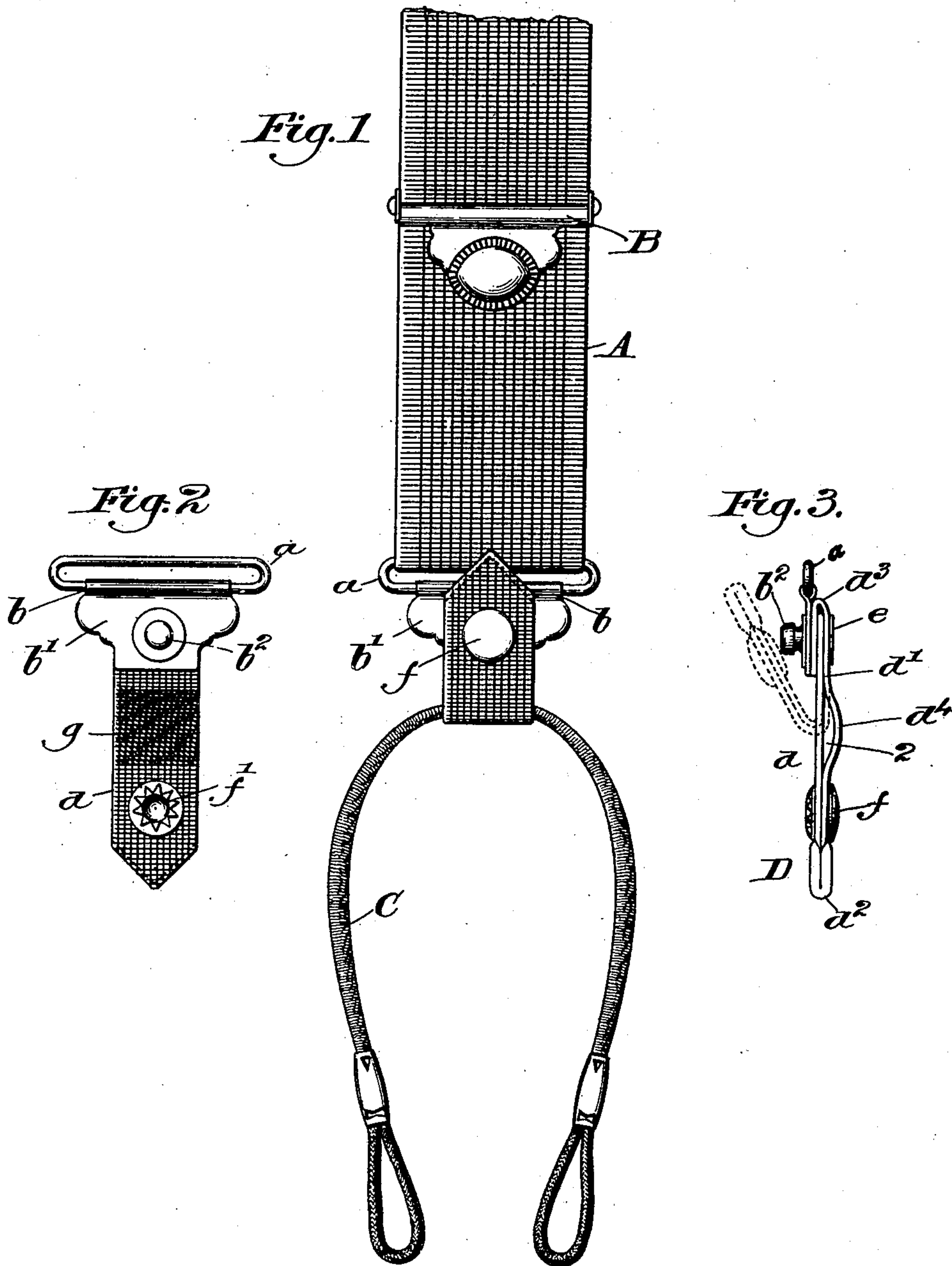


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Patented July 2, 1901.

A. M. ZIEGLER.
CAST-OFF FOR SUSPENDERS.
(Application filed July 11, 1898.)

(No Model.)



Witnesses:

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UNITED STATES PATENT OFFICE.

ALFRED M. ZIEGLER, OF BOSTON, MASSACHUSETTS.

CAST-OFF FOR SUSPENDERS.

SPECIFICATION forming part of Letters Patent No. 677,842, dated July 2, 1901.

Application filed July 11, 1898. Serial No. 685,582. (No model.)

To all whom it may concern:

Be it known that I, ALFRED M. ZIEGLER, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in
5 Cast-Offs for Suspenders, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

10 This invention has for its object the production of a novel and durable cast-off for use at the ends of suspenders.

My invention is illustrated as applied to a
15 cast-off composed of two thicknesses or plies of woven web, one superimposed on the other, the outer ply at or near the portion of the cast-off to receive the greatest bend being provided with a slack or full part. When
20 the cast-off lies straight or in its open condition, there is an open space between the two plies, and when the cast-off is in its operative position both plies lie closely in contact.

In practice I have found that the life of a woven cast-off is very short, due to the sliding friction of the end or button-engaging
25 piece, which is embraced by the cast-off, and in my efforts to overcome this difficulty I have demonstrated that the woven web may be used instead of leather, provided the inner
30 surface of the cast-off or that which engages the button or end piece is filled with a proper surfacing or smoothing compound or a compound which will render that part of the
35 cast-off smooth and do away with the friction of the fiber of the end piece with the fiber of the said inner surface of the cast-off.

When the cast-off is made with two plies, the space between the two plies, when the cast-off is in its inoperative position, is of
40 very considerable importance, for the reason that the surfacing compound may be applied to the inner ply and thoroughly worked therein when not in contact with the outer ply, and consequently the liability of staining or coloring the outer ply is done away with. For the
45 best results I find that the use of paraffin on the inner ply effects excellent results, and a cast-off coated with paraffin will outwear many cast-offs left in the state natural to the
50 web of which it is made.

Figure 1 shows a part of a suspender with my improved cast-off in its operative position

holding an end or button piece. Fig. 2 shows the inner face of the cast-off and a metallic frame to which one end of the web of the
55 cast-off is riveted; and Fig. 3 is an edge view of Fig. 2, the dotted lines showing the cast-off as bent nearly into its operative position.

The shoulder-web A, the buckle or adjusting device B, to alter the length thereof, and
60 the elastic end or button piece C are and may be all as usual in suspenders.

The web A is passed through a loop *a*, extended through an eye *b* of a metallic plate *b'*, provided at its face with a ball-shaped
65 stud *b²*.

The cast-off D is preferably composed of woven web in two plies *d d'*, said web being folded on itself at *d²*, the end *d³* of the longer ply being shown as folded over the free
70 end of the ply *d*, the three thicknesses of the said two plies being held to said plate by a rivet *e*, extended through the cast-off and upset in the ball-shaped stud *b²*.

When folding the web of the cast-off, the
75 ply *d'* is left with a slack or bulging portion *d⁴*, which normally stands out at one side of the inner ply *d*, leaving an open space 2.

The cast-off near its outer end has attached to it a socket *f*, (see Fig. 3,) having a space
80 *f'* (see Fig. 2) to snap over the head of the ball-like stud *b²*, said socket and stud representing one well-known form of what is designated as a "ball-and-socket" fastening.

While the inner ply of the cast-off is straight
85 and the outer ply is bulged away from it, as in Fig. 3, I apply to the face of the inner ply, as at *g*, paraffin or other equivalent suitable surfacing or smoothing compound, which acts to fill the interstices between and smooth
90 or surface the fibers of the said inner ply, so that the fibers of the end piece may slide freely over the said inner ply when the cast-off is brought into its operative position by engaging the ball and socket. (See Fig. 1.)
95

The surfacing or smoothing compound applied to the inner ply of the cast-off when applied while the two plies are not in contact, as shown in Fig. 3, will not penetrate and soil the outer ply of the cast-off, so that
100 delicate shades of web and white web may be used with safety and not show any stain or discoloration, which would tend to destroy the selling quality of the suspender.

By the term "surfacing or smoothing compound" I intend to cover any substance—such as paraffin, shellac, or other smoothing material—which will fill the interstices between and surface the fibers of the inner ply and make it easy for the end piece to slide over it without undue wear.

While this invention is described as used in connection with a cast-off comprising two plies of woven webbing, yet it will be obvious that even if the cast-off were made of a single ply the life thereof would be materially lengthened by applying to the same where it engages the end piece the surfacing or smoothing compound above described, so that my invention is not necessarily limited in all its details to the structure above described, but may be modified within the scope of the appended claims. This invention enables a woven web to be used instead of leather, yet if the surfacing compound be applied to the inner layer of a cast-off composed of leather it will add greatly to its durability.

Having described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a suspender, a cast-off formed of textile material combined with an end piece embraced thereby, said cast-off having the surface thereof which engages the end piece filled with a smoothing or surfacing compound, whereby the wear between the parts is reduced.

2. In a suspender, a textile cast-off combined with a fibrous-covered end piece embraced thereby, one of said parts having the interstices between the fibers on the engaging surface thereof filled with a wax-like smoothing or surfacing compound, whereby the wear between said parts is reduced.

3. In a suspender, a cast-off composed of a woven webbing combined with a fibrous-covered end piece embraced thereby, said cast-off having the fibers on the surface thereof that is engaged by the end piece filled with a wax-like surfacing compound, such as paraffin, whereby the wear between said parts is reduced.

4. In a suspender, a cast-off composed of two plies or thicknesses of textile material, the surface of the inner ply being filled or saturated with a wax-like surfacing compound.

5. In a suspender, a cast-off composed of two plies of woven webbings superimposed one on the other, and fastening means to hold the cast-off in operative position, combined with a fibrous-covered end piece embraced by said cast-off, one of said parts having the surface of its engaging portion filled with a surfacing compound.

6. As an article of manufacture, a suspender of the kind described, containing a textile cast-off adapted to be bent upwardly to form a loop, and provided with means for detachably securing the ends of said cast-off together when in loop form, combined with an end piece embraced by said loop, said cast-off having a surfacing material incorporated into the body of the fabric at the point of engagement between the same and the end piece, whereby the life of the fabric is lengthened and ease of movement is increased.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALFRED M. ZIEGLER.

Witnesses:

GEO. W. GREGORY,
EMMA J. BENNETT.