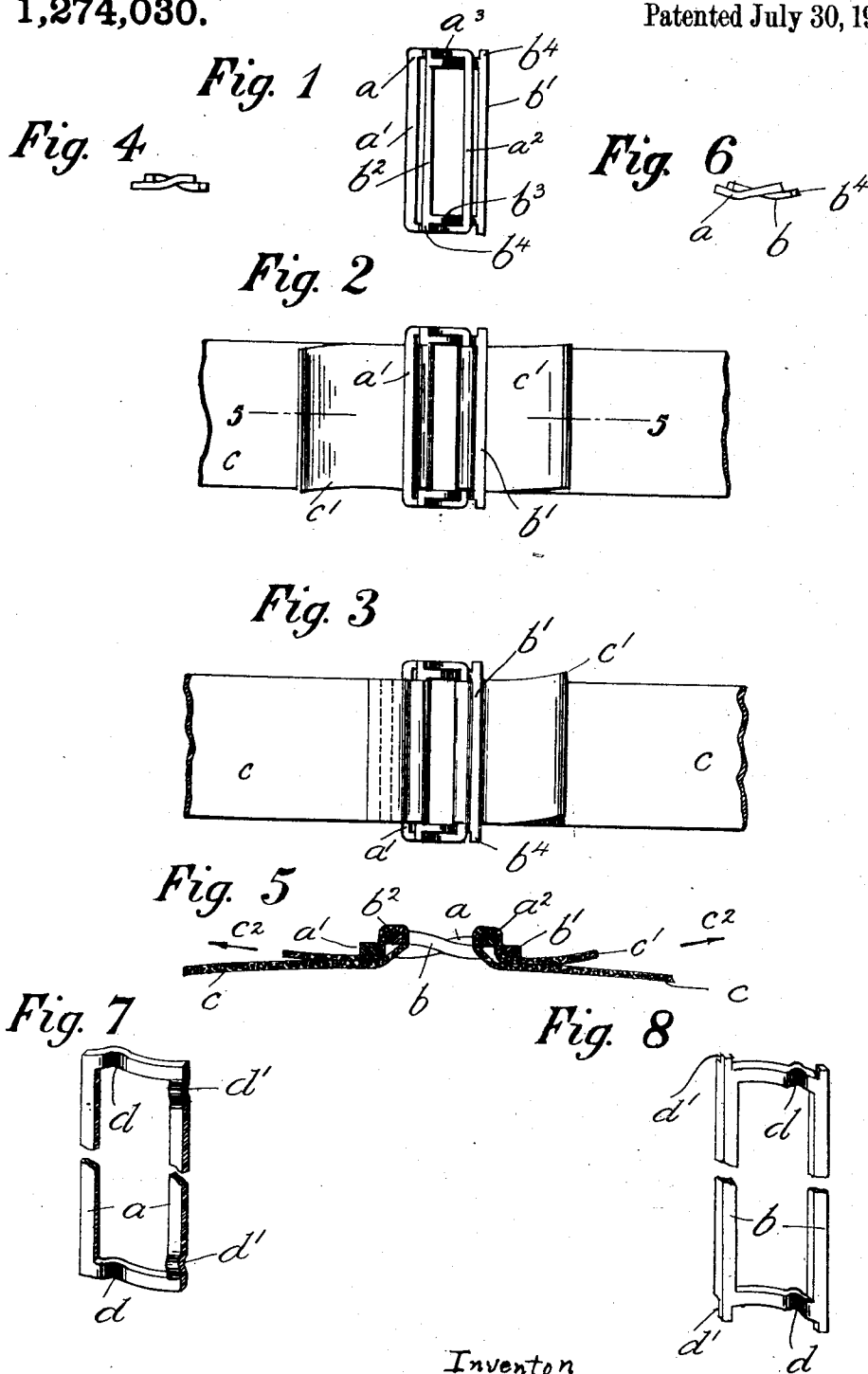


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BUCKLE OR FASTENING DEVICE FOR STRAPS, BANDS, AND THE LIKE.
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UNITED STATES PATENT OFFICE.

ARTHUR GRAHAM FRANCE, OF LONDON, ENGLAND.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ARTHUR GRAHAM FRANCE, subject of the King of Great Britain, residing at 64 Chancery Lane, London, W. C., England, engineer, have invented certain new and useful Improvements in Buckles or Fastening Devices for Straps, Bands, and the like, of which the following is a specification.

This invention comprises improvements in buckles or fastening devices for straps, bands, and the like and refers to the type of buckle or fastening device in which the grip or fastening is obtained by drawing plain or slightly serrated members which may be plates or frames sliding or hinging on one another into binding or pinching engagement with the material of the strap band or the like. In these types of frictional engagement buckles or fastening devices the adjustment may be much finer, as the buckle has not to follow a step by step engagement as in the hole and tongue buckle, and further the operation of fastening or unfastening the buckle or of adjusting the tension of the strap or band is much more easily accomplished than in the tongue buckle or in the toothed buckle for engaging a plain band.

The object of my invention is to provide an improved construction of this type of fastening very easy to manufacture, of the simplest possible character (it may consist of two parts only) and which in use may serve either as a single buckle or double buckle; that is attached to one strap for engaging a free end of same or another strap or for engaging two free strap ends respectively.

The device comprises two substantially similar frames, for example rectangular in shape, which are loosely linked or connected together so that each may hinge upon the other and while perfect freedom for hinging or sliding with respect to each other is permitted the frames cannot be entirely disconnected. One side bar of each frame overlies the end or connecting bars of the other and the frames as seen in edge view are thus crossed and the two side bars spoken of as overlying the end bars form the inner bars of the buckle and the other two side bars, one of each frame, form the outer bars.

If the material of the belt, band, or the like to be fastened is inserted under an outer side bar over and around the adjacent inner

one and back under the outer bar when tension is put upon the belt band, etc., the material is firmly gripped. As there are two inner bars and two outer bars two ends of a band, etc., may be secured in this way so that both ends are adjustable, so that the device serves as a double buckle; but if desired one outer bar and the adjacent inner bar may have the material looped around them both and then stitched, or otherwise secured, and the other two bars may then be used in the same manner as before for fastening the other free end of the band or the like, the device thus serving as a single buckle.

On the drawings:—

Figure 1 is a front view of the improved buckle device.

Fig. 2 is a similar view showing the device in use as a double buckle.

Fig. 3 is a similar view showing the device in use as a single buckle.

Fig. 4 is an edge view of Fig. 1.

Fig. 5 is an enlarged cross-section on line 5—5 of Fig. 2.

Fig. 6 is an edge view of a buckle slightly modified in the shaping of the frames.

Fig. 7 is a perspective view of the one frame drawn slightly larger.

Fig. 8 is a similar view of the other frame.

The device consists of two frames *a*, *b*, each having two side bars, *a*¹, *a*², *b*¹, *b*², respectively; one of the frames has connecting end bars *a*³ while the other has connecting bars *b*³ preferably a short distance from the ends of the side bars so that the ends of the side bars project slightly as at *b*⁴ or the connecting bars may be disposed at the ends of said side bars but curved or formed with projections or horns to give the same effect.

The frame *b* with the projections or horns *b*⁴ is in the process of manufacture flexed slightly to permit the passage of one of its side bars through the other frame *a* and it is then straightened so that the one frame remains loose within the other, being prevented from removal by the horns or projections *b*⁴ engaging the end bars *a*³ of the other frame. Any method of manufacture that enables the one frame to be thus loosely anchored to the other may be followed—the frames may be very conveniently stamped or pressed from thin sheet metal.

I prefer oblong frames the length being

determined by the width of strap or band to be accommodated and the width by the thickness of the material for which the buckle is intended to be used sufficient allowance of space being made to permit ease of working or threading the material through the frames.

In edge view each frame is very slightly curved in both directions like a flat ogee or S, curve, see Fig. 4, and when the two frames are assembled these curves, as seen in edge view, cross each other and the side bar a^2 of the raised end of the curve of one frame rests on the depressed part of the curve of the other frame.

By this arrangement the two frames nest closely together as will be seen from Fig. 4 and one side bar of each frame forms an inner bar of the complete device and by the nature of the curved surfaces if any strain or pressure is put on the two inner bars a^2 , b^2 , of the assembled frames a , b , they tend to ride down the curved end bars and wedge tightly down on to the outer bars a^1 , b^1 , of the assembled frames. A band or strap c is passed up the center and over an inner bar and down under the outer bar. If the device is to be used as a single buckle this strap or band c is sewn or otherwise secured in this condition and the free end c^1 of the strap, or another strap, which is to be fastened is similarly passed up the center over the other inner bar and down under the corresponding outer bar, see Fig. 3. For use as a double buckle the bands, or free ends of one band, are threaded through in the same manner as the free end c^1 , in the case of the single buckle and the stitching or sewing of one end is omitted, see Figs. 2 and 5.

The free ends of the strap or straps which have been thus threaded through the buckle may be pulled readily through the buckle in the direction of the arrow c^2 Fig. 5 to adjust the strap, but any pull returning or withdrawing the under part of same tightens the buckle and the band is most securely gripped. The more strain put upon the band tending to withdraw the strap the tighter are the two frame bars drawn together and the more gripping power set up.

The two frames are simple single piece structures and in their assembling no loose or additional attachment or hinged parts are required. Ease and cheapness of manufacture therefore form a leading characteristic of the invention. Further the frames when assembled form a particularly compact and neat buckle device which has no projecting parts causing discomfort, but is substantially flat.

It may be desirable to depress or notch each frame end bar where it is overlain by the side bar of the other frame in the closed

position as shown at d Figs. 7 and 8, and if desired the complementary parts of the side bar a^1 and the horns b^1 on the bar b^2 respectively may be similarly depressed or notched to facilitate the nesting together of the frames, as shown at d^1 .

Instead of the ogee or S curving of the frames they may follow simple hollow curves as shown at Fig. 6, and in this respect my invention is not restricted to curving the frames.

I claim:—

1. Improved buckle or fastening device comprising two simple rectangular frames connected one within and across the other so that each may hinge and slide upon the other, each frame having two parallel, but separated side bars and two connecting end bars between said parallel side bars, said connecting end bars of one frame, which is the inner frame, being spaced slightly closer together than the corresponding bars of the other frame and said end bars of said inner frame having a projecting horn at each end thereof, said frame with the horned end bars being passed into the other frame, said horns at the ends of each end bar of the inner frame serving to link the two frames together.

2. Improved buckle or fastening devices comprising two simple rectangular frames each having two parallel but separated side bars and two connecting end bars between said parallel bars, said connecting end bars of one frame which is the inner frame, being spaced slightly closer together than the corresponding bars of the other frame so that the said frame, which is the inner frame, may be passed into and across the other frame, said arrangement of the end bars of said inner frame leaving the side bars of said frame projecting beyond said end bars to form anchoring horns at each end of said end bars to prevent complete separation of said frames from one another.

3. Improved buckle or fastening devices comprising two simple rectangular frames each having two parallel but separated side bars and two connecting end bars between said parallel bars, said connecting end bars of one frame being spaced slightly closer together than the corresponding bars of the other frame so that this said frame may be passed into and across the other frame, with anchoring projections and horns at each end of the end bars of said inner frame to prevent complete separation of the frames and with the component parts of the said frames complementarily curved where they engaged each other so that they may lie snugly together.

In testimony whereof I affix my signature.
ARTHUR GRAHAM FRANCE.