G. L. ZIMMER.
Belt-Fastener.

No. 208,663. **Patented Oct. 1, 1878.**

Fig. 1

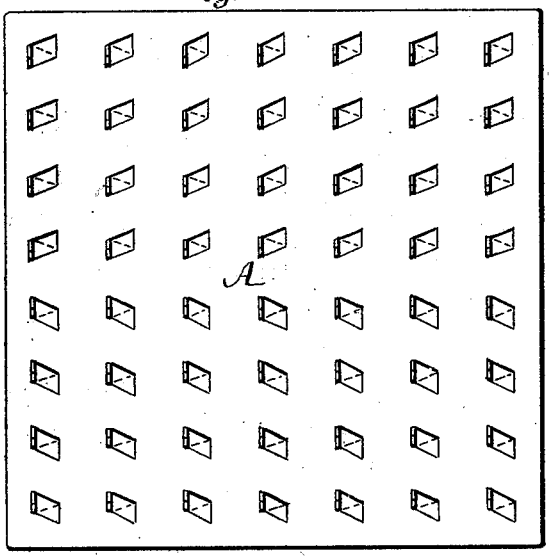


Fig. 3

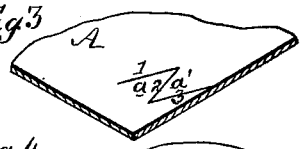


Fig. 4

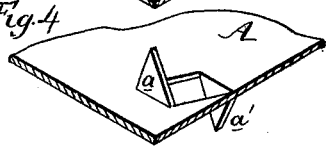


Fig. 2.

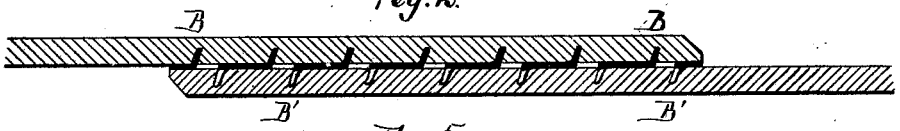


Fig. 5

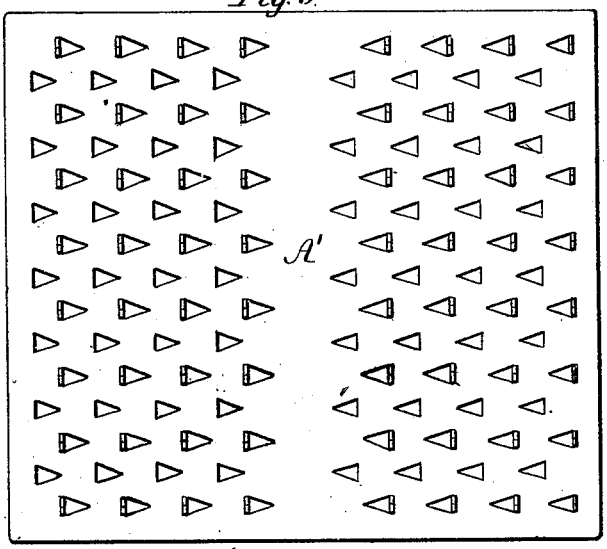
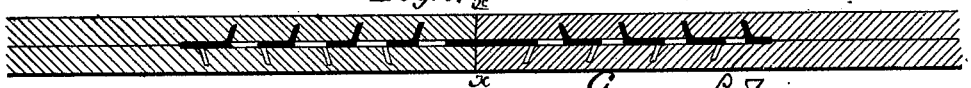


Fig. 6.



Witnesses,
Henry Howson Jr.
Harry A. Crawford

Inventor George L. Zimmer
by his attorneys
Howson and Son

UNITED STATES PATENT OFFICE.

GEORG L. ZIMMER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

IMPROVEMENT IN BELT-FASTENERS.

Specification forming part of Letters Patent No. **208,663,** dated October 1, 1878; application filed August 24, 1878.

To all whom it may concern:

Be it known that I, GEORG LUDWIG ZIMMER, of Frankfort-on-the-Main, Germany, have invented an Improved Belt-Fastener, of which the following is a specification:

The object of my invention is to secure the ends of driving-belts together by means of a metal plate having projections on its opposite sides, the said plate being interposed between overlapping portions or layers of the belt, and pressure being applied, so that the projections will penetrate the leather, all as explained hereinafter.

In the accompanying drawing, Figure 1 is a plan view of the belt-fastening plate; Fig. 2, a sectional view of the plate interposed between overlapping ends of a belt; Figs. 3 and 4, enlarged perspective views, illustrating a mode of forming the projections on the plate; Fig. 5, a modified form of plate; and Fig. 6, a section of the plate, Fig. 5, as it appears in connection with a belt composed of two thicknesses of leather.

The plate A, Fig. 1, is made of thin and comparatively ductile and flexible metal, and on both sides of this plate are made pointed projections in the following manner, reference being had to the enlarged perspective views, Figs. 3 and 4.

Wherever there are to be two projections, one on one side and the other on the opposite side of the plate, the latter is cut through on the three lines 1, 2, and 3, Fig. 3, thus leaving two tongues, *a a'*, which are turned up, one on one side and the other on the opposite side of the plate, as shown in Fig. 4, the plate shown in Fig. 1 having fifty-six of these sharp-pointed projections on each side, and these projections being slightly inclined, as shown in Fig. 2. The plate is placed between the overlapping ends B B' of the belt, Fig. 2, and then, by pressure or impact applied to the same, the pointed projections on one side of the plate penetrate one part and the pointed projections on the other side the other part of the belt, and a complete union of the two ends of the belt is assured.

It will be seen that the projections are inclined in a direction which will best enable them to resist the tendency of the belt when stretched to escape from the said projections.

When the belt is made of two thicknesses of leather I prepare a plate, A', in the manner shown in Fig. 5, by making in it a series of V-shaped incisions, thereby forming V-shaped tongues, some of which are turned in one direction and some in another. By a suitable tool each projection can be cut and turned up at one operation. There are two sets of projections on each side of this plate A', which is interposed between the two layers of leather composing the belt, one half of the plate being contained between the two layers at one end of the belt and the other half between the two layers of leather at the other end of the belt, the plate thus extending across the line *x* when the two ends of the belt meet. In this case, also, the projections are so inclined as to best resist the parting of the belt at the joint when stretched.

I claim as my invention—

1. A belt-fastening consisting of a plate adapted to be interposed between the two layers of belting, and having a series of pointed projections on opposite sides for penetrating the said layers, as set forth.

2. A belt-fastening plate having on each side sharp-pointed projections cut out of and bent up from the body of the plate itself, substantially as specified.

In testimony that I claim the foregoing I have hereunto set my hand this 22d day of June, 1878.

GEORG LUDWIG ZIMMER.

Witnesses:
FRANZ WIRTH,
FRANZ HASSLACHER.