Oct. 24, 1950 E. E. SCHAEFER 2,527,104

VENETIAN BLIND STRUCTURE

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Fig. 1.

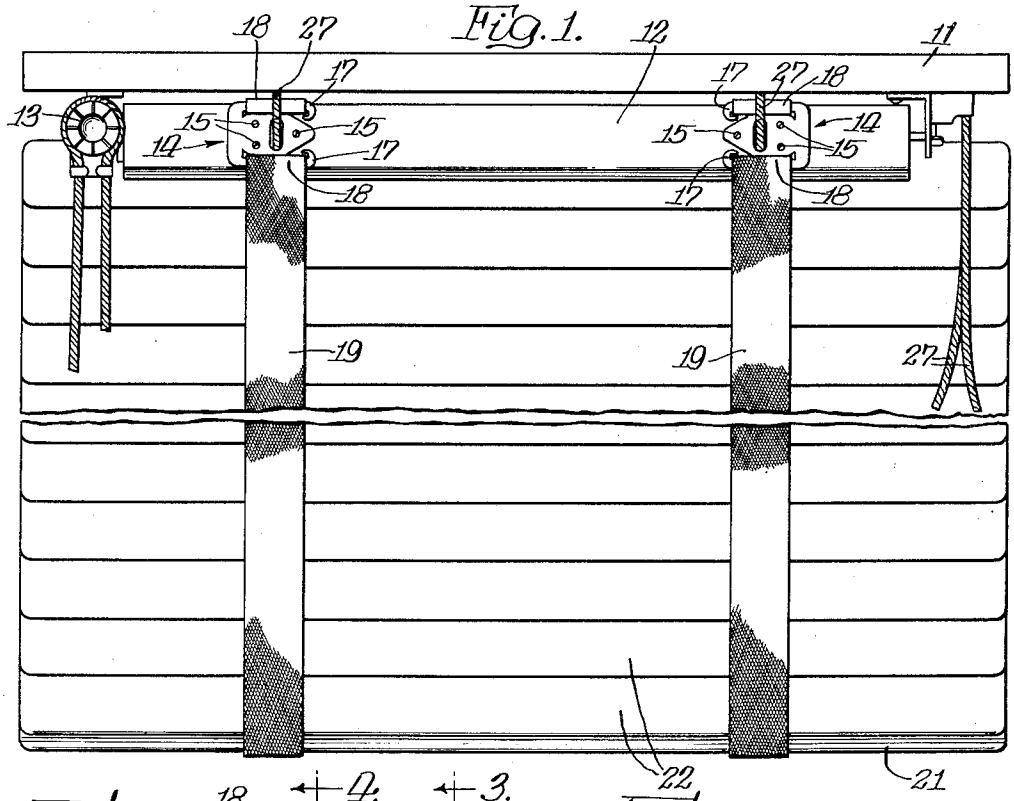


Fig. 2.

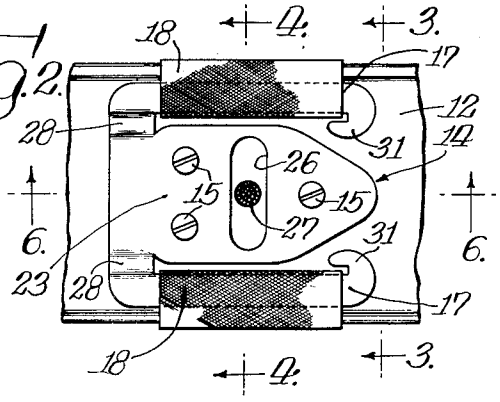


Fig. 3.

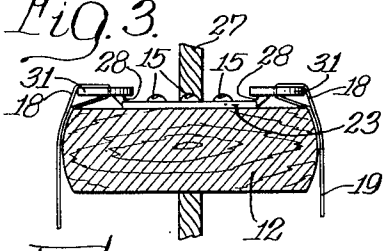


Fig. 4.

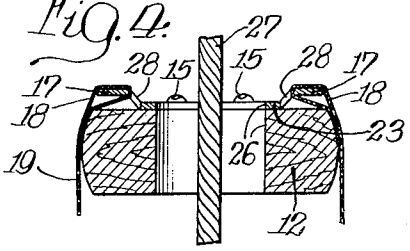
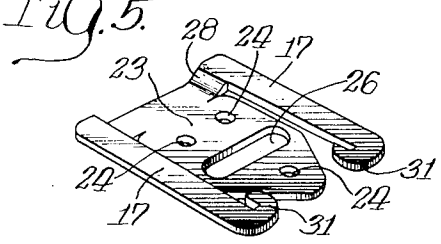


Fig. 5.



INVENTOR.

Edward E. Schaefer,

BY

Davis, Lindsey, Hibben & Royer

Atty's.

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Fig. 6.

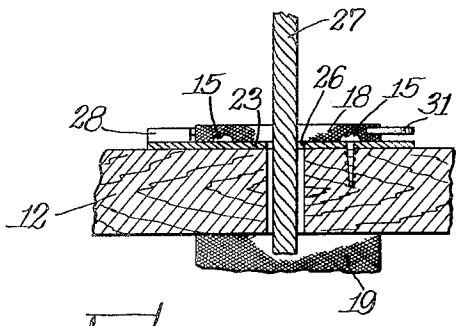


Fig. 9.

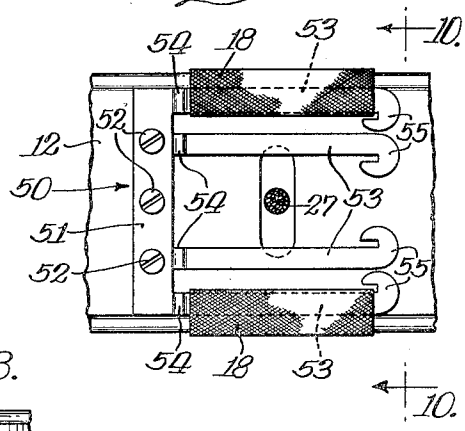


Fig. 7.

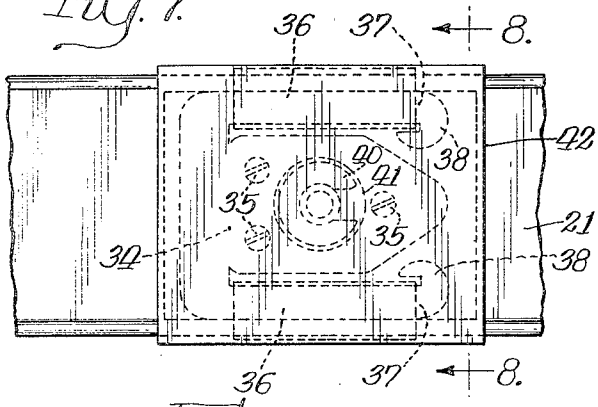


Fig. 10.

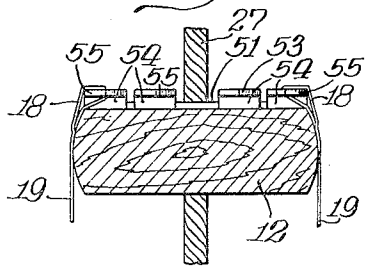
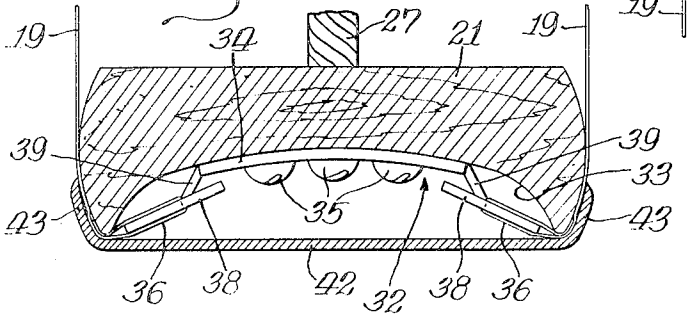


Fig. 8.



INVENTOR.
Edward E. Schaefer,
BY
Davis, Lindsey, Hibben & Groper
Attys.

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VENETIAN BLIND STRUCTURE

Edward E. Schaefer, Oak Park, Ill.

Application October 17, 1947, Serial No. 780,598

8 Claims. (Cl. 160—178)

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This invention relates to an improved Venetian blind structure and more particularly to a novel means for detachably securing slat-supporting tapes to the upper and lower rails of a Venetian blind.

In the conventional Venetian blind construction a horizontal upper tilting rail is provided and secured thereto are a plurality of depending slat-supporting tapes, e. g. ladder tapes comprising pairs of parallel tapes connected at regular intervals by cross-linking rungs. The horizontal slats of the blind are supported by the rungs of the ladder tapes, and the tapes are secured at their lower ends to a horizontal bottom rail. A tilting mechanism is provided for tilting the upper rail to open and close the slats of the blind. Operating cords for raising and lowering the blind extend downwardly through openings in the slats and are fastened to the bottom rail.

Venetian blinds, as is well known to housewives and other users thereof, require periodic cleaning and washing, particularly when the blinds are finished in light colors. Although Venetian blinds have recently become available in which the slats are removable for cleaning purposes, no means has ordinarily been provided for removing the slat-supporting tapes. In the usual construction, the tapes are more or less permanently secured to the upper and lower rails, for example, by nails, screws, staples, or other fastening means. As a result, it is only with considerable difficulty that the slat-supporting tapes can be removed for cleaning, and the removal procedure involves the danger of tearing the ends of the tapes and the necessity of replacing the nails, screws, staples, or other fastening means when the blind is reassembled. Accordingly, readily detachable slat-supporting tapes are a highly desirable adjunct to the modern Venetian blind thereby permitting soiled tapes to be removed for cleaning or dyeing when it is desired to change the color.

One object of the present invention is to provide a Venetian blind construction in which the slat-supporting tapes may be readily removed for cleaning or dyeing and may be reassembled with ease.

A further object of the invention is to provide a tape-securing bracket for attachment to a rail of a Venetian blind by means of which the slat-supporting tapes may be detachably secured to said rail.

An additional object of the invention is to provide a novel bracket for attachment to a rail of a Venetian blind, which bracket is adapted to detachably secure the ends of a slat-supporting

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tape and in which the point of attachment of the tape to said bracket is adjustable to compensate for changes in the length of the tape.

Other objects and advantages of the invention will be apparent upon reference to the drawings and the accompanying description thereof.

In the drawings, Fig. 1 is a front elevational view of a Venetian blind with the slats in closed position showing the tape-securing brackets embodying my invention mounted on the tilting rail.

Fig. 2 is an enlarged fragmentary plan view of a portion of the tilting rail and the attached bracket shown in Fig. 1.

Fig. 3 is a transverse sectional view taken along line 3—3 of Fig. 2, looking in the direction of the arrows.

Fig. 4 is a transverse sectional view taken along line 4—4 of Fig. 2, looking in the direction of the arrows.

Fig. 5 is a perspective view of the tape-securing bracket, shown in Figures 1 to 4 inclusive, in unmounted condition.

Fig. 6 is a longitudinal sectional view taken along line 6—6 of Fig. 2, looking in the direction of the arrows.

Fig. 7 is a fragmentary bottom plan view of a bottom rail assembly showing the tape-securing bracket in dotted lines and a cover member over the rail concealing the bracket.

Fig. 8 is a transverse sectional view taken along line 8—8 of Fig. 7, looking in the direction of the arrows.

Fig. 9 is a top plan view of a slightly different form of bracket secured to a rail.

Fig. 10 is a transverse sectional view taken along line 10—10 of Fig. 9, looking in the direction of the arrows.

Referring to Fig. 1, an assembled view of a Venetian blind construction embodying one form of the present invention is shown. At the upper portion there is a head rail or support 11 beneath which is pivotally mounted a horizontal tilting rail 12 operatively connected to a tilting mechanism 13 for tilting the rail 12 either forward or backward so as to open or close the slats of the blind. A pair of tape-securing brackets, shown generally by reference numeral 14, are attached in spaced relation by means of a plurality of screws 15 to the upper surface of the rail 12. Each bracket is provided with a pair of parallel raised arms 17 each of which is inserted into a looped end 18 of a depending ladder tape 19 to detachably secure the latter to the rail 12. The ladder tapes 19 are detachably secured at their lower ends to a bottom rail 21 by means of tape-securing brackets of a substantially similar design described hereinafter in greater detail. A

plurality of slats 22 are supported between the ladder tapes 19 by means of the usual rungs (not shown) extending transversely between the individual tape members of each ladder tape. A cord 27 for raising and lowering the blind extends downwardly on each side of the blind through openings in the brackets 14, the upper rail 12, and the slats 22, and is fastened to the bottom rail 21.

Figs. 2 to 6 illustrate in detail one form of tape-securing bracket which is particularly adapted for use on the upper tilting rail of a Venetian blind, although the bracket may be used equally well on the bottom rail 21. The bracket, as shown clearly in Fig. 5, has a flat body portion or fastening plate 23 provided with a plurality of spaced holes 24 to permit attachment of the bracket to the upper surface of the rail 12 by means of the screws 15. Obviously, detachable means other than the screws 15 could be employed for fastening or otherwise maintaining the bracket in position against the surface of the rail 12. The body portion 23 is also provided with an elongated transverse slot 26 adapted to register with a similar slot in the upper rail whereby an opening or passageway is provided for the cord 27. This opening 26 is necessarily in the form of a transverse slot in order to permit the upper rail 12 to be tilted without deflecting or binding the cord 27. Projecting from the body portion 23 and secured thereto by means of bent, integral, connecting portions 28 are parallel, elongated, tape-engaging arms 17 which extend parallel to the rail 12 and are disposed in an elevated plane spaced from the base portion 23 and the rail 12. As seen particularly in Figs. 3 and 4, the ends of the ladder tape 19 are doubled back and sewn to the respective tape members to form loops 18 which fit over and are supported by the extended bracket arms 17, each of which is provided with a hooked or U-shaped outer end 31 for preventing the loops from slipping off inadvertently during handling or operation of the blind.

The spaced relationship of the arms 17 with respect to the base portion 23 and the surface of the rail 12 provides the required clearance for readily attaching and detaching the looped ends 18 to the bracket. Obviously, however, the necessary clearance between the tape-engaging arms and the rail could also be obtained by providing a recess in the surface of the rail and mounting the base portion of the bracket at the edge of the recess allowing the arms to project over the recess. In such an arrangement the bent connecting portions 28 could be eliminated and the arms 17 could be coplanar with the base portion 23. Although the use of looped ends on the ladder tapes provides a simple, reliable, and cheap method for attaching the tapes, it is also within the scope of the invention to employ other fastening means for detachably securing the ends of the ladder tape 19 to the bracket arms 17. For example, the ends of the ladder tape 19 could be provided with a plurality of hooks or bent metal strips for engaging the horizontal arms 17.

A slightly modified form of tape-securing bracket, shown generally by reference numeral 32, is particularly adapted for use in conjunction with the bottom rail of a Venetian blind as illustrated in Figs. 7 and 8. The bottom rail 21 is provided with spaced transverse recesses or pockets 33 in its under side which are adapted to receive the lower brackets 32. The body portion 34 of the bracket is formed in a slightly curved shape to conform to the curved surface of the recess 33 and is affixed to said surface by means of screws 35 extending through holes therein. It will be apparent that the body portion 34 could be retained in position adjacent the surface of the recess 33 by suitable detachable means other than the screws 35. The lower ends of the ladder tapes 19 are provided with loops 36, similar to upper loops 18, which are mounted on the parallel, tape-engaging arms 37 of the bracket, and the loops 36, are retained thereon by the hooked ends 38. Similar to the form shown in Figs. 1 to 6, the tape-securing arms 37 are disposed in raised or spaced relationship with respect to the base portion 34 of the bracket 32 by means of the bent, integral, connecting portions 39 thereby providing the necessary clearance between the tape-securing arms 37 and the surface of the recess 33. The cord 27 is attached to the bottom rail 21 by means of a detachable cord fastening device 40 which fits into a smaller recess or cavity provided in the rail 21 above the recess 33 and in register with a corresponding opening 41 disposed centrally in the base portion 34 of the bracket. In order to conceal the recess 33 and the bracket 32 disposed therein, a detachable cover member having a horizontal, flat portion 42 and upstanding sides 43 is disposed over the recess 33 with the sides 43 gripping the lower, lateral edges of the rail 21 in clamped engagement therewith and holding the tapes 19 securely between the edges of the rail 21 and the sides 43 of the cover.

A different form of tape-securing bracket, which is shown generally by reference numeral 50 and which is particularly useful in cases where the ladder tapes 19 tend to undergo shrinkage or stretching during washing or cleaning, is illustrated in Figs. 9 and 10. In this form of the device the body portion of the bracket consists merely of a flat, transverse strip 51 fastened to the rail 12 by means of screws 52. Four tape-securing arms 53 project laterally from the base portion 51 and are disposed in raised or spaced relationship with respect to the base 51 and the surface of the rail 12 by means of the bent, integral, connecting portions 54. Hooked outer ends 55 are provided on each of the arms 53. Two of the parallel tape-securing arms 53 are shown adjacent the lateral edges of the rail 12 while the other two arms 53 are disposed inwardly thereof. Thus, when the blind is assembled originally, the looped ends 18 of the ladder tape 19 may be inserted over the inner two arms 53 and, if upon subsequent washing of the tape, shrinkage occurs, the tape can be replaced by affixing the looped ends 18 to the outer two arms 53, as shown in Fig. 9, thereby compensating for the decrease in length of the tape. Although the bracket 50 has been shown as having four tape-securing arms 51 in Figs. 9 and 10, it will be apparent that any desired number of arms may be provided, for example, three or more.

The tape-securing means comprising the present invention possess substantial advantages in that the tape-securing brackets are of simple construction and easily formed in a single stamping operation with relatively simple dies. The brackets, furthermore, may be employed with substantially all types of Venetian blinds and may be affixed to any of the blinds now available or in use with little or no modification of

the existing structures. With the Venetian blind construction of this invention, the housewife may readily detach the ladder tapes 19 for cleaning or dyeing by a relatively simple operation requiring neither special tools nor a high degree of mechanical ability.

In order to remove the ladder tapes 19, the bottom cover plates are pulled off and then the detachable cord fastening devices 40 are removed thereby permitting the cords 27 to be raised upwardly through the bottom rail 21 and the slats 22. When the cords 27 have been removed, the slats 22 may then be pulled out sideways from the ladder tapes leaving the tapes still detachably secured to the tilting rail 12 and the bottom rail 21. As the next step, the lower looped ends 36 of the tapes 19 may be grasped by the fingers and lifted over the hooked ends 38 of the parallel arms 37 from which they are detached, thereby permitting the lower rail 21 to be removed. As the final step, the upper looped ends 18 of the tapes are slipped off the arms 17 of the brackets 14, thus becoming entirely free of and disconnected from the rails and the slats and capable of being washed or dyed as individual units. In reassembling the blind, the foregoing steps are merely reversed.

Although several embodiments of my invention have been illustrated and described, it will be understood that various modifications of the detachable tape-securing means may be resorted to without departing from the scope of the invention as defined in the appended claims.

I claim:

1. A tape securing bracket for detachably securing the ends of a slat-supporting tape to a rail of a Venetian blind, which comprises a body portion adapted to be maintained in position adjacent the surface of a rail and elongated one-piece tape-engaging portions adapted to extend longitudinally of the rail and each having one of its ends connected integrally to said body portion and the other of its ends free, said other end being provided with retaining means for engaging a tape at the side edge thereof whereby to prevent edgewise movement of the tape relative to said tape-engaging portions.

2. A tape securing bracket for detachably securing the ends of a slat-supporting tape to a rail of a Venetian blind, which comprises a body portion adapted to be maintained in position adjacent the surface of a rail and elongated one-piece tape-engaging portions adapted to extend longitudinally of the rail and each having one of its ends connected integrally to said body portion and the other of its ends free, said tape-engaging portions being spaced from said body portion and being provided with retaining means at their free ends for engaging and retaining a tape at the side edges thereof.

3. A tape-securing bracket for detachably securing the ends of a slat-supporting tape to a rail of a Venetian blind, which comprises a body portion adapted to be maintained in position adjacent the surface of a rail, a plurality of elongated one-piece tape-engaging portions extending in one direction from said body portion generally parallel to the rail and each having one of its ends connected integrally to said body portion by means of bent connecting portions and having the other of its ends free, said tape-engaging portions thereby being spaced from said body portion and being adapted to extend through terminal loops on a slat-supporting tape,

and retaining means at the free end of each of said tape-engaging portions for engaging and retaining the tape loops at the side edges thereof.

4. A tape-securing bracket for detachably securing the ends of a slat-supporting tape to a rail of a Venetian blind, which comprises a fastening plate adapted to be attached to said rail, and a plurality of one-piece tape-engaging arms extending integrally from said plate in spaced relationship therewith and longitudinally of the rail, said arms being adapted to detachably secure the ends of a slat-supporting tape and having free outer ends provided with hooked portions for retaining said tape thereon.

5. In a Venetian blind structure, the combination of a horizontal rail, a slat-supporting tape, and a tape-securing bracket having a body portion affixed to said rail and having elongated one-piece tape-engaging arms extending integrally from said body portion in spaced relationship with said rail and parallel therewith, the ends of said tape being detachably secured to said arms and said arms being provided with hooked outer ends for retaining the ends of said tape thereon.

6. In a Venetian blind structure, the combination of a horizontal rail, slat-supporting tapes having looped ends, and a tape-securing bracket having a body portion affixed to said rail and elongated tape-engaging arms spaced from said body portion, each arm having one of its ends connected to said body portion and the other of its ends free, and said arms extending parallel to said rail through the looped ends of said tapes and being provided with hooked portions at the free ends thereof for engaging the side edges of said looped ends to retain the latter on said arms.

7. In a Venetian blind structure, the combination of a horizontal rail, a ladder tape, and a tape-securing bracket secured in position adjacent the surface of said rail and having at least three parallel tape-engaging portions spaced from said rail, each end of the individual tape members of said ladder tape being adapted to be detachably secured to any desired one of several of said tape-engaging portions whereby changes in the length of said tape may be compensated for by securing said ends to the appropriate tape-engaging portions.

8. In a Venetian blind structure, the combination of a horizontal rail, a ladder tape, and a tape-securing bracket having a body portion secured in position adjacent said recess to said rail and having at least three parallel, elongated tape-engaging arms extending from said body portion in spaced relationship with said rail and parallel therewith, each of said arms having one of its ends connected to said body portion and the other of its ends free, and each end of the individual tape members of said ladder tape being adapted to be detachably secured to any desired one of several of said arms whereby changes in the length of said tape may be accommodated by selection of suitable arms for securing the ends of said tape.

EDWARD E. SCHAEFER.

REFERENCES CITED

The following references are of record in the file of this patent:

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