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 FASTENING DEVICE.
 APPLICATION FILED JAN. 23, 1905.

1,057,652.

Patented Apr. 1, 1913.

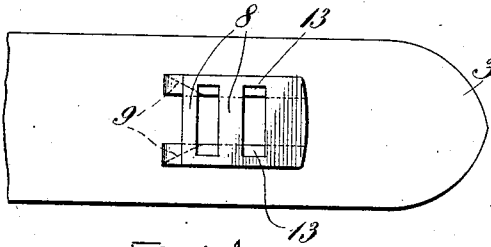


Fig. 1.

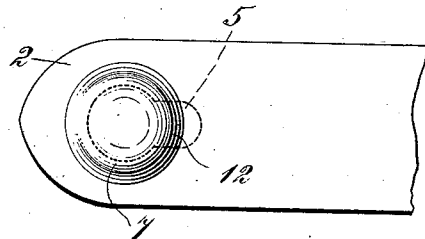


Fig. 2.

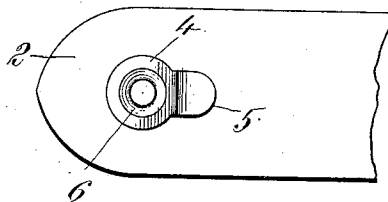


Fig. 3.

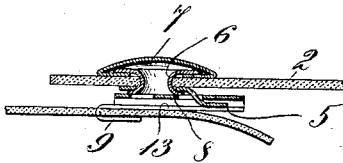


Fig. 4.

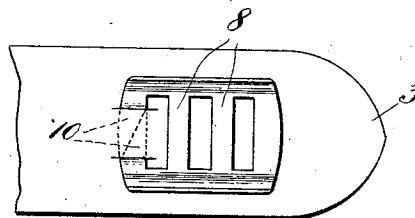


Fig. 5.

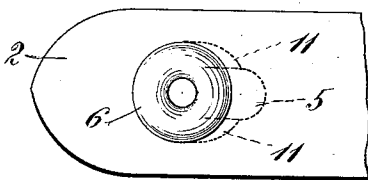


Fig. 6.

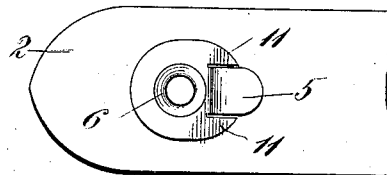


Fig. 7.

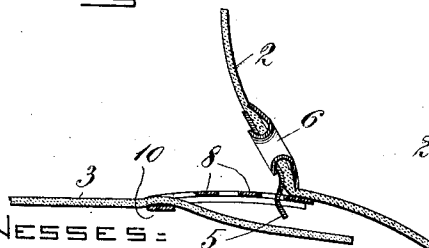


Fig. 8.

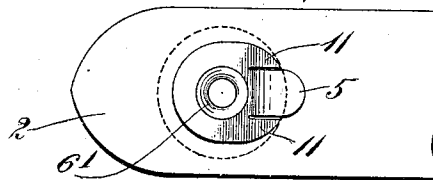


Fig. 9. INVENTOR:

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UNITED STATES PATENT OFFICE.

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FASTENING DEVICE.

1,057,652.

Specification of Letters Patent.

Patented Apr. 1, 1913.

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To all whom it may concern:

Be it known that I, ALBERT G. MEAD, a citizen of the United States, and resident of Somerville, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Fastening Devices, of which the following is a specification.

My invention relates to fastening devices of the general type shown in my prior U. S. Patent No. 702,665, dated June 17, 1902, and is intended to improve upon this class of fastening devices in certain particulars which will hereinafter appear, and particularly to produce a device of the type referred to which will be simpler in construction, more compact, and of improved external appearance, as compared with my prior fastening, and will be serviceable for uses for which my said prior fastening is impracticable or not well adapted.

My present fastening device, like the one shown in my said prior patent, comprises two members, hereinafter referred to as the tongue member and the bar member, which are secured respectively to the two pieces of material or parts which are to be connected thereby. According to my present invention, however, the tongue member of the fastening, instead of being pivotally attached at one edge only to one end of a flap or strip, is firmly secured to a flexible piece of material which may be one of the parts which are to be connected, and has its tongue proper located on the under side of said flexible piece of material, a bearing being provided substantially as hereinafter described for determining the point or axis at which the tongue member turns, in operation.

In the accompanying drawings, Figure 1 shows a top plan view of one form of the bar member of my fastening; Fig. 2 shows a similar view of one form of tongue member; Fig. 3 is a bottom plan view of the parts shown in Fig. 2, and Fig. 4 is a central longitudinal section through the parts shown in Figs. 1 and 2 when in operative relation. Figs. 5, 6, and 7 are views corresponding respectively to Figs. 1, 2 and 3 but showing somewhat modified forms of the two members. Fig. 8 is a view similar to Fig. 4, illustrating the mode of operation of the fas-

tening; and Fig. 9 is a view similar to Fig. 7 but showing another modification.

The parts to which the two members of my fastening are attached are represented in the drawings as the free ends of two flexible straps 2 and 3. As represented in Figs. 2, 3, and 4 of the drawings, the tongue member comprises a base plate 4 and a tongue 5 carried thereby and preferably formed integral therewith. The plate 4 is firmly attached to the under side of the part 2, with the tongue 5 extending rearwardly, and said tongue is off-set slightly from the base plate so as to provide sufficient space for the reception of the engaging portion of the bar member. The tongue member may be secured to the part 2 in any suitable manner, but it is preferably attached thereto by means of a rivet 6 passing through the base plate 4 and the part 2. That end of this rivet which is located on the top surface of the part 2 may be covered by a cap 7, if desired, thus giving the device a "button finish."

The bar member of my fastening may have any form or construction which will provide a transverse bar adapted to pass between the tongue 5 and the part 2 and engage the shoulder or abutment formed at the junction of said tongue with the base plate 4, and it may be secured to the part 3 in any suitable manner. As shown in Figs. 1, 4, 5 and 8 the bar member consists of a transversely-slotted metallic plate providing a number of bars 8 any one of which may be engaged by the tongue member, thus providing a take-up or adjustable fastener, and said bar member is secured to the part 3 by means of two prongs which are passed through said part 3 and clenched on the under side of the same. In Figs. 1 and 4 these prongs are shown at 9 as formed at the rear ends of the side edges of the bar member, while according to Figs. 5 and 8 the prongs 10 are formed from one of the transverse bars by cutting across the bar on a diagonal line, as shown in dotted lines in Fig. 5. The side edges of the bar member shown in this figure are longitudinally grooved in order to increase their stiffness, although this is not essential.

The tongue member comprises or is provided with a rigid bearing or fulcrum lo-

cated above but adjacent to the tongue 5 and between the free end of said tongue and its shoulder, or the point at which it joins the base plate 4. During the process of engaging the tongue member with or disengaging it from the bar member, said bearing rests or bears upon that part of the bar member which is beneath it, either directly or through the flexible material to which the tongue member is secured, and determines the fulcrum point of the tongue member, or, in other words, the point at which the flexible material to which it is attached is flexed or bent, as hereinafter described.

This bearing may be provided in various ways, as, for example, by projections 11 formed on and in the plane of the base plate, one on each side of the tongue 5, as shown in Figs. 6, 7 and 9. In this case said bearing will be located beneath the flexible material 2 and will bear directly upon the bar member while the parts are being engaged and disengaged. Instead of employing the projections 11, the rigid bearing may be formed by the rear edge 12 of the cap 7, or by the corresponding edge of the upper or outer end of the rivet 6 in case no cap is employed. In these cases the flexible material will be interposed between the bearing and the bar member, but with any of the arrangements above described the flexibility of the part 2 permits a turning movement of the tongue member at or closely adjacent to the bearing. As thus constructed, since the free end of the tongue 5 extends beyond the bearing point of the tongue member the latter may be turned at said bearing as an axis when the parts 2 and 3 are to be connected and the free end of the tongue may be caused to reach forward and engage the rear edge of one of the bars of the bar member, whereupon the opposite side of the tongue member will serve as a lever to assist in turning said member over toward the bar member. This will be clearly understood upon reference to Fig. 8, in which the rear edge of the rivet 6 is shown as bearing through the flexible part 2 upon the upper surface of the bar member, so that said rear edge serves as a fulcrum about which the tongue member turns when moved through the position shown in said figure. This movement of the tongue member causes the tongue to slip beneath the bar 8 with which it is in contact, and said bar is thus brought into engagement with the base of the tongue. When in this position the tongue member and the part to which it is attached are substantially parallel with the bar member, and the parts are held in this position of engagement by the draft or strain imposed upon them.

When the parts of the fastening are to be separated that side or edge of the tongue member which is opposite to the free end

of the tongue is lifted, thus causing said member to turn about its rigid bearing as a fulcrum, and the tongue itself is thereby compelled to move about the fulcrum point as a center, or substantially so, so that it is lifted past the rear edge of the transverse bar which it engages without having to be drawn directly backward or against the tension which tends to hold the parts of the fastening together, and this movement of separation is facilitated, in the same manner as is the operation of engaging the parts of the fastening, by the leverage obtained by operating the tongue member from that side which is most remote from the fulcrum point. It will thus be seen that the movements of engagement and disengagement of the tongue member are primarily turning movements, as distinguished from longitudinal movements in the direction of the tension imposed upon the fastening, as in the case of an ordinary hook. I consider it advantageous to determine the point of turning of the tongue member by means of the rear edge of the rivet 6 or of the cap piece which covers it, because the bearing above referred to is thus located on the upper surface of the part 2 and the draft or strain at this point tends to keep the tongue member flat when in engagement with the bar member. In releasing the tongue and bar members from engagement with each other the tongue member may be readily and conveniently operated by means of the free end or edge of the part 2 to which it is attached, without touching the fastening device itself, and my device is thereby especially adapted for use in many cases where such a mode of operation is desirable.

It is an important feature of my present fastening that the turning of the tongue member on the bearing hereinbefore referred to is provided for by the flexibility of the material to which said tongue member is attached, because I thereby avoid doubling said material at any point and hence am enabled to minimize the thickness of the device. The fact that the point of attachment of the tongue member to the flexible part which carries it may be located beyond the engaging shoulder of the tongue, instead of between said shoulder and the free end of the tongue, contributes to the same result, because in such case it is necessary to offset the tongue proper but slightly from the part 2, and said tongue may be made substantially flat throughout the greater portion of its length. Furthermore, the bearing or point of turning of the tongue member may thus be located so close to the tongue proper that when the tongue member is in a vertical position or substantially so, during insertion or removal, the engagement of the points 11 or other bearing with the bar member pre-

vents the tongue from projecting beneath the bar member for more than a very short distance, and thus provides for the insertion and removal of said tongue member with a minimum of frictional and abrasive action on the material to which the bar member is secured, or on the underlying portions of the bar member itself. The flatness of the tongue is also of advantage for the reason that it renders the fastening more secure against the separation of its members when the parts which it connects are not under strain or tension.

Inasmuch as the base plate 4 and tongue 5 can be formed from a single piece of metal without bending the same abruptly at any point, these parts can be stamped from steel having considerable hardness and elasticity, so that I can give the tongue 5 a spring action whereby the security of the fastening is increased. This spring action is especially important and effective when the bearing points 11 are employed, because said points form, in connection with the tongue itself, a species of jaws in which the engaging portion of the bar member will be securely held by the spring action referred to when the parts 2 and 3 are loose or not under tension. Said jaws may also be employed for the same purpose, even though the points which form the upper jaw do not project beyond the corresponding edge of the head of the rivet 6, or of the cap piece 7 which covers it, in which case the rigid bearing will be provided by said edge of the head of the rivet or cap piece, as above explained. This arrangement is illustrated in Fig. 9, in which the head of the rivet 6' is shown in dotted lines as terminating at the ends of the projections 11, or substantially so.

In Figs. 1 and 4 I have shown a form of the bar member of my fastening in which said member has a bottom portion between which and the engaging bar the tongue 5 passes, said bottom portion being formed by extending laterally the side edges of the bar member and turning them inward beneath its transverse bar or bars, as shown at 13. These underturned side edges stiffen the bar member, and inasmuch as they are located on the upper surface of the fabric or other material to which said member is secured they also serve to protect the same from any wear which might otherwise be caused by the insertion and removal of the tongue 5, as well as to prevent said tongue from catching on said fabric.

It will be seen that my fastening device is simple and inexpensive in construction, and that its operative parts are completely covered and concealed when engaged with each other, and are prevented from catching on any loose part, such as a garment or the like, and injuring the same. My fastening is also readily given an ornamental button finish,

as above stated, and is thus well adapted for use as a glove fastening, or as a substitute for the buttons and buttonholes of a button boot, and it is also useful for many other purposes to which my prior fastening device is rendered inapplicable by reason of the fact that its tongue member is attached at one edge only to the extreme end or edge of the flap or part to which it is secured.

It is to be understood that the various forms of fastening herein shown and described are not the only possible forms which my invention may take, but are merely illustrative of the same, and that my invention is not limited thereto.

I claim as my invention:

1. In a fastening device, the combination with a flexible part or piece of material of a tongue member firmly secured thereto and comprising a tongue proper located on the underside of said flexible part or piece of material and offset therefrom, and a rigid bearing located above and adjacent to said tongue and between the base and the free end thereof.

2. In a fastening device, in combination with a piece of flexible material, a tongue member comprising a tongue proper located on the under side of said flexible material and off-set therefrom, a fastening device passing through said flexible material and securing the tongue firmly thereto, and a rigid bearing located on the upper surface of said flexible material between the free end of the tongue and the base thereof.

3. In a fastening device, in combination with a piece of flexible material, a tongue member comprising a tongue proper located on the under side of said flexible material and off-set therefrom, a fastening device passing through said flexible material and securing the tongue firmly thereto, and a cap piece covering said fastening device on the upper surface of said flexible material and providing a rigid bearing between the free end of the tongue and the base thereof.

4. In a fastening device, the combination with a piece of flexible material of a tongue member comprising a base plate located on the under side of said flexible material, a rivet passing through said base plate and flexible material and securing the same firmly together, and a cap piece covering said rivet on the upper surface of the flexible material, said base plate being provided with an off-set tongue forming an engaging shoulder which is located beneath the cap piece.

5. In a fastening device, the combination with a piece of flexible material of a tongue member comprising a base plate located on the underside of said flexible material and provided with an off-set tongue, a rivet passing through said base plate and flexible material and securing the same firmly together,

and a cap piece covering said rivet on the upper surface of the flexible material, said parts being constructed to provide an engaging shoulder beneath the cap piece and
5 a rigid bearing between said shoulder and the free end of the tongue.

In testimony whereof, I have hereunto

subscribed my name this twenty-first day of January, 1905.

ALBERT G. MEAD.

Witnesses:

E. D. CHADWICK,
JOSEPH T. BRENNAN.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."