Aug. 4, 1925.

1,548,523

J. FRIEND

SLAT BLIND

Filed July 31, 1923

2 Sheets-Sheet 1

Fig. 1

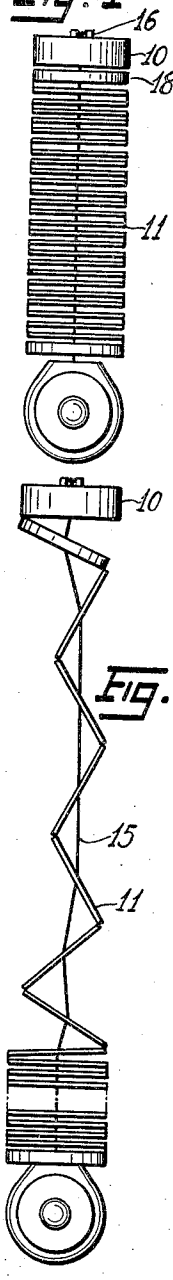


Fig. 2

Fig. 3

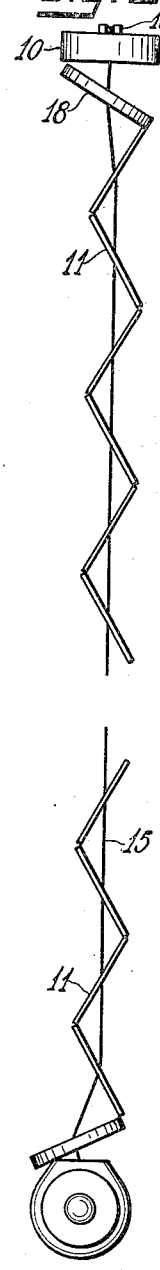
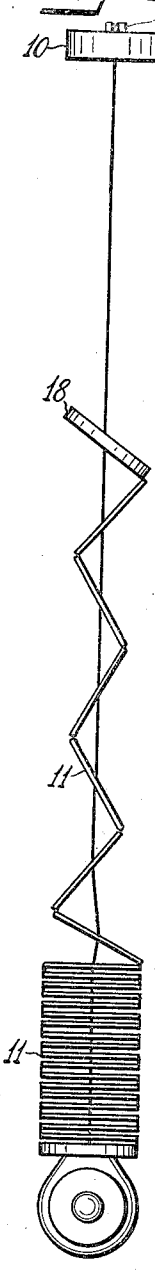


Fig. 4



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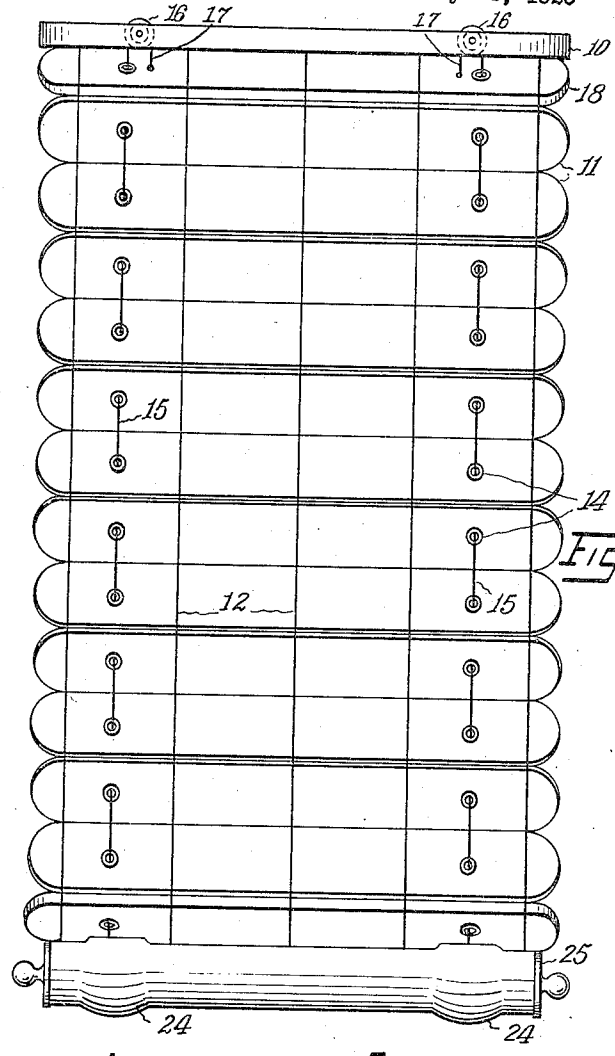
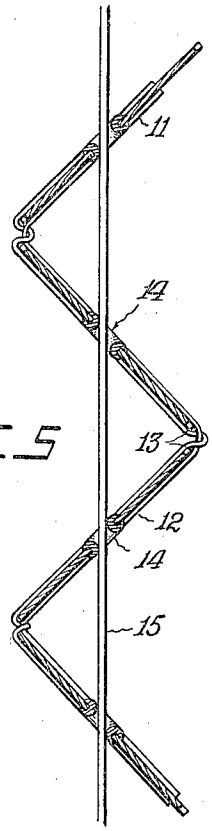


Fig. 5

Fig. 8



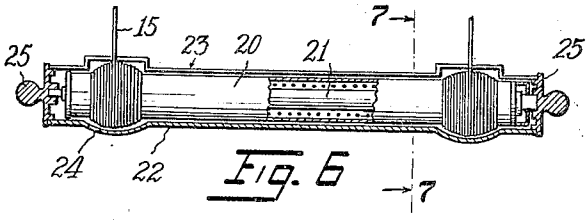


Fig. 6

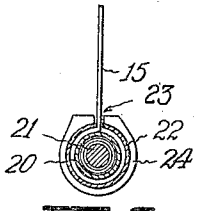


Fig. 7

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Patented Aug. 4, 1925. 1,548,523

UNITED STATES PATENT OFFICE.

JOHN FRIEND, OF COOGEE, NEAR SYDNEY, NEW SOUTH WALES, AUSTRALIA.

SLAT BLIND.

Application filed July 31, 1923. Serial No. 654,802.

To all whom it may concern:

Be it known that I, JOHN FRIEND, subject of the King of Great Britain, residing at 31 Carr Street, Coogee, near Sydney, New South Wales, Australia, have invented certain new and useful Improvements in Slat Blinds, of which the following is a specification.

This invention relates to slat blinds for windows and the like.

It consists in a novel method of suspending the slats in such blinds, in which method a spring roller is located below the lowermost slat and suspension cords or flexible wires which are rolled on said spring roller pass through eyeletted holes in the slats and thence over sheaves fixed in the lintel, with the fall of each cord fastened to the top slat in the assembly.

The top slat is a stiff member and all the slats are "woven" together by means of two or more lines of cords or narrow tapes so that the slats may "pleat" to collapse and extend as the blind is drawn, the extension, however, being limited so that the slats in the extended position always take up a zigzag position, thus offering a new characteristic in the appearance of the blind which differentiates it from known types of slat blinds in which the slats set in a single plane when the blind is extended.

The weaving cords are crossed or knotted at the joints between the slats and at the crossing or knotting point are inset in nicks in the slat edges, so that the slats, when in extended order, will set closely edge to edge, thus to provide an effective closure against sun rays. The spring roller is housed in a casing which forms a convenient hand grip, and with the enclosed roller serves as a weight on the bottom end of the blind which stretches the blind taut. The suspension cords are reeved through eyeletted holes; elliptical eyelets are used in order to diminish abrasion of the cords and incidentally to augment appearance. The eyelets are double flanged eyelets to offer an equally good appearance on either side of the blind.

In the accompanying drawings:—

Fig. 1 is a side elevational view of a blind according to the present invention, as it appears when raised and the slats collapsed;

Fig. 2 is a similar view showing the same blind partly drawn;

Fig. 3 is a similar view showing the same blind fully drawn;

Fig. 4 is a similar view showing the same blind fully drawn and the slats in the upper part of it moved downward and pleated, thus to offer free ventilation space at the upper part of a window or the like, with a complete closure below such ventilation space;

Fig. 5 is a frontal elevation of the blind corresponding with Fig. 3;

Fig. 6 is a sectional elevation of the spring roller and housing;

Fig. 7 is a transverse section on the line 7—7 Fig. 6; and

Fig. 8 is a fragmentary section in full size, being an enlargement of the proportion adopted in the earlier figures indicating the angular setting of the slats when the blind is extended.

The lintel 10 is fixed on brackets or screwed up directly to the head of a window frame or to the fascia of a balcony or the like, or to any other support below which the blind is required to hang. The slats 11 when constructed of wood are made thinner than the conventional Venetian blind slats and of lesser width. I do not restrict myself to any particular proportions for the slats but I observe that a blind constructed of slats the full width of which is about two inches has a characteristic elegant appearance, particularly when constructed with wood slats finished in the natural tones of the wood used. Particularly when intended for use in exposed situations these blinds may be constructed of slats of metal instead of slats of wood. To augment stiffness the slats when constructed of metal may be curved or corrugated transversely of their length, the curves or corrugations as the case may be being disposed so that the slats will nest closely together when the blind is pleated closed. The metal slats are finished by enamelling. The slats are bound together by an appropriate number of warp cords or tapes 12, the slats forming in effect wefts in the weave which is produced by crossing and preferably knotting the pairs of warp or binder cords or tapes 12 at the crossing points. An indentation 13 is made in the edge of each slat to accommodate the knot or twist of the warp cords or tapes. This is seen in Fig. 8, where however, a simple crossing of warp cords 12 only is shown. It is to be understood that knotting is preferred to mere crossing or twisting of the cords, but that for the purpose of the pres-

ent invention it is immaterial whether crossing or knotting is adopted.

The warps 12 bind the complete assembly of slats edge to edge, so that the assembly may be collapsed in the manner indicated in Fig. 1, and may be extended for any desired portion of the length of the blind or for the whole length of the blind, as is indicated respectively in Figs. 4 and 3. Each slat has fixed in it two or more eyelets 14 symmetrically disposed to accommodate the suspension cords or flexible wires 15. Two such suspension cords or wires 15 are shown in Fig. 5, but it is to be understood that, according to the width of the blind, three or more suspension cords or wires such as 15 may be used. The eyelets 14 may be circular but are preferably elliptical with the major diameter transverse of the slot so as to offer full clearance for the run of the suspension cords 15, and minimize abrasion of the cords. The top end of each suspension cord or wire 15 is carried over a sheave 16 fixed in the lintel 10, and the fall 17 of each such cord or wire is fixed to the top slat 18 as seen in Fig. 5. The end of the fall may be secured by knotting it under the hole in the top slat 18 through which it passes. It is preferred that the top slat 18 should be of substantial thickness in order to withstand the special stress applied to it by reason of the connection of the falls 17. At the lower end each suspension line 15 is carried over the barrel 20 of a spring roller 21 of the well known roller blind type. This spring roller is housed in a casing 22 preferably formed of sheet aluminum slotted along the top edge as shown at 23; such a casing may be readily formed by pressing up a flat sheet, clearance spaces 24 being provided to accommodate the reels 25 of the suspension cords 15 in appropriate position. The blind roller centres, with the usual attachments are carried in the end caps 25, which caps are adapted to embrace the ends of the housing casing 23 in which the blind roller is secreted; the suspension cords 15 run through the slot 23 in the top of the casing 22.

By a little dexterous manipulation, similar to that necessary in operating the well known spring roller blind, the roller 21 is freed or locked as the case may be; when the blind is extended, the usual manipulation is practised to cause the roller pawl to engage and hold the roller fixed. The blind will then hang, as for instance in the manner shown in Fig. 5. To raise the blind, the pawl is released by the usual movement, and the blind allowed to collapse upwardly, the suspension cords 15 then rolling on to the barrel 20; the slats, one by one, pleat back as indicated in Fig. 2 until ultimately the whole assembly is pleated up and forms the closed arrangement shown in Fig. 1.

The blind may be drawn down to any desired extent as indicated in Fig. 2; the slats will, when the blind is so drawn, extend in order from the top downwards as shown in that figure, and in the reverse movement will close reversely, the top being the last to pleat. When the blind is more or less extended and it is required to provide free ventilation at the upper part, the roller casing 22 is held in one hand and pressure being then applied to the top carrier slat 18 or to any of the intermediate slats the falls 17 of the suspension cords 15 and the slats will pleat in order, leaving the blind arranged as shown in Fig. 4. When the release movement is performed, the whole assembly will run up to full closed position indicated in Fig. 1.

By the arrangement in which the spring roller is associated with the bottom end of the blind instead of as usual being set above the blind and utilized to suspend the blind, a great advantage is obtained. A steadying weight is provided to hold the blind extended and facility is offered without the addition of any mechanism for permitting the lowering of the blind from the top slat downward so as to offer top ventilation.

The arrangement according to which zig-zag extension of the slats is obtained, offering entirely novel appearance and great lateral rigidity, is also a leading feature of the invention. The length of the suspension cords 15 is proportioned to allow for the full extension of the blind but not sufficiently to allow the slats to set in plane. The friction of the running cords 15 in the eyelets 14 is an important element in the invention inasmuch as this friction functions to resist the straightening of the slats into plane whilst the blind is in full extended position, as, for instance in Fig. 3.

The rolled rims of the eyelets dimish abrasion of the suspension cords or wires and the eyelets offer a desirable feature in that they improve the general appearance which the blind would otherwise offer, and prevent mechanical injury which would otherwise soon show itself as wear, if the suspension cords were, as in the case of Venetian blinds, run through punched holes in the wooden slats.

What I claim as my invention and desire to secure by Letters Patent is:—

A blind constructed of relatively narrow separate light slats of wood or metal having eyeletted holes, cords or wires crossed at the joints between said slats so as to weave said slats together to fold in zig-zag pleats when extended, a casing suspended at the bottom end of said blind, a spring roller secreted in said casing, flexible suspension elements rolled over said spring roller and reeved to and fro through said eyeletted holes in the slats, and sheaves

mounted on a lintel and having said flexible suspension elements passed thereover with the top ends of said flexible suspension elements fixed to the top slat of the blind, thereby to permit the blind to be raised or lowered by means of said spring roller to offer an unobstructed window space below the blind and also to permit the top slats to be pleated downwardly to give a clear space for free ventilation above the closed portion of the blind.

In testimony whereof I affix my signature.

JOHN FRIEND.