May 14, 1929. A. F. KRAEMER 1,712,566

BAND FASTENER

Filed July 2, 1927

Fig. 1.

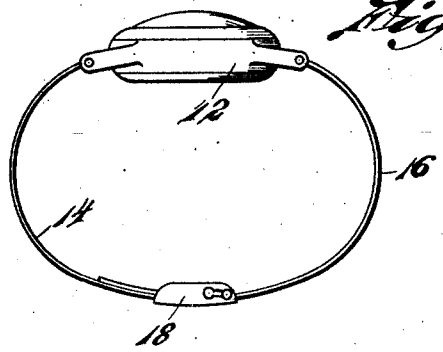


Fig. 6.

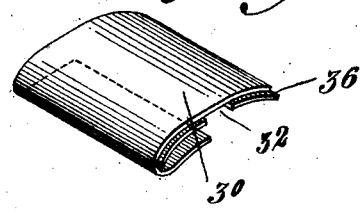


Fig. 7.

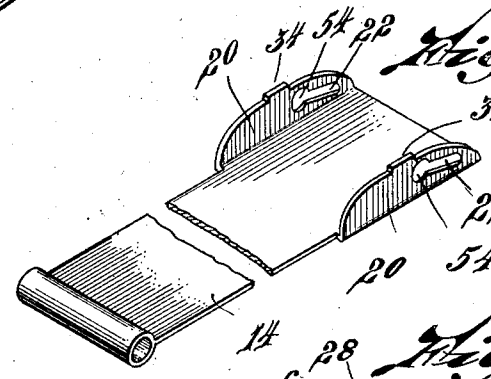


Fig. 9.

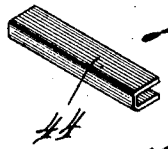


Fig. 10.

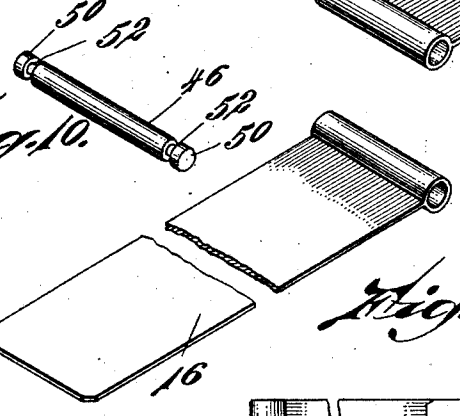


Fig. 8.

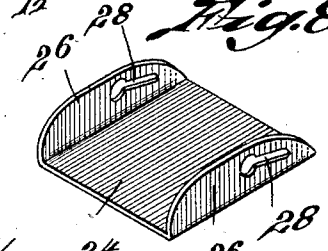


Fig. 11.

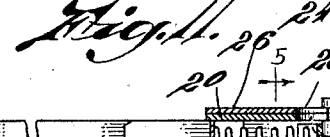


Fig. 4.

Fig. 5.

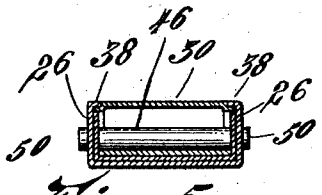


Fig. 2.

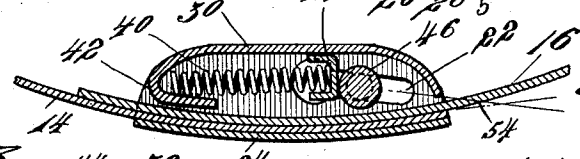
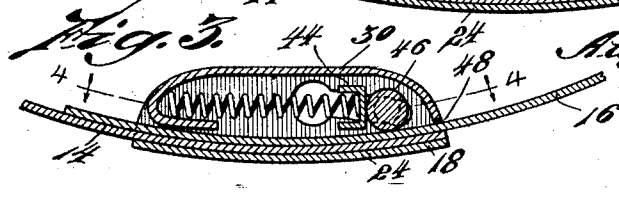


Fig. 3.



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ATTORNEYS.

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UNITED STATES PATENT OFFICE.

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BAND FASTENER.

Application filed July 2, 1927. Serial No. 203,219.

The present invention relates to a fastener for securing the ends of a belt or bracelet band in adjusted position.

One of the objects of the present invention is to provide a fastener for the purposes mentioned which shall securely hold the ends of the band against relative movement in a direction to lengthen or loosen a belt or the like but which permits relative motion of the ends of the belt to bind the same without requiring a movement of the parts of the fastener.

A further object of the present invention is to provide a fastener for bands which shall be of neat appearance, which are readily manufactured and efficient in action.

In view of the above and further objects the present invention consists in the particular arrangement and combination of parts hereafter described, and particularly pointed out in the appended claims.

In the drawing accompanying and forming a part of the present specification, I have illustrated a particular embodiment of the present invention. In the said drawing:—

Fig. 1 is a view of a wrist watch, the supporting bands or band of which has its ends held in adjusted relation by a fastener according to the present invention.

Fig. 2 is a central longitudinal section of a view of the fastener shown in Fig. 1, illustrating the parts in position in which the locking or wedging roll has been withdrawn from contact with the loose end of the band to permit adjustment of its length, Fig. 2 being taken on line 2—2 of Fig. 4.

Fig. 3 is a view similar to Fig. 2 but showing the parts in position in which the wedging roll is holding the band ends against motion in a direction to lengthen the band.

Fig. 4 is a section taken on line 4—4 of Fig. 3.

Fig. 5 is a section on line 5—5 of Fig. 4, the spring bearing in Fig. 4 being removed for the purpose of illustration.

Fig. 6 is a detail perspective view of a back piece or shoe appearing in Figs. 2, 3 and 5.

Fig. 7 is a perspective view of a metal band having flanges thereof for supporting the shoe illustrated in Fig. 6.

Fig. 8 is a perspective view illustrating a cover piece for inclosing the flange portion illustrated in Fig. 7.

Fig. 9 is a detail perspective view of a spring cap used in the device illustrated in Figs. 2, 3 and 4.

Fig. 10 is a perspective view of the wedging roll used in the device illustrated in Figs. 2 to 5 inclusive.

Fig. 11 is a perspective view of a band portion appearing in Figs. 2 to 5 inclusive as extending through the buckle to be held in adjusted position therein.

In wrist bands or like articles, it is of advantage that the ends of the band be held securely against relative motion in the direction of the length of the band or the like since otherwise there is danger of the band opening and becoming lost. It is desirable, however, that a relative motion of the ends of the band in a direction to shorten the same be accomplished with as little attention as possible. The advantage just mentioned is readily obtained in the embodiment of the present invention illustrated in the drawing.

In the drawing, 12 is a wrist watch secured to the band portions 14 and 16, the other ends of which are held together by a clamp or fastener 18 embodying the present invention. The watch 12 forms no part of the present invention and the band portions 14 and 16 might be fixed to the ends of a belt or other band within the present invention. The band portions 14 and 16 are preferably of metal, the end of band 14 being intended to cooperate with the end of band 16 being formed with inturned slotted flanges 20, said flanges in the arrangement having slots 22 therein for the purpose of receiving the ends of the wedging or clamping roll 46.

These slots 22 are inclined to the face of the band 14, between the flanges 20; the ends of the slots 22 nearest the free end of band 14 being closer to the inner face of the band. Moreover, the band 14 and especially the portion thereof lying between flanges 20 is curved so that the band is provided with a face, the concavity of which lies between the flanges 20.

In making a fastener according to the present invention, I assemble the free end of band 14 and coverpiece 24 having notches or slotted flanges similar to the flange 20 and having the same outline or form as the free end of the band 14. Flanges 26, 26 on the cover piece 24 lie on the outside of the flanges 20 when the parts have been assembled and the slots 28, 28 of the cover piece 24 register with the slots 22 in flanges 20.

A back piece or shoe 30 is assembled to rest on the edges of the flanges 20, 20, the edges

of the shoe 30 which rest on the flanges are notched as indicated at 32 to receive ears 34 on the flanges so that the shoe is secured against sliding relatively to the flanges. The laterally extending edges of the shoe 30, moreover, are offset downwardly the thickness of the stock from the outer face of the shoe, as illustrated at 36, and the edges of the flanges 26 of the coverpiece are bent over, as illustrated at 38, 38 in Fig. 5, to hold the shoe 30 securely in place and at the same time forming a flush surface for the side walls 26 of the cover piece and the top wall of the shoe 30.

In assembling the parts of this device, first the back piece 30 containing its spring 40 and channel cap 44, is positioned over the upturned side walls 20 with the projections 34 extending into the notches 52 in the back piece. Next the whole is set in the cover piece 24 and the edges of this cover piece are rolled inwardly over the downwardly offset flanges 36 so that these inturned edges will lie flush with the outer surface of this back piece and lock the whole together.

In order to insert the roller 46 into this assembled unit an instrument is first passed thru the slots 28 and 22 to engage the channel cap 44 and press it backward beyond the larger opening 54 in these members thereby permitting the roller to be passed thru the larger openings 54 with their heads projecting beyond the outer walls 26 thereof. Then this spring with its cap is released to force the roller along the inclined slots to grip and bind the other part of the band which is inserted thereunder, as illustrated in Fig. 3. When it is desired to release the roll the offset heads 50 thereof are engaged by the thumb and finger and drawn back against the spring pressure to disengage the band and permit them to slide apart.

Within the member 18 is a spring 40, the purpose of which will presently appear. One end of the spring 40 abuts against the inturned end 42 of the shoe 30, the other end of spring 40 being covered by a channel-shaped cap 44. Mounted within the slots 22, 22, 28, 28, is a wedge roll 46, the cap 44 previously mentioned being placed within the shoe 30 to bear against the roll 46, spring 40 being placed between the abutment 42 and wedge roll 46 so as to force the roll towards the ends of the slots 22 nearest the free end of the band portion 14, whereby the roll may contact with the end of the band portion 16, as illustrated in Fig. 3 when the portion 16 has been inserted between the flanges 20.

It will be seen that the shoe 30 is arranged on the flanges 20 in such position that an opening 48 is left between one end of the shoe 30 and the free end of the band portion 14 to permit the band portions 16 to be inserted. Moreover, the inturned end 42 of the shoe 30 which acts as an abutment for the spring 40 is also spaced from the inner face of the band member 14 so that the band end 16 may extend entirely through the fastener 18.

It will be seen that the free end of the band 16 is in contact with the inner concaved face of the band member 14, the wedging roll 46 bearing upon the inner concaved face of the band end 16 to force it against the concaved face of the band member 14. It has been found that the arrangement of the wedging roll bearing against the inner concaved face of the free end of the band member provides a very efficient gripping action against movement of the band in one direction and permits the band to be moved very readily in the opposite direction, the user not having to release the roll 46 in order to move the band ends in a direction to tighten or shorten the band, it being impossible to lengthen the band by moving the wedging roll in the slots 22 in a direction to carry out the contact of the band 16.

In order that the wedging or clamping roll may be readily operated its ends 50 project through slots 28, 28 to the outside of the cap 24 where the ends 50 are readily accessible to the hand of the user. Moreover, the wedging roll 46 is provided with reduced portions 52, 52 at its ends which are adapted to lie in the slots 22 and 28 and be guided therein. The end portions of the wedging roll 50, 50, however, are preferably of about the same size as the operating portion of the roll within the fastener 18, and in order to insert the wedging roll into the fastener after the fastener has been assembled, slots 28, 28 are of the well-known keyhole form having enlarged portions 54, 54 to permit of accession and removal of the wedging roll 46. I prefer, moreover, that the ends 50 be of ornamental character, preferably being formed with gold plated caps thereon.

I have found, moreover, that the action of the wedging roll locking the band ends together prevents motion to open the band while permitting very ready relative movement in the other direction which greatly facilitates the same if the angle between the slots 22 and 28 are tangent to the concaved face of the members 14 and 24 at a point determined by the greatest radius of the wedging roll through its point of contact when the band member 16 is between 2 and 15°, the angle in question being indicated at 54 in Fig. 2.

It will be understood that the foregoing description is directed solely to the particular embodiment illustrated in the drawing, but I wish it to be understood that I may employ within the present invention all the advantages to which the device is susceptible, the invention being defined and limited solely by the terms of the appended claims.

I claim:

1. A band formed in two parts one of said parts having integral flange portions adjacent

one end thereof, a cover member supported by said flange portions and spaced from its band part to provide a slot to receive the free end of said other band part, a cooperating housing member having slotted side walls, said flange portions having openings aligned with said slotted side walls, and a clamp roll passing through said slots and openings to clamp said free end in said housing.

2. A band clamp comprising a band member having inturned integral slotted flanges adjacent one end to receive the end of another band member between them, a wedging roll mounted in the slots in said flanges, said slots being inclined to the face of said band member to bring said roll adjacent said band member and bind the inserted end thereagainst, and spring means arranged to force said roll to wedge and lock said band ends against an endways separating motion.

3. A band clamp comprising a band end portion having inturned slotted flanges, a wedging roll mounted in the slots in said flanges, said slots being inclined to the inner face of the band end, a shoe carried on and secured to said flanges, a spring mounted between said shoe and said roll and arranged to force said roll against the face of a second band end lying between said flanges to lock said two band ends together against a separating movement.

4. A band clamp comprising a band end portion having inturned slotted flanges, a wedging roll mounted in said slots in said flanges, said slots being inclined to the inner face of the band end, a shoe carried on said flanges, means for fastening said shoe on said flanges and a spring mounted between said shoe and said roll and arranged to force said roll against the face of the free end of a second band end lying between said flanges, said shoe having an inturned end acting as an abutment to said spring.

5. A band end having slotted flanges thereon, a cover-piece also having slotted flanges thereon, the slots in the band flanges registering with those in the cover piece flanges, a wedging roll mounted in said slots, a shoe resting on said band flange, the edges of said cover piece flanges overlapping said shoe and holding it in place, a spring intermediate said shoe and said roll arranged to force said roll into wedging position.

6. A band clamp comprising a curved band end having inturned slotted edge flanges, a housing inclosing said flanges having openings aligned with said slots, a wedging roll mounted in said slots and passing through said openings, and spring means for forcing said roll along said slots into position to wedge the free end of a second band lying between said flanges against the concaved face of said curved band end.

In testimony whereof I affix my signature.

AUGUST F. KRAEMER.