

Feb. 12, 1952

G. F. FRENCH ET AL
CURTAIN HEADING TAPE

2,585,759

Filed Sept. 28, 1949

2 SHEETS—SHEET 1

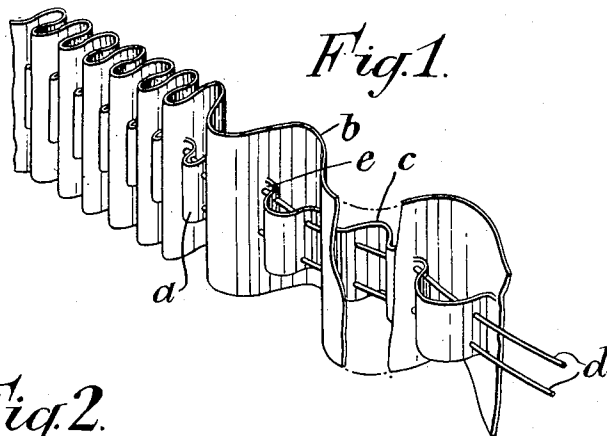
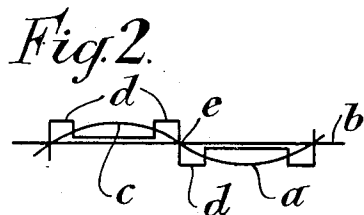
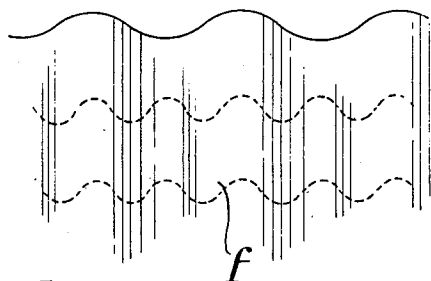
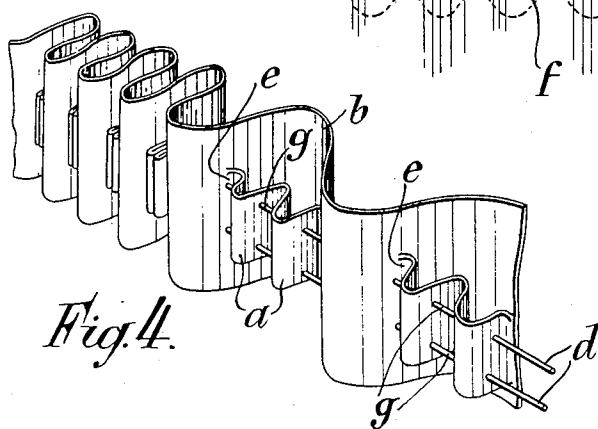


Fig. 3.



Inventors
George Frederick French
Roger French
by *Pennet, Edmonds, Morton and Parsons*
Attorneys

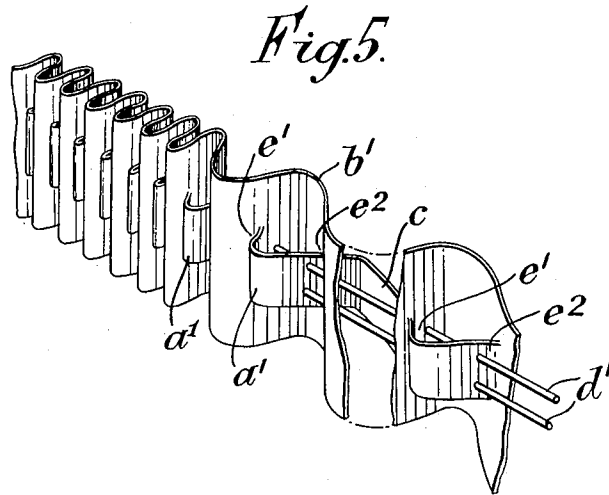
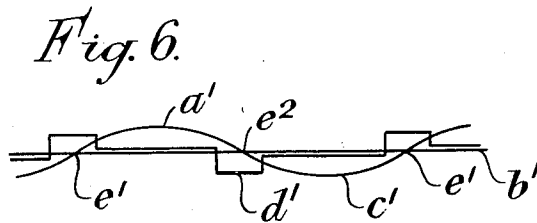
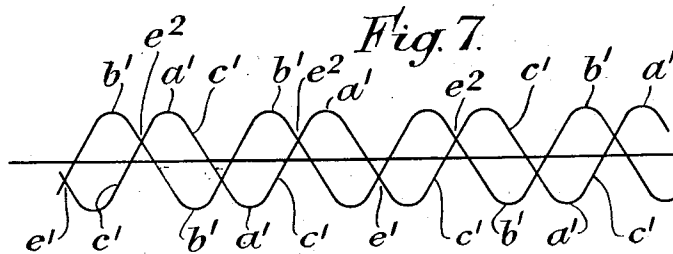
Feb. 12, 1952

G. F. FRENCH ET AL
CURTAIN HEADING TAPE

2,585,759

Filed Sept. 28, 1949

2 SHEETS—SHEET 2



Inventors
George Frederick French
Roger French
by
Penne, Edmonds, Morton and Parsons
Attorneys

UNITED STATES PATENT OFFICE

2,585,759

CURTAIN HEADING TAPE

George Frederick French and Roger French,
Manchester, EnglandApplication September 28, 1949, Serial No. 118,218.
In Great Britain October 4, 1948

3 Claims. (Cl. 139—387)

1

This invention relates to curtain heading tapes of the kind comprising a main tape and at least one second and narrower tape joined to the main tape at intervals by interweaving to form hook tubes, and having draw cords for pleating the tape, and is an improvement in, or development of, earlier known constructions and in particular but not exclusively of the four known constructions described later.

In the first of the four aforesaid known constructions the hook tubes are on one side only of the body or wider tape proper, by the edges of which the tape is adapted to be sewn to the curtain so as to leave the selvages of the narrower tape openable as tubes for the insertion of curtain suspension hooks. In this arrangement the draw cords are interlaced with the hook tubes by being brought forward through, and taken back through, the front wall of each tube, but not through the tape proper, so as to control the pleating with the tubes located in and across the pleat channels and holding the front wall of each hook tube back into the pleat channel so that a curtain suspension hook will more naturally and easily be inserted behind the cords. Such construction also brings the hook nearer to the plane of the curtain and therefore assists in holding up the head or top of the curtain above the tape. Another advantage of such construction is that short portions of the draw cords are visible at the front of the tape but such portions of the draw cords, while making their presence obvious, are so short as not to invite their use for the insertion of the hook, a use which would be liable at least to displace the pleating, and so that when used with a pleat-fixing hook, such as are adapted to hold the cord in crimped shape, the pleating can be fixed by the hook. The passage of the draw cord through the front of the hook tube, also helps by friction to hold the pleating against displacement when drawing the curtains to-and-fro. Such heading tape is not reversible and can be mistakenly sewn on back-to-front on the curtain as has sometimes happened.

In the second of the four aforesaid earlier known constructions there is a tape having hook tubes alternately on the ridges and across the pleat channels of the main tape. In such construction it was also suggested that the hook tubes could be on both faces of the main tape, so that the tape would be reversible, but no details were ever disclosed. A printed publication, while showing the draw cords through

2

the hook tubes which were in and across the valleys of the pleating, did not describe how this could be done on both faces. In fact there was later found to be a problem as to how to arrange the draw cords during weaving in order to obtain the desired pleating and pocket formation at each side. Such reversible form was therefore never made.

In the third of the four aforesaid earlier known constructions the draw cord or cords pass through tubular loops constructed to receive the hooks and in such known construction there was also suggested a tape with tubular loops on each face of the main tape in alternating arrangement. The draw cords in such construction do not however pass into and out of the faces of the loops which are distinct from the single thickness hook tubes of the first two constructions above described.

In the last of the four aforesaid earlier known constructions there is a fully reversible pleating tape, with the hook tubes in some cases at spaced intervals and in alternating relation on the opposite faces of the main tape, but the problem of the location of the draw cords was solved only by passing them through the lines of junction of the hook tubes to the main tape, and neither through the main tape nor through the fronts of the hook tubes at all, so that the draw cords are invisible from either the front or the back face of the tape. This arrangement of the draw cords also does not lend itself so readily to the use of the pleat-fixing hooks described earlier, though it did provide a tape which was truly reversible. In order that such pleat-fixing hooks may be effective they must be passed behind the draw cord or cords as well as behind the front wall of the hook tube and the tape made according to this construction did not sufficiently preclude wrong insertion of such hooks. Also, complaints were often mistakenly made that there were no draw cords, because they were not visible at the front or back.

It has been found by experience that the original curtain tape of the first earlier known construction aforesaid gave a better pleating appearance and pleating control than that of the last described earlier known construction and also a better pocket for the natural and correct insertion of the hooks behind the cords, while, because the cords are visible no complaints were received alleging the absence of pleating cords. Such original heading tape is not reversible, and can be mistakenly sewn on back-

3

to-front on the curtain as has sometimes happened.

The object of the present invention is to provide a tape of the kind aforesaid having the advantages of superior hook tube formation with visibility of the draw cords of the first mentioned earlier known construction and being at the same time fully reversible so that it cannot inadvertently be sewn on back-to-front.

According to the invention the improved curtain heading tape comprises a main tape and a second and narrower tape joined to the main tape by interweaving to form hook tubes arranged at spaced intervals on the front and back faces of the main tape in alternate relation, and with at least one draw cord passing backwards and forwards through the main tape and at least once through the front of each such hook tube.

According to one embodiment of the invention the improved curtain heading tape comprises a main tape and an inter-woven second and narrower tape forming hook tubes arranged at spaced intervals on each side of the main tape in alternating relation and with a draw cord or cords passing through the main tape at the root of each hook tube and into and out of the front wall of each hook tube close to each root thereof, whereby such hook tubes lie in and across the channels of the pleats in the main tape with the front of each hook tube held back by the draw cord or cords into the said channel and with short portions of the cord visible on each hook tube face indicating that they are for pleating the curtain, but of such short length as not to invite the use of such cords for receiving curtain suspension hooks.

The expression "in and across a channel of a pleat" as used herein to describe the location of a hook tube means an arrangement wherein the centre of the hook tube stands out away from the channel at least in part in front of the draw cord with the roots of each hook tube springing from within a channel.

According to a second and preferred embodiment of the invention each draw cord passes backward and forward through the main tape near each root of each hook tube and once only intermediately through each hook tube so as to form a short bridge across the root of one end of each hook tube with the main tape.

Compared with the construction of the first embodiment above described it is obvious that each cord passes only once, instead of twice, through each hook tube with advantageous reduction of resistance to drawing of the cord, which resistance, where certain colours or dyes were used, was found to be undesirably high, and higher than in the first earlier known construction aforesaid.

In the drawing accompanying this specification:

Fig. 1 is a perspective view showing one example of the first embodiment of the improved curtain tape made in accordance with the invention;

Fig. 2 is a cross section of the tape showing the shedding arrangement for the lifting and sinking of the draw cord;

Fig. 3 shows the front of part of a curtain pleated with the tape of Fig. 1;

Fig. 4 shows a modified form of tape made according to the invention;

Fig. 5 is a perspective view showing one example of the second embodiment of curtain tape made in accordance with the invention;

4

Fig. 6 is a cross section of the tape showing the shedding arrangement for the lifting and sinking of the draw cord;

Fig. 7 is an edge view showing the staggered pleating effect with this modified construction, the cords being shown in their natural or straight form.

As shown in Figs. 1 to 4 of the drawings the shedding of the warp threads is such that the warps which form the front hook tubes *a* are, in the interval between the hook tubes, woven integral with the selvedge warps forming the main tape *b* to form the back of the rear hook tubes *c*. Similarly on the other side of the tape the warp threads forming the rear hook tubes *c* are in the interval between the pockets, woven integral with the selvedge warps and form the back of the front hook tubes *a*. The shedding is so arranged that during the formation of hook tubes on the underside of the tape the selvedge warps are lifted to the same plane as the upper hook tube warps and are woven integral with same. Simultaneously the under hook tube is formed by the weaving of the under hook tube warp threads with the weft in the lower plane.

To form the consecutive hook tube on the upper face of the tape, the shedding is changed so that the selvedge warps are lowered to the same plane as the under hook tube warps and are woven integral with same. Simultaneously the upper hook tube is formed by weaving the face hook tube warp threads with the weft in the upper plane. Two shuttles only are required for each tape.

During weaving, the draw cords *d* are arranged for shedding as shown in Fig. 2 so as to pass through on the root lines *e* of the hook tubes from one side to the other simultaneously with the change of shedding of warps for the hook tubes, and again into and out of the front of each hook tube. The expression "selvedge warps" is used to describe those warps which lie only above and below the narrower tape forming the hook tubes and which form the margins as it were of the pleating tape.

In another example of the invention, the hook tube warp threads are taken through the main tape from one side to the other instead of interchanging with other warp threads in the main tape.

Thus, as can be seen from Fig. 1, when the tape is pleated by means of the draw cords, there is a hook tube in each channel of the pleating and each such hook tube springs from within the pleat and has its front held back into the channel by reason of the cords passing through its front. The formation on each face is identical so that, while it is possible to obtain the better pocket formation of the tape of the first aforesaid earlier known construction it is also possible to have a tape which is completely and absolutely reversible so that it does not matter which way the tape is stitched to the curtain. There is no specified front, back, top or bottom. Moreover a perfectly uniform pleating of the tape selvedge, (i. e. the portion of the main tape above and below the hook tubes), is obtainable which results in more uniform and pleasing pleating of the curtain to which it is attached. The pleating is deeper than the hook tubes so that the hooks are brought as nearly as possible into the plane of the curtain which results in holding the head of the curtain upright and reduces the tendency for such head to fall over away from the hooks.

Another advantage which assists in such holding

5

of the curtain head is due to the secondary pleats or corrugations formed at *f* (see Fig. 3) in the curtain material due to the outstanding hook tubes at the back of the tape, which extra corrugations of the curtain give additional stiffness. The appearance of short portions of the draw cords on the faces of the hook tubes makes their presence evident, but they are of such short length as not to invite the use of such cords for receiving the curtain suspension hooks.

The length of the hook tubes from root to root and the depth of pleating is of course determined by the repeat number of picks between the shedding operations. Thus as shown in Fig. 4 the tape is formed with longer hook tubes giving deeper pleating, and in order that the front of the hook tubes may be held back to the line of the cords, and so that only short lengths of the cords are visible or located behind the hook tubes, the cords are brought through and taken back through the hook tubes at their centres to be visible at *g* as well as where they come through before being taken back to the other side of the tape so that the draw cords show three lines on each hook tube face. Such tape would be suitable for heavy curtain fabrics which call for larger pleats, whilst having all the advantages of the first described example.

In the example of the invention shown in Figs. 5, 6 and 7, each draw cord *d'* considered from the left hand end of Fig. 6, after coming through the main tape *b'* near the left root *e'* of the hook tube *a'*, passes through the front of such hook tube at a point equally distant from such root and the short portion of the cord thus visible at the face of the tape thus bridges the said root. The cord then continues within the hook tube *a'* until near the other root *e²* thereof when it passes through the main tape to appear on the other side just before such root *e²* of the other hook tube *c'* which it enters to form a short bridge across such other root *e²*. The cord continues within such hook tube *c'* to a point near the next root *e'* at the other end of the said hook tube *c'* when it passes through the main tape to complete the cycle of weaving or the "repeat pattern."

Considered from the aspect of weaving, each cord *d'* is lifted through the main tape *b'* a few picks prior to the commencement at *e'* of weaving of the hook tube *a'*, and held in this position for a similar number of picks before passing through the hook tube front *a'* to between such front and the main tape. From this central position the cord is sunk through the main tape a few picks prior to the completion at *e²* of the aforesaid hook tube, such cord appearing on the back of the main tape for a few picks after the commencement at *e²* of weaving of the hook tube *c'* when it is lifted again to the central position where it remains until lifted through the main tape, thereby completing the repeat.

By this novel arrangement, for a given size of hook tube, or repeat, each draw cord passes through the fabric a less number of times than in the first described example. At the same time each draw cord only makes half the number of appearances at each face of the main tape, but this is ample to ensure that its presence is obvious without inviting the use of such short visible lengths for the insertion of curtain hooks. Again, the curtain tape pleats easily and symmetrically but when viewed on edge the ripple or wave form of the hook tube fronts are

6

slightly staggered, i. e. not at 180 degree phase with that of the main tape. Both roots of each hook tube front are held into the channel of the pleat of the main tape, one end being relatively below the line of the draw cord and the other end above such line. Although each cord thus passes across and through the hook tubes its passage through the main tape is in phase with the ripple or wave form of the main tape and as such ripple or wave form of the main tape acts as a natural guide and base when inserting a hook, the hook more readily tends to pass as desired behind the cords in spite of such "out of phase" relation of the actual hook tube fronts.

The invention is obviously not limited to the details of the examples above described in so far as they may be modified without departing from the nature of the invention. For example, the hook tubes could be arranged at a wider spacing with areas between them having no hook tubes, or may be arranged in multiples of two or more on each side alternately, or the pockets on one side could be larger than the pockets on the other side so that the one tape could be most effectively used for either heavy or light fabrics or for the effect desired by selecting which face of the tape shall be secured to the fabric.

What we claim is:

1. A curtain heading tape comprising a main tape and at least one second and narrower tape joined to the main tape at intervals by interweaving to form hook tubes arranged at spaced intervals on the front and back faces of the main tape with the ends of each such hook tube on one side of the main tape contiguous with the ends of the hook tubes on the other side thereof in alternate relation and with at least one draw cord passing backwards and forwards through the main tape and, immediately after each such passage, at least once through the front of one such hook tube, all hook tubes on one side of the main tape being pierced symmetrically by said draw cord and all hook tubes on the other side of the main tape being pierced equally symmetrically by said draw cord.

2. A curtain heading tape according to claim 1 characterized in that the draw cord passes through the main tape at the junction points of the narrow tape and the main tape and, on each side of the main tape, into and out of each hook tube section of the narrow tape close to the junction points at the ends of each such section of the narrow tape.

3. A curtain heading tape according to claim 1 characterized in that the draw cord passes backward and forward through the main tape at points near the junction points of the narrow tape and the main tape and once only immediately through each hook tube section of the narrow tape so as to form a short bridge across each junction point of the narrow tape and the main tape.

GEORGE FREDERICK FRENCH.
ROGER FRENCH.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,288,397	French	June 30, 1942
2,518,301	French et al.	Aug. 8, 1950