G. W. McGILL.

METALLIC FASTENER.

APPLICATION FILED SEPT. 5, 1906.

903,756.

Patented Nov. 10, 1908.

Fig. 1.

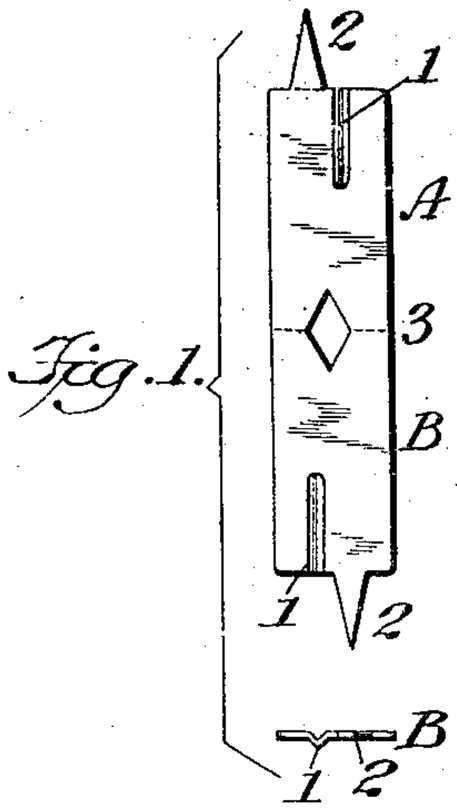
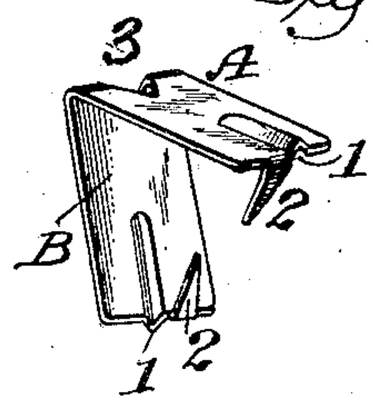


Fig. 2.



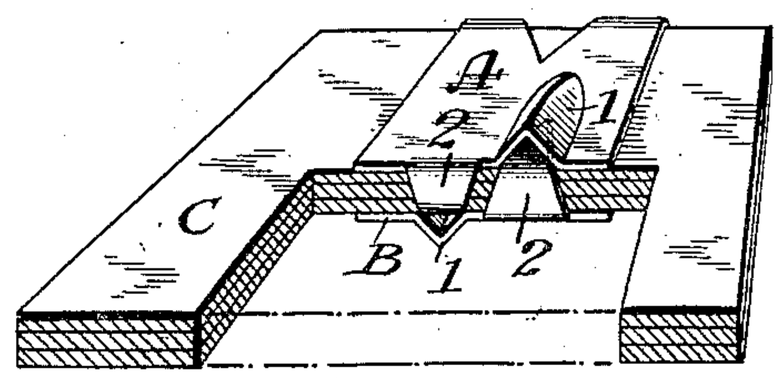


Fig. 3.

Fig. 4.

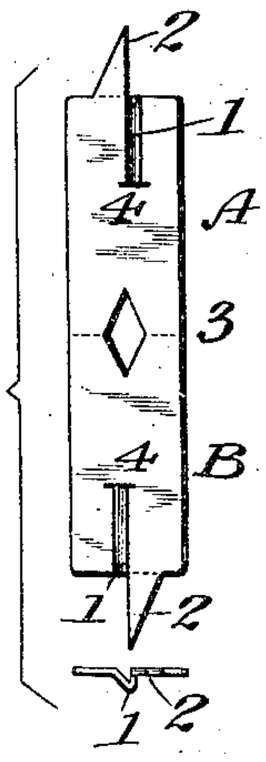


Fig. 5.

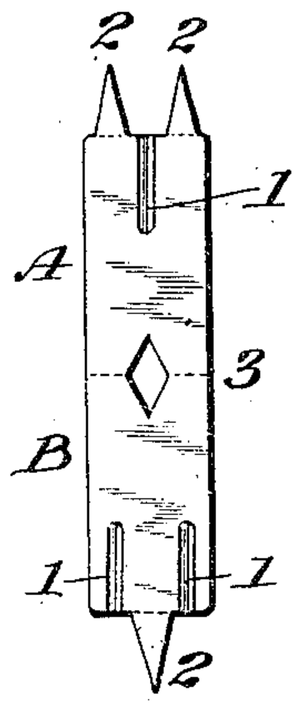


Fig. 6.

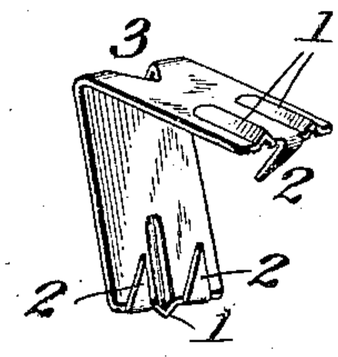


Fig. 7

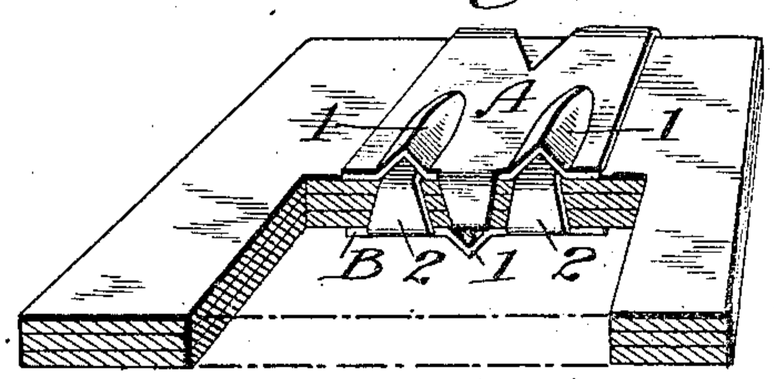


Fig. 8.

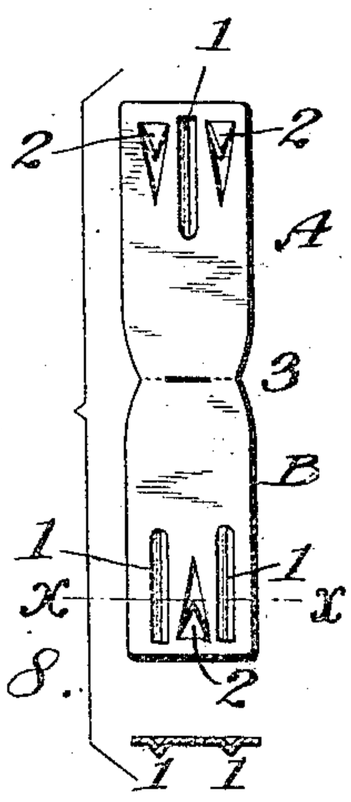


Fig. 9.

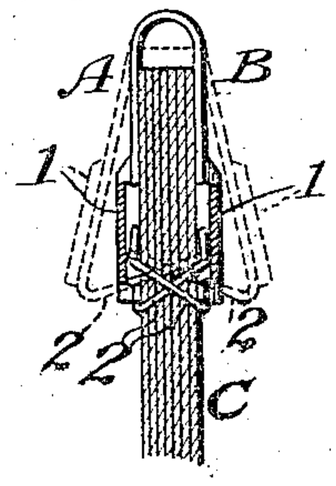
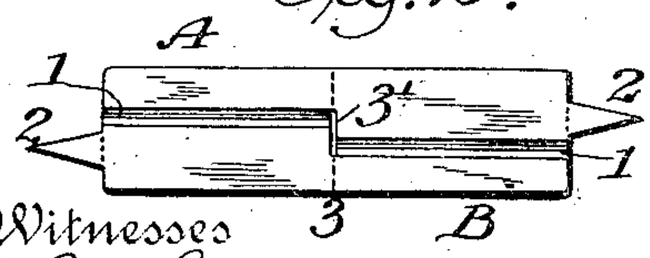


Fig. 10.



Witnesses

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METALLIC FASTENER.

No. 903,756. Specification of Letters Patent. Patented Nov. 10, 1908.

Application filed September 5, 1908. Serial No. 333,358.

To all whom it may concern:

Be it known that I, GEORGE W. McGILL, a citizen of the United States, and a resident of Riverdale-on-Hudson, in the county of New York and State of New York, have invented certain new and useful Improvements in Metallic Fasteners, of which the following is a specification.

My invention provides a metallic fastener having for its object the fastening together of sheets of paper and like material, and consists of a body-portion fashioned from a single piece of sheet metal bent substantially at acute angles and comprising two clamping members occupying adjacent planes and adapted to be folded, or brought together, one upon the other, and to hold and clamp between them the papers or other material being bound; the tangs being pointed and relatively long in comparison with the depth of their receiving grooves which are narrow and have a depth only sufficient to receive the pointed ends of the tangs below the facing-surface of the members and admit of their being shunted therein beneath or beyond the opposite surface of the material clamped between the members, and toward the connecting fold of such members during the closing of the free ends of the latter on said material in binding it, and being finally seated lengthwise beneath such material.

In the accompanying drawing forming a part of this specification, and in which similar reference letters and numerals indicate corresponding parts, Figure 1. represents a plan view of the metal blank from which the fastener is fashioned. Fig. 2. shows in perspective the fastener blank Fig. 1. folded into the complete fastener. Fig. 3. presents in perspective an enlarged view of the fastener applied in fastening together sheets of material, a portion of the latter indicated by dotted lines, being shown cut out to expose the position of that portion of the inserted tangs penetrating the fastened material, and the registration of their pointed ends in the opposite grooves, or channels, located in the facing surfaces of the clamping members. Fig. 4. is a plan view, and an end view, of the fastener blank modified in the shape, location and formation of its tangs and grooves. Fig. 5. presents another plan view of the fastener blank showing other modifications in the placement of its tangs and grooves. Fig. 6. is a perspective view of the completed fastener fashioned from the modified blank Fig. 5., and Fig. 7. is a perspective view showing the fastener fashioned from the modified blank Fig. 5. applied to use as in Fig. 3. Fig. 8. presents another modified plan view of the fastener-blank, and a transverse sectional view of the same taken on the dotted line X of such figure and showing its tangs struck up from and located within the margin of its body part, and its grooves commencing and terminating within such margin. Fig. 9. is an edge view of the applied fastener, partly in section, and showing in dotted lines successive positions of its tang points and of the material being fastened during the application of the fastener. Fig. 10. shows another modification in the fastener-blank.

In the drawing, the fastener-blank is shown rectangular in configuration, the dotted line 3. indicating a transverse fold which transposes the blank into the two clamping members A. B. of the completed fastener. The blank, as shown in Fig. 1., has sunk in it grooves I, I, located on opposite sides of its longitudinal axis and parallel therewith, and is provided with tangs, or teeth, 2, 2, extending from its opposite ends, and on the reverse sides of such axis. These tangs are flat and preferably of angular shape having sharp pointed tips as shown in the drawing. The grooves, 1, 1, have parallel sides and in transverse section correspond in angular shape with the transverse shape of the pointed tip of the tangs 2. 2., and their channeling is sufficiently narrow to prevent the points of the tangs, at their exit from the clamped material, from carrying any portion of such material spanning the grooves into the same. The blank so fashioned is folded transversely at 3, where it may be weakened by a diamond or other shaped aperture as shown in Figs. 1 to 7, inclusive, or by a transverse slit as shown in Figs. 8 and 10., to facilitate the members being readily pressed together between the finger and thumb of the party applying the fastener to use as intended. The tangs are set over the facing surface of the respective members A. B. at angles having a degree of acuteness that, on the members being brought toward each other, will cause the tangs to cross each other on oblique lines pointing inwardly, and their tips, on similar lines, to register in the opposite grooves, 1, 1, of the respective members. The fastener so constructed is applied by placing the papers, or other material being

fastened, between its clamping members and closing them upon it, which operation forces the tangs 2, 2, through the material from its opposite sides and brings their pointed ends into the grooves 1, 1, which provide them free way therein beneath, or beyond the opposite surfaces of the material during such closing of the members, as is illustrated in Fig. 9.

The spaces provided by the grooves 1, 1, on the facing surfaces of the members A. B. and which spaces open against the opposite surfaces of the material being fastened, prevent the turning or crushing of the points of the tangs in such material and admit of their free and complete passage through the same and of their free exit from the opposite surfaces of such material, and their after movement outside such surfaces, and their final lodgment in bearing contact with such surfaces.

The perspective view of the completed fastener shown in Fig. 2. illustrates the position of the clamping members A. B. in relation to each other, and of the angular set of the tangs 2, 2, with the facing surfaces of such members, respectively. In Fig. 3. is presented in perspective an enlarged view of the fastener applied in fastening together several sheets of material, C, with a portion of the latter, indicated by dotted lines, cut out to expose the position of that portion of the inserted tangs, 2, 2, penetrating the fastened material, and the seating or final placement of their pointed tips in the opposite grooves 2, 2, located, respectively, in the facing surfaces of the members A. B. of the fastener. In the Figs. 1., 2. and 3. the tangs present plain isosceles triangles projecting from the edge of each end of the fastener blank. In the modification of the fastener-blank shown in Fig. 4. the tangs 2, 2, describe right angle triangles, the lines forming their altitude, being in alinement with each other and with the line representing the inner side of the grooves 1, 1, respectively, whereby the tang fastening, of the clamped material is brought to the middle of the free ends of the clamping members with the tips of the tangs seated longitudinally thereat in said grooves 1, 1.

Further modifications in the blank shown in Fig. 4. consist in having the transverse shape of its grooves 1, 1, correspond with the transverse shape or angle of the points of their tangs 2, 2, and having said grooves terminate at their inner ends with the transverse slits 4, 4, cut in the respective members A. B. This modified construction of the fastener shown in Fig. 4 is the subject matter of a division of this application filed June 27, 1908, Serial No. 440,708. The modification shown in the fastener-blank illustrated in Fig. 5. consists in providing the blank with three grooves and three tangs, two grooves and intermediate these grooves one tang at one end of the blank, and two tangs and intermediate these tangs one groove at its other end. The transverse shape of the tangs and grooves in this figure is the same as that shown in Figs 1., 2., 3. Fig. 6. presents in perspective view the completed fastener fashioned from the modified blank shown in Fig. 5., and Fig. 7. presents a view, in perspective similar to Fig. 3., of the fastener shown in Fig. 6. enlarged and applied in fastening together several sheets of material. This construction of the fastener, through the multiplicity and situation of its tangs and grooves, prevents lateral movement, or swing on the tangs, of any part of the material fastened. The modification in the fastener-blank presented in Fig. 8. also provides at one end of it two tangs and an intermediate groove, and at its other end two grooves and an intermediate tang, the tangs being formed through V-shaped slits made in the blank within its end margins, and pointed toward its center, and the grooves beginning within the same margins and extending inward in similar direction. This modification has for its object the saving of metal in the construction of the fastener-blank, and any weakening of the members by slotting them in thus providing the tangs within their margin is more than recovered by the rigidity imparted to them through the tang-receiving grooves sunk adjoining them therein. The modification of the fastener shown in Fig. 10, consists in having the inner ends of its grooves 1, 1, terminate in the transverse slot or slit in the connecting fold 3, of the members. This extension of the grooves leaves them open at both ends admitting of their being readily sunk in the members without any drawing or buckling of the latter at such terminals, and imparting increased rigidity to the members throughout their entire length to the fold 3, and facilitating their ready folding thereat. In the longitudinal edge and partly sectional view of the applied fastener shown in Fig. 9., dotted lines indicate the position of its members A. B., of the material C. being fastened between them, and of the tangs 2, 2, after the latter have pierced the material, and before the free ends of the members have been brought toward each other and against the opposite surfaces of the material: The full lines of the figure show the position of these parts on the final closure of the fastener on the material. These fastenings are intended principally for attaching together papers for filing, from two to a dozen sheets, and for attaching letters and their inclosures, and such like light temporary binding, and are, in consequence, generally sma . and of light metal, with their tangs small and sharp-pointed, and their grooves narrow, straight

and shallow and generally provided by scoring them in the facing surface of their clamping members.

Having thus fully described the nature, construction and operation of my invention, what I claim therein as new and desire to secure by Letters Patent is:—

1. A fastener comprising a unitary body part transversely folded at its center into two facing members and possessing a plurality of penetrating tangs and a plurality of tang receiving grooves, said tangs being integral with said members and said grooves being sunk in and lengthwise the facing surfaces of such members and to one side of the roots of such tangs.

2. A fastener comprising a unitary body part transversely folded at its center into two facing members and possessing a plurality of penetrating tangs and a plurality of tang receiving grooves, said tangs being integral with said members and said grooves being sunk in and lengthwise the facing surfaces of such members and to one side of the roots of such tangs in manner to cause a tang and groove of one member to register with a groove and tang of the other member on both members being brought toward each other.

3. A fastener comprising a unitary body part transversely folded at its center into two facing members with the free end of one of such members provided with a tang and the facing surface of such member provided with grooves sunken therein on each side of the root of such tang and the free end of the other member provided with two tangs and intermediate such tangs with a groove similarly sunk in the facing surface of such member.

4. A fastener such as described comprising a unitary body part transversely folded at its center into two facing members provided at their free ends with penetrating tangs and with grooves sunk in their facing surfaces in position to one side of the roots of such tangs to cause a tang of one member to register with a groove of the other member on both members being brought together in applying the fastener as intended.

5. A fastener such as described comprising a unitary body part transversely folded at its center into two facing members provided at their free ends with penetrating tangs and with grooves sunk in their facing surfaces to one side of the roots of such tangs, said grooves having an angular shape in transverse section as and for the purpose described.

Signed at Riverdale-on-Hudson in the county of New York and State of New York this 30th day of August A. D. 1906.

GEORGE W. McGILL.

Witnesses:

W. HARRY McGILL,

CHAS. E. WARREN.