

UNITED STATES PATENT OFFICE.

ALEXANDER FRIEDERICH TÜMLER, OF HAMBURG, GERMANY.

VENETIAN BLIND.

SPECIFICATION forming part of Letters Patent No. 723,762, dated March 24, 1903.

Application filed March 17, 1902. Serial No. 98,620. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER FRIEDERICH TÜMLER, a subject of the German Emperor, and a resident of Hamburg, in the German Empire, have invented certain new and useful Improvements Relating to Venetian Blinds, of which the following is a specification.

This invention relates to Venetian blinds, and has for its object to provide an improved form of tape for supporting the laths in position.

As is well known, Venetian-blind tapes as heretofore constructed consist of two vertical tapes having a number of small cross-pieces or cross-tapes joining said vertical tapes together in the form of a ladder, such cross-tapes being adapted to support the laths of the blind, one of the vertical tapes forming the supporting or bearing tape proper, and the other forming the adjusting-tape for adjusting by its being raised or lowered the position of the laths resting upon or between the cross-tapes. The tapes are preferably made of hemp, flax, and the like.

Hitherto the cross-tapes have been secured to the two depending tapes in such a manner that the supporting-surface of the cross-tapes carrying the laths extends right across from one to the other of the depending tapes, or the laths may repose loose upon or between the cross-tapes and slide when set on edge against the vertical adjusting-tape. These arrangements have the disadvantage that the lower part of such blind cannot be properly closed, as the bearing-tape is stretched by the weight of the laths, while the adjusting-tape remains more or less unstretched or may even become shortened when exposed to rain, &c., owing to its being the outermost tape. In consequence of this stretching of one tape and shortening of the other the two points of attachment for the cross-tape on the said depending tapes become displaced relatively to each other and the attachment-points of the bearing-tape move gradually down, so that the distances between the said attachment-points slightly increase from the top to the bottom or foot of the blind, while the distances between the attachment-points of the adjusting-tape remain practically unaltered or even become shortened in some cases by the influ-

ence of rain, moist, &c. In this manner the cross-tapes and the laths carried by them are caused to leave toward the foot or bottom of the blind their upright position and to assume a gradually-inclined position, in which the laths no longer close.

The object of this invention is to obviate these defects by providing or intercalating between the adjusting-tape and the adjoining ends of the cross-tapes, made, preferably, in the form of loops adapted to prevent the laths from sliding, a flexible intermediate connecting-piece.

In order that my invention may be more fully understood, I shall now proceed to describe the same in detail with reference to the accompanying drawings, in which—

Figure 1 is a vertical cross-section of a Venetian blind made in accordance with and embodying my invention. Fig. 2 is a front view of a part of the improved Venetian blind. The adjusting-tape is partly broken away to show the arrangement of the cross-tapes. Fig. 3 is an enlarged detailed edge view of a loop-shaped cross-tape.

Similar letters refer to similar parts throughout the several views.

The inner edge of the top plate *a* of the blind is connected with the inner edge of the blind bottom plate *b* by the bearing tape or tapes *c*. To the front edge of the bottom plate *b* is attached the adjusting-tape *d*, preferably two or more of such adjusting-tapes being provided. To the upper end of the tape *d* a cord *d'* is attached, passing over a grooved guide-roller *d''*, mounted in a slot of the top plate.

The tapes *c* and *d* are connected by a series of loop-shaped cross-tapes *e f*, arranged a proper distance apart. Between the adjusting-tape *d* and the adjoining ends of the loop-shaped cross-tapes are provided or intercalated flexible intermediate connecting-pieces *e'*. In Fig. 3 I have shown a preferred form of such cross-tape. According to this example the loop is formed by two cross-tapes *e* and *f*, placed upon each other and connected at the proper places in any suitable manner, the lower cross or connecting tape *e* being somewhat greater in length, and it is the prolongation *e'* that forms the flexible intermediate connecting-piece.

The blind-laths or blind-slats *g* are located or placed in the loops formed by the cross-tapes *e f*, as this is evident from the drawings. A raising-cord *h* may in well-known manner be fixed to the bottom plate *b* and passed through holes or slots in the laths or slats *g* and then lead over a guide-roller *h'*, mounted in a slot of the top plate *a*. Two or more of these well-known blind-raising devices may be provided.

I prefer to arrange the cross-tapes *e f e'* alternately at both sides of the raising-cord *h*, so that in each double tape two rows of cross-tapes are formed, between which the raising-cord passes along, as this is obvious from Fig. 2 without further explanation.

For facilitating the introduction or inserting of the blind-slats into the loops of the cross-tapes it is advisable to make the cross-tapes proper forming such loop of different breadths. In the example shown (see Fig. 2) the cross-tape *e e'* is of somewhat-greater breadth than the cross-tape *f*, so that the loop formed by such tapes can be more easily opened than a loop formed by tapes having an equal breadth.

In the above-described improved blind the alteration in the lengths of the tapes (bearing-tape and adjusting-tape) cannot affect the closing position of the slats, as the said intermediate pieces *e'* compensate for such alteration. In some cases such flexible intermediate connecting-pieces may be pro-

vided also at the other end of the cross-tapes—that is to say, between the latter and the bearing-tape—although in all ordinary cases the last-mentioned intermediate pieces are not necessary.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A Venetian blind comprising bearing-tapes, adjusting-tapes, slats between the bearing and adjusting tapes, and loops, one end of each of which is directly secured to a tape, and a flexible connection between the other end of each loop and a tape, said slats supported in the loops, for the purpose set forth.

2. In a Venetian blind, the combination with the supporting-blade, a bottom plate *b*, bearing-tapes fixed to the supporting-plate and to one edge of the bottom plate, rollers journaled in the supporting-plate, adjusting-tapes secured to the opposite edge of said bottom plate and mounted on said rollers, lifting-cords secured to the bottom plate, slat-loops *f* each connected at one end directly to a bearing-tape, and a flexible connection *e'* connecting the other end of each loop to an adjusting-tape and slats mounted in said loops, for the purpose set forth.

ALEXANDER FRIEDERICH TÜMLER.

Witnesses:

MAX LEMCKE,
OTTO W. HELLMRICH.