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CORD LOCK FITTING

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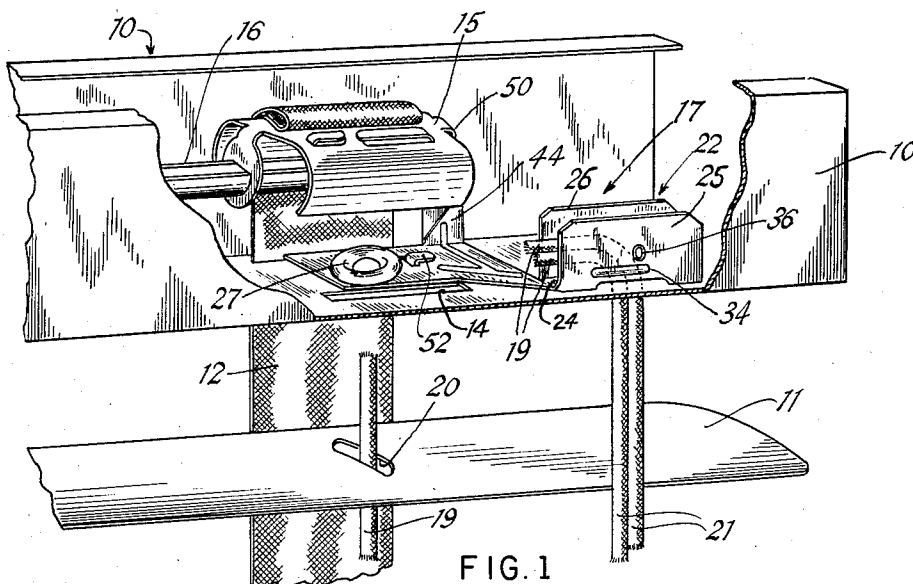


FIG. 1

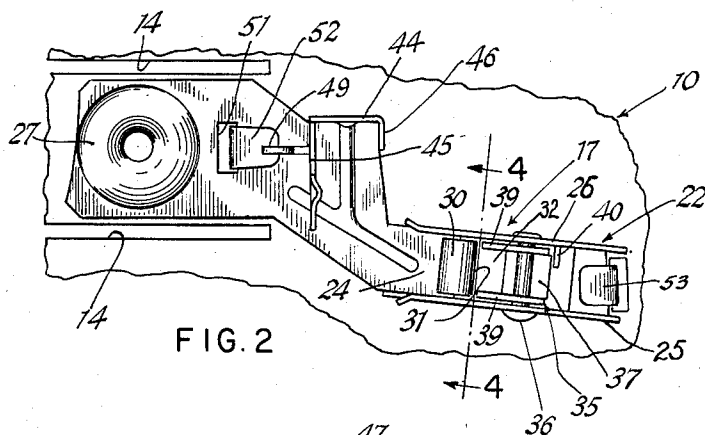


FIG. 2

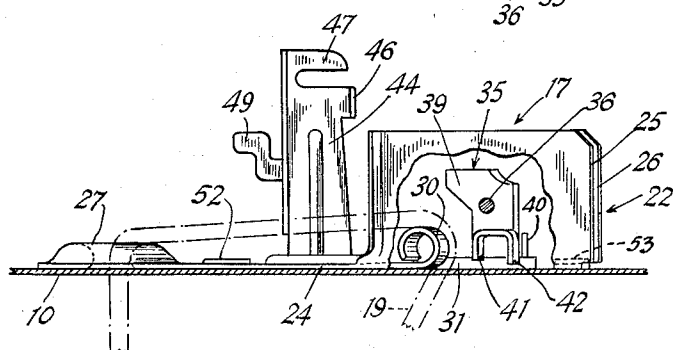


FIG. 3

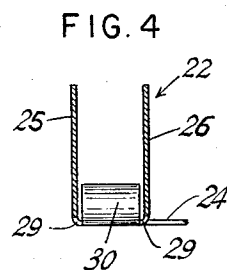


FIG. 4

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CORD LOCK FITTING

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Original application October 17, 1951, Serial No. 251,707, now Patent No. 2,670,038, dated February 23, 1954. Divided and this application November 27, 1953, Serial No. 394,605

4 Claims. (Cl. 160—173)

This invention relates to Venetian blinds, and more particularly to Venetian blind head-bar organizations and cord locks therefor. Certain features of the invention are applicable to various types of head bars, but the invention as a whole is particularly applicable to metal head-bar organizations of the type known in the trade as "enclosed metal heads." The present application is a division of my application S. N. 251,707, filed October 17, 1951, now Patent 2,670,038 issued February 23, 1954.

In the so-called "enclosed head" type of Venetian blind, the mechanism for raising the blind and tilting the slats of the blind is contained within a more or less enclosed head bar which may be formed of a sheet-metal channel extending along the top of the blind. This mechanism may consist of a tilter fitting mounted adjacent one end of the head bar, a cord-lock fitting mounted adjacent the other end, a tilt rod journaled in the tilter and cord-lock fittings and extending longitudinally of the head bar, and two or more tape rockers mounted on the tilt rod and supporting the ladder tapes of the blind.

In the form shown of the present invention, the cord-lock body is formed of a single unitary sheet-metal stamping having an extended base adapted to be mounted on the inside bottom wall of the head-bar channel and extending towards the center of the blind and providing an integral, smooth bearing for passage of a lift cord through the bottom wall of the head bar adjacent a ladder tape. The cord-lock housing is formed to provide a smooth integral bearing for the depending looped end of the lift cords, thus eliminating the customary pulley.

Among the objects of the present invention are to provide a unitary cord-lock housing, including a cord-bearing surface for the lift cords; to provide a simplified cord lock formed of a minimum number of parts, the body of which may easily be formed as a sheet-metal stamping; to provide an assembly which is durable and dependable in operation; and to generally improve on Venetian blind cord-lock fittings.

Further objects and objects relating to details and economies of construction and use will more definitely appear from the detailed description to follow.

My invention is clearly defined in the appended claims. In the claims, as well as in the description, parts are at times identified by specific names for clarity and convenience, but such nomenclature is to be understood as having the broadest meaning consistent with the context and with the concept of my invention as distinguished from the pertinent prior art. The best mode in which I have contemplated carrying out my invention is illustrated in the accompanying drawings forming part of this specification, in which:

Fig. 1 is a perspective view on a reduced scale of the upper right corner of a Venetian blind, portions of the front wall of the head bar and portions of the lift cords and ladder tape being broken away for convenience of illustration.

Fig. 2 is a top plan view of the cord-lock fitting in position on the bottom wall of the head bar.

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Fig. 3 is a front elevation of the cord-lock fitting, the bottom wall of the head bar being shown in section and the path of one of the lift cords being indicated.

Fig. 4 is a detail section of the cord-lock fitting taken generally on the line 4—4 of Fig. 2.

Referring to Fig. 1, the Venetian blind there shown is of the enclosed head-bar type, in which the operating mechanism of the blind is mounted on the inside bottom wall of a channel-shaped sheet-metal head bar 10. The slats 11 of the blind are supported by the customary ladder tapes, one ladder tape 12 being shown, the upper ends of which pass through slots 14, 14 formed in the bottom wall of the head bar. The upper ends of the ladder tape 12 are secured to the tape rocker 15 which is mounted on a tilt rod 16 that extends longitudinally of the head bar.

The tilt rod 16 is mounted for rotation in a cord lock fitting 17 mounted adjacent one end of the head bar and a tilter (not shown) mounted adjacent the other end of the head bar, the tilter and cord lock supporting the tilt rod from the bottom wall of the head bar. In the blind shown, the cord lock is located at the right-hand end of the head bar, but the fittings can be made of opposite hand, a cord lock being mounted at the left-hand end of the head bar and a tilter at the right-hand end.

Lift cords 19, 19 are reeved in the blind in the customary manner, the cords actually being formed of a single length of cord, the two ends of which are secured to the bottom bar (not shown) of the blind. The cords pass upwardly through aligned slots 20 in the slats and through the bottom wall of the head bar and then lead through the cord lock 17, a loop or bight of cord 21 hanging from the cord lock at the right-hand end of the blind. Both the tilter and the cord lock 17 are provided with bearings to provide a smooth passage for the individual lift cords through the bottom wall of the head bar 10, thus eliminating a separate cord guide for leading the lift cords down through the slats of the blind.

The cord-lock fitting 17 of the present invention comprises a stamped sheet-metal cord-lock body 22 having a generally flat, extended base 24 forming also the bottom wall of the cord-lock housing and two spaced generally parallel upstanding side walls 25 and 26 forming the side walls of the housing. The end portion of the base 24 towards the center of the blind has a lift-cord bearing 27 which preferably comprises a round hole surrounded by a raised integral rib as shown to provide a smooth bearing for leading a lift cord downwardly through the slats of the blind. The form and arrangement of this integral rib is described in more detail in my Patent 2,670,038.

The junction of the bottom wall 24 of the cord-lock housing with the side walls 25 and 26 is cut at 29, 29, preferably by forming slots, and a portion of the bottom wall is transversely cut and rolled upwardly to form a smooth, generally cylindrical, lift-cord-bearing surface 30 extending transversely between the side walls 25 and 26 of the cord-lock housing. The lift-cord-bearing surface extends through at least 180° and preferably about 360°, as shown, and provides a smooth lift-cord bearing replacing the pulley of the customary cord lock.

The metal displaced from the bottom wall 24 of the cord-lock housing in forming the lift-cord-bearing surface 30 provides an opening 31 in the housing for passage of the depending bight or loop 21 of the lift cords, this opening registering with an opening 32 in the head bar. Preferably, the bottom wall 24 of the cord-lock housing spans between the side walls on both sides of the opening 31 to reinforce the side walls 25 and 26 and to receive a tab for mounting the cord-lock fitting, as will be explained. An inwardly projecting bead 34 is formed in the lower margin of the front wall 25 of the housing

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opposite the cord opening 31 to provide a smooth bearing for passage of the lift cords past the lower edge of the wall and prevent fraying of the cord.

A locking dog 35 is pivotally mounted on a rivet 36 extending between the front and rear side walls 25 and 26 of the cord-lock housing. The locking dog 35 has a cord-engaging body portion 37 and a pair of parallel ears 39, 39 extending from the two ends of the body portion and through which the rivet 36 passes. The locking dog 35 is mounted somewhat to the right of the lift-cord-bearing surface 30, as viewed in the drawings, so as to engage and lock the lift cords against the bearing surface 30. Preferably, the ears 39, 39 extend past the rivet 36 on the same side of the rivet as the lift-cord-bearing surface 30 to provide a counterweight for biasing the locking dog counterclockwise, as viewed in Fig. 3, towards nonlocking position. A tab 40 may be struck inwardly from the bottom edge portion of one of the side walls and into the path of the locking dog for limiting counterclockwise rotation of the locking dog away from locking position.

The body portion 37 of the locking dog may be formed generally U-shaped in transverse section to provide a pair of toothed cord-engaging portions 41 and 42 for locking the cord against the bearing surface 30. Preferably, the cord-engaging portion 42 projects slightly further from the rivet 36 than the portion 41.

The intermediate portion of the cord-lock-fitting base 24 preferably is provided with an upwardly directed formation 44 which may be generally L-shaped in horizontal cross section. The formation 44, which may be formed as indicated in the drawings, has an upwardly opening tilt-rod bearing 45 for receiving the cord-lock end of the tilt rod 16. A portion of the formation 44 lies across the axis of the bearing 45 so as to form an end stop 46 spaced outwardly slightly, and a bendable finger 47 on one side of the bearing 45 may be bent into position across the top of the bearing after insertion of the tilt rod, so as to retain the tilt rod within the bearing. The finger 47 is generally similar to that shown in Lorentzen U. S. Patent 2,262,949.

The portion of the formation 44 surrounding the tilt-rod bearing 45 forms a flat transverse surface from which an upwardly and inwardly directed finger 49 may be stamped, the finger and the formation 44 together forming an upwardly opening slot or guide for receiving a radially extending end flange 50 of the adjacent tape rocker 15 in order to restrict endwise movement of the tape rocker. The finger 49 preferably extends a substantial distance horizontally away from the vertical face of the formation 44 to assure correct assembly of the tape rocker, as described in detail in Patent 2,670,038.

The base 24 of the cord-lock fitting may be provided with a slot 51 adjacent the lift-cord bearing 27 to receive a bendable tab 52 stamped from the bottom wall of the head bar 10, the tab being clinched against the base to hold the fitting in position. In addition, a second bendable tab 53 stamped from the bottom wall of the head bar to hold the fitting may be clinched against the right-hand end of the base 24, as viewed in the drawings, fitting between the side walls 25 and 26 of the cord-lock housing.

When the bight 21 of the lift cords is pulled downwardly to raise the blind, the locking dog 35 is moved counterclockwise as viewed in Fig. 3 to release the cords,

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after which the locking dog will continue to rotate until stopped by the tab 40, as indicated in the drawings. The lift cords may then be freely raised or lowered provided that the bight 21 of the cords is not moved to the right so as to engage the cords against the locking dog.

To hold the blind in any raised position, the bight 21 of the lift cords is moved to the right to engage the cords against the toothed cord-engaging portion 41. Then, upon release of the cords, the weight of the blind will carry the cords upwardly through the cord-lock housing and about the cord-guide-bearing surface 30, carrying the locking dog 35 clockwise until the locking dog wedges the cords against the surface 30 so as to lock the cords against further movement upwardly through the cord lock.

I claim:

1. A unitary cord-lock fitting for an elongated Venetian blind head bar, said fitting comprising: a one-piece sheet-metal stamping having a generally flat elongated base, the end portions of the base being laterally offset from one another and being connected together by a diagonally-disposed intermediate portion, one of said end portions of the base having an opening for the passage of a single lift cord, and the other of said end portions of the base having an opening for the passage of a plurality of lift cords; means to guide a cord passing from one of said openings to the other; and cord-locking means adjacent to the opening for the passage of a plurality of lift cords.

2. A cord-lock fitting as in claim 1 in which the cord-guiding means includes parallel cheek members that are integral with, and extend upwardly from, the opposite edges of that end portion of the base which is provided with an opening for the passage of a plurality of lift cords, and the cord-locking means is positioned between said cheek members.

3. A cord-lock fitting as in claim 2 in which the cord-guiding means includes a guide member located between the cheek members, and the cord-locking means is a pivoted locking dog swingable toward and away from said guide member to clamp and release the cords.

4. A cord-lock fitting as in claim 3 in which an integral finger is struck out from one of the cheek members and extends into the path of the locking dog to limit the movement of the dog away from said guide member.

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