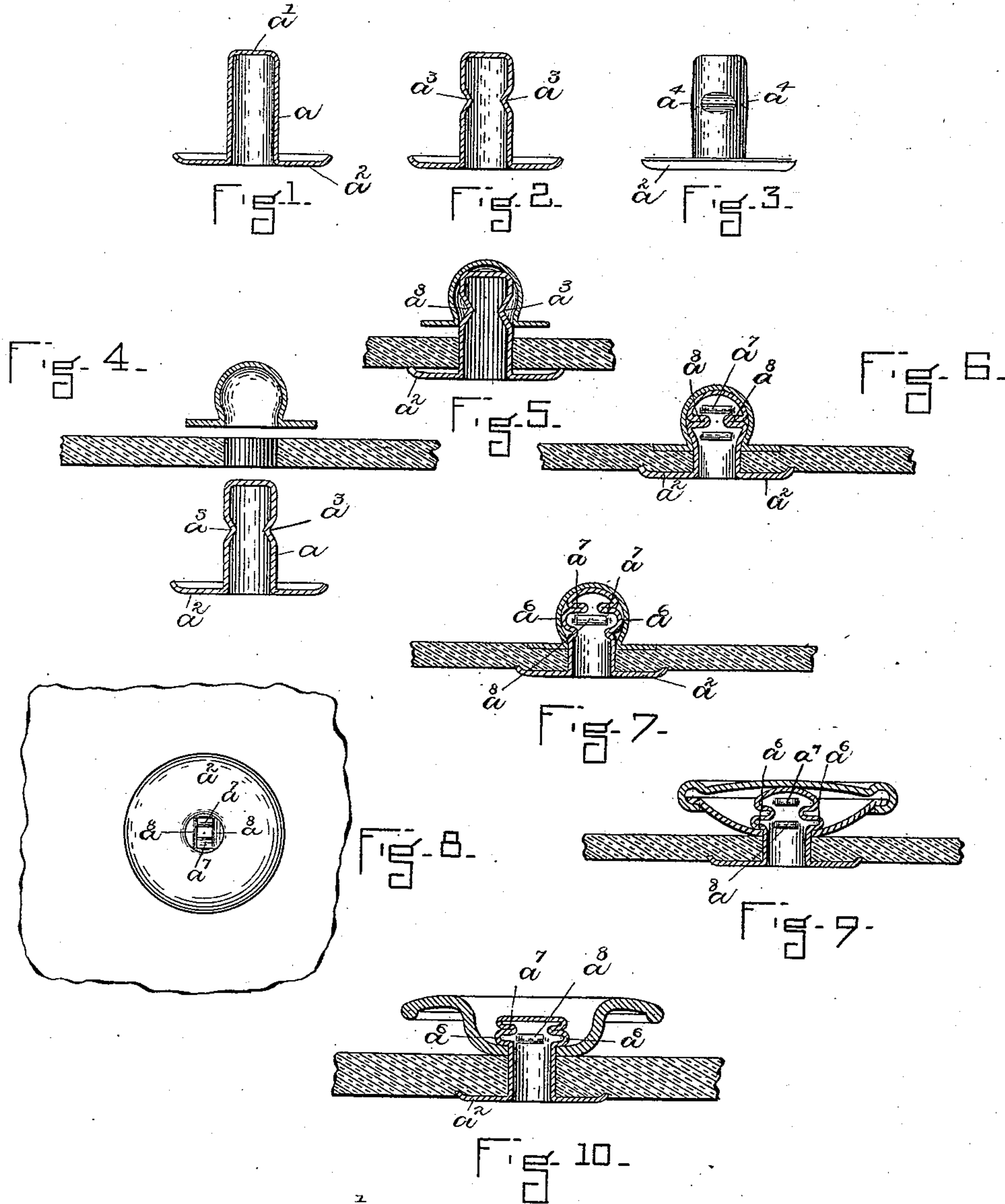


(No Model.)

W. S. RICHARDSON.
FASTENING.

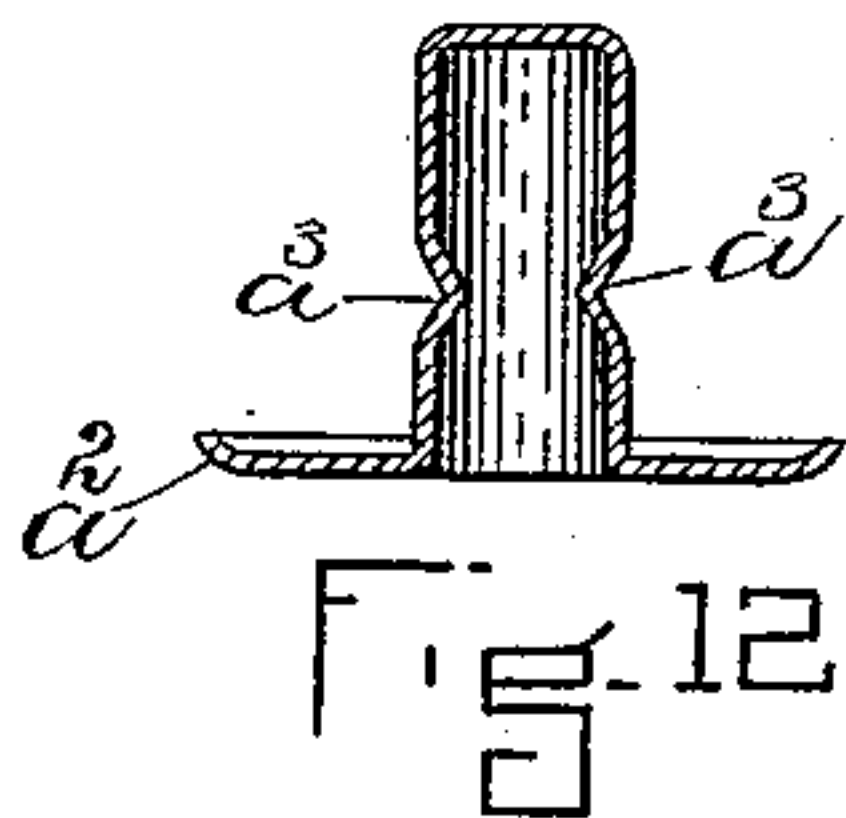
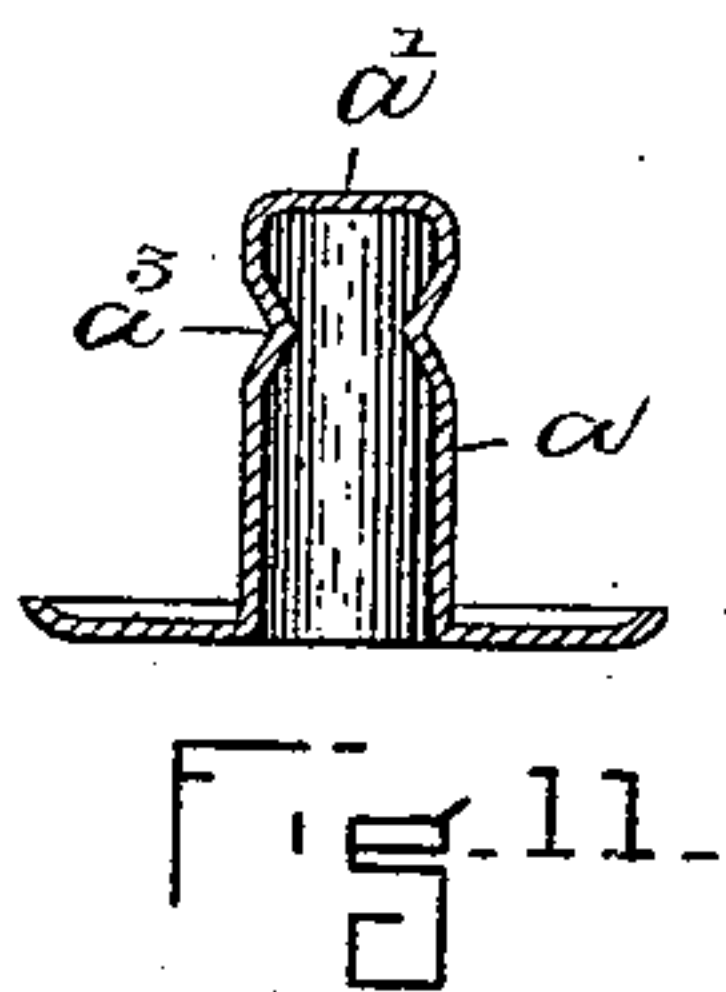
No. 446,139.

Patented Feb. 10, 1891.



WITNESSES.

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UNITED STATES PATENT OFFICE.

WILLIAM S. RICHARDSON, OF BOSTON, MASSACHUSETTS.

FASTENING.

SPECIFICATION forming part of Letters Patent No. 446,139, dated February 10, 1891.

Application filed April 3, 1890. Serial No. 346,432. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM S. RICHARDSON, of Boston, in the county of Suffolk and State of Massachusetts, a citizen of the United States, have invented a new and useful Improvement in Fastenings, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

It is desirable to secure various articles to material, clothing, and other things by laterally-extending sections of a fastening-tube. Great difficulty, however, has been experienced in the use of such a fastening, and so far as I am aware it has not yet been successfully employed.

I will now describe my invention and refer more particularly to its advantages and also to the method of using it.

In the drawings, Figure 1 is a view in longitudinal section of a fastening having a tubular or cylindrical shank ending in a wide flange, the end of the tube being closed. Fig. 2 represents in section said fastening provided with shallow inwardly-extending recesses or indentations upon two sides thereof, a little nearer the top than the bottom of the tube. Fig. 3 is an elevation thereof representing one of said inwardly-extending shallow recesses or indentations. Fig. 4 represents the manner of arranging the fastener with the article to be fastened, in this case shown as a ball, in relation to the material, but before they are assembled together. Fig. 5 represents them assembled but not fastened. Fig. 6 represents the fastening and the ball fastened to the material. Fig. 7 is a view in section of the fastened ball at right angle to that represented in Fig. 6. Fig. 8 is a view in plan of the flanged end of the fastening after setting. Fig. 9 is a view representing the use of the fastening in the attachment of a button to a fabric. Fig. 10 shows the use of the fastening in the securing of another form of button to the fabric. Figs. 11 and 12 show the tubular sections or cylinders of the fastening provided with the indentations or recesses at different points in their length.

The fastening has the tubular section a , which may or may not be closed at its end a' , and which at its other end has a flange a^2 of

any desired extent or width, and integral with the tube. The tube is not entirely cylindrical throughout, but is formed with one or more inwardly-extending shallow recesses or indentations a^3 . Where two or more of these indentations are used, they should be upon the same level or at the same distance from the end of the fastening and should extend from the surface of the tube preferably a uniform depth, and this depth is of course greater at the center of the indentation than at either end. There will be left of the tube between the ends of the shallow recesses or indentations sections a^4 , which bulge or extend outwardly a slight distance, the extent of this depending upon the depth of the recesses or indentations. It is not intended, however, that the diameter of the tube at this point shall be very much enlarged, as it is necessary that it should be within the size of the hole in the ball, button, or other thing fastened by the tube, and through which this section of the tube must be passed before the final fastening operation. Now, if end pressure be applied to the tube, the tube is shortened by the further folding inward of the sections of the tube, of which the indentations a^3 are the beginnings, and the sections a^4 of the tube which are in line with said indentations a^3 are caused, as the tube is shortened, to be folded or extended outwardly upon a line with said indentations so that there is in the shortened tube upon the same line the inwardly-extending section or sections and the outwardly-extending sections. This provides the fastening with laterally-extending holding-sections a^6 , there being as many sections thus extended as there are indentations in the side of the tube. As a rule, I prefer to use but two, and these laterally-extending sections act as anchors or heads in securing the article with which the fastening is used in place, extending from the bore sufficiently to lap or extend upon some surface or surfaces of said article so secured. Where this end pressure upon the fastening is developed inside of a hollow ball or button the sections a^6 , which are extended outwardly, come in contact with the inner side surface of the ball and with the top of the tube, and fill the cavity, so that said ball is locked or secured to the material both as against an inward movement or move-

ment toward the material as well as against
an outward movement of the ball in relation
to the fastening material. In other words, it
is rigidly secured in place. This end pressure
5 upon the tube, when extended, sufficiently
develops a second line of inward folds a^7 at
right angle to the first-named or inward folds
 a^8 and permits the upper end of the tube to
shape itself to the form of the cavity of the
10 ball in which it is confined. The inward fold
or folds thus developed vary as to extent, ac-
cording to the amount of end pressure, to
which the fastening is subjected, and they act
to take up the excess of metal in the fasten-
15 ing by such variation to such an extent that the
same fastening may be employed in securing
balls, &c., to different thicknesses of material,
and this is a very desirable and important pro-
vision. It will further be seen that while the
20 inward folding of the metal of the tube acts
as a compensating medium, it also causes an
outwardly-developing fold or folds of the sec-
tions of the tube, which are not folded in-
wardly, the action of the metal in folding in-
25 ward causing the remaining sections of the
tube to be folded outward, and this result is
invariable or positive upon the application
of pressure to the end of the tube, the tube
always being extended upon the line of the
30 indentations and folded in sections, and this
is a valuable feature of the fastening because
it insures its perfect action in fastening an
article to material at all times and under all
conditions.

The method of using the fastening embraces 35
the passing or insertion of the tubular sec-
tion thereof through a hole in the material
and a hole in the article or thing to be secured
to the material of a size to receive the tubu-
lar section of the fastening, and then causing 40
by pressure applied to each end of the fast-
ening the shortening of the fastening by the
development of inwardly and outwardly ex-
tending or folding sections thereof.

Having thus fully described my invention, I 45
claim and desire to secure by Letters Patent
of the United States—

1. As an improved article of manufacture,
a fastening having a tubular shank in which
is formed one or more short shallow indenta- 50
tions transversely arranged on said shank, as
and for the purposes described.

2. The combination of a tubular rivet hav-
ing a flange at one end and one or more short
inward folds transversely arranged in said 55
shank and upon the same transverse line as
the inward folds and developed by them, one
or more short outward folds transversely ar-
ranged in said shank, with a flanged ball, but-
ton, or cap-piece surrounding the shank of 60
the rivet and held thereon by the said short
transverse outward extending fold or folds of
the shank, as and for the purposes described.

WILLIAM S. RICHARDSON.

Witnesses:

F. F. RAYMOND, 2d,
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