April 29, 1930. A. H. DODGE 1,756,680

VENETIAN BLIND

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Fig. 1.

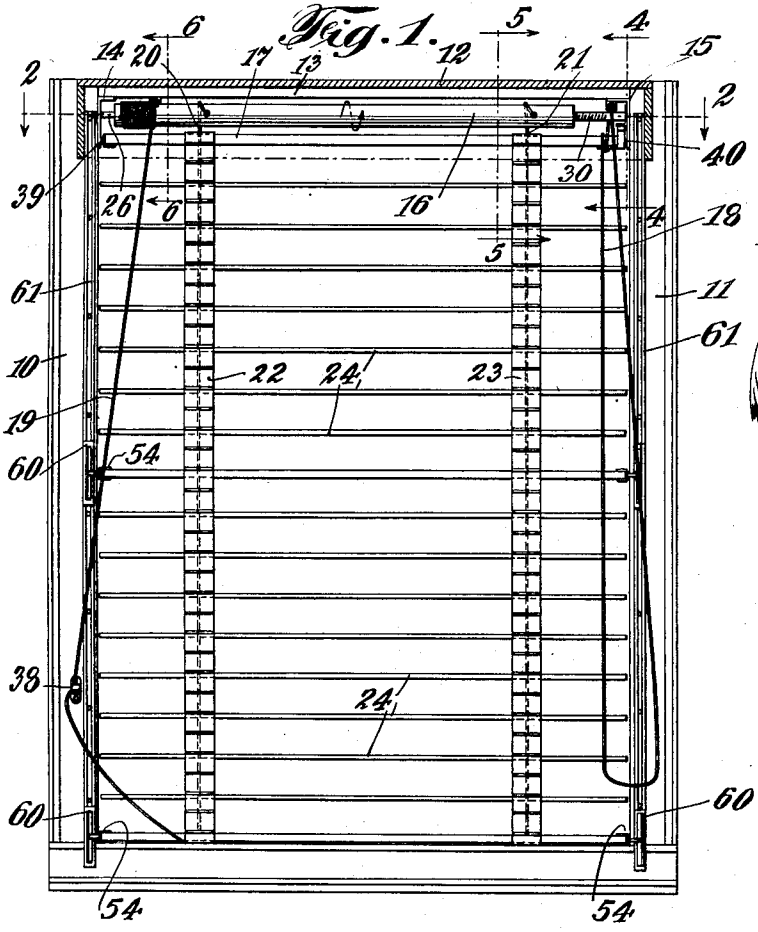
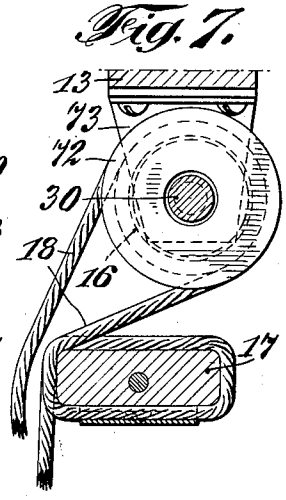


Fig. 7.



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Fig. 2.

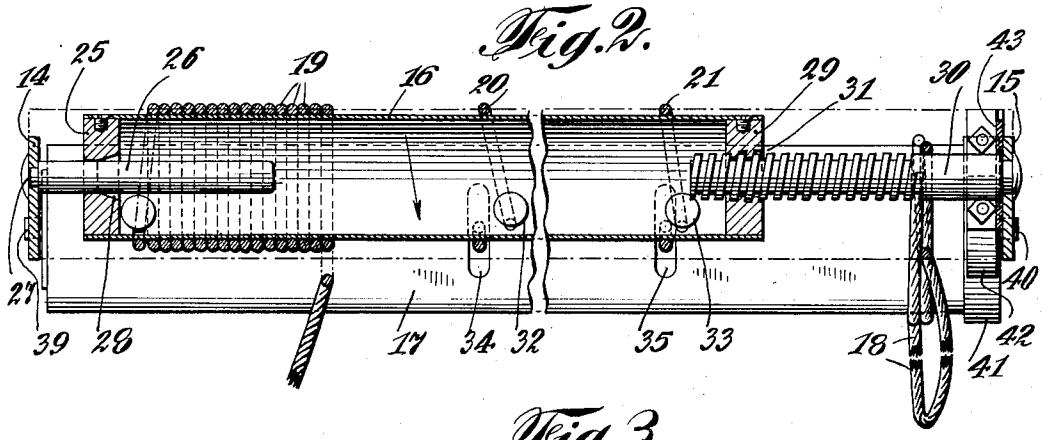


Fig. 3.

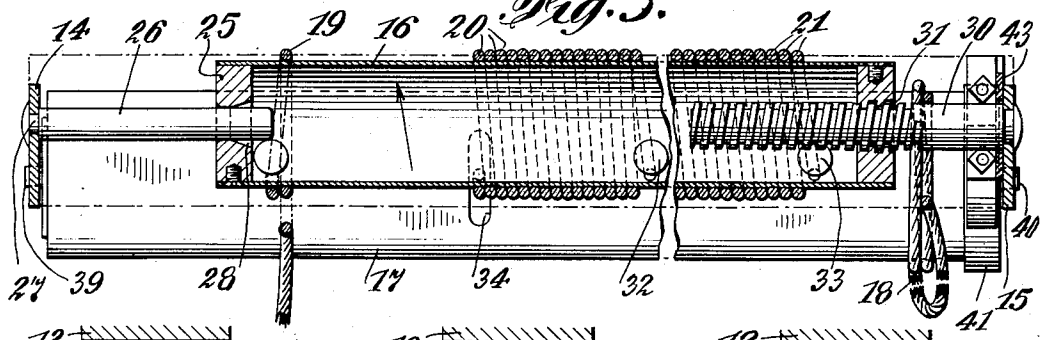


Fig. 4.

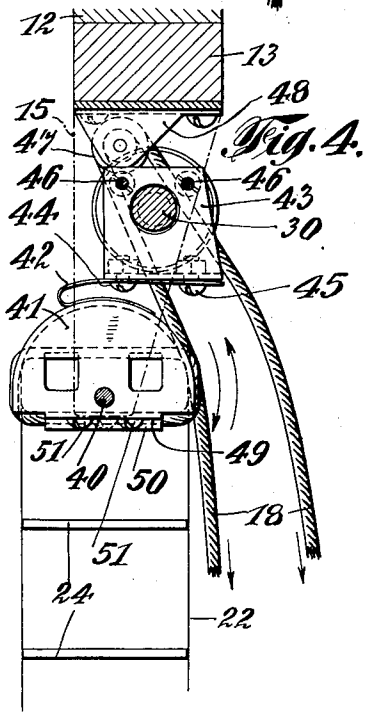


Fig 5.

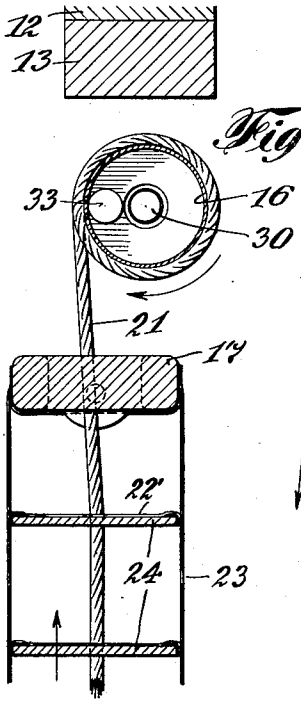
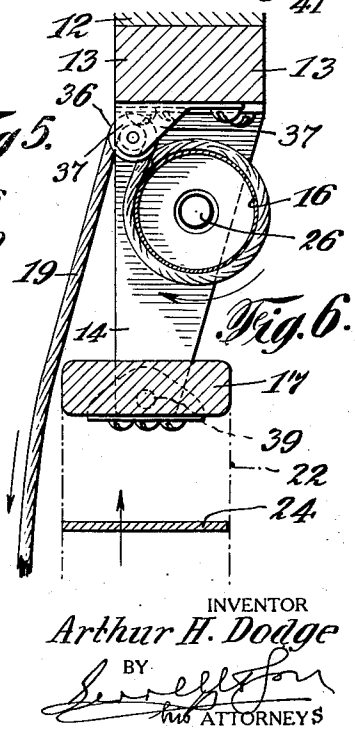


Fig. 6.



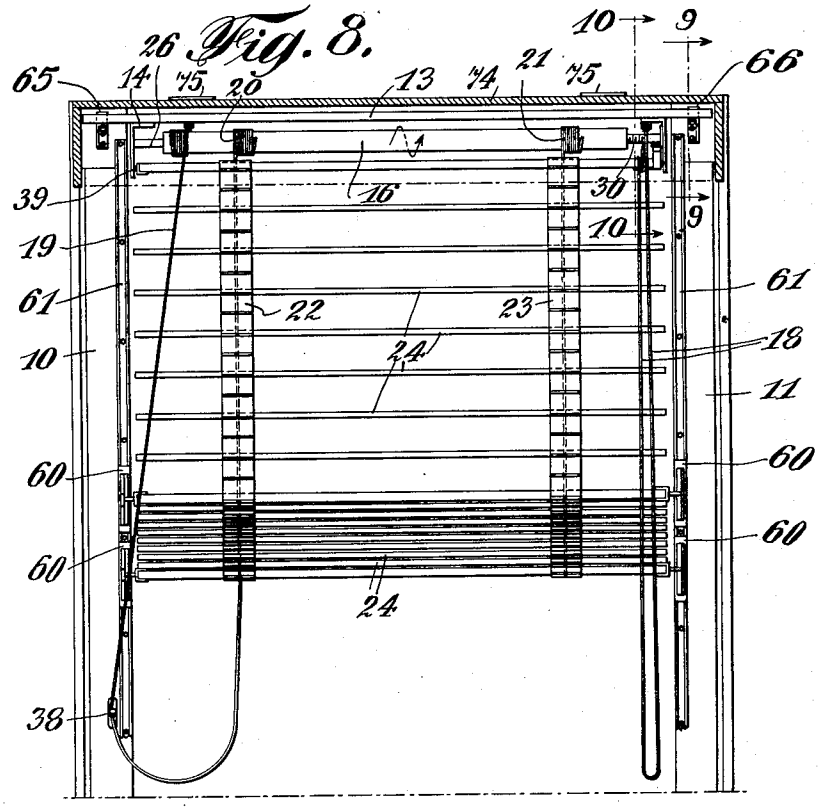
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Fig. 8.



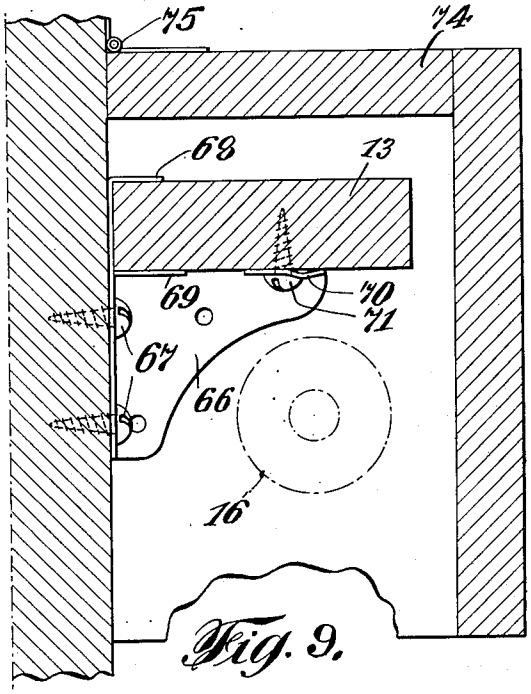
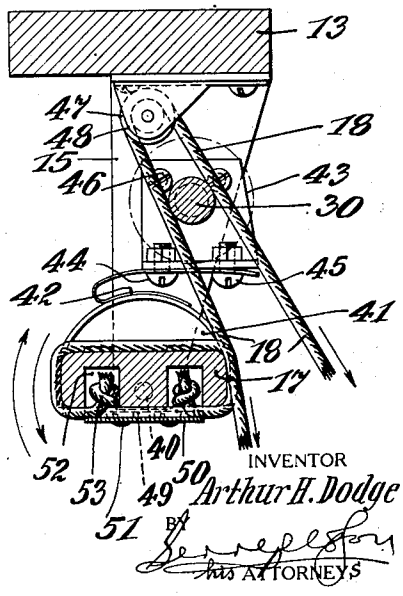


Fig. 9.

Fig. 10.



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UNITED STATES PATENT OFFICE

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VENETIAN BLIND

Application filed September 4, 1926. Serial No. 133,535.

My present invention relates to a Venetian blind and more particularly to that type of Venetian blind in which there is employed a traverse roller, a tilting bar, a plurality of slats, and means for supporting the slats in spaced positions, together with the usual devices for operating these parts in the customary manner. The special features of the construction comprising my invention relate more particularly to the manner of mounting the traverse roller in order to make the same operate noiselessly and at the same time to provide for the proper operation of the roller when the shafts on which it is mounted may be slightly out of alignment; to the manner of arranging the tilting cord to prevent its entanglement with the other operating parts of the apparatus; to a friction brake and the adjustment of the same in order and to prevent the slats from shifting from any angular position due to wind pressure and gravity conditions. Furthermore, the entire structure is so made as to be demountable when the slats are detached from the window frame making it possible to lift the entire blind structure into and out of place as occasion or necessity may require.

In the drawing Figure 1 is a front elevation of a Venetian blind made in accordance with my present invention.

Fig. 2 is an enlarged section on line 2—2, Fig. 1, illustrating the construction of the traverse roller and the stub shafts upon which it is mounted.

Fig. 3 is a view similar to Fig. 2 showing the parts in another position.

Fig. 4 is an enlarged section on line 4—4, Fig. 1.

Fig. 5 is a similar view on line 5—5, Fig. 1.

Fig. 6 is also a similar view on line 6—6, Fig. 1.

Fig. 7 is a sectional elevation illustrating a modified construction for the tilting bar cord.

Fig. 8 is a sectional elevation similar to Fig. 1 illustrating a manner of demountably supporting the Venetian blind in the window frame.

Fig. 9 is a section on an enlarged scale on line 9—9, Fig. 8, and

Fig. 10 is an enlarged scale on line 10—10, Fig. 8.

Referring to the drawings the side members of a window frame or casing are indicated at 10 and 11 and the top or upper cross piece thereof at 12. The support bar for the Venetian blind structure is indicated at 13. Secured to the opposite ends of the support bar 13 there are brackets 14 and 15. A traverse roller 16 is mounted in the brackets 14 and 15 as is also a tilting bar 17. The tilting bar is operated by a tilting cord 18 and the traverse roller 16 is actuated by an operating cord 19. Support cords 20 and 21 are associated with the traverse roller 16 and the usual tapes 22 and 23 are secured to the tilting bar and together with the transverse straps 22′ support the slats 24 in the customary manner.

Referring particularly to Figs. 2 and 3 it will be seen that the traverse roller 16 is preferably tubular and at one end is fitted with a head or plug 25 suitably secured in position therein by a set screw or otherwise. A stub shaft 26 is suitably secured as indicated at 27 in the bracket 14 and passes through an opening 28 provided therefor in the head 25 so that the same acts as a bearing for the traverse roller at this end thereof. This opening 28 is preferably tapered outwardly and slightly rounded adjacent the outer face of the head of the roller for a purpose hereinafter designated. At the opposite end the traverse roller 16 is provided with a head or plug 29 which may be suitably secured therein by a set screw or otherwise. A stub shaft 30 is suitably secured in the bracket 15 and preferably so as to be in alignment with the stub shaft 26. This stub shaft 30 is screw threaded and passes through the screw threaded opening 31 in the head 29. It is to be noted that the screw threaded opening 31 tapers appreciably from the outer to the inner face of the head 29. The purpose of this as well as of the tapered formation of the opening 28 is to provide for the easy operation of the traverse roller in the event of the stub shafts not being exactly in alignment or by the sagging of the same, and also to effect a noiseless operation of the traverse roller. How-

ever, it has been customary in mounting the traverse roller in Venetian blinds to form the head at one end of the roller by a washer which is split and the parts thereof adjacent the split portion bent in opposite directions to engage the threads of the adjacent stub shaft. This has caused an uneven movement in the operation of the roller and also an intermittent clicking sound with each revolution of the roller. As will be readily understood it will be equally obvious that the construction as hereinbefore described overcomes this difficulty.

The traverse roller 16 is provided in suitable positions with holes through which the ends of the support cords 20 and 21 pass and are knotted or otherwise secured as indicated at 32 and 33. Also as indicated in Figs. 2 and 3, the tilting bar is provided with slots 34 and 35 through which the support cords 20 and 21 pass. Furthermore, although not indicated in the drawing, the slats 24 are provided with similar slots for the same purpose. The traverse roller is actuated by the operating cord 19 which passes around a roller 36 mounted in a bracket 37 which is suitably secured to the support bar 13 or otherwise, it being understood that a portion of this operating cord passes around one end of the roller 16 and has its extremity suitably secured in said roller so that by pulling the operating cord the roller may be turned to wind the support cords 20 and 21 thereon, and due to the structure hereinbefore described is simultaneously shifted so as to move at the necessary speed to coil the support cords thereon in raising the slats of the blind. The operating cord 19 may be held by a suitable clamp or tie bolt 38 when the slats are in a raised position to maintain the slats in this position, and as will be understood when the operating cord 19 is released the slats will be lowered by the action of gravity, at the same time shifting the traverse roller in the opposite direction and winding the operating cord thereon.

The tilting bar 17 is provided at its ends with trunnions 39 and 40, by means of which it is mounted in the lower ends of the brackets 14 and 15 between which this tilting bar extends. In carrying out the invention I employ a suitable friction or brake device for maintaining the tilting bar and consequently the slats of the blind in any of their respective positions. To this end at one extremity of the tilting bar there is fitted a brake segment 41. Bearing against the surface of this brake segment there is a brake shoe 42. The brake shoe 42 is adjustably connected to a brake shoe bracket 43 by means of screws 44 and 45 or otherwise, and the brake shoe bracket 43 is fixed in the bracket 15 by means of rivets 46 or otherwise. The positions of the trunnions 39 and 40 are eccentric relatively to the tilting bar, that is these trunnions are set below the center of the tilting bar. The brake segment is eccentric to the trunnions so that the greatest pressure is brought to bear between the segment and the brake shoe when the tilting bar is in a substantially horizontal position as indicated in Fig. 4. It will be understood, however, that the eccentricity of the brake segment is sufficient to provide the necessary friction for maintaining the tilting bar and consequently the slats of the blind in any of their adjusted positions. When in their extreme positions, however, the friction is decreased to such an extent that the movement of the tilting bar may be readily effected in either direction. The tilting bar cord passes over a pulley roller 47 mounted in a roller bracket 48 which is suitably secured in the bracket 15, and the oppositely disposed portions of this tilting bar cord as they leave the roller 47 pass on opposite sides of the adjacent portion of the stub shaft 30. One end of this tilting bar cord is caused to pass over the outer face of the tilting bar and is secured to the tilting bar by means of a cleat 49. The cleat is provided with a rib 50 for receiving the end of the cord and as illustrated in Fig. 4, the cleat and the brake segment may be made as one part of the structure and secured to the tilting bar by means of screws 51 or otherwise. The opposite end of the tilting bar cord after forming a loop therein is passed over the top of the tilting bar and around the inner side thereof and is also secured in place by means of the cleat 49. As shown in Fig. 10 the tilting bar may be provided with recesses 52 and the ends of the tilting bar cord knotted as indicated at 53 with the knots lying within these recesses in order to secure the extremities of the tilting bar cord in place. This however, is merely illustrative of one manner in which this tilting bar cord may be mounted. In the structure shown in Fig. 4, the brake shoe is adjusted relatively to the brake segment by means of the screws 44 and 45. It will be understood that this brake shoe is made of resilient material and that by adjusting the position of the screw 45 relatively to the screw 44 the pressure with which the brake shoe engages the brake segment may be adjusted. It will also be noted that in Fig. 4 the end of the brake shoe adjustable to position by the bolt 45 is on the outer side of the blind, in order to make the same readily accessible by bringing the bolt 45 on this side of the blind. It will also be noted that in so shifting the parts that portion of the tilting bar cord which lies at the rear of the stub shaft for the traverse roller may be made to clear the same, which is the preferred construction, and the tilting bar cord is caused to pass over a pulley roller mounted above the stub shaft for the traverse roller.

The blind structure as hereinbefore de-

scribed may be removably mounted in the window casing by the employment of brackets 65 and 66 suitably placed and secured at the upper end of the window casing by means of screws 67 or otherwise. Each of these brackets is provided with extensions 68 and 69 adapted to receive the adjacent inner portions of the support bar 13 which also rests on an extension 70 which may be slotted for the reception of a screw 71 engaging the extension 70 and being turned down in the support bar to secure the same in place.

In order to economize space it may be desirable in some instances to place the traverse roller nearer the support bar and in so doing and to provide a structure by which the parts of the tilting bar cord will not become entangled in the use of the blind, I may employ a pulley 72 which is mounted to turn freely on the stub shaft 30 and may be maintained in position thereon by sides of the bracket 73 which also act as guides for the tilting bar cord should the same have a tendency to run off the pulley 72. As illustrated in Fig. 9 a suitable casing 74 may be hinged to the window frame as indicated at 75 so as to normally enclose the operative parts of the blind and which may be swung upwardly to set the blind in place or to remove the same, or for such repairs as may be necessary.

From the foregoing description it will now be understood that in the Venetian blind constructed in accordance with my invention the traverse roller is mounted to turn noiselessly and also in such a manner as to provide for any eccentricity between the axis of the same and the stub shaft upon which it is mounted; that by mounting the tilting bar eccentrically, that is having the pivotal points thereof below the center of the bar the bar may be automatically locked or maintained in position in being shifted to the extreme of its movements in either direction and is held in place in any of its intermediate positions to correspondingly maintain the slats in like positions by the friction devices, whereas by the manner of connecting the tilting bar cord the parts thereof will not become entangled with any of the operating mechanism and the tilting bar may be readily shifted in either direction from its normally horizontal position to the position at right angles thereto; and furthermore, that the entire blind structure may be readily mounted and dismounted.

I claim as my invention:

1. In a Venetian blind having a traverse roller, means for mounting and actuating the same, a tilting bar, a plurality of slats carried by the tilting bar, and a tilting bar cord, a brake segment carried by the tilting bar, an adjustable brake shoe coacting with the brake segment, and means for eccentrically mounting the tilting bar the said brake segment being eccentric to the means for mounting the tilting bar whereby the brake segment and brake shoe maintain the tilting bar in any of the positions to which it is adjustable and the tilting bar is automatically maintained in its extreme positions.

2. In a Venetian blind having a traverse roller, means for mounting and actuating the same, a tilting bar, a plurality of slats carried by the tilting bar, and a tilting bar cord, a brake segment carried by the tilting bar, an adjustable brake shoe coacting with the brake segment, means for adjusting the brake shoe to vary the pressure with which it contacts with the brake segment, and means for eccentrically mounting the tilting bar the said brake segment being eccentric to the means for mounting the tilting bar whereby the brake segment and brake shoe maintain the tilting bar in any of the positions to which it is adjustable and the tilting bar is automatically maintained in its extreme positions.

3. In a Venetian blind having oppositely disposed brackets, a traverse roller, means for mounting the said traverse roller, a tilting bar, a plurality of slats carried by the said tilting bar, and a tilting bar cord for operating the tilting bar, means for mounting said tilting bar eccentrically in said brackets, a brake segment secured to the tilting bar at one end thereof, a brake shoe, a support for the brake shoe, and means for adjustably connecting the brake shoe to its support, the said brake segment being eccentric to the pivotal points in which the tilting bar is mounted whereby the greatest pressure is brought to bear by the brake shoe on the brake segment when the tilting bar is in a substantially normal horizontal position.

4. In a Venetian blind having a pivotally mounted tilting bar and a plurality of slats supported by the tilting bar, a brake device associated with the tilting bar and including a contact face and a member bearing against the same and adjustable relatively thereto, to vary the pressure with which the one bears against the other to thereby maintain the tilting bar and the slats carried thereby in any position to which they may be adjusted.

5. In a Venetian blind having a pivotally mounted tilting bar and a plurality of slats carried by the tilting bar, a brake device associated with the tilting bar and having a part connected thereto and provided with a face which is eccentric to the pivotal points of the tilting bar, whereby the tilting bar is held more securely in place in its substantially horizontal position than it is in other positions thereof.

6. In a Venetian blind having a pivotally mounted tilting bar and a plurality of slats carried by the tilting bar, a brake device associated with the tilting bar at one end thereof and including a contact face and a member bearing against the same and adjustable relatively thereto to vary the pressure with which the one bears against the other whereby irre-

spective of the pressure between the parts of the brake device there is no tendency to vary the pressure due to the sagging of the tilting bar in the adjustment thereof and the slats carried thereby to any desired position.

Signed by me this 9th day of August, 1926.

ARTHUR H. DODGE.