to a bail 17 on the central portion of the clamping member 5 so that the arm is free to swing to and from said clamping member. The bail has the ends thereof soldered or otherwise fixedly secured to the central portions of the doubled back flanges 10. The central portion of the bail is positioned outwardly of the clamping member 5. The upper end of the intermediate wall 16 of the arm 13 embodies a tongue 18 which is bent around the central portion of the bail 17 and forms the pivotal connection between the upper end of the arm and the bail. The lower ends of the sides 15 of the bail are cut away so that the lower end of the intermediate wall 16 may be readily gripped in connection with swinging of the arm 13 to and from the clamping member 5. The arm 14 of the toggle joint 7 extends between and is pivotally connected to the slidable clamping member 6 and the central portion of the arm 13. It is extensible, as hereinafter described, and consists of a rod 19 and a sleeve 20. The rod 19 extends lengthwise or longitudinally of the clamping member 5 and is provided at its lower end with a hook 21. The latter extends through a bearing bracket 22 on the lower end of the slidable clamping member 6 and together with such bracket forms the pivotal connection between the lower end of the arm 14 and the clamping member 6. The bracket 22 is preferably in the form of a sheet metal stamping and is soldered or otherwise fixedly secured to the outer face of the clamping member 6. The upper end of the rod 19 embodies an external screw thread 23 and fits slidably within the lower end of the sleeve 20. The upper end of the sleeve is provided with a pair of laterally extending, oppositely facing trunnions 24 which project through holes 25 in the upper ends of the sides 15 of the arm 13 and constitute the pivotal connection between the upper end of the arm 14 and the central portion of the arm 13. When the arm 13 is swung outwards, that is, away from the clamping member 5, the arm 14 is shifted upwards, as shown by dotted lines in Figure 2, and causes upward sliding movement of the clamping member 6 with respect to the clamping member 5. When the arm 13 of the toggle joint is swung inwards into parallel relation with the clamping member 5, the arm 14 is shifted or swung downwards and causes the clamping member 6 to slide into its operative or clamping position. Arms 13 and 14 are so arranged and designed that they assume a dead center relation when the joint is shifted so as to bring the clamping member 6 into its operative position. As a result of this arrangement or design, the arms of the joint tend to remain in place when the clamping member 6 is in its operative position and serve to lock the member 6 in such position. The lower end of the sleeve 20 is shaped to form a pocket 26 for a nut 27. The latter is mounted on the external screw thread 23 on the upper end of the rod 19 and is confined within the pocket against axial displacement with respect to the sleeve. When the nut 27 is turned in one direction the rod is shifted upwards with respect to the sleeve and the arm 14 is thus shortened. When the nut is rotated in the opposite direction, the rod 19 is shifted away from the sleeve and the arm 14 is thus extended or elongated. By manipulating the nut, the arm 14 may be extended or contracted as desired. By adjusting the nut the clamp may be adapted for use in connection with Venetian blinds having slats of different thicknesses. If the slats of the blind are thick, the nut 26 is manipulated so as to contract the arm. When the arm is in a contracted position, the clamp fingers 12 of the clamping member 6 are disposed at a greater distance from the clamp fingers 8 of the clamp member 5 when the toggle link is in its operative or clamping position. When the arm 14 is in its extended position as the result of adjustment or manipula-

tion of the nut 26, the clamp fingers 12 are brought into closer relation with the clamp fingers 8 of the clamping member 6 when the toggle joint is shifted so as to bring the two arms 13 and 14 into their dead center or operative position. When the joint is in its operative position, the arm 13 surrounds or houses the upper end of the arm 14, as shown in Figures 1 and 2, and thus protects the sleeve 20 and the nut 26 against injury.

When it is desired to use the clamp, the arm 13 is swung outwardly by grasping the lower end of the intermediate wall 16 with the fingers. During outward swinging of the arm 13, the clamping member 6 is shifted upwards, as hereinbefore described. After outward swing of the arm 13 of the joint, the clamp is manipulated so as to bring the clamp fingers 8 of the clamping member 5 into abutment with the under faces of the slats *s* of the Venetian blind B. Thereafter the arm 13 is swung inwards. During inward swing of the arm 13 the clamping member 6 is shifted downwards with respect to the clamping member 5 and the clamp fingers 12 are brought into abutment and clamping relation with the top faces of the slats. When the arm 14 is properly adjusted as to length, the arms 13 and 14 assume a dead center relation with the fingers 12 as soon as the clamp fingers 12 are brought into clamping relation with the slats. In such relation, they serve to lock the fingers 8 and 12 against the slats. When the slats are clamped between the fingers 8 and 12, they are held against tilting and hence may be readily dusted or cleaned. If desired, the upper faces of the clamp fingers 8 and the lower faces of the clamp fingers 12 may be provided with fabric or other covering in order to prevent them from marring the slats or their finish.

The herein described clamp consists of but a small number of parts and hence may be manufactured at a low and reasonable cost. It is efficient in operation and is adapted for application to blinds having slats which vary in thickness by reason of the fact that the arm 14 of the toggle joint 7 is extensible or longitudinally adjustable, as hereinbefore pointed out.

The invention is not to be understood as restricted to the details set forth, since these may be modified within the scope of the appended claims, without departing from the spirit and scope of the invention.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:

1. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of clamp fingers for abutment against the under faces of the slats, and a second elongated clamping member disposed in parallel relation with the first member and having complemental clamp fingers in opposed relation with the fingers of said first member for abutment against the top faces of the slats and movably connected to said first member so that it is shiftable into and out of an operative position wherein its clamp fingers coact with the clamp fingers of said first member to clamp the slats therebetween.

2. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of clamp fingers for abutment against the under faces of the slats, and a parallelly arranged second elongated clamping member having complemental clamp members corresponding in number to and associated respectively with the fingers of said first member for abutment against the top faces of the slats and slidably connected to said first member so that it is shiftable into and out of an operative position wherein its clamp fingers coact with the clamp fingers of said first member to clamp the blind slats therebetween.

3. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of inwardly projecting clamp fingers for abutment against the under faces of the slats and having a longitudinal series of complemental clamp fingers projecting inwardly through said openings for abutment against the top face of the slats and slidably connected to said first member so that it is shiftable into and out of an operative position wherein its clamp fingers coact with the clamp fingers of said first member to clamp the blind slats therebetween.

4. A clamp adapted to hold the slats of a Venetian blind against tilting, comprising an elongated clamping member having a longitudinal series of inwardly projecting clamp fingers for abutment against the under faces of the slats and provided on the side margins thereof with doubled back slideway forming flanges, and a second elongated clamping member fitting in the flange formed slideway for longitudinal sliding movement with respect to said first member and having compemental clamp fingers in opposed relation with the fingers of said first member for abutment against the top faces of the slats and adapted when slid in one direction to have its clamp fingers coact with the clamp fingers of said first member to clamp the slats therebetween and when slid in the opposite direction to have its clamp members release the slats.

5. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of inwardly projecting clamp fingers for abutment against the under faces of the slats and also having openings above the fingers and outwardly facing doubled back slideway forming flanges along its margins, and a parallelly arranged second elongated clamping member mounted in the flange formed slideway for sliding movement lengthwise of said first member and having a longitudinal series of complemental clamp fingers projecting through the openings for abutment against the top faces of the slats and adapted when slid in one direction to have its clamp fingers coact with the clamp fingers of said first member to clamp the slats therebetween and when slid in the opposite direction to have its clamp members release the slats.

6. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of clamp fingers for abutment against the under faces of the slats, and a parallelly arranged second elongated clamping member having complemental clamp members corresponding in number to and associated respectively with the fingers of said first member for abutment against the top faces of the slats and slidably connected to said first member so that it is shiftable into and out of an operative position wherein its clamp fingers coact with the clamp fingers of said first member to clamp the blind slats therebetween, and means for releas-

ably holding said second member in its operative position.

7. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of clamp fingers for abutment against the under faces of the slats, a parallelly arranged second elongated clamping member having complemental clamp members corresponding in number to and associated respectively with the fingers of said first member for abutment against the top faces of the slats and slidably connected to said first member so that it is shiftable into and out of an operative position wherein its clamp fingers coact with the clamp fingers of said first member to clamp the blind slats therebetween, and a toggle joint for shifting said second member into and out of its operative position and releasably locking said second member in its operative position.

8. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of clamp fingers for abutment against the under faces of the slats, a parallelly arranged second elongated clamping member having complemental clamp members corresponding in number to and associated respectively with the fingers of said first member for abutment against the top faces of the slats and slidably connected to said first member so that it is shiftable into and out of an operative position wherein its clamp fingers coact with the clamp fingers of said first member to clamp the blind slats therebetween, and a toggle joint for shifting said second member into and out of its operative position and releasably locking said second member in its operative position including an arm pivotally connected at one end to said first member and a second arm extending between and pivotally connected to said second member and the central portion of the first mentioned arm.

9. A clamp adapted to hold the slats of a Venetian blind against tilting and comprising an elongated clamping member having a longitudinal series of clamp fingers for abutment against the under faces of the slats, a parallelly arranged second elongated clamping member having complemental clamp members corresponding in number to and associated respectively with the fingers of said first member for abutment against the top faces of the slats and slidably mounted to said first member so that it is shiftable into and out of an operative position wherein its clamp fingers coact with the clamp fingers of said first member to clamp the blind slats therebetween, and a toggle joint for shifting said second member into and out of its operative position and releasably locking said second member in its operative position including an arm pivotally connected at one end to said first member and an extensible arm extending between and pivotally connected to said second member and the central portion of the first mentioned arm.

10. As a new article of manufacture, a clamp having a longitudinal series of pairs of coacting clamp fingers for gripping and holding against tilting a group of Venetian blind slats.

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