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2,461,201

FLEXIBLE AND/OR ELASTIC SELF-LOCKING BAND

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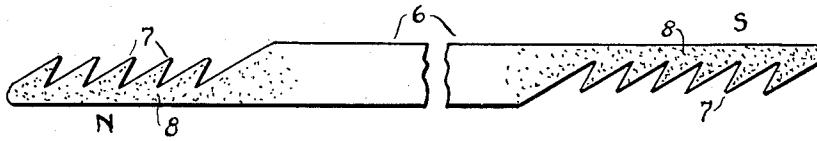


FIG. 1.

FIG. 2.

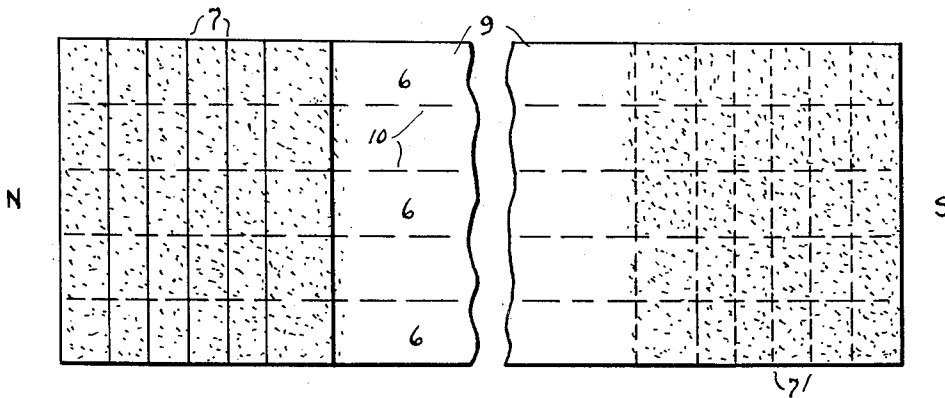
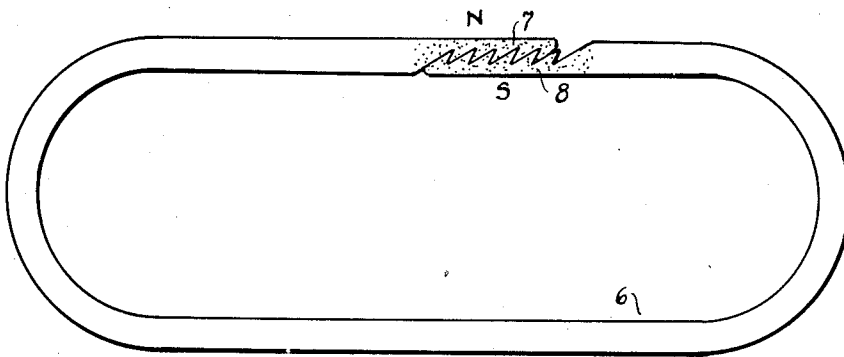


FIG. 3.

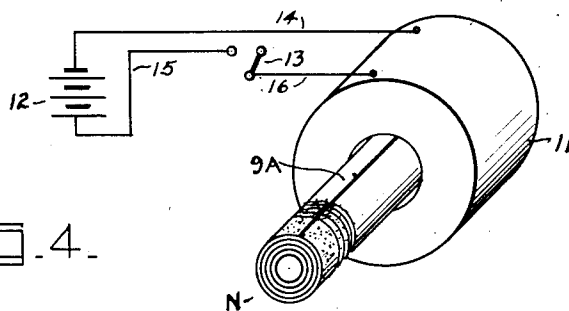


FIG. 4.

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## UNITED STATES PATENT OFFICE

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FLEXIBLE AND/OR ELASTIC SELF-LOCKING  
BAND

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7 Claims. (Cl. 2—311)

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This invention relates to flexible and/or elastic self-locking band and one of the principal objects of the invention is the provision of a flexible and/or elastic band which may be conveniently used in place of the usual belt, garter or other similar securing means.

Another object of the invention is the provision of a band of the above nature in which no separate end fastening means, such as buckles, clasps, pins, etc., need be used, the band itself being provided with inherent end fastening means.

An additional object of the invention is the provision of a band of the above nature which will be more convenient to use than the customary endless rubber band, either when used as a garter, etc. or to secure articles in a bundle, etc.

An additional object of the invention is the provision of a magnetically held locking means which may be attached to the margins of any article of flexible wearing apparel, such as a garment, shoes, etc., or to other flexible articles, such as brief cases, pocket books and hand bags; such flexible articles thus being held in adjustable closed relation by merely bringing the permanently magnetized ends or margins of the article together.

And a still further object of the invention is the provision of a band of the above nature, having two ends, which is adjustable in use, which can be very conveniently and quickly applied and removed and in which the adjusting and fastening means are both inherent with the band material.

Other and further objects will appear in the specification and be specifically pointed out in the appended claims, reference being had to the accompanying drawings exemplifying the invention and in which:

Fig. 1 illustrates a side view of the band in enlarged scale.

Fig. 2 shows the band when closed in a loop.

Fig. 3 illustrates a sheet of band material out of which the lengths forming the bands may be conveniently cut.

Fig. 4 shows the sheet of band material rolled up and illustrates the method of imparting permanent magnetization thereto.

Referring to the drawings in which like characters and numerals of reference refer to similar parts throughout the several views, the numeral 6 denotes a band of flexible material such as plastic, textile, etc., but may preferably be also elastic such as rubber. This band has two ends, on one face of each end being provided a number of serrations or "saw teeth" 7, the serrations on the face of one end of the band being on the

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opposite face of those on the other end so that, when the band 6 is looped as illustrated in Fig. 2, the serrations 7 will meet and interlock and be tensionally held together. The serrations 7 are preferably formed with rearwardly inclined points as shown so that, the stronger the pull on the band, the tighter the serrations will tend to grip each other. It will be evident that, as the serrations 7 are all of the same size and shape, the band is adjustable as to girth as various serrations may fit into each other. Also, the band may be looped into either direction with equal results.

While a flexible band made of plastics, such as Celluloid, would hold together as illustrated in Fig. 2 provided tension was continually applied, the serrations of such a band if made entirely of soft elastic rubber, would pull apart due to the bending of the serrations. To overcome this difficulty when using an elastic material such as rubber, I provide in the ends of the rubber band, at the serrations 7, a filling of magnetizable powder 8, which powder is incorporated with the rubber while in plastic or liquid condition and preferably, although not necessarily in all circumstances, applied only at the ends as clearly illustrated in all the views. The quantity of powder 8 may represent a proportion of anywhere from ten per cent to sixty per cent of that of the rubber, this being determined by conditions of use. In Fig. 3 is illustrated a sheet 9 of rubber which has been removed from the extrusion press, the calendering machine or other suitable processing machine with the magnetizable powder 8 now an inherent part of the rubber sheet 9. This sheet may now be cut into bands 6 as denoted by the dashed lines 10. Of course, if desired, the serrations 7 may be on both opposite sides of the band 6 and extending any desired distance from the ends. Also, the band 6 may be used in many instances without the serrations 7, the magnetic attraction of the powder 8 being sufficient to hold the ends of the band together. The band 6 may also be composite in material, such as textile, plastics and rubber and may be partly elastic and partly flexible while the ends may be of rigid permanently magnetized material. The loop 6 of the flexible band may consist of an article of wearing apparel such as a garment or shoe and the serrated permanently magnetized ends may consist of both opposite margins thereof, thus securing the garment, shoe or other article in closed position without the use of buttons, clasps or other usual fastening means. Or the permanently magnetized ends of the band 6 may be separately attached to the opposite margins of a

flexible article such as a garment, shoe, brief case, etc., thus affording a quick, convenient and effective closing means therefor.

Before cutting up the sheet 9 into bands 6, the sheet is formed into a roll 9A as shown in Fig. 4, with the magnetizable powder impregnated edges on each end of the roll, the roll 9A then being inserted into a magnetizing coil 11 through which a powerful direct electric current is flowing as from the battery 12. A switch 13 is interposed in the electric circuit which consists of the wires 14, 15 and 16. When the switch 13 is closed for a few seconds' time, the magnetizable powder particles 8, within rolled sheet 9A, will have become permanently magnetized, the end N having North magnetic influence while the end S has South magnetic influence, thus attracting and holding each other when brought into close proximity. It will thus become apparent that, after the sheet 9 is cut into bands 6, and the ends fitted together as in Fig. 2, these ends, being of opposite magnetic polarity, will strongly attract each other and the serrations 7 will thus be held together even though made of soft elastic rubber. The ends of the rubber bands may be hardened so that the serrations 7 cannot bend regardless of the amount of strain applied in practical use. Instead of permanently magnetizing both ends of the band 6, only one end need be permanently magnetized, the other end being only impregnated with magnetically attractive powder.

From the foregoing description, it will be apparent that I have evolved an elastic band which is superior to the ordinary endless elastic band in that it need not be stretched excessively in many instances in order to encompass the objects to be held and is furthermore adjustable to a wide degree; a flexible and/or elastic two-ended garter can be quickly and conveniently applied or removed and being incidentally easily adjustable to various sizes and without the use of rigid clasps or other similar fastening devices which generally annoy the user; a flexible and/or elastic belt in which the fastening means are not only adjustable but inherent with the belt; with many similar applications too numerous to mention.

Various changes may be made in the embodiment of the invention hereinabove specifically described without departing from or sacrificing the advantages of the invention as defined in the appended claims.

#### I claim:

1. An elastic band provided with serrations on the faces of both ends thereof, the serrations all being of the same size and shape and permitting the interlocking of the serrations on one end with the serrations on the other end when said end are formed into a closed loop.

2. An elastic band as in claim 1, the said serrations being integral with the elastic material composing the band.

3. A flexible band provided with serrations on the faces of each end, the serrations on one end of said band removably interlocking with the serrations on the other end of said band when said band is looped, and permanent magnetic attractive means located in the ends of said band.

4. A flexible band as in claim 3, the serrations on the face of one end of said band being on the opposite face of the serrations on the other end of said band.

5. An elastic band provided with serrations on the faces of both ends thereof, the serrations on one end of said band interlocking with the serrations on the other end of said band when said band is formed into a closed loop, said serrations being integral with the elastic material forming said band, and permanently magnetized material in powdered form integrated with the elastic material at the said serrations.

6. A flexible closure means comprising two oppositely disposed flexible flaps, the margins of each of said flaps being provided with longitudinally disposed projections interlocking over each other so as to resist tensional strain when said flaps are in closed position, said projections being permanently magnetized.

7. A flexible closure means as in claim 6, the projections on each of said margins being of opposite magnetic polarity.

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