

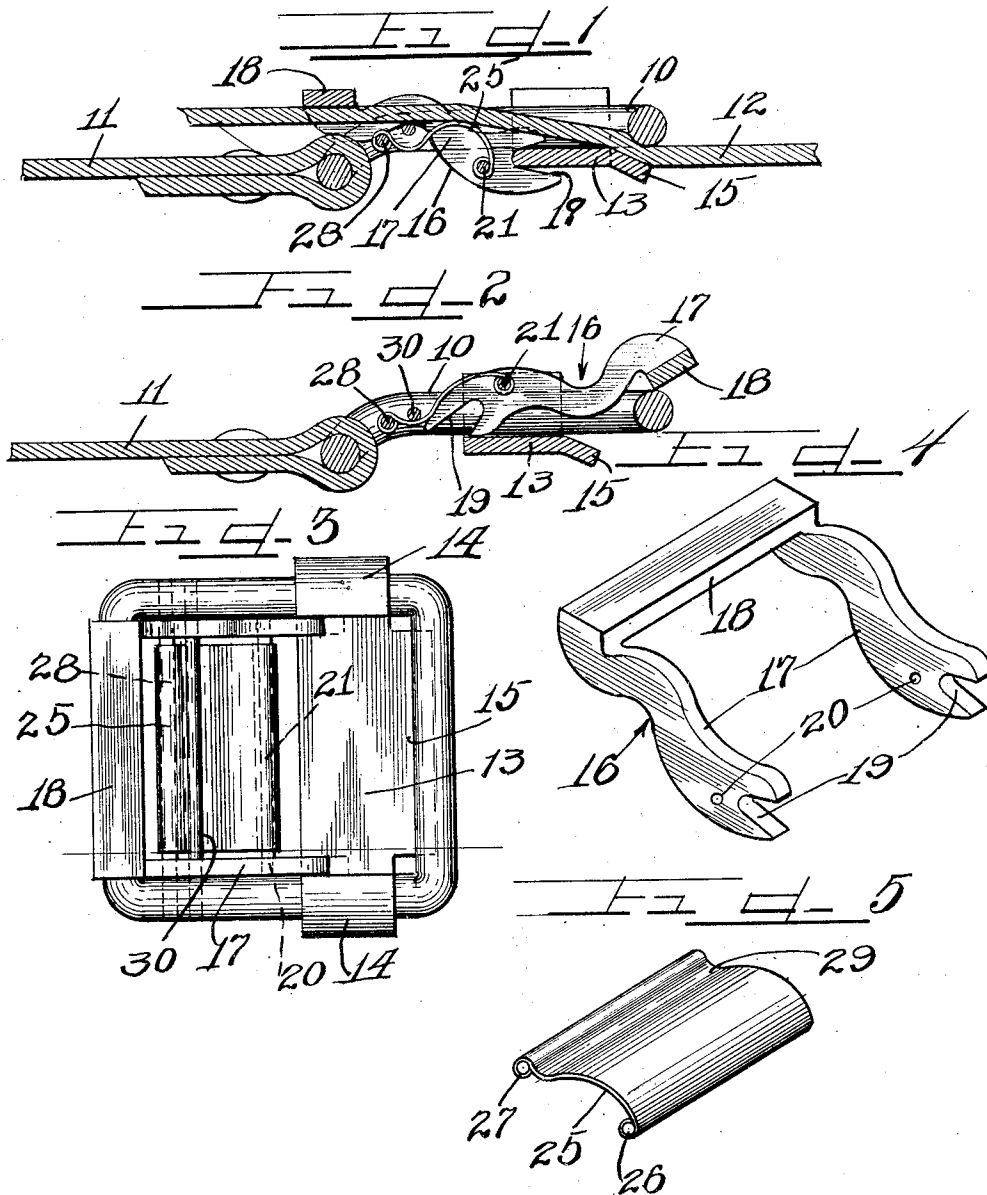
Oct. 18, 1932.

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1,883,009

BUCKLE

Filed Sept. 15, 1930



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UNITED STATES PATENT OFFICE

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BUCKLE

Application filed September 15, 1930. Serial No. 481,988.

This invention pertains to fastening devices or clasps and more particularly to an improved buckle of the type employing a clamp to anchor the free end of a strap to the buckle frame. More specifically, the invention relates to the provision of a bail or keeper in a buckle of the above mentioned type for engaging the free or detachable end of the strap or other strip of material on top of the associated buckle frame.

An object of the invention resides in the provision of an improved buckle of the aforementioned type including a resiliently urged keeper for the free end of the strap connected to the buckle in such a manner as to aid the clamp in anchoring the said end of the strap to the buckle frame.

Another object of the invention pertains to the provision of an improved buckle including a resiliently urged keeper for the free end of the strap with which the buckle is associated adapted to be flexed past a given dead center into and out of cooperation with the free end of the strap and arranged so that when it is in cooperation with said free end of the strap it will aid in anchoring said end of the strap to the buckle frame.

A further object of the invention has to do with the provision of an improved buckle of the aforementioned type in which the clamping element is associated with means for causing the free end of the strap or strip detachably associated with the buckle frame to be tightly embraced by the clamping element when the latter is in its engaged position.

Still another object of the invention relates to the provision of a buckle of the aforementioned type having a resiliently mounted floating keeper or bail connected to the buckle frame adjacent the clamping element of the buckle and arranged to be flexed past a predetermined dead center into and out of operative association with the free end of the strap which it is designed to engage.

A further object of the invention is to provide an improved buckle of the aforementioned type including a resiliently urged bail having a flat surface formed to embrace the end of the strap extending from the buckle frame when the buckle is in its closed or

effective position and which said end of the strap is clamped to the frame, and also providing a substantial finger grip with sufficient clearance whereby it may be moved into engagement with the free end of the strap.

A still further object of this invention is to provide a resiliently actuated keeper similar to the one disclosed in my Patent No. 1,712,096 issued May 7, 1929, but formed so as to be adapted for use with a buckle employing clamping means as distinguished from a tongue for anchoring the free end of the strap or strip to the buckle frame.

Another and further object of this invention is to provide an improved fastening device for use with a buckle of the clamp type and formed so as to be manipulated with ease and without requiring any explanation or special movement and which can be readily unfastened with a single movement and by which the operating parts may be placed in holding position without the necessity of threading the free end of the strap through a corresponding loop or bail.

Also, it is an object of my invention to provide a buckle including a clamp and a keeper for embracing the free end of the material connected to the buckle frame and formed to be flexed with facility and without the necessity of exerting any considerable pressure thereon into and out of open and closed positions, the keeper being of such formation as to be capable of automatic movement into either closed or open position once it is past a predetermined dead center and being associated with the clamp in such a manner as to be capable of forcing it into its engaged position upon the movement of the keeper into its closed position.

In accordance with the general features of the present invention I provide a buckle comprising a rectangular frame having a slidable clamp element thereon for clamping the free end of a strap or strip thereto and a resiliently supported floating keeper disposed adjacent the clamping element and formed to hold the free end of the strap in cooperation with the frame, the keeper being so connected to the frame that it may be snapped past a predetermined dead center line into engaged and

disengaged position with the respect to the free end of the strap or strip.

Another feature of the invention relates to the forming of a keeper in a buckle of the aforementioned type in such a manner that it will exert a force on the clamping element tending to urge it toward its engaged position when the keeper is actuated into its closed or engaged position.

Other objects and advantages of this invention will more fully appear from the following detailed description taken in connection with the accompanying drawing which illustrate a single embodiment thereof, and in which

Figure 1 is a sectional view taken longitudinally through the buckle of my invention and its associated strap and showing the parts thereof in a closed position;

Figure 2 is a view similar to Figure 1 but differing therefrom in that the parts are shown in their open or disengaged position and the free end of the strap removed from the buckle;

Figure 3 is a plan view of the buckle of this invention;

Figure 4 is a perspective view of the keeper; and

Figure 5 is a perspective view of the spring for use in resiliently connecting the keeper to the buckle frame.

As shown in the drawings:

The reference character 10 designates generally the frame of the buckle which is shown as being substantially rectangular in shape and having one of its ends slightly offset downwardly for connection to the fixed end 11 of the strap or strip associated with the buckle. The other end 12 of the strap is the free or detachable end thereof and is adapted to be secured to the buckle frame 10 by means of a slidable clamping element 13 carried by the frame. The slidable clamping element 13 has each of its ends bent back over itself so as to engage both the top and under sides of the frame. These turned back ends of the element 13 are designated by the reference characters 14—14. Also, the front end of the buckle frame, or in other words the end of the frame which cooperates with the detachable or free end 12 of the strap is provided with a downwardly inclined lip 15 which is adapted to frictionally engage a portion of the end 12 disposed between the lip 15 and the associated end of the frame 10 (Figure 1) when the parts of the buckle are in closed position.

Associated with the buckle frame 10 between its ends is a floating keeper designated generally by the reference character 16 which constitutes one of the most important parts of my buckle. This keeper 16 which is shown in perspective Figure 4 is of a U shape, in that it embodies a pair of substantially parallel legs or arms 17—17 and a connecting bar

18 disposed between these legs. The bar 18 comprises a finger grip for the keeper and is adapted when the keeper is in its closed position to engage the top of the portion of the free end 12 of the strap extending over the top of the buckle frame, as best shown in Figure 1. On the other hand, when the keeper is moved to its open or disengaged position the bar 18 will be disposed in a slanting position as shown in Figure 2 and the slant of this bar when in the position shown in Figure 2 is such as to afford clearance between it and the free end 12 of the strap whereby one finger can readily engage the same to snap the keeper to its closed position.

Each of the legs or arms 17 of the keeper is formed into a shape somewhat resembling an S and has its free end recessed as indicated at 19 for receiving an edge of the clamping element 13 when the element is actuated into its engaged position as shown in Figure 1.

Also, it will be observed that each of the legs 17 is provided with an opening 20 which two openings are adapted to receive the ends of a transverse pin 21 comprising a pivot pin for an end of the spring shown in Figure 5 and designated generally by the reference character 25. This spring 25 is made of resilient sheet material and is formed of a curved shape with its ends terminating in tubular portions 26 and 27 for receiving the pin 21 and a transverse pin 28 respectively, the latter pin being secured to the frame 10. The tubular portion 26 of the spring is loosely or pivotally disposed on the pin 21 whereas the tubular portion 27 is anchored to the pin 28. It is to be observed that the curved spring 25 has an intermediate depressed portion 29 adapted to cooperate with the transverse pin 30 secured to the frame 10 as best shown in Figure 2. This pin 30 comprises a stop for the spring and also serves as a pivot point about which the spring moves when the keeper 16 is snapped to its disengaged position shown in Figure 2.

The operation of my novel buckle is briefly as follows:

Assuming that the free end of the strap 12 has been removed from the buckle and the buckle is in its open position as shown in Figure 2 the free end of the strap may be connected to the buckle as shown in Figure 1 by first inserting the end 12 in the buckle between the frame and the lip 15 of the clamping element and by thereafter snapping the keeper 16 from the position shown in Figure 2 to the position shown in Figure 1. This movement of the keeper results in the following three actions:

1. The positioning of the keeper so that its transverse bar 18 is disposed on top of the portion of the end 12 of the strap disposed on top of the buckle frame whereby the bar

18 acts as a retainer for this portion of the strap.

2. The movement of the clamping bar 13 into its engaged or clamping position.

5 3. The resilient urging of this clamping bar into tight frictional engagement with the strap as shown in Figure 1.

The shape and arrangement of the spring 25 in the buckle is such that once the keeper 10 has been moved past a given dead center line the frame becomes effective to move the keeper into either of its extreme positions shown in Figures 1 and 2. This feature is advantageous in that it insures against the keeper 15 being disposed in a midway position.

When the spring 25 is in the position shown in Figure 2 it is distorted about the fixed stop pin 30 in such a way that the uppermost portion of the spring, as shown, functions to 20 exert a downward pressure on the keeper thus maintaining it in engagement with the top surface of the slidable clamping element 13.

On the other hand, when the spring is actuated to the position shown in Figure 1 its 25 bowed portion directly over the pin 21 is distorted so that the spring tends to exert a downward pressure on the keeper, the pivot point then being the point of engagement of the edge of the clamping element 13 and the 30 recess portion 19. This downward and outward pressure of the spring when in this position causes the slidable clamping element 13 to be resiliently urged forward so that the lip 15 tightly and frictionally engages a 35 portion of the strap end 12 to securely anchor it to the buckle frame 10.

It is also to be observed that the only connection between the keeper and the frame is the spring 25 and hence it may be said that 40 the keeper is disposed so as to float on the buckle frame. This floating feature of the keeper is advantageous in that it enables it to readily assume either of the two positions to which it is manually snapped.

45 Now it is, of course, to be understood that although I have illustrated and described in detail the preferred embodiment of this invention, the invention is not to be thus limited but only insofar as defined by the scope and 50 spirit of the appended claims.

I claim as my invention:

1. As an article of manufacture, a buckle comprising a frame, means connected to the 55 frame for clamping the free end of a strip thereto, said means including an element mounted for sliding movement into engaged and disengaged positions with respect to said end of the strip and means connected to said 60 element and frame for urging the element into tight cooperation with said free end of the strip when the element is in its engaged position said latter means including a resilient member cooperating with said element 65 in such a way as to exert a force on the ele-

ment tending to urge it toward its engaged position.

2. As an article of manufacture, a buckle comprising a frame, means connected to the 70 frame for clamping the free end of a strip thereto, said means including a clamping element mounted for sliding movement into engaged and disengaged positions with respect to said end of the strip and means connected to said element and frame for urging 75 the element into tight cooperation with said free end of the strip when the element is in its engaged position, said latter means including a keeper connected to said frame formed to hold said free end of the strip in 80 cooperation with the frame and means connecting said keeper to said frame for snapping it past a predetermined dead center line into engaged and disengaged positions with respect to said free end of the strip. 85

3. As an article of manufacture, a buckle comprising a frame, means connected to the 90 frame for clamping the free end of a strip thereto, said means including an element slidably movable into engaged and disengaged positions with respect to said end of the strip and means connected to said element for urging it into tight cooperation with 95 said free end of the strip when the element is in its engaged position, said latter means including a keeper connected to said frame formed to hold said free end of the strip in cooperation with the frame and means connecting said keeper to said frame for snapping 100 it past a predetermined dead center line into engaged and disengaged positions with respect to said free end of the strip, said 105 keeper being so formed that when it is in a disengaged position said free end of the strip may be drawn over the same to permit of the moving of the free end of the strip out of cooperation with said frame and clamping element.

4. As an article of manufacture, a buckle comprising a frame, means connected to the 110 frame for clamping the free end of a strap thereto, said means including an element mounted for sliding movement into engaged and disengaged positions with respect to 115 said end of the strap, and means associated with said element and frame for causing said end of the strap to be resiliently engaged by said element when it is moved to its engaged position, said latter means becoming 120 ineffective relative to said element when the element is moved to disengaged position with respect to said strap.

5. As an article of manufacture, a buckle comprising a frame, means connected to the 125 frame for clamping the free end of a strip thereto, said means including an element movable into engaged and disengaged positions with respect to said end of the strip, a 130 keeper connected to said frame arranged for cooperation with the free end of the strip,

and resilient means cooperating with said keeper and element for actuating them into cooperation and engagement with said free end of the strip when the element is in its engaged position.

6. As an article of manufacture, a buckle comprising a frame, means connected to the frame for securing the free end of a strip thereto and a floating keeper connected to said frame formed to hold said free end of strip in cooperation with the frame, said keeper cooperating with said means in such a way as to be capable of being snapped past a predetermined dead center line into engaged and disengaged position with respect to the free end of the strip.

7. As an article of manufacture, a buckle comprising a frame, means connected to the frame for clamping the free end of a strip thereto, said means including an element movable into engaged and disengaged positions with respect to said end of the strip, and means cooperating with said element for urging it into tight cooperation with said free end of the strip when the element is in its engaged position, said latter means including a bowed and curved metallic sheet spring secured to said frame adjacent said element.

8. As an article of manufacture, a buckle comprising a frame, means connected to the frame for clamping the free end of a strip thereto, said means including an element movable into engaged and disengaged positions with respect to said end of the strip and means connected to said element and frame for urging the element into tight cooperation with said free end of the strip when the element is in its engaged position, said latter means including a keeper having a transverse bar for engaging the top of the portion of the end of the strip lying on the buckle frame and side arms each having its ends formed to engage an edge of said clamping element to actuate the clamping element into its engaged position when the keeper is moved into its engaged position.

9. As an article of manufacture, a buckle comprising a frame, means connected to the frame for clamping the free end of a strip thereto, said means including an element movable into engaged and disengaged positions with respect to said end of the strip and means connected to said element and frame for urging the element into tight cooperation with said free end of the strip when the element is in its engaged position, said latter means comprising a keeper including a resilient member cooperating therewith in such a manner as to cause the keeper to exert a force on the element tending to urge it toward its engaged position when the keeper is moved to its engaged position, said resilient member being flexed into a plurality of different shapes for snapping the keeper into either its engaged or disengaged positions with respect

to the portion of the said end of the strap extending through and on the buckle frame.

10. As an article of manufacture, a buckle comprising a frame, a keeper connected to said frame for movement to positions of cooperation and non-cooperation with the free end of a strap, an element connected to the frame for movement to positions of engagement and disengagement with said strap, said keeper and element cooperating with each other in such a manner that movement of the keeper to its position of cooperation with the strap will actuate the element to its position of engagement with the strap, and resilient means for maintaining the keeper and element in their respective positions of cooperation and engagement with said strap.

11. As an article of manufacture, a buckle comprising a frame, an element connected to said frame in such a manner as to be movable into cooperative and non-cooperative relationship with the frame and clampingly engage the free end of a strap when in the cooperative position, a spring member connected to said frame, and a keeper mounted in the frame for movement into engaged and disengaged positions with relation to the free end of the strap, said keeper cooperating with said element and member in such a manner that the spring becomes effective to forcibly urge the element against the free end of the strap when the keeper is in engaged position.

12. As an article of manufacture a buckle comprising a frame, clamping means carried by the frame and operable to clamp the free end of a strip thereto, said means including an element mounted for sliding movement into engaged and disengaged positions with respect to said end of the strip, and means cooperating with said element and frame for resiliently maintaining the element in cooperation with said free end of the strip when the element is once moved to its engaged position.

13. As an article of manufacture, a buckle comprising a frame, means for detachably securing a free end of a strip thereto, a keeper for retaining in place a portion of the free end of said strip projecting over the frame, and a flexible member connected at one end to the keeper and at its other end to the frame for flexibly supporting the former to the latter.

14. As an article of manufacture, a buckle comprising a frame, a sliding member on said frame for detachably securing a free end of a strip thereto, means for retaining in place the portion of the free end of said strip projecting over the frame, and a flexible member connected at one end to said means and at its other end to the frame for flexibly supporting the former to the latter.

15. As an article of manufacture, a buckle comprising a frame, a keeper movable to po-

sitions of cooperation and non-cooperation with the free end of a strap, a flexible member connected at one end to the keeper and at its other end to the frame for flexibly supporting the former to the latter, and an element connected to the frame for movement to positions of engagement and disengagement with said strap, said keeper and element cooperating with each other in such a manner that movement of the keeper to its position of cooperation with the strap will actuate the element to its position of engagement with said strap.

In testimony whereof I have hereunto subscribed my name at Chicago, Cook County, Illinois.

OZRO G. SHERMAN.