Nov. 15, 1932. N. STATHAM 1,887,826

ADJUSTABLE FASTENING DEVICE

Filed Feb. 14, 1930 2 Sheets-Sheet 1

Fig. 1.

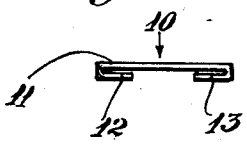
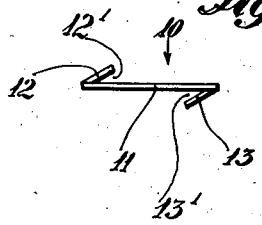


Fig. 2.



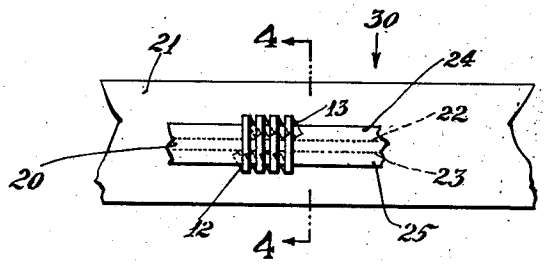


Fig. 3.

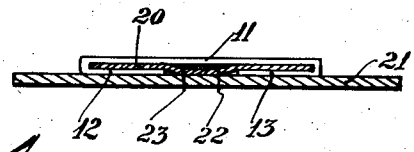


Fig. 4.

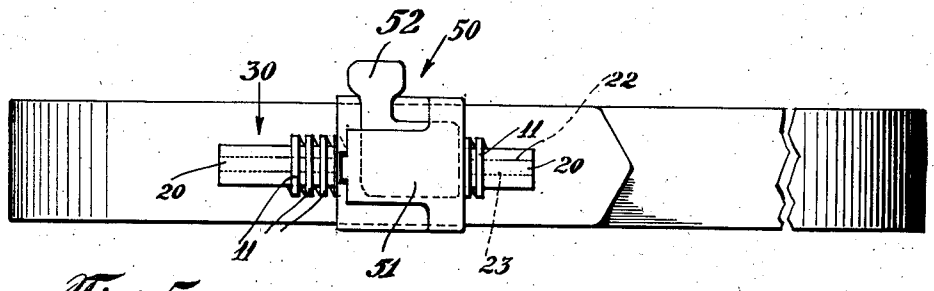


Fig. 5.

INVENTOR.
Noel Statham
BY Edward M. Craig
His ATTORNEY.

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ADJUSTABLE FASTENING DEVICE

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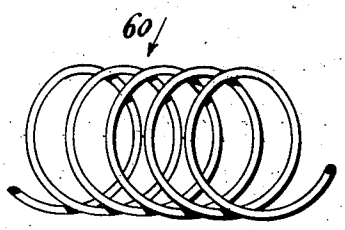


Fig. 6.

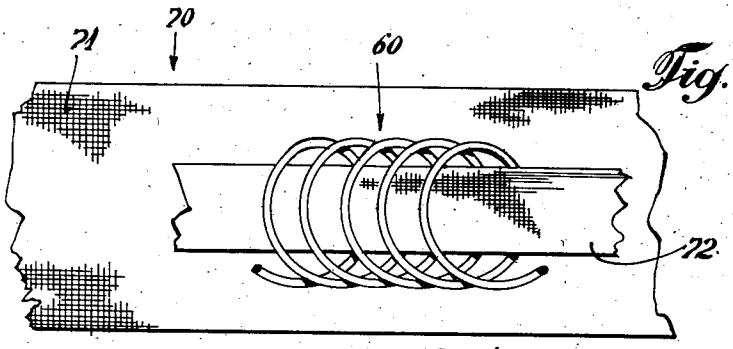


Fig. 7.

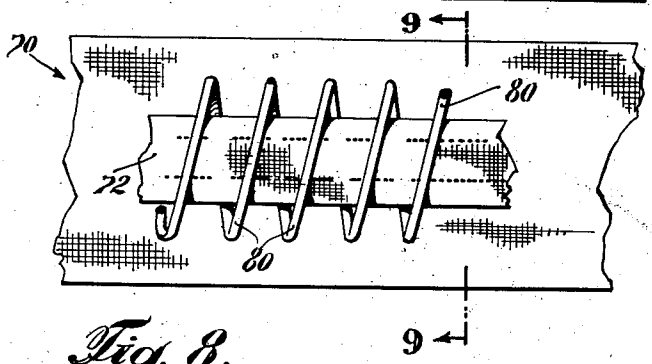


Fig. 8.

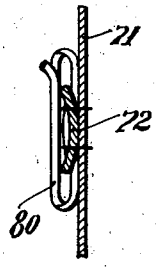


Fig. 9.

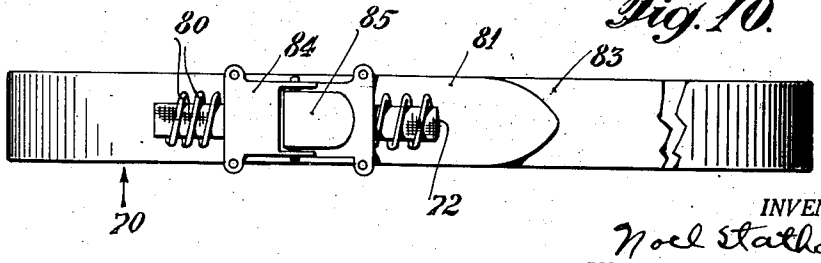


Fig. 10.

INVENTOR.
Noel Statham
BY Edward M. Clark
his ATTORNEY

Patented Nov. 15, 1932

1,887,826

UNITED STATES PATENT OFFICE

NOEL STATHAM, OF IRVINGTON-UPON-HUDSON, NEW YORK

ADJUSTABLE FASTENING DEVICE

Application filed February 14, 1930. Serial No. 428,260.

My present invention relates to adjustable supporting and fastening devices, particularly such as are adapted to adjust the length or girth of various articles of wearing apparel, such as belts, garters, suspenders, and the like, although not necessarily restricted to these classes of articles, and aims to devise articles of the general character specified which are simple in construction, which may be easily and economically fabricated and assembled and which are highly efficient and convenient in use for the designated purpose of adjusting the lengths and girths of various types of articles and which are at the same time adapted for a wide variety of uses. Other objects and advantages of the devices of the present invention, particularly as exemplified in the following illustrative embodiments of the same, will in part be pointed out in detail hereinafter and will in part be obvious to those skilled in the art to which the present invention relates.

In the accompanying specification I shall describe and in the annexed drawings show several illustrative embodiments of the present invention. It is, however, to be clearly understood that my invention is not limited to the specific embodiments thereof herein shown and described for purposes of illustration only.

Referring to the drawings, in which I have shown the aforesaid illustrative embodiments of the present invention:

Fig. 1 is a view in side elevation of one of the stop elements entering into the construction of one of the aforesaid illustrative embodiments of the present invention;

Fig. 2 is a top plan view of the same;

Fig. 3 is a top plan view of the supporting tape and assembled stop elements;

Fig. 4 is a cross sectional view of the top and assembled stop elements taken along line 4—4 of Fig. 3 of the drawings; and

Fig. 5 is a top plan view of the fastening device shown in Figs. 3 and 4 of the drawings assembled on a belt and provided with the adjustable locking means forming a part of the aforesaid illustrative embodiment of the present invention;

Fig. 6 is a plan view of the continuous stop element forming a portion of the second of the aforesaid illustrative embodiments of the present invention;

Fig. 7 is a top plan view of the same with the associated supporting tape member before the stop element has been flattened onto the supporting tape member;

Fig. 8 is a top plan view of the same with the associated supporting tape member after the stop element has been flattened onto the supporting tape member;

Fig. 9 is a cross sectional view of the continuous stop member in flattened form and the associated tape member taken along line 9—9 of Fig. 8 of the drawings; and

Fig. 10 is a top plan view of the fastening device shown in Figs. 8 and 9 inclusive of the drawings assembled on a belt and provided with a different type of adjustable locking means forming a part of the second illustrative embodiment of the present invention.

Referring now to the aforesaid illustrative embodiments of the present invention, and with particular reference to the illustrative embodiment of the invention more particularly illustrated in Figs. 1 to 5, inclusive, of the drawings, and limiting the discussion for the time being to the stop elements more particularly illustrated in Figs. 1 and 2 of the drawings, each stop element here generally designated by reference character 10 preferably comprises a main connecting portion 11 and the hook-like members 12 and 13. The hook-like members 12 and 13 preferably extend in a different plane from that of the connecting member 11 or particularly series of the connecting members 11 when in assembled relation with the supporting tape or other member held substantially flat. In particular, the hook-like members 12 and 13 both extend below the level of the connecting portion 11 and while the hook-like members 12 and 13 may be substantially parallel to each other, they preferably extend in opposite directions from the connecting portion 11. The hook-like members 12 and 13 preferably provide clamping portions for clamping between them the opposite marginal portions of the supporting

tape or other supporting member which carries a series of the stop elements 10, preferably in substantially parallel spaced relation. It will be noted that the hook-like clamping members 12 and 13 are angularly disposed with respect to the web portion 11, 12' and 13' indicating the corresponding angles which are formed between the connecting portion 11 and the respective angularly disposed clamping members 12 and 13.

This completes the description of the stop elements which are embodied in the aforesaid illustrative embodiment of the present invention as more particularly shown in Figs. 3, 4 and 5 of the drawings. As there illustrated, a series of the stop elements 10 is carried by the supporting tape 20 which has first preferably been attached to the main carrier tape 21 by two lines of stitching 22 and 23, thus defining the marginal portions 24 and 25 to which the stop elements are secured by means of the clamping portions 12 and 13. For this purpose, the stop elements 10 are preferably applied to the supporting tape 20 with the clamping portions 12 and 13 receiving the marginal portions 24 and 25, respectively. Initially the clamping portions 12 and 13 are in open or extended position so that they will readily receive the marginal portions 24 and 25 as already described. In the final assembly of the device, the clamping portions 12 and 13 are clamped down over the marginal portions 24 and 25, respectively, with the stop elements 10 and particularly the connecting portions 11 of the same in proper spaced substantially parallel position. This operation is rendered possible by the nature of the material of which the stop elements 10 are made, this material being a metal which will remain in its bent position and will have the necessary strength to exert the necessary clamping action on the marginal portions 24 and 25, thus to retain the stop elements 10 in proper spaced position.

The assembled tape, which has here been generally designated by reference character 30 may be of any desired length, and in fact, may be manufactured continuously by the use of proper machinery for sewing the tapes together and for manufacturing and applying the stop elements. In this condition, the material may be wound in a roll and suitable lengths may be cut off as the same are needed for use. While suitable lengths of tape 30 may be used for many purposes, I have shown the same as applied in the manufacture of a belt generally designated by reference character 21. A suitable length of the tape 20 is sewn onto the outer face of the belt near one of the ends of the same and a clamping member generally designated by reference character 50 is attached to the under face of the belt adjacent the remaining end of the same. The arrangement of parts is such that the row of stop elements 10 and the edges of the marginal portions 24 and 25 will serve to guide the adjustable clamping member 50 over the stop elements 10. The clamping member 50 may have any suitable construction, such as the construction shown in my co-pending application, Serial No. 233,254, filed October 1st, 1927, and entitled "Adjustable fastening devices," this device preferably consists of the main body portion 51 carrying the operating portion 52 adapted to engage and disengage the stop members 11.

This completes the description of the aforesaid illustrative embodiment of the present invention. It will be noted that the embodiment is simple in construction and may be easily and conveniently assembled. The manner of assembling the device will, it is believed, clearly appear from the foregoing description. Likewise the mode of operation will clearly appear from the foregoing description but may be briefly summarized as follows: In the movement of the clamping member 50 over the stop elements 10 in the direction which will shorten the effective length of the belt or the circumference of the loop which the belt will form in its closed position, the locking element of the clamping member 50 will slide freely over the stop elements 10. Any effort, however, to increase the effective length of the belt, or in other words, to increase the circumference of the loop which the belt forms in its closed position, will cause the locking element of the clamping member 50 to bite against one of the stop elements 10, thus effectively locking the belt. By the manipulation of the locking element of the clamping member 50, the same may be brought out of locking engagement with the particular stop element 10 with which the locking element has been in engagement. This releases the clamping member 50 and permits the effective length of the belt to be increased or the effective circumference of the loop of the belt in closed position to be increased or the belt to be opened, as desired.

Referring now to the remaining illustrative embodiment of the present invention, particularly as illustrated in Figs. 6 to 10, inclusive of the drawings, and with particular reference to the continuous stop member more particularly illustrated in Figs. 6, 7, 8, 9 and 10 of the drawings, the stop element 60, as illustrated in Figs. 6 and 7 of the drawings, preferably comprises a substantially continuous element, preferably of general spiral form, for example, of the type of spiral which would be developed on a cylindrical surface by rotating the cylinder against a point at a uniform rate of axial velocity associated with a uniform fate of angular velocity about the axis of the cylinder. Such an element may readily be made by winding a wire fed at a

uniform rate of speed about a mandrel rotating at a uniform rate.

However made, the spiral may either be made independently of the supporting tape and then threaded through the same, in the manner which will shortly be described, or and preferably, is made by threading the same through the supporting tape at the same time that the spiral is formed, thereby combining the two operations of the formation of the spiral and its threading through the supporting tape in one and the same operation. As shown in Fig. 7 of the drawings, the continuous spiral or equivalent stop member 60 is carried by a supporting tape generally designated by reference character 70 and comprising the main web portion 71 and the central raised web portion 72. The web portion 72 may be a strip of webbing in the form of a tape sewn to the lower portion of the main web portion 71 which is likewise threaded.

After the threading operation exemplified by Figs. 6 and 7 of the drawings is completed, the spiral or equivalent stop member 60 may be flattened out by the use of any suitable means or apparatus so as to clamp firmly within the turns of the spiral 60, which is now in the form of a flat spiral, the raised webbing portion 72.

The result will be a construction the detailed form of which is more clearly illustrated in Figs. 8 and 9 of the drawings. The turns of the flattened spiral will hold securely between them the raised web portion 72. It may here be stated that any desired length of this type of element may be prepared and that suitable lengths may be cut from the continuous member for use on belts, garters, knee-bands on knickers, suspenders, straps and the like, in the manner already described in detail for the form of the invention illustrated in Figs. 1 to 5 inclusive, of this application.

As more clearly shown in Fig. 10 of the drawings, a suitable length 80 of the element constructed as shown in Figs. 7 and 8 of the drawings may be attached to one end 81 of a belt or similar device 82 which at its other end 83 carries a locking member 84 of any suitable type or construction. By means of the locking member 84 which carries the manipulating member 85 the position of the locking member 84 along the units of the strip 80 of stop elements, and thus the girth of the belt, knicker knee-band or strap, or the length of the suspender, garter or equivalent device, may be readily regulated and determined.

This completes the description of the remaining one of the aforesaid illustrative embodiments of the devices of the present invention. The form of the device just described possesses the same advantages as the form of the device described earlier in this specification but has the additional advantages that it is of greater mechanical strength, greater uniformity in construction, assembly and operation, simpler to manufacture and avoids the necessity of using as many dies as the first form of the invention.

The devices of the present invention are characterized by their wide range of applicability and their great usefulness for the intended purpose. Other superiorities of the devices of the present invention in construction, mode of assembly and use will readily occur to those skilled in the art to which the present invention relates.

What I claim as my invention is:

1. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central connecting portion and clamping portions associated with said connecting portion, said clamping portions being parallel to each other but angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion.

2. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central, substantially rectilinear connecting portion and clamping portions associated with said connecting portion, said clamping portions being parallel to each other but angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion.

3. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central connecting portion and clamping portions integral with said connecting portion, said clamping portions being parallel to each other but angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion.

4. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central, substantially rectilinear connecting portion and clamping portions integral with said connecting portion, said clamping portions being parallel to each other but angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion.

5. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central, substantially rectilinear connecting portion and a clamping portion integral with each end of said connecting portion, each of said clamping portions being angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion, said clamping portions being substantially parallel to each other but pointing in sub-

stantially opposite directions and lying in substantially the same plane.

6. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central connecting portion and a clamping portion integral with each end of said connecting portion, each of said clamping portions being angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion, said clamping portions being substantially parallel to each other but pointing in substantially opposite directions and lying in substantially the same plane.

7. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central, substantially rectilinear connecting portion and a clamping portion associated with each end of said connecting portion, each of said clamping portions being angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion, said clamping portions being substantially parallel to each other but pointing in substantially opposite directions and lying in substantially the same plane.

8. In an adjustable supporting or fastening device, a stop element comprising a main, substantially central connecting portion and a clamping portion associated with each end of said connecting portion, each of said clamping portions being angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion, said clamping portions being substantially parallel to each other but pointing in substantially opposite directions and lying in substantially the same plane.

9. An adjustable supporting and fastening device comprising, in combination, a supporting tape and a series of spaced, substantially parallelly disposed stop elements carried by said supporting tape, each of said stop elements comprising a main, substantially central connecting portion and a clamping portion associated with each end of said connecting portion, each of said clamping portions being parallel to each other but angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion in combination with a slide member adjustably engageable with said stop elements, said slide member being secured to one end of said supporting tape.

10. An adjustable supporting and fastening device comprising, in combination, a supporting tape and a series of spaced, substantially parallelly disposed stop elements carried by said supporting tape, each of said stop elements comprising a main, substantially central, substantially rectilinear connecting portion and a clamping portion associated with each end of said connecting portion, each of said clamping portions being parallel to each other but angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion in combination with a slide member adjustably engageable with said stop elements, said slide member being secured to one end of said supporting tape.

11. An adjustable supporting and fastening device comprising, in combination, a supporting tape and a series of spaced, substantially parallelly disposed stop elements carried by said supporting tape, each of said stop elements comprising a main, substantially central, substantially rectilinear connecting portion and a clamping portion associated with each end of said connecting portion, each of said clamping portions being angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion and lying in a substantially parallel to each other but pointing in substantially opposite directions and lying in substantially the same plane.

12. An adjustable supporting and fastening device comprising, in combination, a supporting tape and a series of spaced, substantially parallelly disposed stop elements carried by said supporting tape, each of said stop elements comprising a main, substantially central connecting portion and a clamping portion associated with each end of said connecting portion, each of said clamping portions being angularly disposed with respect to said connecting portion and lying in a substantially different plane from said connecting portion and lying in substantially parallel to each other but pointing in substantially opposite directions and lying in substantially the same plane.

In testimony, whereof, I have signed my name to this specification this 7th day of February, 1930.

NOEL STATHAM.