May 4, 1948. W. H. HACKETT 2,440,769

VENETIAN BLIND

Filed Dec. 29, 1945 2 Sheets-Sheet 1

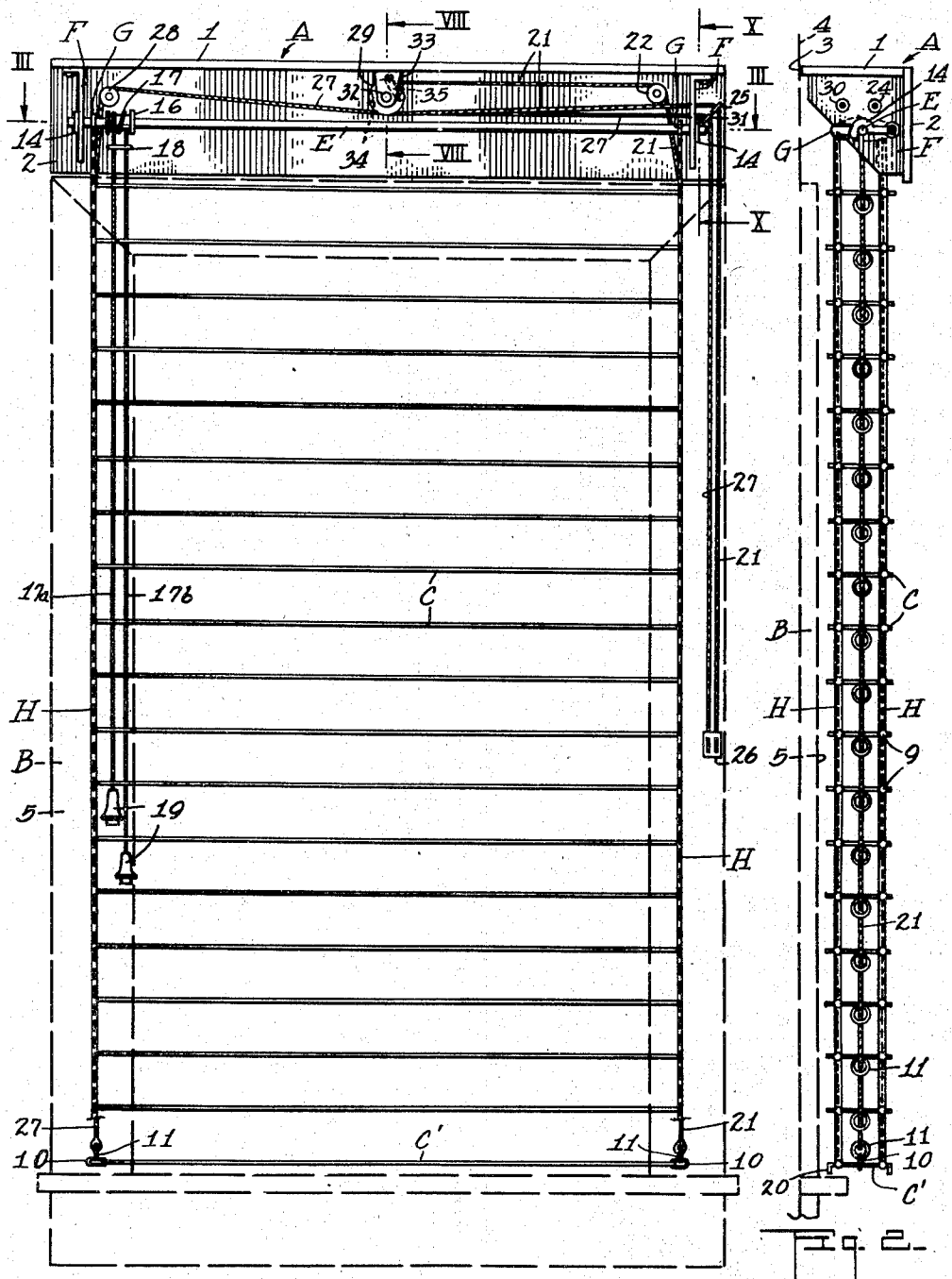


Fig. 1

Fig. 2

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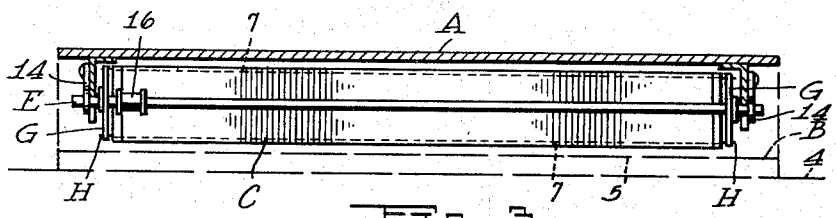


Fig. 3.

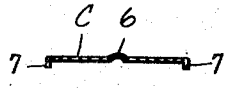


Fig. 5.

Fig. 4.

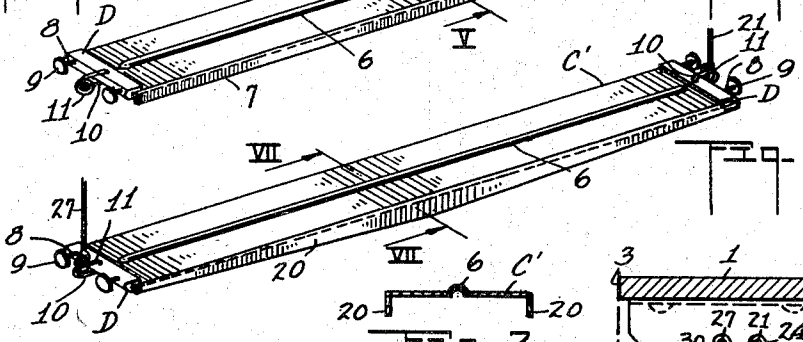


Fig. 6.

Fig. 7.

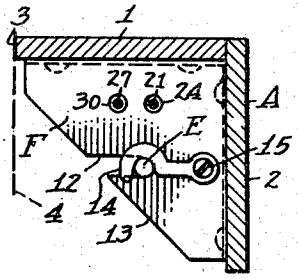


Fig. 10.

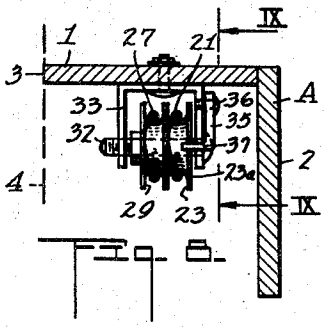


Fig. 8.

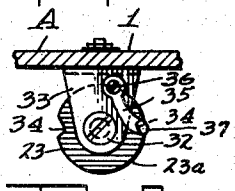


Fig. 9.

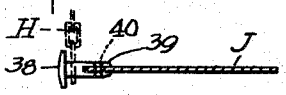


Fig. 12.

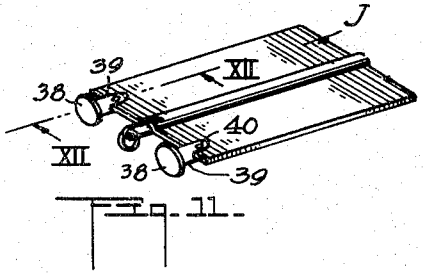


Fig. 11.

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VENETIAN BLIND

William H. Hackett, Oakland, Calif.

Application December 29, 1945, Serial No. 637,887

5 Claims. (Cl. 160—168)

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An object of my invention is to provide a Venetian blind in which the shutter supporting tapes are omitted and instead pairs of chains at each end of the shutters are used. Should the shutters be long so as to require intermediate support, additional pairs of chains may be provided and spaced at the proper distances along the shutters. With this means of shutter support rather than the use of tapes, a greater amount of light will be admitted past the Venetian blind.

A further object of my invention is to provide a device of the type described which has a simple means for raising the Venetian blind so as to cover any desired portion of the window, or other opening which it is designed to cover. This means will support the blind in any position desired and does away with the usual worm and worm gear now used for this purpose. A simple gravity actuated pawl and notched pulley are used and the arrangement is such that the blind can be adjusted to cover any part of the window and then quickly released so as to cover all or any additional portion of the window.

A still further object of my invention is to provide a device of the type described in which the entire group of shutters may be removed as a unit for cleaning purposes.

Other objects and advantages will appear in the following specification, and the novel features of the device will be particularly pointed out in the appended claims.

My invention is illustrated in the accompanying drawings forming a part of this application, in which:

Figure 1 is a rear elevation of the device when looking from the window side of the Venetian blind;

Figure 2 is a side elevation of Figure 1 when looking from the right hand side;

Figure 3 is a horizontal section taken along the line III—III of Figure 1;

Figure 4 is an isometric view of one of the shutters used in the blind;

Figure 5 is a transverse section of the shutter shown in Figure 4 and is taken along the line V—V thereof;

Figure 6 is an isometric view of the bottom shutter;

Figure 7 is a transverse section taken along the line VII—VII of Figure 6;

Figure 8 is an enlarged transverse section of the notched pulley and gravity-actuated pawl and is taken along the line VIII—VIII of Figure 1;

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Figure 9 is a longitudinal section taken along the line IX—IX of Figure 8;

Figure 10 is an enlarged transverse section taken along the line X—X of Figure 1;

Figure 11 is an isometric view of an end portion of a modified form of shutter; and

Figure 12 is a longitudinal section taken along the line XII—XII of Figure 11.

While I have shown only the preferred forms of my invention, it should be understood that various changes or modifications may be made within the scope of the appended claims without departing from the spirit and scope of the invention.

In carrying out my invention, I provide a supporting head frame for the Venetian blind and this is indicated generally at A in Figure 1. Figures 2 and 8 show the frame A as having a horizontal member 1 and a vertical face member 2. Figures 2 and 3 illustrate how the horizontal member 1 has its inner edge 3 abutting the room wall 4. The vertical face member 2 parallels the wall 4 and covers the operating mechanism supported by the frame A. The frame A may be secured to the wall in any manner desired.

In Figure 1 I indicate by dash lines the outline of a window and this is designated generally at B. The window facing 5 is also indicated in Figure 1 and the Venetian blind is made of a size sufficient to cover the window opening. The blind comprises a plurality of shutters of the type shown at C in Figures 4 and 5. The shutters are preferably made of sheet metal or plastic, although they may be made out of wood or other material, if desired.

The shutter has a central longitudinally extending reinforcing rib 6 and the longitudinal edges of the shutter are bent downwardly as shown at 7 to form reinforcing flanges. At each end of the shutter, I dispose a U-shaped bracket D and this bracket or clamp frictionally engages with the upper end lower faces of the shutter. Each bracket carries two pins 8 that are provided with heads 9. At the center of the bracket I mount a link 10 and this link carries a ring 11 that is designed to slidably receive a supporting cord whose function will be hereinafter described.

Referring to Figure 2, it will be seen that I mount a shaft E in the frame A and the ends of the shaft are received in slots 12 that are provided in end frame brackets F. The brackets are connected to the members 1 and 2 and they have an inclined edge 13 from which the slot 12 extends inwardly. Hooks 14 or other suitable fastening means are pivoted to the brackets at

15 and these hooks removably receive the ends of the shaft E and prevent the shaft from being removed accidentally from the brackets.

Referring to Figures 1 and 2, it will be noted that the shaft E carries a chain supporting lever G adjacent to each end. A pair of chains H are suspended from the ends of each lever and certain links of the chains receive the pins 8 of the shutters and support the shutters in spaced relation. A rocking of the shaft E about its axis will cause the levers G to lower one chain and raise the other of each pair so that the shutters will be inclined at the desired angle and held in the position into which they are swung.

The means for rocking the shaft E comprises a pulley 16, keyed to the shaft E and this pulley has a cord 17 wrapped therearound and secured thereto. The ends 17*a* and 17*b* of the cord are passed through guides 18 and these ends are provided with pull grips 19. Either grip 19 may be pulled for rotating the pulley and the shaft in a desired direction for rocking the shutters. The levers G remain balanced in any position into which they are swung and therefore no locking means is necessary for securing the shaft against accidental rotation.

I will now describe the means for raising the blind for covering any portion of the window desired, this means locking the blind in adjusted position. Reference to Figure 6 shows a shutter C' which is the same as the shutters C, except that the longitudinally extending reinforcing flanges 20 are made truss-shaped and are deeper than the flanges 7. The shutter C' is the lowermost one in the blind and the truss-shaped flanges 20 are used for giving the proper strength to this shutter.

A cord 21 is connected to the ring 11 on the lowest shutter C', see Figure 2, and the cord is passed through successive rings 11 in successive superimposed shutters C. Figure 1 illustrates the cord 21 as being passed around an idler pulley 22 and thence around a notched pulley 23, see Figure 8. The cord 21 is looped one or more times around the notched pulley in a counter-clockwise direction and then is passed through an opening 24 in the right hand end bracket F, and thence through an eyelet 25 to an actuating handle 26. The other cord 27, see Figure 1, is connected to the ring 11 at the opposite end of the lowermost shutter C' and this cord is passed upwardly through rings 11 in successive superimposed shutters and then is reeved over an idler pulley 28 mounted in the frame A. The cord 27 is then looped around a companion pulley 29 to the pulley 23, in a counter-clockwise direction when looking at Figure 1. The cord 27 extends through an opening 30 in the same bracket F that has the opening 24. The cord 27 then passes through an eyelet 31 and is connected to the hand grip 26.

To facilitate following the paths of the two cords 21 and 27, in Figure 1, I have shown the cord 21 with a winding extending upwardly to the right and have shown the cord 27 with a winding extending upwardly to the left. When the handle 26 is manually moved downwardly, both cords 21 and 27 will be pulled and will rotate the pair of pulleys 23 and 29 in the same counter-clockwise direction. This will cause the ends of the cords 21 and 27, which are connected to the lowest shutter C', to move this shutter upwardly against the next shutter and this process is repeated so long as the handle 26 is moved downwardly. The result is the raising of the Venetian blind to expose any portion of the window desired,

It will be noted from Figures 8 and 9 that the pulleys 23 and 29 are connected together and are rotatably mounted on a bolt 32, or other suitable shaft. The bolt or stub shaft is mounted in a bracket 33 that is suspended from the top member 1. The rim 23*a* of the pulley 23 is notched at 34, see Figure 9, and these notches are designed to receive a gravity actuated pawl 35 that is pivoted to the bracket at 36. Figure 8 shows the free end of the pawl as being provided with an inwardly turned stop 37 that is designed to be received in any one of the notches 34. The notches are so shaped that if the handle 26 is moved upwardly at a slow rate of speed, the rim 23*a* will move slowly past the stop to permit it to drop into the next notch 34 that passes therebeneath. The notch will prevent further rotation of the pulley 23 and in this manner the pulley is held against rotation and the blind will be supported in the desired position. Since the two pulleys 23 and 29 are connected together as a unit, a holding of the pulley 23 by the pawl 35 will prevent the other pulley from rotating. Both ends of the lowermost shutter C' will therefore be suppoted at the desired elevation.

From the foregoing description of the various parts of the device, the operation thereof may be readily understood.

I have already described how the angular position of each shutter can be adjusted by means of the cord 17, the pulley 16 and the shaft E. I have just described how the blind may be raised or lowered by manipulating the handle 26. When the blind is raised it is held in raised position by the gravity actuated pawl 35. The blind can be released and quickly lowered by initially pulling downwardly on the handle 26 a distance sufficient to free the stop 37 from its notch 34. The handle may now be permitted to quickly move upwardly and this will cause the notches 34 in the pulley 23 to move past the stop 37 too rapidly for the stop to enter a notch and stop further pulley rotation.

In Figures 11 and 12 I show a slightly modified form of the invention. Here the shutter J instead of being provided with the U-shaped brackets D is provided with headed pins 38 that have bifurcated shanks 39 designed to straddle the shutter. Figure 13 illustrates how the shank 39 receives the shutter and how the headed pin 38 is secured in place by a rivet 40 or other suitable fastening means for securing the shank to the shutter. In all other respects this modified form of the invention is the same as that shown in Figures 4 and 6 and therefore a further description need not be given.

I claim:

1. A Venetian blind comprising a frame, a rockable shaft removably carried by the frame, arms attached to the shaft near its ends, a pair of chains depending from the ends of each arm, a plurality of spaced shutters having their ends secured to the chains adjacent to the corners of the shutters, and cord-actuated means for rocking the shaft for causing the chains to tilt the shutters about their longitudinal axes into the desired angular positions.

2. In a Venetian blind, a shutter having a longitudinally and centrally disposed reinforcing rib, the sides of the shutter having integral reinforcing flanges that extend at right angles to the shutter plane, brackets U-shaped in cross section receiving the shutter ends, and a pair of headed pins carried by each bracket and adapted to receive a supporting chain.

3. In a Venetian blind, a shutter, a pair of headed pins placed at each end of the shutter and near the corners, each pin having a bifurcated shank adapted to receive the shutter, and means for securing the shanks to the shutter.

4. A Venetian blind comprising a head frame, a plurality of shutters, flexible means for supporting the shutters in superimposed and spaced relation, and means for raising the lowermost shutter and moving it toward the head frame to the desired extent, the lowermost shutter in its upward movement successively picking up and lifting the shutter thereabove, said means including lifting cords connected to the ends of the lowermost shutter, a notched pulley rotatably carried by the frame, said cords being reeved around the pulley and then extending beyond one end of the frame where they may be manually pulled for raising the blind, and a gravity actuated pawl mounted adjacent to said notched pulley and engageable in a notch thereof, the pawl holding the pulley from rotating in a direction to lower the blind.

5. In a Venetian blind, a frame, a plurality of

shutters, flexible means for supporting the shutters in superimposed relation, a lifting cord connected to each end of the lowermost shutter for raising it, a pair of interconnected pulleys rotatably carried by the frame, one of the cords being reeved around one pulley and the other cord being reeved around the other pulley, each in the same direction for raising and lowering both sides of the blind, one of the pulleys having its rim provided with cam-shaped notches, and a gravity actuated pawl adapted to enter any one of the notches, the engaged notch holding the pawl against accidental release.

WILLIAM H. HACKETT.

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