

May 18, 1943

J. DINHOFER

2,319,724

FLEXIBLE TAPE

Filed Jan. 16, 1943

Fig. 1.

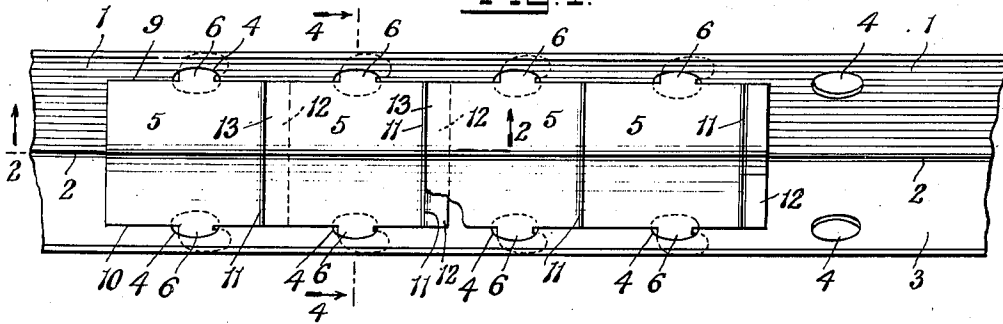


Fig. 3.

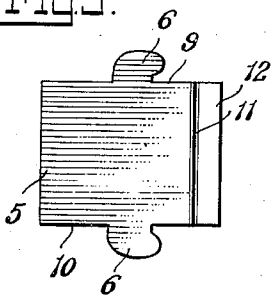


Fig. 2.

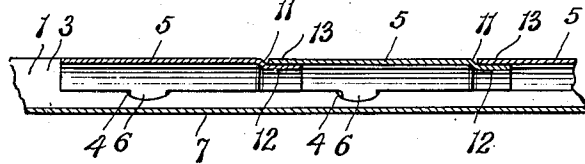
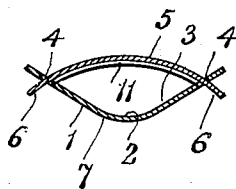


Fig. 4.



INVENTOR.

Julius Dinhofer

BY

Harry Radinsky

Attorney

UNITED STATES PATENT OFFICE

2,319,724

FLEXIBLE TAPE

Julius Dinhofer, New York, N. Y.

Application January 16, 1943, Serial No. 472,565

4 Claims. (Cl. 33—137)

This invention relates to flexible metallic tapes, and more particularly to the type shown in my Patent No. 2,307,395, dated January 5th, 1943, and adapted to be used for measuring purposes and for many other uses.

The primary object of the present invention is to provide a tape of this general character, suitable not only for use as a measuring tape, but for many other purposes, in which the tape is greatly reinforced or stiffened by the employment of a plurality of separate but overlapped reinforcing or bowed metallic plates, which act to hold the tape from buckling or bending so that it may be extended for greatly increased lengths.

In my patent above mentioned, I have shown a tape of this character in which the separate reinforcing plates were spaced apart for substantial distances. I have found that the tape may be materially strengthened and made more rigid by disposing said reinforcing plates in certain positions of overlap, so that while said plates are free and independent of one another and capable of relative movement, they nevertheless provide the effect of a continuous but flexible and self-adjustable reinforcing medium.

Reference is to be had to the accompanying drawing, forming a part hereof, in which Fig. 1 is a face view of a short length of the improved tape, showing the manner in which several bowed reinforcing plates are disposed thereon in overlapping relation. Fig. 2 is a sectional view on the line 2—2 of Fig. 1, looking in the direction of the arrows; Fig. 3 is a face view of one of the reinforcing or stiffening members in its unbowed or flattened condition, and Fig. 4 is a sectional view on the line 4—4 of Fig. 1, looking in the direction of the arrows.

In the drawing, 1 indicates the body of the tape, the same consisting of a lengthy strip of thin flexible metal, such as spring steel or the like, or any other material suitable for the purpose. The body of the tape is formed with a continuous, centrally disposed, longitudinally extending bend or fold 2 so that the tape is thus of channel formation, having a concave face 3 and a convex face 7. The formation of the tape into such channel form adds stiffness, and materially increases the resistance of the tape to transverse buckling or folding, and this resistance to buckling or folding is greatly increased by the employment of a plurality of overlapping reinforcing or stiffening elements or plates 5.

One of these stiffening elements is shown in Fig. 3 in its flattened or unbowed condition, and the same consists of a normally flat plate

of thin and resilient metal, such as spring steel or the like. The opposite side edges 9 and 10 of the plate are each formed with a projecting hook-shaped tongue 6, and the tape 1 is provided with a plurality of equally spaced apertures 4 near its longitudinal edges, said apertures being so spaced that the tongues 6 may enter and engage with said apertures when the plate 5 is flexed or bowed, as clearly seen in Fig. 4. The tendency of the plate 5 to flatten or straighten out, holds the tongues in locking engagement with the apertures 4 since the concave face of the arched or bowed plate 5 is opposed to or faces the similar concave face of the tape. With this arrangement it will be seen that great stiffness is added to the tape and any tendency to transversely buckle or bend is resisted by the plates.

Each of the reinforcing or stiffening plates 5 is provided near one of its ends with a bend 11, producing an off-set step 12, over which the end portion 13 of the adjacent stiffening plate lies, as seen in Fig. 2. With this overlapping arrangement, the many plates 5 extending along the concave face of the tape 1 provide the effect of a continuous reinforcement, but at the same time these plates remain unconnected and are capable of any slight shifting movement relative to one another so that one or the other may flatten out independently of the others under excess strain, without affecting the other plates. With a tape of this character, the separate and overlapped reinforcing plates are removable independently of each other, such as when it is desired to place the tape in rolled condition in a housing. Also when the tape is subjected to a strain sufficient to cause it to buckle, the buckling may take place across any plate without dislodging the others.

While I have herein described the invention as being applicable to a tape intended primarily for measuring purposes, it will be obvious that a flexible tape of this character will have a great many uses wherever a strip of relatively stiff, yet flexible material is required. The tape, reinforced with the overlapped bowed plates, may be rolled or otherwise compactly stored, when the reinforced plates are stripped from the tape.

What I claim is:

1. An article of the character described comprising, a flexible channel-shaped strip having a concave face, stiffening means extending over said concave face, said means consisting of a plurality of independent flexed plates and disposed in overlapped relationship, and means by

which said plates are detachably engaged with the strip to hold said plates in bowed condition.

2. A flexible tape consisting of a channelled metal strip reinforced and stiffened against transverse buckling by a plurality of separate, relatively short bowed stiffening plates attached to the strip, said plates overlapping one another.

3. A flexible tape consisting of a channelled metal strip having a concave face, a plurality of overlapped bowed stiffening plates extending over the concave face of the strip and removably at-

tached thereto, each of said plates partly overlapping an adjacent plate.

4. A flexible tape consisting of a channelled metal strip having a concave face, a plurality of overlapped bowed stiffening plates extending over the concave face of the strip and removably attached thereto, each plate having an off-set end portion into which the end portion of an adjacent plate is fitted.

JULIUS DINHOFER.