June 3, 1941. W. E. WREAD 2,244,094

VENETIAN BLIND

Filed April 22, 1939 5 Sheets-Sheet 1

Fig. 1

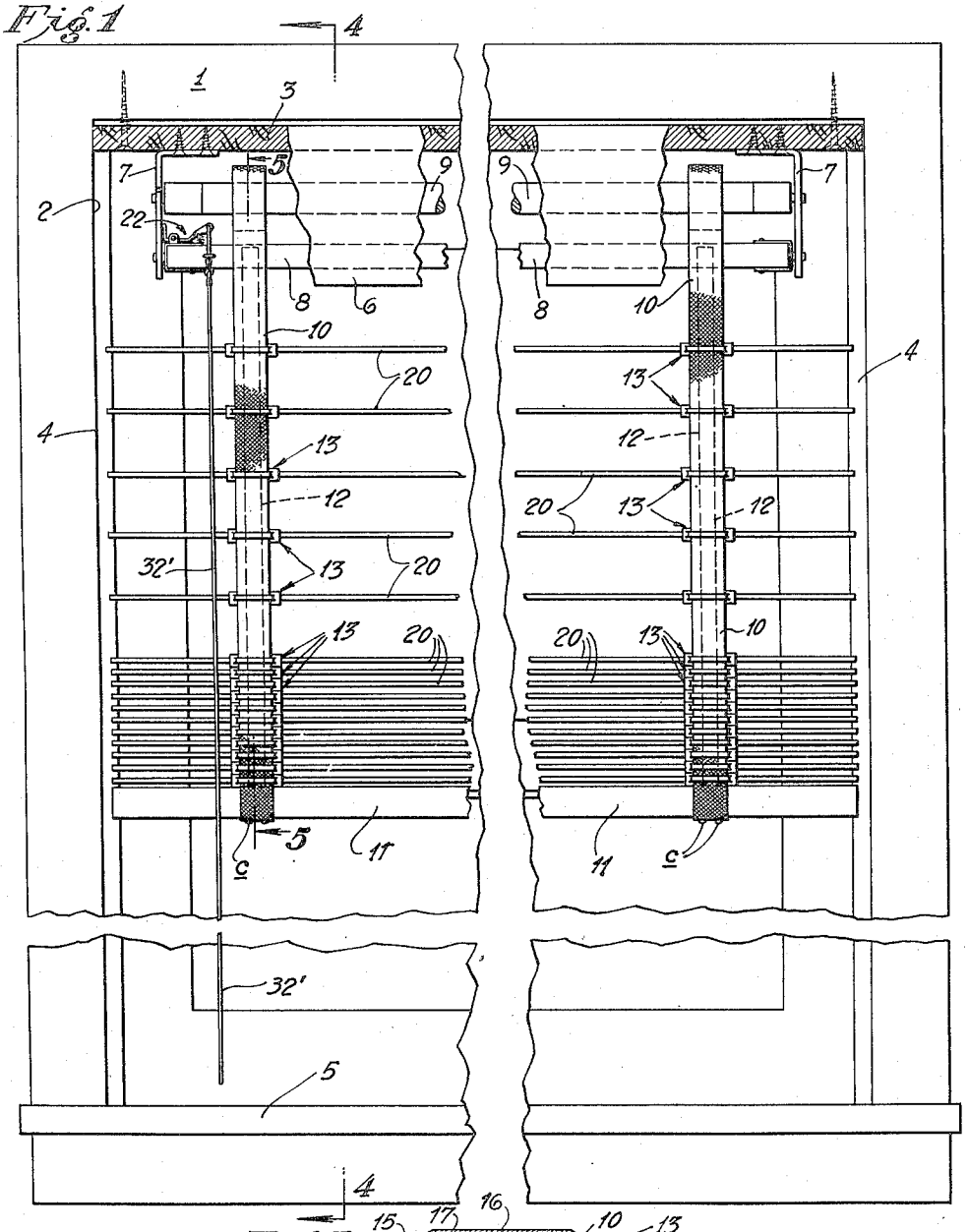


Fig. 3

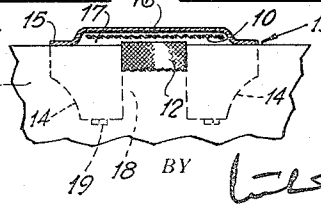
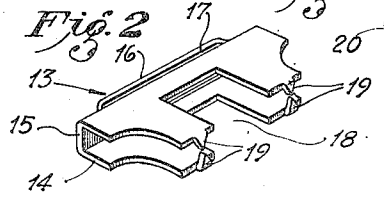


Fig. 2



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VENETIAN BLIND

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Fig. 4

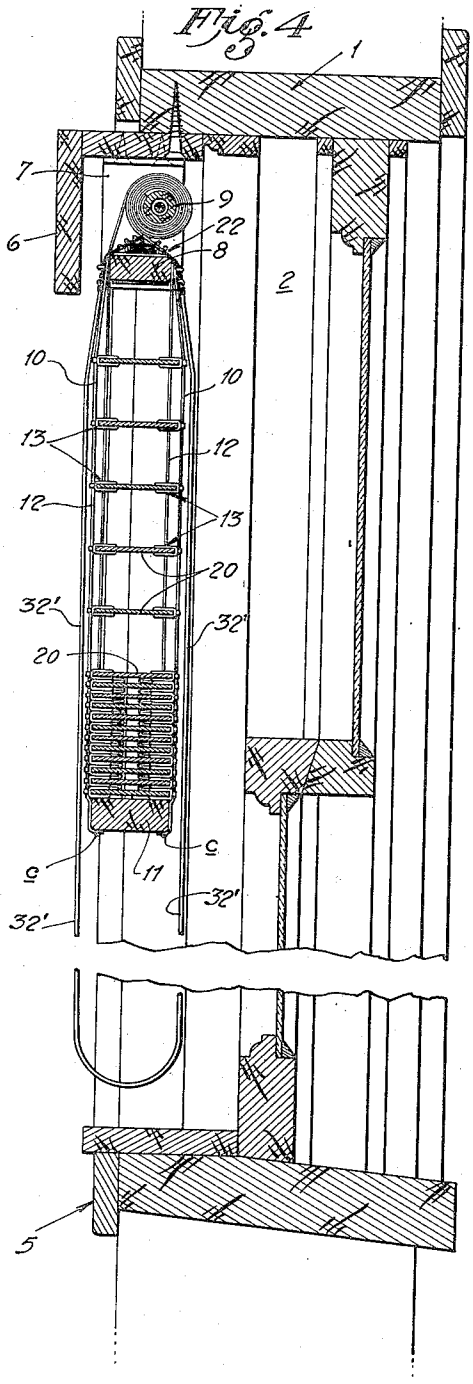
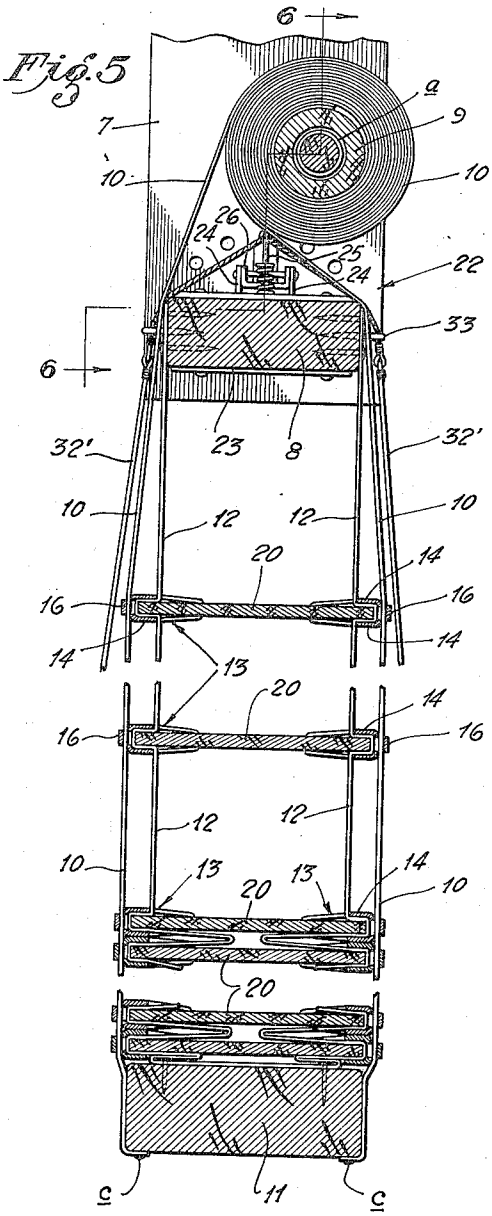


Fig. 5



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VENETIAN BLIND

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Fig. 6

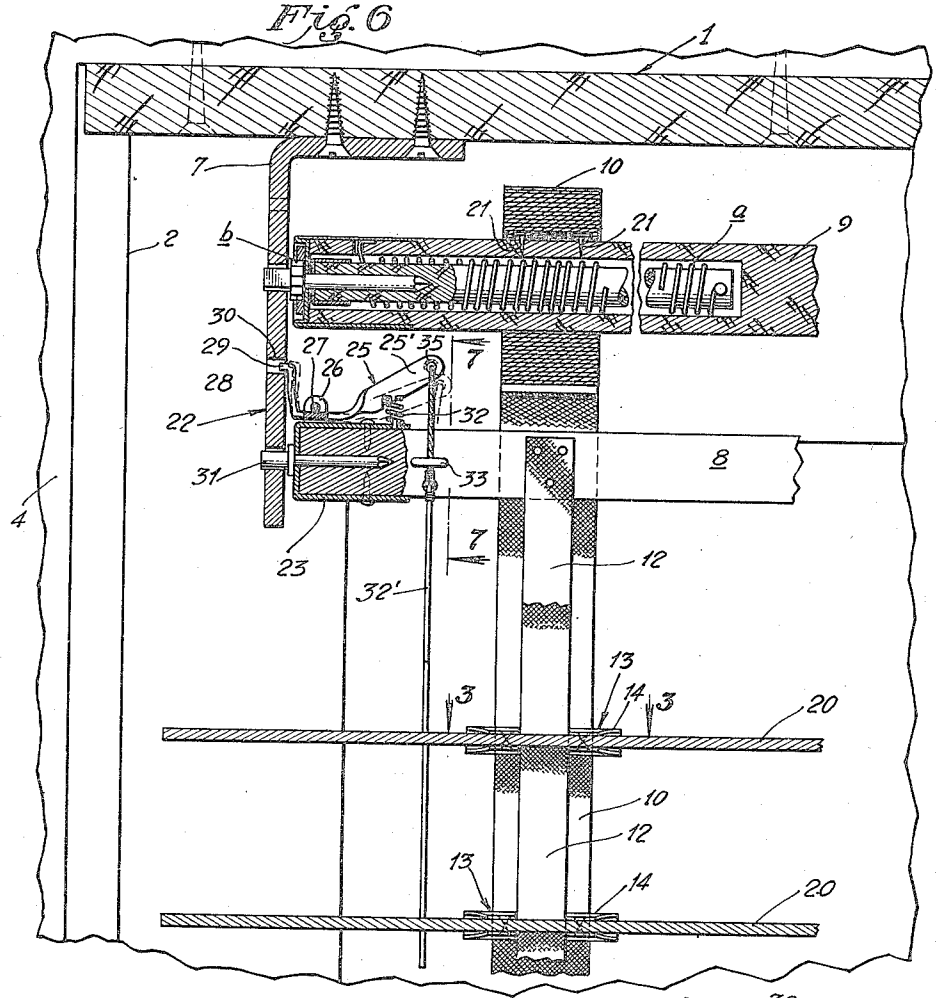


Fig. 7

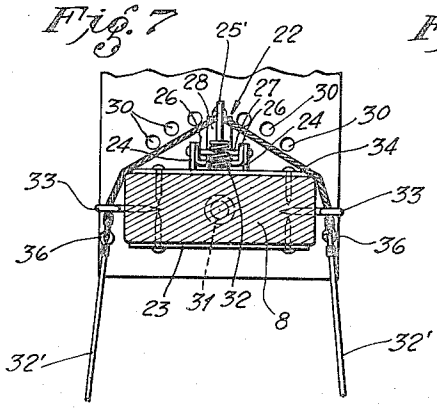
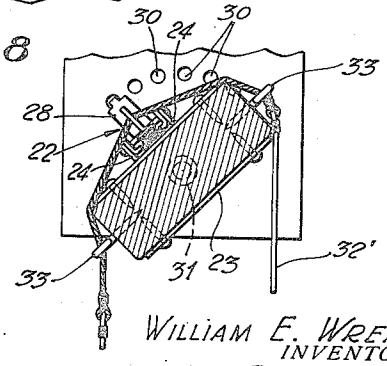


Fig. 8



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June 3, 1941. W. E. WREAD 2,244,094

VENETIAN BLIND

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Fig. 9

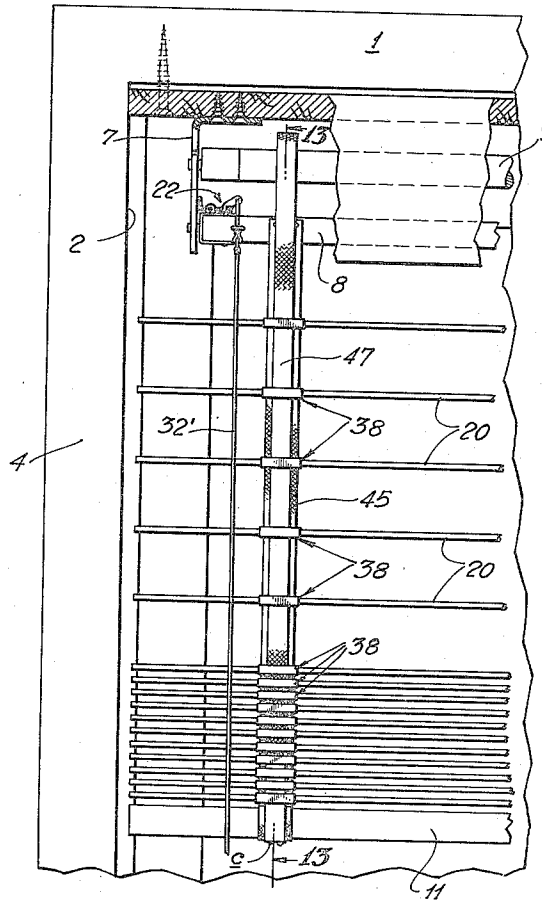


Fig. 10

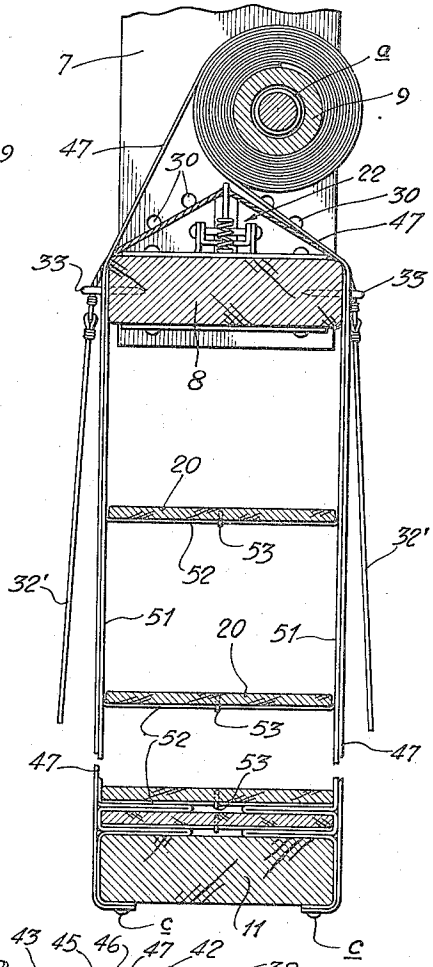


Fig. 12

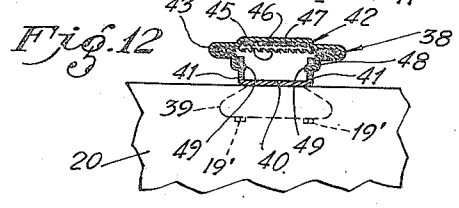
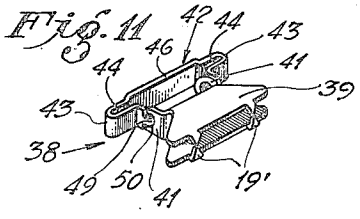


Fig. 11



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VENETIAN BLIND

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Fig. 13

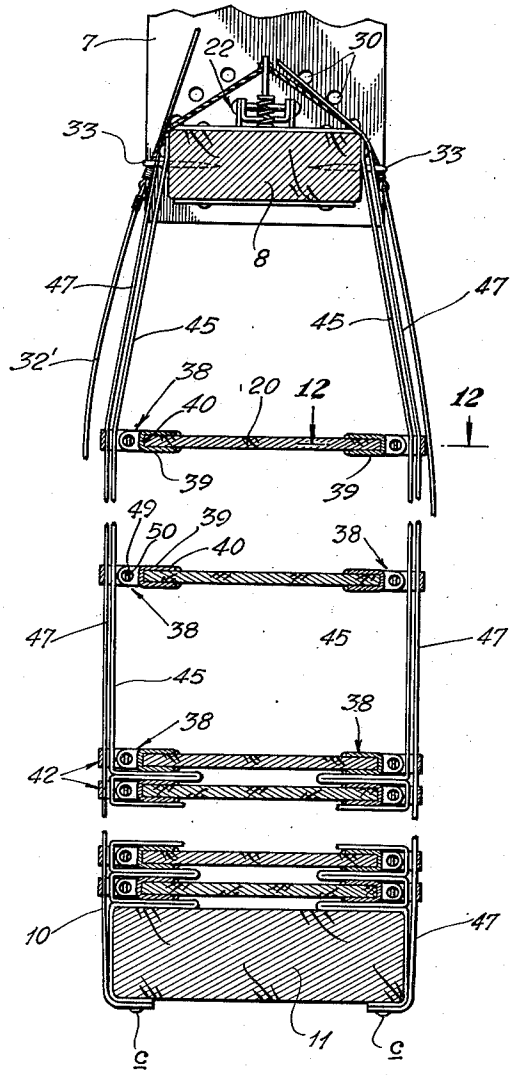
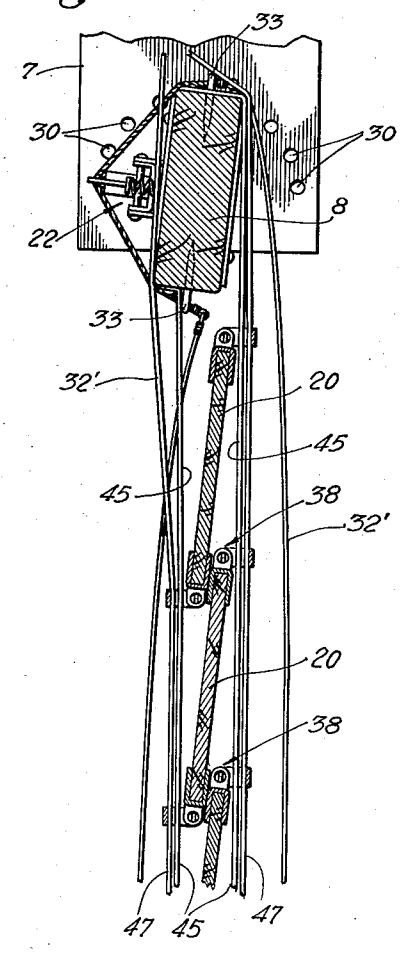


Fig. 14



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Patented June 3, 1941

2,244,094

UNITED STATES PATENT OFFICE

2,244,094

VENETIAN BLIND

William E. Wread, Los Angeles, Calif.

Application April 22, 1939, Serial No. 269,429

8 Claims. (Cl. 156—17)

My invention relates to Venetian blinds and the various operating parts for raising, lowering and tilting the blinds, and the combination of parts in connection therewith.

An object of my invention is to provide a new and novel method of manufacturing and assembling a Venetian blind whereby the slat is not perforated to receive the elevating cord heretofore customarily employed in the raising and lowering of the blind and which cord has been mounted so as to pass through a slot or hole formed in the center of the Venetian blind slat.

An object of my invention is to provide a novel Venetian blind whereby the slats may be adjusted relative to each other to form a closure member whereby substantially all light is prevented from passing through the same when moved to fully closed position.

Another object of my invention is to provide a novel Venetian blind whereby the same may be raised or lowered in an even manner, that is to say, whereby the possibility of one end of the blind being raised higher than the other end of the blind, is eliminated.

A further object of my invention is to provide a novel Venetian blind whereby when the same is raised to its open position, the means for raising the same will be hidden from view, thereby eliminating the unsightly surplus of cord heretofore present when Venetian blinds are moved to their raised position.

A further object of my invention is to provide a novel Venetian blind in which the spacer tape that holds the slats in spaced position will be folded out of sight, thereby presenting a neat appearance of the blind when in folded position and thereby reducing to a minimum, the possibility of such spacer tape collecting dust and the like.

A still further object of my invention is to provide a novel Venetian blind whereby the same may be constructed at a minimum of labor and fittings.

A still further object of my invention is to provide a novel Venetian blind which may be mounted so as to provide a blind of materially greater strength without substantially increasing the weight thereof and which will be raised and lowered in a substantially true horizontal position without tilting at one end or the other and whereby repair or replacements are reduced to a minimum.

My invention includes the various parts and combination of parts hereinafter more specifically pointed out and defined in the claims.

Other objects, advantages and features of invention may appear from the accompanying drawings, the subjoined detail description, and the appended claims.

The accompanying drawings illustrate the invention in some of the forms I at present deem preferable.

Figure 1 is a front elevational view, partly in section, showing a Venetian blind constructed in accordance with my invention and showing the blind partially raised. Parts are broken away to contract the view, both horizontally and vertically; and the view shows my Venetian blind associated with a window, the frame of which is shown in plan.

Fig. 2 is a perspective view of my new and novel spacer tape clamp and hoisting tape guide for spacing the blind slats and raising the Venetian blind.

Fig. 3 is a sectional view taken on line 3—3, Fig. 6, showing in connection therewith, a fragmental portion of the Venetian blind slat.

Fig. 4 is a longitudinal, sectional view taken on line 4—4, Fig. 1; parts being brokeen away to contract the view.

Fig. 5 is an enlarged longitudinal, sectional view taken on line 5—5, Fig. 1; parts being broken away to contract the view.

Fig. 6 is an enlarged fragmentary, sectional view taken on irregular lines 6—6, Fig. 5.

Fig. 7 is a sectional view taken on line 7—7 of Fig. 6, and showing the tilting bar in position with the Venetian blind flap in maximum open position.

Fig. 8 is a view analogous to Fig. 7, and as taken on line 7—7, Fig. 6, but showing the tilting bar in adjusted position so as to tilt the slats to prevent light rays penetrating the enclosure.

Fig. 9 is a view analogous to Fig. 1, but showing a modified form of my invention.

Fig. 10 is an enlarged sectional view illustrating a still further modified form of my invention.

Fig. 11 is a perspective view of a spacer tape clamp and hoisting tape guide member for the various slats of the Venetian blind, and is a modification of the construction shown in Fig. 2, and is shown associated with the construction shown in Fig. 9.

Fig. 12 is a sectional view taken on line 12—12, Fig. 13, and showing a portion of the Venetian blind slat, portions being broken away to contract the view.

Fig. 13 is a view analogous to Fig. 5 and taken on line 13—13, Fig. 9, but showing my novel spacer tape clamp and guiding means as shown

in Fig. 11, portions are broken away to contract the view.

Fig. 14 is a view analogous to Fig. 8, but showing the Venetian blind slats in position to effectively close the light area so as to prevent light rays from passing therethrough, and illustrating the form of construction shown in Figs. 9, 11, 12 and 13.

My invention comprises a Venetian blind that is mounted at the header 1 of an opening 2 such as a window, or the like, and is adapted to be elevated or hoisted whereas to substantially unobstruct the opening, and lowered and then tilted to adjustably close the opening to varying degrees to determine and control the amount of light permitted to permeate the opening which as shown in Fig. 1 comprises a header 3, the usual rails 4 and a sill 5. A valance 6 is secured to the header to hide the operating mechanism from view.

A supporting member in the shape of an angle iron 7 is secured to the header 3 on opposite ends thereof and to the lower end of which a tilting bar 8 is pivotally connected and also to which member 7 a rod 9 is pivotally connected in spaced relation to the tilting bar 8, and preferably above the same. The rod 9 is constructed in a manner analogous to window shade rolls, that is to say, the same is provided with the usual internal spring *a* (Fig. 6) and the usual catch mechanism *b* (Fig. 6), the same are well known in the art and are not further described herein for the sake of brevity. Secured to the rod or roller 9 by means such as tacks 21 is a hoisting or elevating tape 10 and which tape 10 is secured at its other end to a bar 11 by tacks *c*.

Secured to the tilting bar 8 is a spacer tape 12, which is preferably mounted inside of the hoisting tape 10.

The invention disclosed in Figs. 1–6 with respect to the combined spacer tape clasp or clamp and hoisting tape clasp or clamp comprises a sheet metal clamp 13, bent and formed as more particularly shown in Fig. 2, whereby such spacer tape clasp and hoisting tape guide comprises a U-shaped member 14, the base 15 of which is provided with a guide member 16, that is struck outwardly from the base 15 and provides a recess 17 in which the hoisting tape 10 may freely reciprocate. The free ends of the U-shaped tape clamp and hoisting tape guide are provided intermediate its ends with a recess 18 that is adapted to receive the spacing tape 12; and the free ends of the arms of such U-shaped guide member 13 are provided at its extremities with tang members 19 that are directed toward each other and which are adapted to be embedded in the Venetian blind slat 20 so as to secure the clamp members thereto.

In assembly of my invention and as shown in Figs. 1–6, the spacer tape is secured to the slats 20 at predetermined intervals by threading the spacer tape through the recess 18 and then forcing the clamp inwardly over the slat 20 as shown in Figs. 3 and 5 and then closing the leg or arm members of the clamp 13 on to the slat so that the tangs 19 will penetrate the same and thereby securely hold the clamp to the slat 20 and pinch the tape about the slat to prevent shifting of the slat relative to its connection with the clamp. By securing clamp member 13 to the slat 20 about the spacing tape 12 at predetermined intervals, the slat 20 will be spaced apart one from the other at the desired distance and by thus securing the spacer tape 12 to the slat 20, stitching or weaving operations of securing the spacer tape to the hoisting tape as heretofore used will be eliminated.

The hoisting tape 10 is loosely threaded through the recess 17 and at its lower end is secured by the tacks *c* to the bar 11 which is supported underneath the lowermost slat of the Venetian blind and said hoisting tape is secured to the roller 9 by any suitable means as the tacks 21 as shown in Fig. 6.

When it is desired to raise or lower the blind, the person will grasp the bar 11 or a cord (not shown) which may suspend therefrom as analogous to window shades and operate the roller 9 in the usual manner by giving a slight downward pull to release the catch means *b* and then the spring *a* will wind the hoisting tape around the roller as shown in Figs. 4–6 and during such operation the spacer tape 12 will be folded inwardly as best shown in Fig. 5 so that the appearance to the eye will result in a view as shown in Fig. 1; that is, with merely the hoisting tape presenting a smooth appearance and the spacing tape being folded inwardly instead of outwardly as heretofore. This folding of the spacing tape inwardly between the slats, will form a cushioning means for the slats as they are raised, thereby preventing noise and also by being folded inwardly, will not tend to collect dust, thereby presenting a neat appearance when folded, and providing for maximum sanitation.

Tilting means 22 are provided whereby the operator may tilt the shade slats to any desired degree and such means are best shown in Figs. 5–8, and comprises a U-shaped metal clamp member 23 that embraces and is secured to tilting bar 8 and has ears or lugs 24 struck outwardly and upwardly from one leg member thereof and to which an operating lever 25 having ears 26 is pivotally connected to said lugs 24 by a pivot 27.

The operating lever 25 has on one end an upstanding arm 28 that is provided with an outwardly projecting pin 29 that is adapted to be received in and withdrawn from recesses 30 formed in the supporting member 7. These recesses 30 may be of any predetermined number and are arcuately spaced about the pivotal point 31 of the bar 8 with the supporting member 7.

The operating lever 25 is provided on its other end and opposite the pivot 27 and arm 28 with an arm 25′ with which an operating cable 32′ cooperates. Resilient means in the form of a spring 32 is interposed between the bar 8 and the under side of the arm 25′ and tends to hold the projection 29 in a selected recess 30.

Staples or eyes 33 are secured to opposite sides of the bar 8 and the cable 32′ is threaded through the staples or eyes 33 and an opening 35 in the arm 25′, and preferably such portion 34 of cable 32′ that extends through the eyes 33 and opening in order to eliminate wear is a wire cable, and is provided with knots 36 that are positioned just underneath the eyes 33, the cable 32′ is preferably U-shaped, although the same need not be closed at its lower end and in order to tilt the bar 8 the operator will grasp one side of the cable 32′ and pull downwardly thereon and one knot 36 (depending on which side of the cable 32′ is pulled downwardly) will engage underneath a staple or eye 33 and continual pulling will depress the arm 25′ and withdraw the projection 29 from a recess 30 and by balancing the pull on opposite strands of the cable 32′, the operator may tilt the flap 20 to the desired angle and upon release of the tension on cable 32′, the

spring means 32 will urge the projection 29 into a recess 30 and thereby will lock the slats at an angle to which the bar 8 has been tilted.

It will be noted that from the foregoing construction it is not necessary to weaken the slats 20 by providing a hole therein through which the elevating cord has heretofore passed, and further, that the tape clamp 13 when secured to the slat will prevent lengthwise shifting of the slat and will also guide the hoisting tape in a true vertical position.

By eliminating the slot in the slat and through which the elevating cord has heretofore been required to pass and by which the blind was raised and lowered I materially strengthen the blind slats by the elimination of such slot, and also eliminate breakage of the slats occasioned by forming the slot in the slat; as well as eliminate replacement of the elevating cord occasioned by such cord wearing out due to frictional engagement of it with the edges of the slot.

It will be further noted that the elevating cord heretofore used in raising and lowering the blind is approximately one-fourth inch in diameter and by virtue of its passing through the slats necessarily contacts the edges of the slats when the same are moved to maximum tilted position, and such cord will prevent the slats from being tilted to a fully closed position sufficiently tight to prevent all light from passing through the blind; and my thin sheet metal clamp secured to the slat, I materially increase the efficiency of the blind in preventing light rays passing therethrough when the blind is tilted to maximum closed position.

It will also be noted that by the foregoing construction I have eliminated the objection of the hoisting cord passing through the slats as well as to materially increase the effectiveness of the blind when tilted to maximum closed position; and has further increased the efficiency of the blind by using my construction over that of the hoisting cord that heretofore passed through the center of the slats because in the event such hoisting cord (and which was separately attached to each end of the hoisting bar) was not evenly pulled, one side of the blind would raise faster than the other, thereby causing the blind to tip or tilt and the slats to become uneven, and when the blind was raised to open position, a considerable surplus of hoisting cord would be present in the room and which was unsightly and many times a nuisance or bother. However, with my novel construction, the blind is raised evenly from each end thereof in a substantial true horizontal position and when moved to raised position the surplus hoisting cord or tape caused by elevating the blind will be entirely concealed behind the valance 6.

A distinct advantage gained by my novel construction in addition to saving labor in cutting the slots or holes in the slats is that three pieces of hardware or pulleys heretofore used to guide the hoisting cord when raising and lowering the blind will be eliminated.

In the modified construction shown in Figs. 9, 11–13, I have provided a different style of a spacer tape clamp and hoisting tape guide member 38 for the various slats whereby I am able to increase the efficiency of the blind relative to the amount of light rays that are permitted to pass through the blind when the same is tilted to a maximum closed position.

In respects other than the clamp 38, the construction shown in these figures and the operation thereof is the same as that disclosed in Figs. 1–8 and like parts in Figs. 11–14 will be given like reference characters and further description or reference thereto is hereby eliminated for the sake of brevity and the specification will be confined to the clamp member 38 and its operation.

The spacer tape clamp and hoisting tape guide member 38 comprises a sheet metal clamp bent to form a U-shaped member 39, analogous to the member 14 and which is provided at the free ends of the arms forming the U-shaped member 39, with tang members 19'. The base 40 of the U-shaped clamp member 39 is provided with journal members 41 extending therefrom and to which member 41 is pivotally connected, a spacing tape clamp and hoisting tape guide 42. Such guide 42 is constructed of a narrow sheet metal member bent upon itself as at 43 to provide a recess 44 that receives the spacing tape 45 and when the recess 44 is clamped upon the spacing tape 45 the tape is securely held in fixed relation thereto by frictional engagement between the ends 43 and in the recesses 44; the member 39 is provided with an outwardly protruding portion 46 which provides a space or recess between the spacing tape and such projections and in which the hoisting tape 47 may freely reciprocate and be guided. The free ends of the member 42 are bent outwardly as at 48 and then inwardly to form a pivotal connection 49 that enters a recess 50 to provide a pivotal connection with the U-shaped member 39.

It will be noted, particularly in Fig. 14 that when the blind is tilted to its maximum closed position as shown in Fig. 14 that the spacer tape clamp and hoisting tape guide fixture, as best shown in Fig. 11, will pivot about the pivotal connection 49, thereby permitting the slats 20 to be tilted so that the same overlap in close proximity to each other; the only spacing therebetween being the thin thickness of the metal forming the U-shaped clamp 39. This enables me to obtain a substantially light-proof blind when tilted to fully closed position.

The modified construction shown in Fig. 10 is, except for the relation of the hoisting tape and spacing tape relative to the slat, the same as hereinbefore described and for the sake of brevity, I will describe only the analogy of the hoisting tape, spacing tape and slats relative thereto.

In the construction shown in Fig. 10, the spacing tape 51 has a supporting tape 52 connected thereto by weaving or stitching or other suitable securing means at its ends and upon which the slats 20 rest. In order to prevent the slats 20 from shifting lengthwise of the supporting tape 52, I provide a U-shaped staple 53 which straddles the narrow supporting tape 52 and is embedded in the slats 20, preferably at the mid-portion thereof.

This construction as shown in Fig. 10 eliminates the clamp members shown in Figs. 2 and 11 and enables me to accomplish all of the foregoing advantages and features and the further elimination of additional members such as the clamp and guide members shown in Figs. 2 and 11; and also provides for closing the blind in as an effective closed position as is possible to attain.

I claim:

1. A Venetian blind comprising in combination, a tilting bar, a spacing tape secured to said tilting bar; slats connected to said spacing tape; a spring operated roller supported above said tilting bar, a hoisting tape connected to and adapted to be wound upon said roller, said hoisting tape when

wound upon said roller being connected to raise said slats; said hoisting tape being positioned outside of said spacing tape, and said spacing tape folding inwardly between adjacent slats when said slats are hoisted.

2. A clamp member for Venetian blinds comprising a U-shaped member provided with tangs at its free ends to be inserted into Venetian blind slats, said U-shaped member being provided with a recess intermediate the edges of each arm; and the base of said U-shaped clamp member being protruded to form a recess to receive a hoisting tape.

3. In a Venetian blind including a plurality of slats; a spacing member; clamp means to secure said slats to said member at spaced intervals therealong; means to raise and lower said slats including a hoisting member positioned exteriorly of said spacing member; and means pivotally connected to said clamp means through which said hoisting member is freely slidable.

4. In a Venetian blind supporting means; a tilting bar pivotally connected to said supporting means; a flexible spacing member connected to said bar; a plurality of slats; a clamp member connected to said slats; a securing member pivotally connected to said clamp member and comprising portions adapted to be clamped upon said spacing member; a flexible member to raise and lower said slats; and said securing member being provided with a struck-up portion through which said flexible member for raising and lowering the slats is adapted to freely pass.

5. A clamp for Venetian blinds comprising a U-shaped clamp member adapted to embrace the edges of Ventian blind slats and provided at its free ends with tangs adapted to be depressed into said slats; the base of said U-shaped clamp member being provided with outwardly extending ears; each of which are provided with a recess; and a spacing tape securing member bent upon itself to form recesses in which a spacing tape member is clamped and having its free ends forming projections to be received in the recesses in said lugs and pivotally connect said securing member to said clamp member.

6. A clamp for Venetian blinds comprising a U-shaped clamp member adapted to embrace the edges of Venetian blind slats and provided at its free ends with tangs adapted to be depressed into said slats; the base of said U-shaped clamp member being provided with outwardly extending ears, each of which are provided with a recess; and a spacing tape securing member bent upon itself to form recesses in which a spacing tape member is clamped and having its free ends forming projections to be received in the recesses in said lugs and pivotally connect said securing member to said clamp member, and said securing member being provided at its base with an outwardly projected portion to provide a recess between a spacing tape clamped in the ends of said securing member and said outwardly projected portion and in which a hoisting tape may freely pass.

7. In a Venetian blind; supporting members secured to a header and one of which is divided with a plurality of recesses; a tilting bar pivotally connected to said supporting members; means to tilt said bar to predetermined angular positions, said means including an arm pivotally connected to said tilting bar and having at one end of said arm a projection adapted to be received in said recesses; said arm also being provided at its opposite end with a lever through which an operating member is adapted to pass; and resilient means adapted to normally force said projection into said recesses, and means connected to said operating member to operate the same.

8. In a Venetian blind as set forth in claim 7, and in which the means to operate said operating member includes eyes connected to opposite sides of said tilting bar, and an operating cord extending through said eyes and a recess in the operating arm and having a knot adjacent the underside of said eyes and then extending downwardly, so that when pulled a knot will engage an eye and depress said lever to withdraw the projection from its associated recess.

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