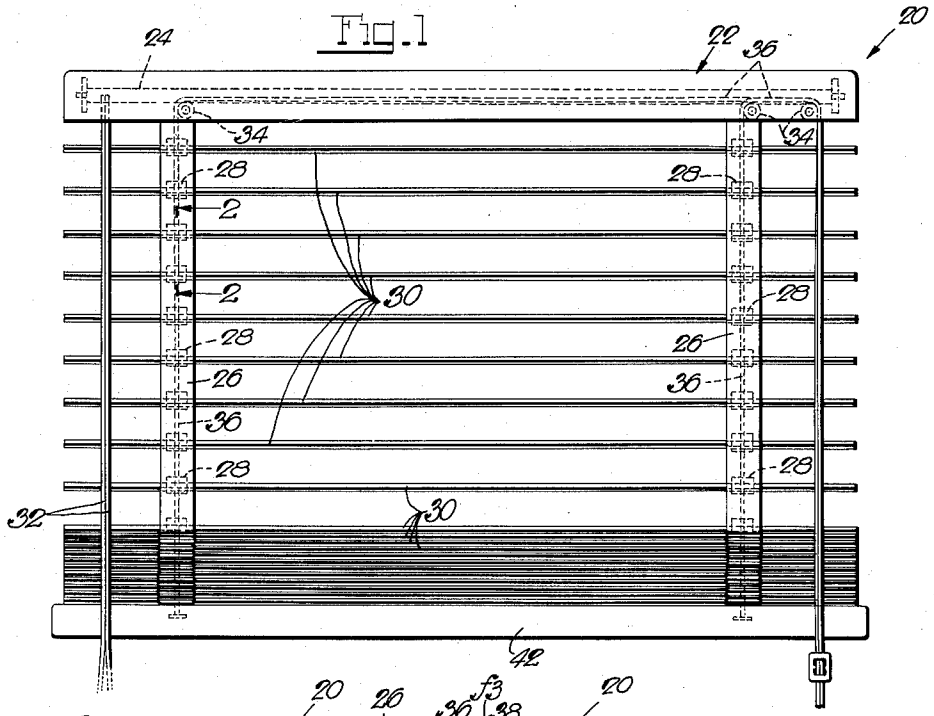
April 23, 1963 A. WOLFE 3,086,586

REMOVABLE SLATS FOR VENETIAN BLINDS

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Fig. 1



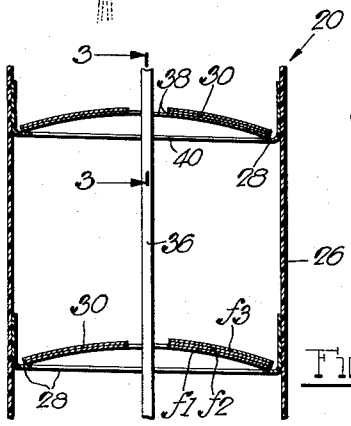


Fig. 2

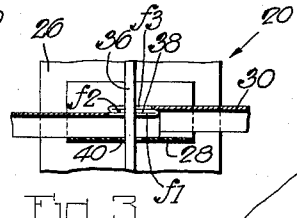


Fig. 3

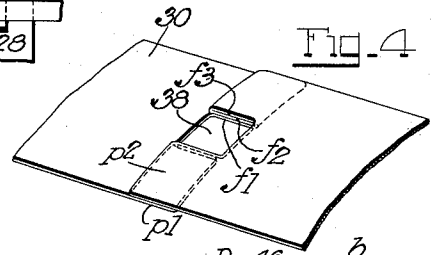


Fig. 4

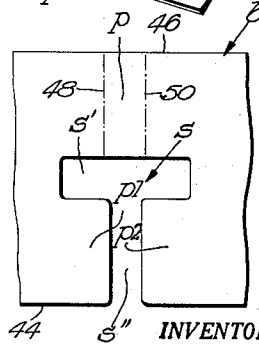


Fig. 5

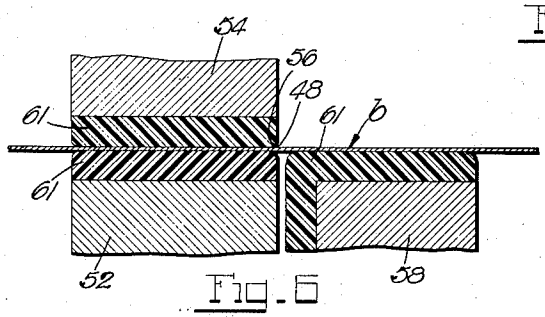


Fig. 6

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REMOVABLE SLATS FOR VENETIAN BLINDS

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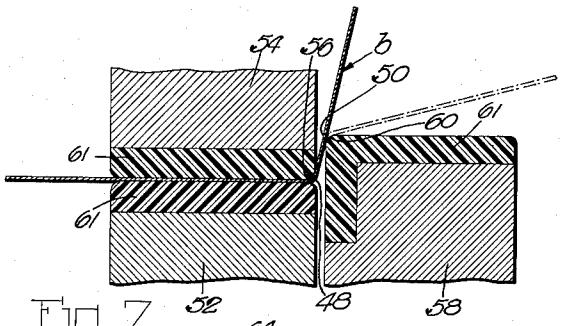


Fig. 7

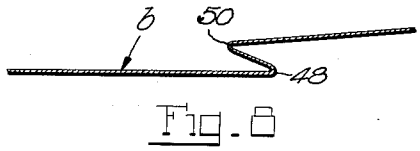


Fig. 8

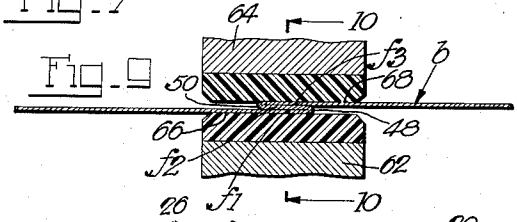


Fig. 9

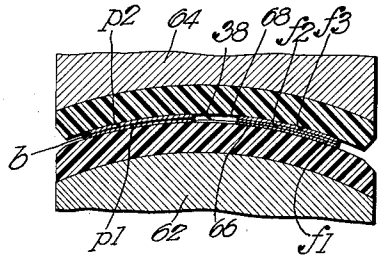


Fig. 10

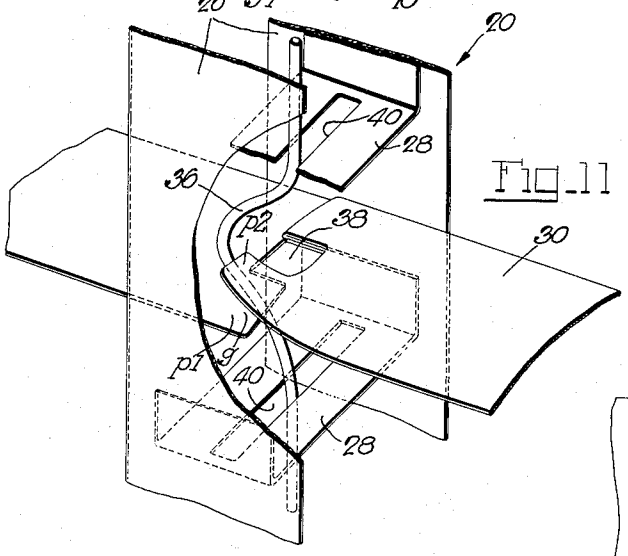


Fig. 11

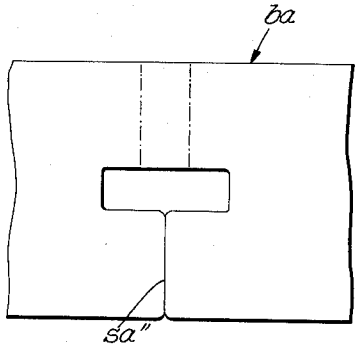


Fig. 12

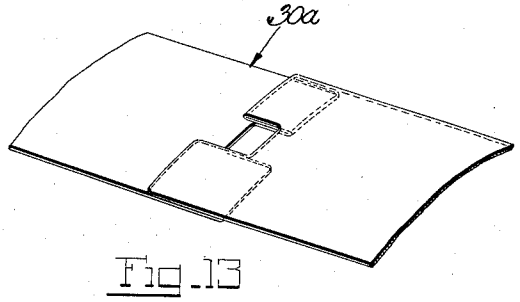


Fig. 13

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3,086,586

REMOVABLE SLATS FOR VENETIAN BLINDS

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6 Claims. (Cl. 160—236)

This invention relates to Venetian blinds in general, and to removable slats for Venetian blinds in particular.

In conventional Venetian blinds the slats are carried in ladder tapes by means of which they are tiltable and from which they could be removed endwise were it not for the usual lift cords which extend through apertures in the slats. Prior removable slats, therefore, were provided in lieu of such apertures with slots through which to pass the lift cords laterally into and from the slats for their assembly in and removal from a blind. Yet, despite the desirablility of having in a blind removable slats for their quick, convenient and frequent cleaning, as well as to afford purchasers a wide choice of slat color combinations in a blind from stocked slats of different colors, no blind with removable slats is available on the market to this day. This is due to the fact that prior removable slats with slots for removable reception of the lift cords either are structurally exceedingly weak or require wide departure of the blind construction from conventional construction. Thus, the provision of slots in prior removable slats for reception of the lift cords at the accustomed places some considerable distance from the ends and midway between the side edges of the slats, so weakens the slats, and particularly slender and readily flexible metal slats, that their ends may droop to an extent so unsightly as to be unacceptable to the public. Other prior removable slats have the cord-receiving slots so close to their ends as to preclude their drooping, but they require a blind construction which departs from conventional blind construction with its neat and well-accepted appearance. Finally, the inherent open exits of the slots in the prior removable slats make for a flimsy blind in any event, and may give rise to malfunction of the blind, if not permanent damage to slats thereof, by entanglement of the lift cords with edges at the slot exits.

It is the primary aim and object of the present invention to provide for Venetian blinds removable slats which have none of the aforementioned disadvantages of the prior removable slats, and which have the same appearance as, and cost at the most only inappreciably more than, conventional non-removable slats. In providing such removable slats, they will not only be at least as attractive as conventional non-removable slats for use in blinds regardless of whether or not slat color combinations or cleaning of the slats on their temporary removal from the blinds are contemplated by the purchasers, but they will also be available as the first practical slats which permit their arrangement in numerous color combinations at the factory, store or home and their quick, convenient and frequent cleaning removed from the blinds.

It is another object of the present invention to provide for Venetian blinds removable single-piece slats which for lateral passage of lifting cords thereinto and therefrom have apertures with exit slots, but the exit slots are normally self-closed with adequate force to lend the slats throughout at least the structural strength of conventional non-removable slats, so that the removable slats make for the same finished construction, neat appearance and reliable operation of blinds as conventional non-removable slats.

It is a further object of the present invention to provide for Venetian blinds removable single-piece slats in which the apertures with cord-passing exit slots are provided in folded lengths of the slats of which the exit-forming slat portions are overlapped and, hence, normally close the apertures but which may with little effort be yielded apart sufficiently for lateral cord passage into and from the apertures. With this arrangement, the slotted cord apertures, rather than structurally weakening the slats as heretofore, in fact increase the rigidity of the slats by virtue of the transverse folded edges thereof which forcefully resist any unfolding tendencies and, hence, appreciable flexing of the slats, and which, moreover, advantageously interrupt the coplanar continuity of the slats, inconspicuously to be sure, to divide them into shorter lengths of decreased flexibility. With this arrangement also, the slotted cord apertures may advantageously be provided in the reenforced slats at the places at which they are usually supported on the ladder tapes of a blind, so that the tapes effectively hide the cord apertures from ordinary view and the blind may be of conventional construction and have the neat appearance of present-day conventional blinds with non-removable slats.

Other objects and advantages will appear to those skilled in the art from the following, considered in conjunction with the accompanying drawings.

In the accompanying drawings, in which certain modes of carrying out the present invention are shown for illustrative purposes:

FIG. 1 is a front view of a Venetian blind with slats that embody the present invention;

FIG. 2 is an enlarged fragmentary section through the blind taken on the line 2—2 of FIG. 1;

FIG. 3 is a section taken on the line 3—3 of FIG. 2;

FIG. 4 is a fragmentary perspective view of the featured slat;

FIG. 5 is a fragmentary plan view of a slat blank at a certain stage of its formation into the finished slat;

FIGS. 6 and 7 are fragmentary sections through a tool in which the slat blank is subjected to a certain operation in its finish-formation;

FIG. 8 is a fragmentary section through the slat blank at a later stage of its finish-formation;

FIG. 9 is a fragmentary section through a tool in which the slat blank is further finish-formed;

FIG. 10 is a section taken on the line 10—10 of FIG. 9;

FIG. 11 is a perspective view, partly broken away, of a part of a Venetian blind with the featured slat;

FIG. 12 is a fragmentary plan view of a modified slat blank of the present invention; and

FIG. 13 is a fragmentary perspective view of the modified slat blank of FIG. 12 in its finished formation.

Referring to the drawings, and more particularly to FIGS. 1 to 3 thereof, the reference numeral 20 designates a Venetian blind having a top casing 22 with the usual tiltable bar 24 for ladder tapes 26 on the cross members 28 of which the slats 30 are supported. For tilting the slats 30 into various positions, the bar 24 is provided with the usual operating cords 32. Also provided in the top casing 22 are the usual guide rolls 34 and brake mechanism (not shown) for lift cords 36 which extend through slots 38 and 40 in the slats 30 and cross members 28 of the ladder tapes 26, respectively, and are at their lower ends secured to a bottom bar 42 to which the lower ends of the ladder tapes 26 are also attached. The blind 20 may be entirely conventional, with the exception of the slats 30.

The slats 30 are of removable type, and to this end are constructed in accordance with the present invention which features the normally closed apertures 38 in the slats into and from which the lift cords 36 may, nevertheless, be passed laterally. To this end, each slat blank *b*, in the form of an elongated leaf (FIG. 5), is at each contemplated passage of a lift cord provided with a slot

s having a branch *s'* longitudinally and substantially midway between the side edges **44** and **46** of the blank, and a transverse branch *s''* which leads from an intermediate length of the branch *s'* to the blank edge **44** and forms an exit from the branch *s'*. The portion *p* of the slat blank *b* which flanks the slot branch *s'* on one side thereof and extends to the blank edge **46** is then folded about the lines **48** and **50** into the superposed folds *f1*, *f2* and *f3* (FIG. 4). In doing so, the portions or flaps *p1* and *p2* of the slat blank *b* which flank the slot branch *s'* on the opposite side are brought into overlapping relation with each other, thus eliminating the initial slot branch *s''* and also shortening the other slot branch *s'* into the cord aperture **38** (FIG. 4). The cord aperture **38** is thus closed on all sides, yet a lift cord may laterally be passed thereinto and therefrom through the gap *g* between the flaps *p1* and *p2* on yielding them apart with one's fingers (FIG. 11). The slat blank is to this end of any suitable resiliently flexible material, preferably metal such as steel or aluminium. In thus passing the lift cords of a blind from the cord apertures of a slat through the gaps *g* therein (FIG. 11), the slat may be removed endwise from the ladder tapes of the blind. Conversely, the slat may be reassembled with the blind on returning it endwise into the ladder tapes and then passing the lift cords laterally into the slat apertures through the gaps *g*.

The slat blank *b* may be died from sheet stock which may have the characteristic transverse curvature of slats (FIGS. 2 and 4), with the slots *s* being punched in the blank in the same or a subsequent operation. The blank *b* may then be finish-formed into the slat **30** in any suitable manner. Thus, the blank *b* may releasably be gripped between companion holding members **52** and **54** by closing member **54** on member **52**, with the blank being with its transverse folding line **48** placed next to the bending edge **56** of the holding member **54**. This may be done without actually marking the blank, by backing the latter endwise against an adjustable stop, for example. Next, an associated tool member **58** may be moved from the position in FIG. 6 into that in FIG. 7 to prebend the blank *b* about the folding line **48**, whereupon the ascending leg of the blank may in any suitable manner, even by hand, be bent about the edge **60** of the member **58** into a position like or similar to the dot-and-dash line position of FIG. 7, with the bend in the blank at the tool edge **60** being along the folding line **50** of the blank by accordingly regulating the work stroke of the tool member **58** from the position in FIG. 6 to that in FIG. 7. The blank *b* thus prebent is then removed from the members **52**, **54** and **58**. These members **52**, **54** and **58** are shown as provided with operating pads **61** which are preferably of a softer material than metal, such as a suitable wear-resistant plastic, for example, so as not to mar the blank. The prebent blank *b* is then further bent, by hand or in a suitable tool, into the approximate **Z** shape in FIG. 8, whereupon it may be pressed into finish-shape between companion tool members **62** and **64** (FIGS. 9 and 10). The operating surfaces **66** and **68** of these tool members **62** and **64** are preferably curved (FIG. 10) so as to re-establish over the folded length of the blank the cross-sectional curvature of the latter, thereby achieving near-optimum planar continuity of the blank throughout and also closure of the overlapping blank flaps *p1* and *p2* on each other (FIG. 4). Furthermore, the tool members **62** and **64** close on the blank *b* preferably with such force that the folding edges of the folds *f1* to *f3* are sharply defined and the folds in mutual engagement in consequence, which also contributes toward preferred yielding closure of the overlapping blank flaps *p1* and *p2* on each other.

The slat blank *b* may be provided with a coat of paint,

as by spraying, for example, either in its form in FIG. 5 or after its finish-formation (FIG. 4). In this connection, it is advantageous to paint the blank in its form in FIG. 5 so that in the finished slat (FIG. 4) all surfaces thereof, including those of the folds *f1* to *f3*, have a coat of paint with no blank material showing anywhere. In this connection, the formation of numerous slats of the present invention has brought out the surprising fact that the paint coat on prepainted slat blanks will not be marred in any way and anywhere on folding slat lengths for the formation of the cord apertures.

The present featured slats are highly advantageous in that they permit their ready removal from and reassembly with a blind for purposes of arranging them in different colors or different color combinations as well as for their quick, convenient and frequent cleaning when temporarily removed, yet they have the neat appearance and also the advantages of cord apertures of conventional non-removable slats. Furthermore, the featured slats have a rigidity comparing favorably with that of conventional non-removable slats of the same stock gauges, owing to the stiffening of the slats at their folded lengths alongside the cord apertures therein.

While the slot branch *s''* in the slat blank *b* of FIG. 5 is of considerable width, the slot branch *sa''* in the modified slat blank *ba* is formed by merely slitting the blank thereat and, hence, is of minimum width. Scrap from the modified blank *ba* is thus reduced to a minimum. The modified blank *ba* is shown in FIG. 13 in its finished slat form **30***a*.

The invention may be carried out in other specific ways than those herein set forth without departing from the spirit and essential characteristics of the invention, and the present embodiments are, therefore, to be considered in all respects as illustrative and not restrictive, and all changes coming within the meaning and equivalency range of the appended claims are intended to be embraced therein.

What is claimed is:

1. A slat for a Venetian blind with lift cords, comprising an elongated leaf of resiliently flexible material having opposite side edges and longitudinally spaced slotted lengths providing cord apertures over said lengths and exit slots from intermediate lengths of said cord apertures to one side edge of the leaf, with each exit slot being defined by adjacent edges of first leaf portions flanking the remaining end lengths of the respective cord aperture and extending on one side of the latter to said one leaf edge, and with the other leaf portion flanking each cord aperture on the other side thereof being folded so that said first leaf portions are in overlapping relation to close the exit slot thereat.

2. A slat as set forth in claim 1, in which said leaf is of metal.

3. A slat as set forth in claim 1, in which said leaf has a coat of paint.

4. A slat as set forth in claim 1, in which said leaf is of metal and has a coat of paint.

5. A slat as set forth in claim 1, in which said first leaf portions are resiliently urged into engagement with each other.

6. A slat as set forth in claim 1, in which the folds of said other leaf portions are in engagement with each other.

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