Dec. 7, 1926. 1,610,225

A. H. METCALF

METHOD OF MAKING SHIRT STUDS

Original Filed April 23, 1926

Fig:1.

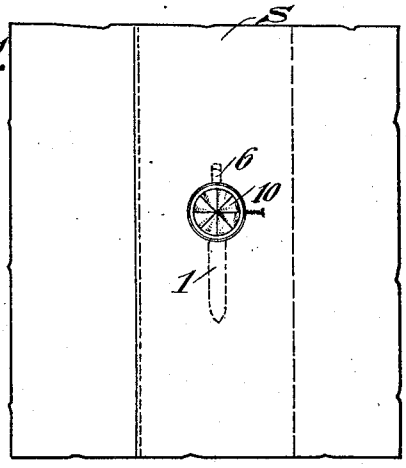


Fig:2.

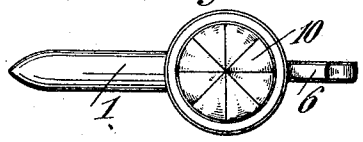


Fig:3.

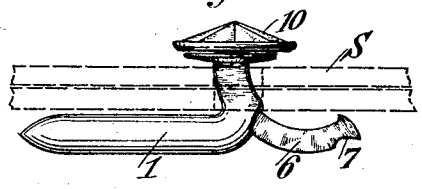


Fig:4.



Fig:5.



Fig:6.

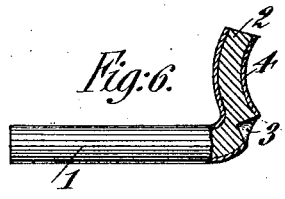


Fig:7.



Fig:8.

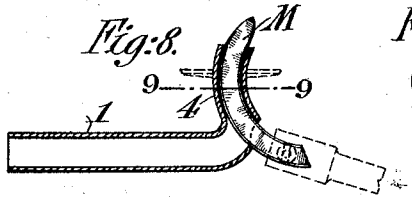


Fig:9.



Fig:10.

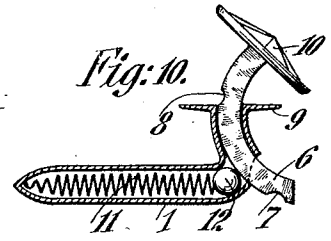


Fig:12.

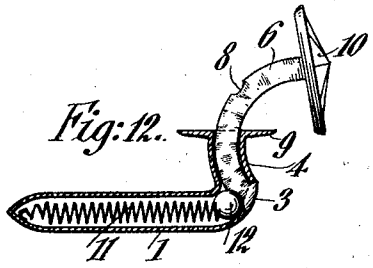


Fig:11.

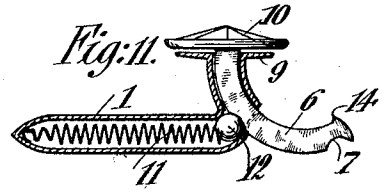
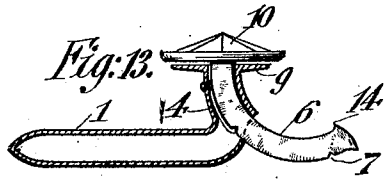


Fig:13.



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UNITED STATES PATENT OFFICE.

ALPHA HORATIO METCALF, OF ATTLEBORO, MASSACHUSETTS, ASSIGNOR TO THE BAER & WILDE COMPANY, OF ATTLEBORO, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS.

METHOD OF MAKING SHIRT STUDS.

Original application filed April 23, 1926, Serial No. 104,018. Divided and this application filed July 15, 1926. Serial No. 122,520.

This invention relates to a new and improved method of making shirt studs and similar articles and to a new and improved shirt stud or the like.

One of the objects of this invention is to provide a shirt stud comprising a one-piece body and a one-piece movable shank provided with an ornamental head which can be conveniently and cheaply manufactured.

Another object is to provide a device which shall be substantially dust-proof.

Another object is to provide a simple, durable, and efficient spring detent which shall releasably hold the shank in two positions.

Other objects of this invention will be set forth in the following description and drawings, which illustrate a preferred embodiment thereof, it being understood that the above general statement of the objects of this invention is intended merely to generally explain the same and not to limit it in any manner.

This application is a division of my application Serial No. 104,018 filed April 23, 1926 for improvement in shirt stud.

Fig. 1 is a front elevation showing the improved stud applied to a shirt.

Fig. 2 is a front elevation of the stud.

Fig. 3 is a side elevation of the stud, shown applied to a shirt.

Fig. 4 is an elevation of the tubing used for making the device.

Fig. 5 is a section on the line 5—5 of Fig. 4.

Fig. 6 is a side elevation illustrating the first step in the manufacture of the device.

Fig. 7 is a front elevation of the article shown in Fig. 6.

Fig. 8 is a side elevation showing another step in the manufacture of the device.

Fig. 9 is a section on the line 9—9 of Fig. 8.

Fig. 10 is a sectional view, partially in elevation, showing the completed device, the shank being shown in its intermediate position.

Fig. 11 is a view similar to Fig. 10, the shank being shown in its inner position.

Fig. 12 is a view similar to Fig. 10, the shank being shown in its outer position.

Fig. 13 is a view similar to Fig. 10, the spring detent being omitted.

A piece of tubing 1 made of gold or any other metal, is provided with an aluminum core 2. The straight section 1 is bent by means of suitable dies or the like to provide it with a leg 4, which is formed as shown in Fig. 6, by the bending operation.

A hole 3 is now formed in the tube 1 and a depression in the aluminum core is simultaneously formed as shown in Fig. 6. The aluminum core is now removed by treatment with any suitable acid, which will not affect the gold tube. The removal of the core is facilitated by the formation of the opening 3.

A mandrel M, made of steel or other hard metal, is forced through the opening 3, so that the point of the mandrel emerges from the top of the leg 4, as shown in Fig. 8. The cross-section of mandrel M is non-circular, and this mandrel is preferably provided with two opposite, parallel and equal planar faces, and with two convex faces, as shown in Fig. 9. The mandrel M shapes the interior of the leg 4 so that its cross-section is no longer circular, and it is given a shape corresponding to the shape of the mandrel M.

The top of the leg 4 is now expanded and bent to form a head 9, this operation per se being well-known.

A shank 6, provided with two recesses 7 and 8 and having an ornamental head 10, is now inserted into the leg 4. The shank 6 has a shape corresponding to the shape of the mandrel M, so that it slides in the leg 4 without turning, and it fits snugly in leg 4, to exclude dust as much as possible.

The shank 6 is placed in the leg 4 in the position shown in Fig. 3 (but without closing the end of tube 1), the ball 12 and the compression spring 11 are placed in position, and the end of the tube 1 is closed.

The compression spring 11 now forces the ball 12 against the shank 6, so that the ball 12 acts as a detent, to releasably hold the shank in either of the two positions shown in Figs. 11 and 12. In these positions, the ball 12 engages either the recess 7 or the recess 8.

When the parts of the device are in the position shown in Fig. 12, the body 1 can be forced through two adjacent stud-openings in a shirt S, so that said body portion

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1 assumes the position shown in Figs. 1 and 3. By then pushing on the ornamental shank head 10, the shank is forced into the position shown in Fig. 3, to lock the two parts of the shirt to each other.

To remove the stud, the parts are moved into the position shown in Fig. 12, when the stud can be readily pulled out.

It is obvious that the device can be readily manipulated, and that it is far more convenient to use than studs heretofore known.

The shank cannot be withdrawn from the leg 4, because the inner end of said shank is provided with a hook-like extension 14.

An important feature of this invention is that spring detent means are provided which are independent of the tubing used. Hence, there is no need to make this tubing resilient per se.

The flange 9 should be so wide that it does not pass through the shirt opening.

A preferred embodiment of this invention has been described, but it is clear that numerous changes and omissions could be made without departing from its spirit. Whenever a shirt-stud is referred to in the description or claims, this is to be understood as referring to and including all similar articles.

I claim:—

1. In the art of making a shirt stud, that step which consists in bending into angular form a metal tube having a core made of a material different from that of the tube, forming an opening in the bent tube at the outer apex of the said angle, and then removing the core by a treatment which does not affect the metal of the tube.

2. In the art of making a shirt stud, that step which consists in forming a hollow body portion provided with a hollow leg inclined thereto, and then forming an opening in said leg and shaping the inner wall thereof so that said inner wall is given a non-circular contour.

3. A method of making a shirt stud which consists in forming a hollow tubular body provided with a leg inclined thereto, forming an opening in said leg, forming a shank having a periphery of a non-circular cross-section and provided with two recesses in one face thereof, shaping the said leg so that the interior wall thereof conforms to the contour of the said shank, placing the shank within the last leg so that one end of said shank projects out of said opening, placing a ball within the said hollow body portion so that it can engage the said recesses, and then placing within said body portion a compression spring, and closing the open end of the said body portion.

In testimony whereof I affix my signature.

ALPHA HORATIO METCALF.