

Feb. 23, 1943.

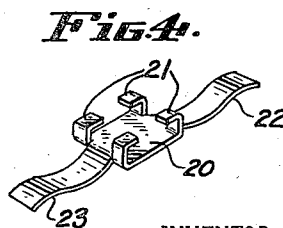
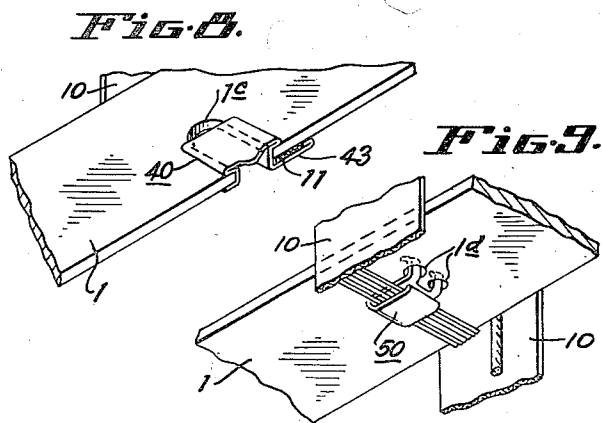
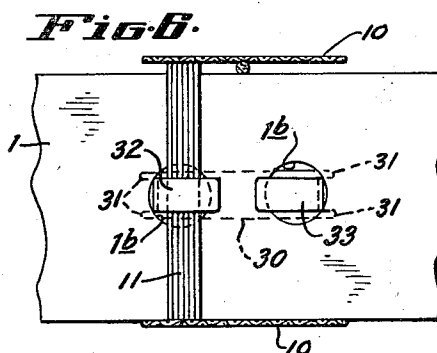
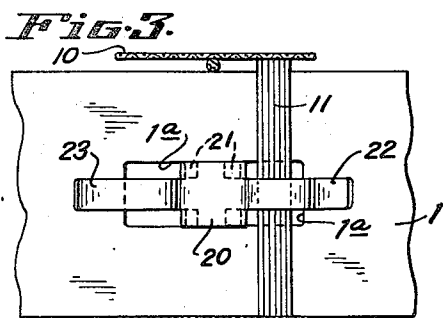
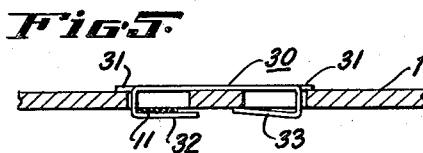
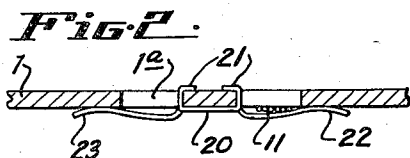
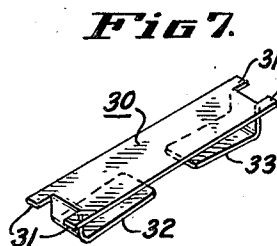
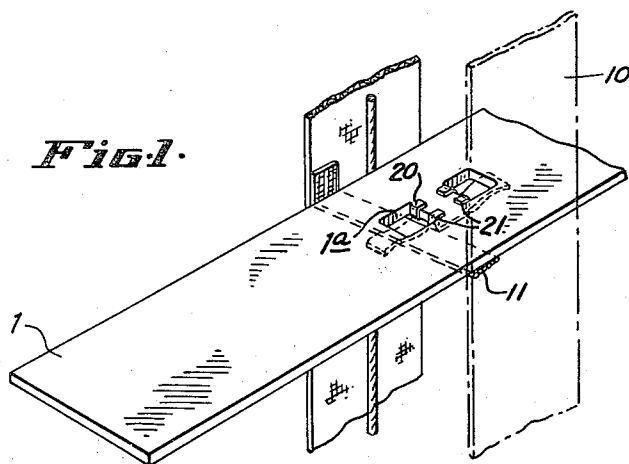
B. WALKER

2,311,716

VENETIAN BLIND SLAT

Filed Feb. 10, 1941

2 Sheets-Sheet 1



INVENTOR.

Bertha Walker

Feb. 23, 1943.

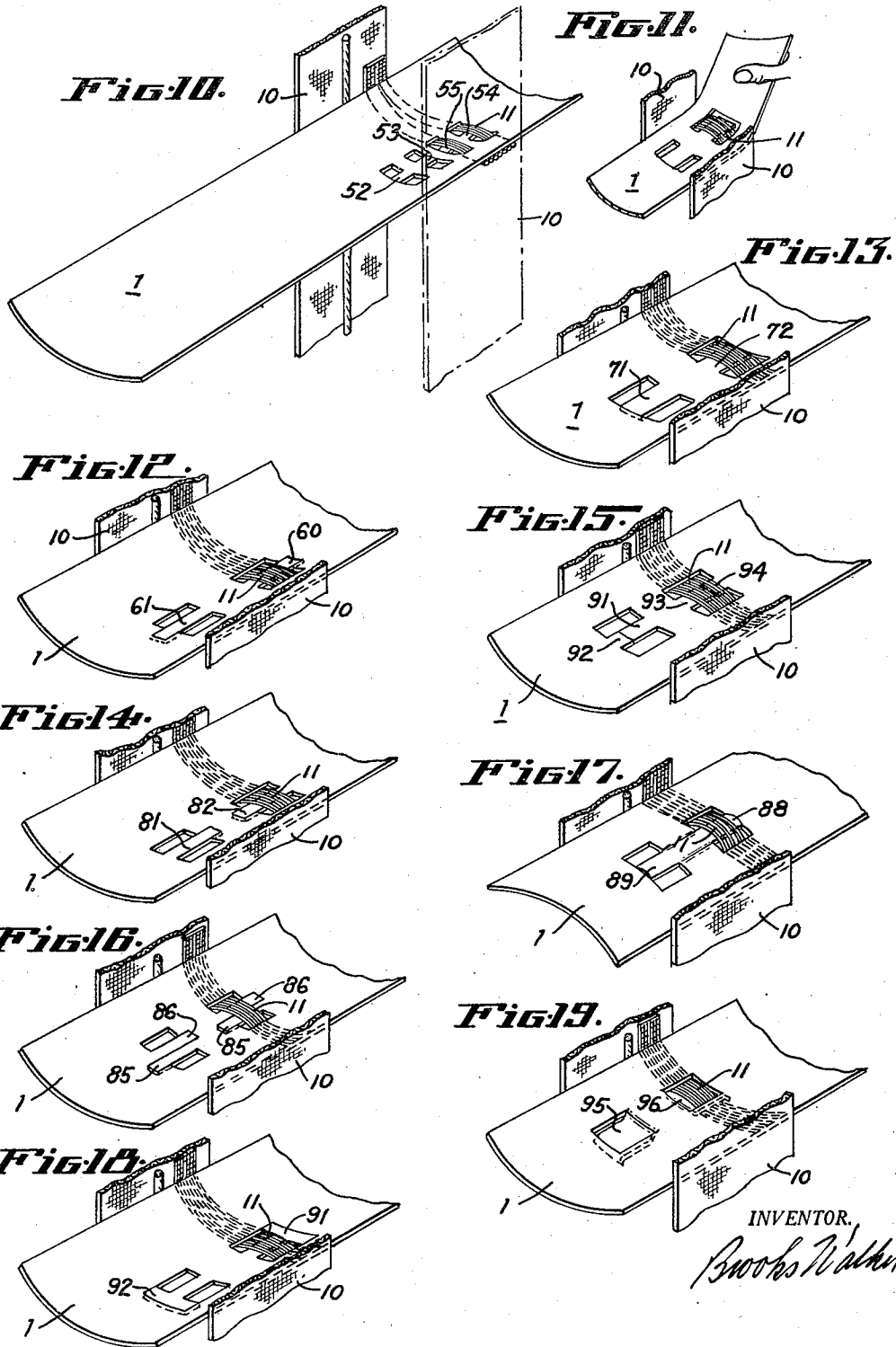
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2,311,716

VENETIAN BLIND SLAT

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2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE

2,311,716

VENETIAN BLIND SLAT

Brooks Walker, Piedmont, Calif.

Application February 10, 1941, Serial No. 378,153

14 Claims. (Cl. 160—178)

This invention pertains to improvements in Venetian blind slats, particularly relative to means for securing Venetian blind slats to the cross rungs of their supporting ladder tapes, particularly where the lifting cords for collapsing the Venetian blinds do not go through the slats to hold them in position relative to the ladder tapes, against lateral displacement of the slat where the lifting cords operate in a manner similar to that described in my United States Patent Number 2,200,349.

This invention pertains to means for securing slats to ladder tape rungs by means of readily attached, inexpensive clips secured to the slat through holes or slots in the slat, or by means of forming one or more tongues from the slat itself so that the tongue secures and holds the slat to the ladder tape rung. When the lifting cords do not go through the slats or go through grooves or slots in the edge of the slat, it is possible for the wind or dusting to displace the slats from the grooves and then to displace them laterally from the blind. It is to avoid this difficulty that the improvements, as pointed out in this application, are designed to eliminate. By these tongues, as disclosed, it is possible to easily attach and detach the slat to the ladder tape rung for cleaning or repairing the slats.

By the method disclosed in this application, a metal slat of curved cross section can be deflected at the point where the tongue is formed so that the slat will be bent and the tongue will remain straight, leaving an opening for the insertion of the ladder rung. When the slat is released and assumes a straight position, the tongue will lock the ladder rung into place, preventing the slat from being dislodged. It is only necessary that the slat be secured to the ladder rungs at one place, though attachments may be used if desired. The tongues, as designed, can be readily stamped and formed at the same time the slats are run off of the continuous reel on the machine that clips them to length in the same manner that route holes are produced at present. The advantage of only one point of attachment is that the distance from the end of the slat to the location of the tongues is substantially standard and can be set up with a minimum of adjustment and if extra long slats are run in production, they can readily be cut back to the next length with very little loss. Likewise, if an owner moves from one house to another where the windows are of different size, the slats can readily be cut down to the next smaller size and the tapes moved to conform without the route holes being exposed which

would be the case with conventional construction. Other advantages of the invention will be pointed out in the accompanying description and claims.

The invention is illustrated by way of example in the accompanying drawings, in which:

Figure 1 is a perspective view partly cut away of a wooden or composition slat, its supporting ladder tape and attaching clip.

Figure 2 is a cross section of a portion of the slat shown in Figure 1 taken at the location of the clip.

Figure 3 is a bottom plan view partly cut away of the slat tapes and clips shown in Figure 1.

Figure 4 is a perspective view of the clip alone which is used in Figure 1.

Figure 5 is a side view partly in section and partly cut away of another form of the invention, showing a clip applied to the slat.

Figure 6 is a bottom plan view partly cut away of a slat near a tape with a clip, as shown in Figure 5.

Figure 7 is a perspective view of the clip as shown in Figures 5 and 6.

Figure 8 is a perspective view of a slat with a different type of clip attached to the slat in a slot.

Figure 9 is a perspective view partly cut away, showing a further form of clip attached to a slat in a different manner.

Figure 10 is a perspective view partly cut away of a different type of slat attached to a ladder tape rung by a series of tongues.

Figure 11 is a perspective view partly cut away, showing a method of deflecting a slat to engage or disengage same with a supporting ladder rung.

Figure 12 is a perspective view, showing an alternate form of tongue.

Figure 13 is a perspective view, showing another form of the tongue.

Figure 14 is a perspective view showing a further form of the tongue.

Figure 15 is a perspective view, showing a further form of the invention, incorporating metal tongues adjoining.

Figure 16 is a perspective view, showing a further form of multiple adjacent tongues.

Figure 17 is a perspective view, showing a further form of the tongue with a different contour than the slat.

Figure 18 is a perspective view of an alternate construction of the tongue, having a wider end section.

Figure 19 is a perspective view of a further form of tongue, embodying a different clearance at the side of the tongue.

In all figures, like numerals of reference refer to corresponding parts in the various drawings.

In Figures 1 to 4, inclusive, is shown a wood, composition, or other slat 1 of substantial thickness, supported on a ladder tape 10, having a cross rung 11 extending under the slat. Holes 1-a are formed in the slat and a clip 20 is secured to the partition between said holes by ears 21 which are crimped over on said partition. Tongues 22 and 23 are formed in said clip and span holes 1-a and bear against the slat at their outer end which is curved slightly away from the slat to allow the ladder rung 11 to be forced under the tongue upon application of sufficient pressure to spring the tongue 23, which may also be sprung by inserting the finger or tool through the hole 1-a to press the tongue 23 down for the free entrance of the ladder rung 11, with the ladder rung 11 in place, it will extend under the slat, supporting same, into the hole 1-a above tongue 23 and across under the other edge of the slat. This will leave the slat free to slide sideways relative to the ladder rung 11 which is advisable in order to get a tight closure when the ladder tapes 10 are moved in to cause the slats to tilt into their two closed positions.

Figures 5, 6, and 7 show another form of clip where round holes 1-b are drilled in the slat and clip 30 is inserted through one of said holes 1-b until end 32 extends under the partition between said holes and then slides back into place until ears 31 locate the clip in the proper position relative to the slat with ears 31 and 33 resting on the bridge between holes 1-b. The ladder rungs are inserted under tongue 32 or 33, depending on the location of the ladder rung relative to the ladder tape (as the ladder rungs are on alternate sides of the ladder tape in conventional construction) and these clips are made universal so as to be suitable for attachment to either right or left located ladder rungs and still line up the edges of the slats.

Figure 8 shows another form of clip 40 which is inserted in a groove 1-c which is preferably sawn across a series of slats sufficient to make a blind in a position corresponding to the center of one of the end ladder tapes. The clip 40, you will note, is reversible in that it can be put in the slot 1-c with end 43 located either at the right or at the left so as to receive the correct supporting ladder rung. End 43 is so constructed as to form a pocket by itself, or with the slat, an enclosure open at both ends through which the ladder rung 11 may slide when the slat is tipped. This end 43 may be so formed that it forms a complete closure in itself for the ladder rung and may be permanently attached thereto, and the slat removed by sliding the clip 40 out of the groove 1-c in the slat and then sliding the slat out lengthwise.

In Figure 9 I have shown a clip 50 so constructed as to form a closure about the ladder rung 11 and to be secured to the slat by means of ears extending through holes 1-d in the slat near the center of the ladder tapes or at one side between the ladder rungs. The ears extend through holes 1-d and are so formed as to retain the clip in position by their spring action.

In Figure 10 I have shown a construction including a slat of curved cross section which can readily be sprung away from a straight line in which a series of tongues 52 and 53 form one pair and 54 and 55 form another pair. The ladder rung 11 in this instance is formed of cords

rather than a woven material and can be separated, one part of it being inserted under tongue 54 and another part under tongue 55. It would also be possible to do this with a woven type split ladder rung. If a force is applied on the end of a slat in one direction, part of the ladder rung will be forced against the base of the tongue and will hold the slat securely against dislodgement. If forced in the other direction, the other side of the ladder rung will be forced against the base of the other tongue, also preventing dislodgement. By spreading the ladder rung, a more rigid alignment of the slat is secured than where the ladder rung is not split. The combination of tongues shown herein is desirable to make the slat universal in fitting the alternate spacing of the ladder rungs.

The ladder rungs are inserted under the tongues by deflecting the end of the slat, as shown in Figure 11 where the slat will bend and the tongues will stay straight, leaving a space between, under which the ladder rung can be freely entered. When the slat is released to its straight position, the tongue locks the ladder rung in place. It can be freed by again bending the end of the slat and moving the slat sideways. A further lock can be provided by snapping the end of the tongue past the body of the slat when the slat is straight.

Figure 12 shows another form of tongues in which tongues 60 and 61 extend beyond the end of the openings at each side thereof to form a more positive lock for the ladder rungs than is the case with the tongue to end, as shown in Figure 13.

Figure 13 shows a very simplified form of double tongue 71 and 72 which while not quite as positive in its lock as others, yet made wide enough to assume some of the contour of the slat, it has been found stiff enough to answer normal requirements and is made from a somewhat more inexpensive die than other constructions shown herein.

Figure 14 shows an alternate construction of the tongues 81 and 82 where they face each other and extend beyond the end of the adjacent openings. The adjacent openings are desirable where it is advisable to let the slat move laterally relative to the ladder rungs and also where it is desirable that the action of the tongues will not act as a scissors to cut or chafe the ladder rungs.

Figure 15 shows a combination of tongues 91, 92, 93, and 94 which face each other so that with a ladder rung under either pair, a displacing force in either direction will force the ladder rung against the base of the tongue to give a substantially positive lock against displacement.

Figure 16 shows a combination of tongues 85 and 86, pointing in opposite directions to secure a positive lock against displacement of the slat when forced in either direction without the necessity of splitting the ladder rung.

In Figure 17 it has been found that a narrower ladder tongue, such as 88 and 89, may not be sufficiently stiff if only of the same contour as the slat, but if the contour of the tongue has a ridge formed therein to stiffen it, it forms a good lock, and also puts the sharp edges of the tongue away from the ladder rung so as to reduce the chafing effect.

Figure 18 shows another construction of the tongues 91 and 92 with a T shaped end section to give a positive lock to the tongue against an accidental displacement force applied on the slat. However, by manually bending the end of

the slat, the end of the tongue and the slat will separate so that the ladder rung can be freed and removed of the slat.

Figure 19 shows a simplified tongue construction in which the tongue is offset from the cross section of the slat to form a passage for the ladder rung 11 between the tongue and the edge of the slat while still securing the ladder rung in position by the close proximity of the end of the tongues 95 or 96 to the end of their slots.

I do not wish in any way to limit myself to the exact details or mode of operation set forth in this specification and drawings, for it will be obvious that wide departure may be made in the way of details without departing from the spirit and scope of my invention which is set forth in the following claims.

I claim as my invention:

1. In combination a Venetian blind slat, a ladder tape having a flexible cross rung for supporting said slat, and means for securing said slat to said cross rung comprising a flexible element formed from said slat, the edge of said slat being continuous and uncut adjacent said ladder tape.

2. In combination a Venetian blind slat, a tongue formed from said slat between the edges of said slat, a ladder tape having a flexible cross rung for supporting said slat, said slat being secured to said cross rung by said tongue, said tongue having spaces at each side thereof to allow said cross rung to move lengthwise at right angles to the length of said slat.

3. In combination a Venetian blind slat, a ladder tape for supporting said slat on a cross rung of said ladder tape, said slat having a hole formed therein, said hole being between the edges of said slat and not touching said edges, and a flexible tongue adjacent said hole but not covering said hole.

4. In combination a Venetian blind slat, a ladder tape for supporting said slat on a cross rung of said ladder tape, said slat having a tongue formed therein with one end free and one end anchored to said slat, said tongue being separated from the edge of said slat, and said tongue securing said slat to said supporting rung.

5. In combination a Venetian blind slat and a ladder tape for supporting said slat on a cross rung of said ladder tape, said slat having a tongue formed therein with an opening through said slat cut at either side of said tongue, the edges of said slat being continuous adjacent the sides of said ladder tape, said tongue securing said slat to said ladder rung.

6. In combination a Venetian blind slat and a ladder tape for supporting said slat on a cross

rung of said ladder tape, said slat having a tongue formed therein with an opening through said slat cut at either side of said tongue, said tongue being separated from the edge of said slat by a continuous portion of said slat, said tongue detachably securing said slat to said ladder rung.

7. In combination a Venetian blind slat and a ladder tape for supporting said slat on a cross rung of said ladder tape, said slat having a plurality of tongues formed therein, said tongues being remote from the edge of said slat, a plurality of said tongues securing said slat to said cross rung.

8. In combination a Venetian blind slat, a ladder tape for supporting said slat on a cross rung of said ladder tape, said slat having a plurality of tongues formed therein, said cross rung being split and one part secured to the slat by one tongue and the other part by the other tongue.

9. A Venetian blind slat formed of metal and having a tongue for attaching the cross rung of a ladder tape, said tongue formed in said metal surrounded by solid metal.

10. A flexible metal Venetian blind slat, a pair of openings formed in said slat and a tongue separating said openings, the free end of said tongue being normally in contact with said slat when said slat is straight but when said slat is bent crosswise said tongue moving away from said slat to form an opening.

11. A metal Venetian blind slat having a curved cross section and a tongue formed from said slat and surrounded by said slat, a supporting ladder tape with a cross rung, said tongue having a different curvature than said slat surrounding the location of said tongue and said tongue located and adapted to engage said cross rung.

12. A metal Venetian blind slat, a plurality of tongues formed in said slat and surrounded by said slat, two of said tongues being faced substantially opposite to each other, and a supporting cross piece for said slat, said tongue adapted to engage said cross piece.

13. A metal Venetian blind slat having a pair of tongues formed therein with their ends touching and a support for said slat engaged by said tongues.

14. A metal Venetian blind slat, a pair of tongues formed therein and so located that their ends touch each other, an opening formed in said slat at each side of said tongues, solid metal surrounding said openings and tongues, and a ladder rung for supporting said slat, said tongues contacting said rung to locate said slat relative to said rungs.

BROOKS WALKER.

Patent No. 2,311,716

Granted February 23, 1943

BROOKS WALKER

The above entitled patent was extended July 24, 1951, under the provisions of the act of June 30, 1950, for 6 years and 214 days from the expiration of the original term thereof.

Commissioner of Patents.