

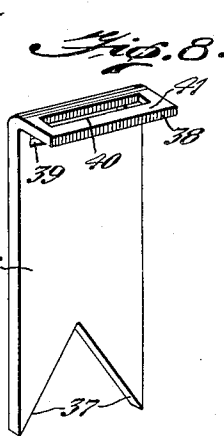
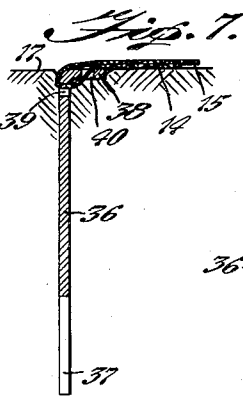
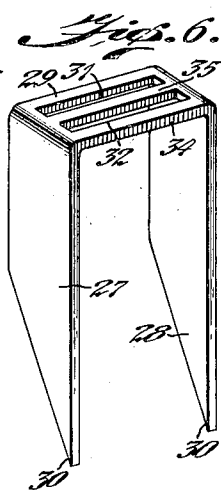
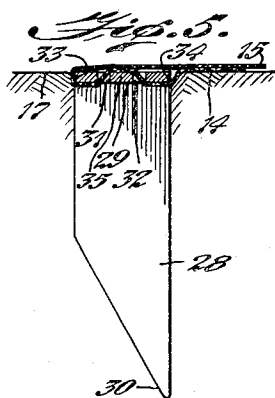
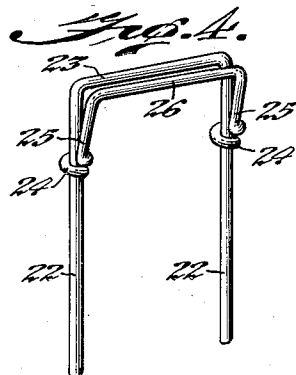
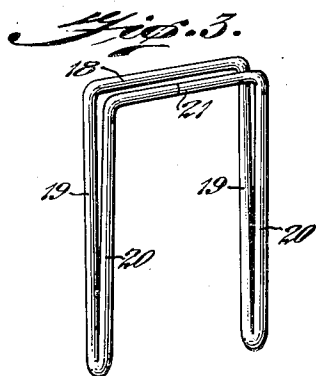
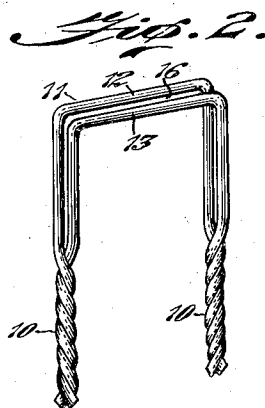
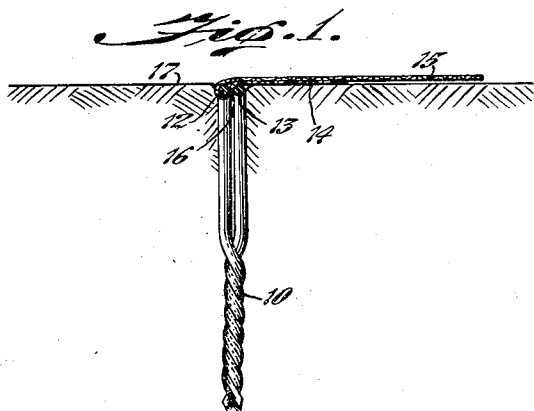
Dec. 4, 1934.

C. A. HORTON

1,983,373

TAPE FASTENER

Filed Jan. 30, 1932



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UNITED STATES PATENT OFFICE

1,983,373

TAPE FASTENER

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Application January 30, 1932, Serial No. 589,893

7 Claims. (Cl. 273-31)

This invention relates to a device for fastening tape or the like to the ground or to a surface and consists more particularly in an improved staple having structural features permitting the securing of the marker tape of tennis or like game courts without piercing the material thereof.

One object of the invention is to provide a simple, inexpensive device of the type specified having integral or associated means for effectually engaging fabric or like flexible tape and gripping the same tightly to prevent slackness in use, thus insuring permanent alinement of the tape on the court or other surface.

Another object of the invention is to provide an improved staple having means to permit the tightening of the tape in one direction without removing the staple from its anchorage.

Further objects of the invention are set forth in the following specification which describes several preferred embodiments of the device, by way of example, as illustrated by the accompanying drawing. In the drawing:

Fig. 1 is a vertical sectional view taken at the ground line of a tennis court and showing in elevation one embodiment of the improved staple with the end of a marker tape anchored thereby;

Fig. 2 is a perspective view in elevation of the staple shown in Fig. 1;

Fig. 3 is a perspective view showing a modified form of the staple;

Fig. 4 is a perspective view showing a further modified form;

Fig. 5 is a sectional view showing still another modified form of staple in use;

Fig. 6 is a perspective view of the staple shown in Fig. 5;

Fig. 7 is a sectional view of a further modified form of the staple showing it in use; and

Fig. 8 is a perspective view of the staple illustrated in Fig. 7.

The present improved staple is especially adapted for securing the ends of flexible tapes such as are used for tennis court markers and like purposes and is so constructed that the tape may be firmly gripped without piercing its material. It is to be understood, however, that the present improved staple may be applied to uses other than herein specified, that is for fastening the ends of bands or tape other than game markers.

The customary manner of securing flexible tape markers or the like to the ground is to provide grommets in the body of the tape for receiving nails or spikes driven therethrough. In addition to the expense of inserting the grommets in such tapes there is another very serious disadvantage in their use due to shrinkage and stretch caused by varying weather conditions and the strenuous action thereon by the players. Tennis marker tapes are ordinarily made of cotton and when exposed to weather changes they are subjected to considerable shrinkage and stretch and hence the strain on the grommets causes weakening of the tape at such portions. In fact, it is this difficulty that affects the life of the present day court tape markers. When weakened the tape soon becomes loose, displaced out of proper alinement and constitutes a danger to the players.

The present novel staple or fastener described herein eliminates entirely the use of grommets in the tape and insures a grip on its ends that utilizes the maximum strength of the tape. In accordance with the present invention the staple is designed to provide a positive grip on the tape which is practically secure against the creation of slackness due to the activity of the players. Moreover, when slackness does occur by reason of climatic conditions and the aging of the tape, it requires no tool or expert service to draw the tape taut and replace it in perfect alinement without removing the staple from the ground. That is to say, the novel design of the improved staple provides for gripping the tape securely against pull in one direction while permitting the same to be pulled freely in the opposite direction for adjustment.

Referring to the drawing, Figs. 1 and 2 illustrate one form of the improved device as comprising a substantially U-shaped staple having parallel legs 10 and a head or connecting portion 11 constituted by two parallel crossbars 12 and 13. This particular form of staple is shown as being constructed from two lengths of wire bent at right-angles at the ends of the head to form leg portions. The two complementary parts of the staple are assembled with their head portions forming a pair of closely parallel crossbars 12 and 13 and their right-angled portions twisted together to provide the legs 10.

In use, the end 14 of a flexible tape 15 is threaded upwardly through the opening 16 provided between the bars 12 and 13. This end is held fast and the main length of the tape 15 is wrapped upwardly around one of the crossbars and brought over to lie against the top of both bars as shown best in Fig. 1. The tape is thus looped around one of the bars with its main length engaging across the top of the free end

passed over the opposite bar to frictionally bind the latter thereagainst. The staple is then driven into permanent place in the ground with the crossbars 12 and 13 substantially at the ground level 17 as illustrated in Fig. 1.

The longitudinal pull or tension on the tape 15 results in a binding action to tighten the tape both between the adjacent surface of the crossbars 12 and 13 and against the top of the crossbar over which it passes. In laying the tape or adjusting it for stretch the slack may be taken up by pulling the end 14 through the space between the crossbars of the staple, this action being possible inasmuch as any pull on such lapped end 14 tends to free the binding engagement of the crossbars 12 and 13 with the tape. It should also be observed that this adjustment of the tape may be accomplished without disturbing the location or permanency of the anchorage of the staple.

In the embodiment of the invention illustrated in Fig. 3 the staple is constructed of a single length of wire having the intermediate portion thereof formed into one crossbar 18 and its ends bent at right-angles thereto to provide leg portions 19. The ends of the wire are then looped back to extend parallel with the leg portions 19 to provide complementary portions 20. Finally, the ends of the portions 20 are bent inwardly at right-angles to form a second crossbar 21 which lies closely parallel to the bar 18. The function of this form of staple is substantially identical with that of the one described in connection with Figs. 1 and 2, the legs formed by the wire portions 19 and 20 being adapted to be driven into the ground until the crossbars 18 and 21 lie closely parallel with the surface thereof. The lowermost extremities of the legs 19 and 20 may be twisted together as in Figs. 1 and 2 if desired.

A form of staple substantially as illustrated in Fig. 3 may be constructed from two components comprising crossbars and legs made from separate lengths of wire and assembled in overlying relationship with the ends of the leg portions electrically welded together. In such case both of the parallel crossbars would be continuous without the break shown in Fig. 3.

Fig. 4 of the drawings illustrates a further modification in the construction of the staple, showing it as formed from a length of wire bent to provide legs 22 and a connecting head portion or crossbar 23. Secured to the leg portions 22 by loops 24 are the ends 25 of a second, shorter U-shaped element which is constructed to provide a crossbar 26 adapted to extend closely parallel with the main crossbar 23. If desired, the loops 24 may be welded or brazed to the legs 22 to strengthen the structure. This latter form of construction provides the parallel crossbars 23 and 26 which engage the end of the flexible tape to function in the manner and for the same purpose as hereinbefore explained.

The present invention also contemplates the construction of a staple from sheet-metal. In Figs. 5 and 6 there is illustrated a substantially U-shaped sheet-metal staple having legs 27 and 28 connected by an intermediate head portion 29. The legs 27 and 28 may be pointed as at 30 to facilitate driving them into the ground or other surface. The head portion 29 is formed with a pair of parallel, elongated slots 31 and 32, through which the end of the tape may be threaded and held in the same manner as described in connection with the foregoing forms or embodiments of the invention. In Fig. 5 the

end 14 of the tape 15 is shown as being wrapped around one edge 33 of the head portion 29 and then carried upwardly through the slot 31 and downwardly through slot 32. The extremity of the end 14 is then passed upwardly around the other side edge 34 of the head 29 and along the ground underneath the main length 15 of the tape. It will be apparent by reference to Fig. 5 that the main portion 15 of the tape will bind the end 14 against the intermediate portion 35 of the head 29 between the slots 31 and 32 to secure the end thereto while permitting the tightening of the tape by drawing it through the slots.

Figs. 7 and 8 illustrate still another modified form of sheet-metal tape-holding device comprising the novel features of the invention. This latter form comprises a single leg 36 which is sharpened at its lower end 37 and has an angularly bent flange 38 at its upper end. Immediately adjacent the juncture of the leg 36 with the flange 38 the metal is provided with a pair of parallel elongated slots 39 and 40. In use, the end 14 of the tape 15 is threaded first through the lower slot 39 and then upwardly through the slot 40 with its terminal portion caused to lie against the upper surface 41 of the flange 38. The main length of the tape 15 overlies this end 14 of the tape and the tension thereon causes it to bind the end in place.

From the foregoing it will be observed that the present invention provides an improved device which is extremely simple in construction, economical to manufacture and adapted to serve adequately to hold in taut and alined condition the ends of flexible tapes or the like. My improved staple functions to grip and hold the tape without requiring piercing the material thereof, while also permitting longitudinal adjustment of the tape without removing the staple from its anchorage. The intermediate length between the ends of the tape may be fastened in place by other staples suitably anchored to the ground, for example, by the use of single wire staples.

Various modifications other than illustrated may be made in the form and structure of the device without departing from the spirit or scope of the invention. Therefore, without limiting myself to the exact disclosures herein shown and described, I claim:

1. A device of the type specified comprising a leg portion and a head portion, said head portion formed to provide relatively narrow parallel spaced bars disposed in a horizontal plane to adapt the end of a tape to be threaded between said bars from the under side and passed across the top of one of said bars to bind it under the main length of the tape, said bars adapted to rest flat against the ground with the leg portion extending at right-angles thereto for insertion into the ground.

2. A device of the type specified comprising a substantially U-shaped member having a head portion comprising a plurality of parallel spaced narrow cross-bars disposed in a horizontal plane to adapt the end of a tape to be inserted between the bars from the under side with the main portion of the tape passing upwardly around the outer side of one of said bars and across the top of both of said bars to bind the free end of the tape between the main length and one of said bars, and leg portions disposed in a vertical plane perpendicular to that of the crossbars and adapted for anchoring the device in the ground.

3. A device of the type specified consisting of a substantially U-shaped wire member bent to

provide a head portion having parallel spaced crossbars disposed in a horizontal plane and legs extending at right-angles to the horizontal plane of the crossbars, said crossbars being arranged to adapt the tape to be threaded therethrough with its end passing under one bar and over an opposite bar whereby the main length of the tape will bind the end against one of the bars to hold it under tension.

4. A device of the type specified comprising a single length of wire bent to form a substantially U-shaped member having portions of the wire overlying each other to provide double legs connected by opposite parallel crossbars extending at right-angles thereto, said crossbars being arranged to adapt the tape to be threaded therethrough with its end passing under one bar and over an opposite bar whereby the main length of the tape will bind the end against one of the bars to hold it under tension.

5. A device of the type specified comprising a tape anchoring element of substantially U-shape having a slotted crossbar, and legs extending at right-angles thereto for insertion into the ground, said crossbar being arranged to adapt the end of the tape to be passed across its top, drawn

thereunder, inserted up through the slot and placed under the main length of the tape to cause it to be bound against the top of the crossbar to hold it under tension.

6. A device of the type specified comprising an element having a head portion and an anchoring portion, said head portion being provided with a plurality of parallel spaced elongated slots to receive the end of a flexible tape, the end of the tape being passed across the top and under the bottom of the head and threaded up through one of the slots and down through the other, whereby the main portion of the tape will bind the end against the head of the staple to secure it thereto.

7. In a device of the type specified, the combination with a flexible tape, of a staple provided with a pair of parallel spaced crossbars between which is threaded from the underside the end of said tape, the main portion of the tape being passed upwardly around the outer side of one of said bars and into contact with the top of both said bars, said tape end being engaged between the other of said bars and the body portion of the tape.

CHARLES A. HORTON.

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