May 2, 1939. A. E. RINEER ET AL 2,156,870

BUCKLE

Filed Jan. 17, 1938

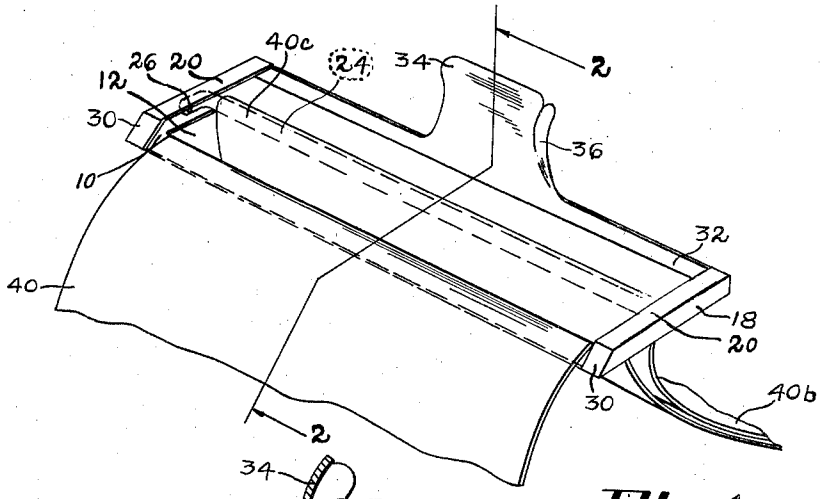
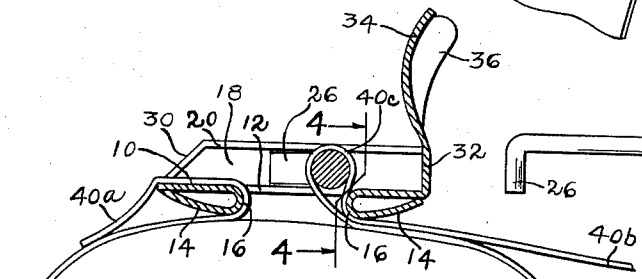


Fig. 1



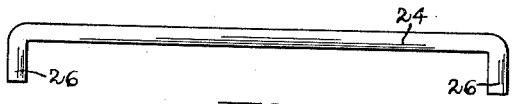


Fig. 6

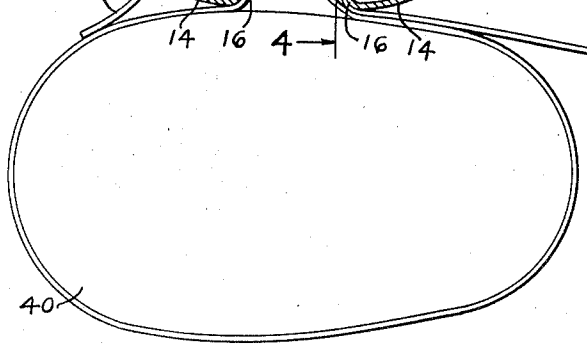


Fig. 8

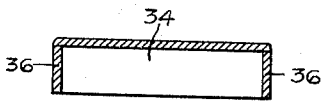


Fig. 6

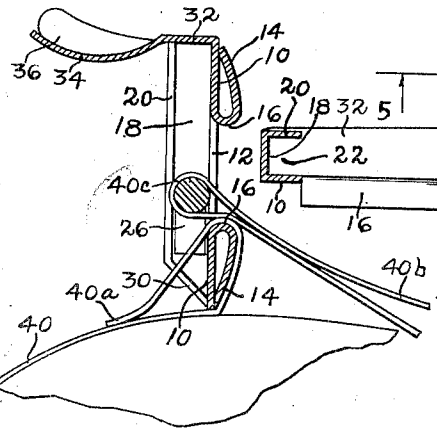


Fig. 3

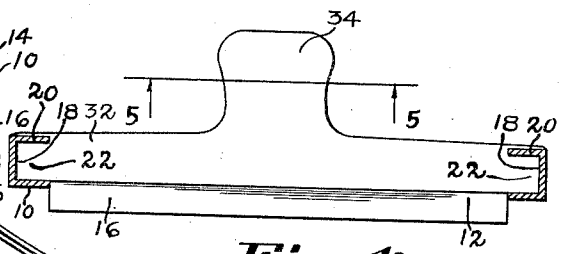


Fig. 4

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BUCKLE

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Application January 17, 1938, Serial No. 185,355

1 Claim. (Cl. 128—327)

This invention relates to surgical instruments and in more particular to a buckle for attaching the arm band of a sphygmomanometer to the arm of a patient.

An object of this invention is to provide a buckle for the arm band of a sphygmomanometer, facilitating the rapid and easy attachment of the arm band to the arm and the quick removal from the arm.

Another object of this invention is to provide a buckle for the arm band of a sphygmomanometer that is cheap, efficient, durable and dependable.

Other objects and advantages reside in the construction of parts, the combination thereof and the mode of operation, as will become more apparent from the following description.

In the drawing,

Fig. 1 is a perspective view of the buckle showing a portion of the arm band with the remainder thereof broken away.

Fig. 2 is a cross sectional view taken substantially on the line 2—2 of Fig. 1.

Fig. 3 is another cross sectional view showing the buckle oriented through ninety degrees to a position for releasing the arm band.

Fig. 4 is a cross sectional view taken substantially on the line 4—4 of Fig. 2, with the arm band removed.

Fig. 5 is a cross sectional view taken substantially on the line 5—5 of Fig. 4.

Fig. 6 is a detail view of the transverse retaining member.

In the past, for the most part, it has been common practice to measure the blood pressure by applying pressure upon an artery by the use of an inflation bladder mounted in a comparatively long arm band that is wrapped around the arm. This requires a careful positioning of the arm band In addition thereto, it is a slow, tedious task. Furthermore, the results may be quite inaccurate.

Attempts have been made to use buckles; but either these are hard to tighten or loosen, or they will slip when taking the measurements.

In the embodiment disclosed herein the buckle includes a base member provided with a rectangular opening spanned by a transversely disposed retaining member mounted within a bight of the arm band, cooperating with a side of the base portion to hold the arm band in position. The base portion merges into a handle portion extending in a direction substantially normal to the base portion, which facilitates the handling of the buckle. The arm band may be released by rotating or orienting the buckle through an angle of ninety degrees, or thereabouts, at which time the transversely disposed retaining member slips away from the side of the opening in the base member, releasing the arm band.

Referring to the drawing, the base portion 10 is provided with a rectangular opening 12. The material originally across the rectangular opening 12 is severed along the center and bent in opposite directions forming beads 14, one on each side of the rectangular opening 12. Each bead 14 is provided with an arcuate portion 16. The ends of the base portion 10, as may best be seen by referring to Fig. 4, individually merge into an upright flange 18 terminating in a reentrant flange 20, the flanges 18 and 20 cooperating with the ends of the base portion 10 to form channels 22.

A transversely disposed retaining member 24, preferably having the ends 26 bent at right angles to its length, extends across or spans the opening 12 and is seated in the channels 22, the channels 22 cooperating to hold the retaining member 24 in position. One end of the channel 22 is closed by a lip 30 diagonally disposed and integral with the reentrant flange 20. The lip 30 is preferably soldered or welded to the base portion 10 and the upright flange portion 18.

The rear of the base portion 10 merges into a flange 32 extending in a direction substantially normal to the plane of the base portion 10 and terminating in a handle 34. The handle 34 is slightly arcuate, as may best be seen by referring to Figs. 2 and 3. In order to provide suitable finger grips the sides of the handle 34 are provided with ears 36, facilitating the handling of the buckle. The flange 32 closes the channels to the rear of the buckle.

The band 40 has one end 40*a* permanently secured in position, as by sewing, to one side of the base portion 10. The other end of the band 40*b* is removably inserted around the retaining member 24 which engages the bight 40*c*. By exerting a pull upon the end 40*b* the band 40 may be tightened about the patient's arm until it is sufficiently tight. As the end 40*b* is tightened, the retaining member 24 tends to move towards the right, as viewed in Figure 2, the retaining rod 24 cooperating with the side of the base portion 10 to grip the free end of the arm band to hold it in position. In actual tests it has been found that this structure will not yield or give when a pressure of more than three hundred pounds is applied to the arm band.

After the blood pressure has been measured, it

is merely necessary to rotate the buckle in a counter-clockwise direction, as viewed in Figs. 2 and 3, through an angle of ninety degrees, or substantially so, from a position as disclosed in Fig. 2 to that disclosed in Fig. 3, to cause member **24** to drop in the channels **22**, thereby completely releasing the end **40***b* of the arm band, so as to permit the removal thereof without any binding action.

The base portion **10** and the parts integral therewith, may be made or formed from .032 stainless steel. The retaining rod may be made from $\frac{3}{16}$'' high carbon steel rod or stainless steel rod, as the case may be. Instead of using stainless steel or instead of using the dimensions set forth above, any other suitable material and any other suitable weights of materials may be used.

Although the preferred modification of the device has been described, it will be understood that within the purview of this invention various changes may be made in the form, details, proportion and arrangement of parts which generally stated consist in a device capable of carrying out the objects set forth, in the novel parts, combination of parts and mode of operation, as disclosed and defined in the appended claim.

Having thus described our invention, we claim:

In a sphygmomanometer having an arm band for supporting the inflation bladder, a buckle for holding the arm band on the arm, said buckle including a sheet metal base portion having a substantially rectangular opening, one end of the arm band being fixedly attached to one side of the base portion, the opposite sides of the base portion merging into a handle extending normal to the plane of the base, said handle including a hand grip portion, the ends of the base portion extending upwardly and inwardly to form a pair of parallel channels and a transversely disposed slidably mounted rod extending over the opening in the base portion, the ends of said rod being seated in said channels, the free end of the arm band extending through the opening over the rod down through the opening when in position for use on the arm, the arm band being releasable by gripping the handle and rotating the buckle, permitting the rod to shift relative to the base portion to cause the free end of the arm band to be released.

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