

Aug. 14, 1945.

G. A. TINNEMAN

2,382,521

FASTENING DEVICE

Filed Oct. 13, 1943

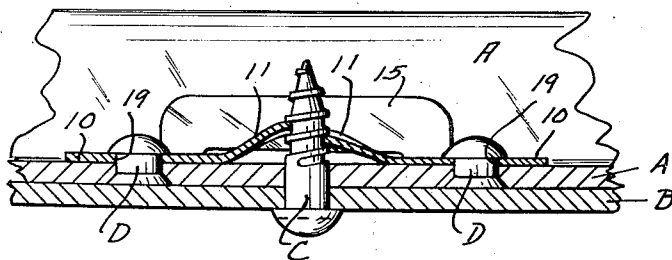
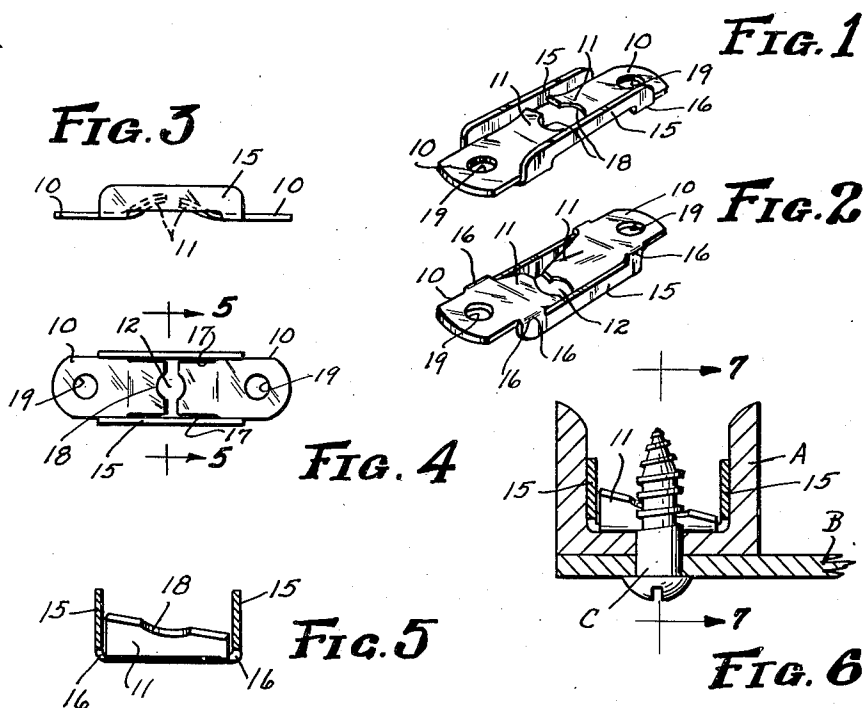


FIG. 7

INVENTOR.
George A. Tinneman
BY
Dale Tear McLean,
Attorneys.

UNITED STATES PATENT OFFICE

2,382,521

FASTENING DEVICE

George A. Tinnerman, Cleveland, Ohio, assignor
to Tinnerman Products, Inc., Cleveland, Ohio,
a corporation of Ohio

Application October 13, 1943, Serial No. 506,077

2 Claims. (Cl. 85—36)

This invention relates to the fastener of the type having a base provided with a pair of inclined cut out tongues on opposite sides of an opening through which a stud may extend. The tongues have their ends formed to engage a stud in the binding manner.

The object of the present invention is to provide such a fastener which while being very strong and having other necessary characteristics may be mounted in a very narrow space.

I accomplish the result by connecting the base portions of this fastener, which carry the respective tongues, by bridges which lie in vertical planes, or in other words at right angles to the base portions, and form the sole connections between the two base portions. Such connecting bridges therefore, take no more space than the thickness of the metal, in addition to the width of the bases. In this manner I provide a fastener of this type which has the minimum width and accordingly may be mounted in a very constricted space, as for instance within a very narrow channel.

The drawing illustrates a preferred embodiment of my invention, which is hereinafter fully described in detail. In the drawing, Fig. 1 is a top perspective of the fastener; Fig. 2 is a bottom perspective of the fastener; Fig. 3 is an edge elevation; Fig. 4 is a plan; Fig. 5, is a cross section in the plane indicated by the line 5—5 on Fig. 4 but on a larger scale; Fig. 6 is a cross section of the fastener in position within a narrow channel and engaged by a screw; Fig. 7 is a cross section in the plane indicated by the line 7—7 on Fig. 6.

Referring to the parts shown by the reference numerals, 10—10 indicates the two base portions of the fastener, and 11, 11 inward continuations of the base portions which are bent in an inclined direction upwardly from the base portion to comprise the stud-engaging tongues, the ends of these tongues being separated by a transverse space 12 which is adapted to receive the stud.

The two base portions of the fastener are connected by longitudinal bridges 15 which are narrow strips connected at their ends to the respective base portions, as indicated at 16, and have the characteristic that they project upwardly at right angles to the base portions thus lying on opposite sides of the two raised tongues. It will be seen that in this manner the base portions are connected by bridge members which occupy the minimum additional space beyond that required by the tongues themselves.

The tongues themselves are partially severed from the bases by means of two longitudinal slits

17 which are intermediately connected by the transverse openings 12 between the ends of the tongues. In my improved fastener these slits provide the line of fold about which the extreme portions of the strips are bent upwardly to provide the bridges 15. This enables very ready bending of the edges of the member to make the bridges 15, and insures that these bridges come as close as possible to the tongues while allowing free movement of the tongues, as the bolt is turned into place.

The two tongues 11 are notched at their ends, as shown at 18, and, if they are to engage a screw, are warped in opposite directions so that these notches provide one turn of a helix corresponding to the thread of the screw. In this manner, I provide a nut wherein the tongues act as struts against the screw which may be readily turned into place in the opening provided.

In Figs. 6 and 7, I have shown a channel beam A adapted to receive these nuts and at B a plate to be attached by the fastener by a screw C passing through the plate and the base of the channel and receiving its nut by means of the two tongues 11 of the fastener.

It is frequently desirable to secure the nut positively to the beam or support before the screw is applied. In this case, I provide openings 19 through the two base members of the fastener. Fig. 7 shows rivets D, passing through the base of the channel A and occupying these openings to lock the fastener to the channel.

It will be seen that my fastener is very simple in construction, and is of a form adapted to be readily and cheaply made from a single strip of metal having resilient characteristics to provide the spring tongues. Such strip is shaped and its flanges are bent up at right angles to the base portion and the tongues preferably warped to provide the screw threads. The slits providing the edges of the tongues also define the line of fold for the upright braces connected to the bases at 16, and this is a factor in the cheap formation of the device.

The fastener is very light in construction and at the same time has the requisite strength and stiffness so that there is no danger of the fastener being twisted out of shape as the screw is turned home. Such fastener is adapted to occupy a very constricted space, as illustrated for example in Fig. 6 of the drawing.

I claim:

1. A fastener of the character described comprising two resilient sheet material base portions aligned with each other and each terminating

inwardly in an inclined tongue with parallel edges and notched at its free end, the two tongues being spaced apart and warped in opposite directions so that they provide a helical turn, and two upstanding bridges extending longitudinally of the fastener on opposite sides of the tongues and spaced from the edges of the tongues merely by the slits defining such edges, such bridges having their ends made into downwardly extending portions which form integral junctions with the edges of the bases between the roots of the tongues and the extreme ends of the bases, the edges of the tongues being confined between the upstanding bridges and separated therefrom merely by enough space to allow movement of the tongues.

2. A fastening device made of a single piece of resilient metal and comprising two flat base portions lying in the same plane, a pair of narrow longitudinal bridges having their end portions attached by integral connections to the edges of

the base portions and lying in planes substantially at right angles to the base portions, the base portions extending beyond the bridges and each base portion having an opening through its extended portion, a pair of tongues respectively joining the flat bases inwardly of the junction of the latter with the bridges, said tongues extending inwardly in an oppositely inclined direction from the base portions towards each other above the plane of the bases and between the upstanding bridges, said tongues being spaced at their ends by a transverse opening which leads from one slit defining one edge of the tongues to the slit defining the opposite edge, which slits also define the lines of fold of the upstanding bridges, the ends of said tongues being notched and oppositely warped to provide a helical turn adapted to engage the thread of a screw passing through said opening.

GEORGE A. TINNEMAN.