The object of my invention is to produce a woven tape or ribbon of indefinite length containing button-holes which are formed solely by the interweaving of the warp and weft and which are also finished, solely by the weaving process, to simulate button-holes which are formed by cutting and sewing.

A preferred embodiment of the invention is shown in the drawing, is which—

Fig. 1 is a plan view of the tape as it appears to the eye.

Fig. 2 is an enlarged detail view illustrating the novel means of interlacing the threads to form the tape.

In the weaving of the fabric there is utilized a set of warp threads which extend longitudinally of the fabric and a plurality of (preferably two) weft or filler threads a and b which extend transversely of the fabric.

In the formation of the main body of the tape the two warp threads a and b both extend entirely across all the warp threads, interweaving therewith in any ordinary way, as by a one-and-one weave. In the embodiment shown, one warp thread a is thrown across the shed in one direction. Then the warp threads are reversed and the other warp thread b is thrown across the warp shed in the same direction. Then the warp threads are again reversed and the weft thread a is thrown across the warp shed in the opposite direction. Then the warp threads are again reversed and the weft thread b is thrown across the warp shed in the latter direction. Thereby a repeat is formed.

This operation continues until just within a few shots of weft (preferably four shots) prior to starting the formation of one end of the button-hole. For convenience, the warp threads, in the following description, are designated c, d and e and e', a and a' representing the middle warp threads which are intended to extend along opposite sides of the button-hole and c and d representing the warp threads between the middle warp threads and opposite longitudinal edges of the fabric and which are or may be always interwoven with weft threads in substantially the same way throughout the length of the tape.

The shots of weft which immediately precede the formation of the button-hole do not interweave with the middle warp threads c and c', but float over them. Thus, in successive warp threads, weft thread b floats over and then under warp threads e and e' and weft thread a floats over and then under warp threads e and e'. This operation forms imitation cross-stitches y at the end of the button-hole, the appearance being best illustrated in Fig. 1.

Beyond the above described floats, weft thread a interweaves with warp threads c and e and weft thread b interweaves with warp threads d and e', thereby forming two separate longitudinally extending fabrics on opposite sides of the longitudinal center of the tape. By imposing suitable tension upon the weft threads in a direction away from the longitudinal center toward opposite longitudinal edges, the two fabrics are pulled apart to form a longitudinally extending central opening constituting the button-hole.

The manipulation of the threads at the other end of the button-hole to float the weft threads over the central warp threads e and e' and then interweave both weft threads with all the warp threads to form a new length of body fabric will be understood from the foregoing description.

A section of tape containing one button-hole, as it appears to the eye, is illustrated in Fig. 1, wherein w is the body of the fabric, y the floating threads at the ends of the button-hole, s the closely associated warp threads along opposite sides of the button-hole, and w the button-hole.

The number of warp threads which are closely associated along the longitudinal margins of the button-holes, the number of shots of weft which are floated, and the number of warp threads over which the weft threads float, are, of course, susceptible to variation. Nor is it necessary to limit the number of warp threads to two or to adhere to any other specific feature above described (except so far as any such features may be
specified in the claims); the embodiment shown being one which is preferred because of its simplicity.

Having now fully described my invention, what I claim and desire to protect by Letters Patent is:

1. A woven button-hole tape having elongated button-holes extending in the direction of the warp threads comprising two sets of warp threads extending respectively along opposite sides of the tape, and two weft threads, both weft threads being interwoven with both sets of warp threads to form the body of the fabric between button-holes, and one weft thread being interwoven with only one set of warp threads and the other weft thread being interwoven with only the other set of warp threads to form a button-hole, each weft thread extending from an edge of a button-hole to the corresponding edge of the tape in each pick involved in the formation of a button-hole, whereby the tape is of close weave both beyond and at the sides of the button-holes, the weft threads being floated over a limited number of central warp threads of both sets at the ends of each button-hole, the floats being substantially symmetrical with respect to the axis of a button-hole.

2. A woven button-hole tape having elongated button-holes extending in the direction of the warp threads comprising two sets of warp threads extending respectively along opposite sides of the tape, and two weft threads, both weft threads being interwoven with only one set of warp threads and the other weft thread being interwoven with only the other set of warp threads to form a button-hole, each weft thread extending from an edge of a button-hole to the corresponding edge of the tape in each pick involved in the formation of a button-hole, whereby the tape is of close weave both beyond and at the sides of the button-holes, each of the weft threads at the ends of each button-hole forming picks extending from an edge of the tape to points beyond the button-hole but short of the opposite edge of the tape and providing floats over a limited number of central warp threads of both sets.

In testimony of which invention, I have hereunto set my hand at Philadelphia, Pennsylvania, on this 25th day of September, 1930.

EDWIN M. GOLDSMITH.