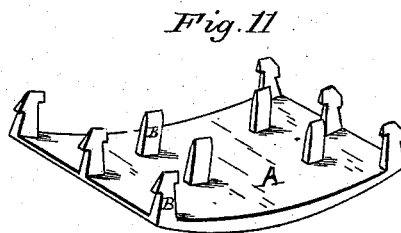
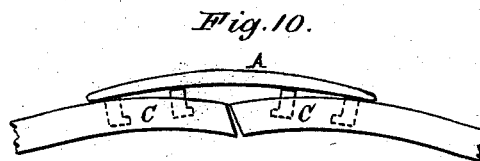
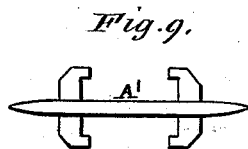
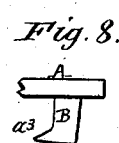
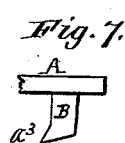
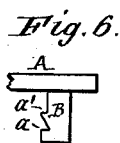
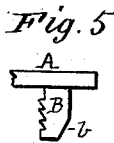
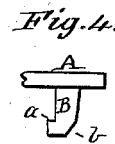
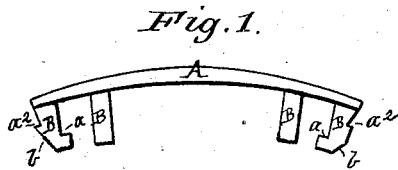


S. BUDLONG & W. O. TALCOTT.
Belt-Fasteners.

No. 216,827.

Patented June 24, 1879.



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UNITED STATES PATENT OFFICE.

SIMEON BUDLONG AND WALTER O. TALCOTT, OF PROVIDENCE, R. I.

IMPROVEMENT IN BELT-FASTENERS.

Specification forming part of Letters Patent No. **216,827**, dated June 24, 1879; application filed May 28, 1879.

To all whom it may concern:

Be it known that we, SIMEON BUDLONG and WALTER O. TALCOTT, of the city and county of Providence, and State of Rhode Island, have invented certain new and useful Improvements in Belt-Fasteners; and we do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part thereof, is a clear, true, and complete description thereof.

Our improvements relate to that class of belt-fasteners which embody non-clinchable teeth on plates; and the objects sought by us are to render them more effective and durable, and less liable to displacement either from a running or a free belt, than any others heretofore known to us.

One feature of our invention consists in a belt-fastener consisting of a plate provided with flat teeth, which have knife ends, are set edgewise to the line of the belt, and have one or more shoulders or barbs on their front edges.

In certain prior United States Letters Patent issued to us May 20, 1879, No. 215,567, we have shown and described chisel-shaped flat teeth set edgewise to the line of the belt, and in our Letters Patent dated July 2, 1878, No. 205,610, we have shown sharp-pointed teeth having barbs or shoulders located upon the sides and fronts of the teeth.

Our present improvement consists, therefore, in the employment of front barbs or shoulders on a knife-end tooth or a chisel-shaped tooth, to secure a more reliable engagement of the belt with the fastener while in use, and even when free, than is possible with the pointed barbed teeth.

The cutting end of the tooth provides for its perfect entrance into the belt, and the tensile strain on the belt when in use forces the belt into the recess adjacent to the front shoulder or barb, rendering it practically impossible for the fastener to fly from the belt, as is liable with the pointed barbed teeth on high-speed belts; and when the belt is free the weight of the fastener is amply sufficient to prevent it from freeing itself and dropping from the belt, because the knife-ends in being driven have so cut the belt that the barbs are snugly embedded therein.

The sharp flat ends may be beveled on one or both sides to provide for the knife-edge.

Our invention further consists in a belt-fastener having flat knife-end teeth, provided with one or more shoulders or barbs on their front edges and an inclined rear edge. This feature is one of great practical importance, because therewith the entering edge of a tooth may be made no wider than the width of the shank above the shoulder, and also because in forcing the belt thereon it is by the inclined rear edge caused to be forcibly engaged with the front barb or shoulder by the mere act of driving, the subsequent strain on the belt rendering the engagement still more effective.

In order that our belt-fasteners may be adapted for efficient use with leather belts of two or more thicknesses and with so-called "rubber belts," our invention further consists in a belt-fastener tooth provided with shoulders or barbs at two or more different points in its length, so that while one barb or shoulder may engage with one thickness of material, the other barbs may, in like manner, engage with other thicknesses, and so serve to maintain the ends of the belt in a solid condition. This feature of our invention is also important in view of the fact that after a belt-fastener having teeth, as described, with two or more front barbs has become so worn and shortened that the teeth would have but a single barb or shoulder it may thereafter be of service on thinner belts quite as efficiently as if it were a new fastener with teeth and barbs proportioned for service with a thin belt.

Belt-fasteners embodying our present improvements may be constructed, as shown in one of our prior Letters Patent, with the teeth on both sides of the plate, for insertion between the layers of a double belt, and properly engaging with both of said layers.

To more particularly describe our invention we will refer to the accompanying drawings, in which—

Figures 1 and 11 represent, in side view and bottom view, respectively, a belt-fastener with teeth embodying our improvements. Fig. 2 represents, in edge view, one of the teeth, and shows its cutting or entering edge. Fig. 3 represents, in side view, a tooth embodying in

one form all of the features of our invention. Fig. 4 represents, in side view, a tooth embodying two features of our invention. Fig. 5 represents, in side view, a tooth embodying the front shoulders or barbs located at different points longitudinally, and also the rear incline. Fig. 6 represents, in side view, a tooth embodying two front shoulders or barbs. Figs. 7 and 8 represent, in side view, respectively, a tooth having a front shoulder in a modified form, and the same tooth, after insertion into a belt, with its shoulder more fully developed by a slight front bend. Fig. 9 represents a double-faced belt-fastener with our improved teeth on each side of the plate. Fig. 10 represents one of our belt-fasteners with the ends of a belt partially attached for illustrating the most desirable method of jointing the ends of the belt.

The plate A, as heretofore, is proportioned in its width, length, and thickness according to the particular service intended, and is concavo-convex in its length, for more readily passing over a pulley.

We have made the fasteners complete by casting in malleable iron, brass, and bronze, the teeth being subsequently finished by tools adapted for the purpose.

The teeth B are flat, set edgewise to the line of the belt, and sufficiently sharp at the end to admit of their being entered into a belt without unduly tearing or breaking the leather or other material of which the belt is composed, and thus preparing a perfect bed for the tooth and its barbs.

The principal novel feature in our improved belt-fastener is the front shoulder or barb, *a*, on the front edge of the tooth, in combination with the knife-edge. This barb or shoulder may be variously formed, several modifications thereof being shown in the drawings.

In Fig. 1, 3, 4, and 9 the front shoulder, *a*, is rectangular to the front edge of the tooth, affording a bearing for the portion of the belt with which it engages, which is practically parallel with the coincident surface of the plate A, thus forming a recess above the barb occupied by the belt, from which displacement is rendered quite difficult, except by expert manipulation.

In Fig. 10 we show the manner in which we prefer to joint the belt C. Its ends are reversely beveled, as shown, and when the ends are raised from the plate the belt is driven partially upon the teeth which are near the ends of the plate, and the beveled ends of the belt are then driven inward, which forces the belt in both directions into the recesses above the shoulders before referred to.

As a rule, the ends of the teeth do not protrude from, or even extend to, the inner side of the belt, and therefore the pulley-contact is as perfect beneath the belt-fastener as at any other portion of the belt.

In applying the double fastener, Fig. 9, to a double belt the same method of jointing is preferred; and it is also desirable that the

ends of the plate A' project beyond the end rows of teeth, and that it be gradually reduced in thickness, as shown.

The front shoulders or barbs, as shown in Fig. 5, are in the form of serrations. In Fig. 6 two front shoulders, *a* and *a'*, are shown, both substantially of the same character. These shoulders are located one above the other, and afford a better hold on the belt than the single shoulder when used on a very heavy single belt; and on a double belt each thickness thereof has a shoulder or barb to itself. This location of the shoulders or barbs at two or more different points in the length of the tooth is an important feature, whether all of the barbs be on the front edge or partially on the front and partially on the rear edge, as shown in Figs. 1 and 3.

In Fig. 3 several barbs or shoulders are shown on the rear edge and one on the front edge; and in the teeth of Fig. 1 there is a single rear barb or shoulder, *a''*, at a point nearer the plate than the front barb or shoulder.

Another important novel feature in our belt-fastener teeth is the rear inclined edge, *b*.

It will be seen in Figs. 1, 3, and 4 that the end of the teeth so provided have an entering or driving knife-edge, which is of about the same width as the tooth, above the front barb, so that as the belt is driven upon a tooth the inclined edge moves the tooth forward or the belt backward, whichever may be the case; and when the tooth is well seated the aperture in the belt above the front barb will be only of such size as will snugly contain the shank of the tooth, and the leather will so fully occupy the recess above the barb that the fastener can only be detached by careful and skillful manipulation.

The teeth shown in Figs. 7 and 8 embody a front barb or shoulder, *a''*, with a slight rear incline; and a further development of the barb shown into a rectangular barb is effected by a blow from a hammer or mallet after the teeth have been fully inserted into the belt, causing the tooth to assume the form indicated in Fig. 8.

It is to be distinctly understood that we do not limit ourselves to front and rear barbs of any particular form in combination with the knife-end, as said barbs can be varied to a considerable degree without impairing their usefulness.

So far as relates to locating two or more barbs at different points in the length of the tooth, it is not to be understood that we confine this portion of our invention relating to their location to the front and rear edges of a flat knife-edge tooth, because side barbs of the character shown in our former Letters Patent, in connection with pointed teeth, if located at two or more different points between the plate and the tip of the tooth, will perform a valuable service approximating more or less closely to the service of the front and rear barbs.

We prefer in fasteners adapted for other than very light service to employ at least two rows of teeth at each end of the fastener; and as one row of the barbed teeth at each end is sufficient for effecting the desired union of the fastener with the belt for preventing accidental displacement from a free belt or detachment from a driven belt, the other row or rows may be of plain teeth without barbs, as in Fig. 1, which will afford the same bearing for the belt, having reference solely to the tensile strain thereon, as the barbed teeth.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A belt-fastener consisting of a plate pro-

vided with flat front shouldered or barbed teeth with knife-ends set edgewise to the line of the belt, substantially as described.

2. A belt-fastener plate provided with teeth having one or more front shoulders or barbs, a knife-end, and a rear edge inclined, substantially as described.

3. A belt-fastener plate provided with teeth having two or more barbs or shoulders located at different points in the length of the teeth, substantially as described.

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