

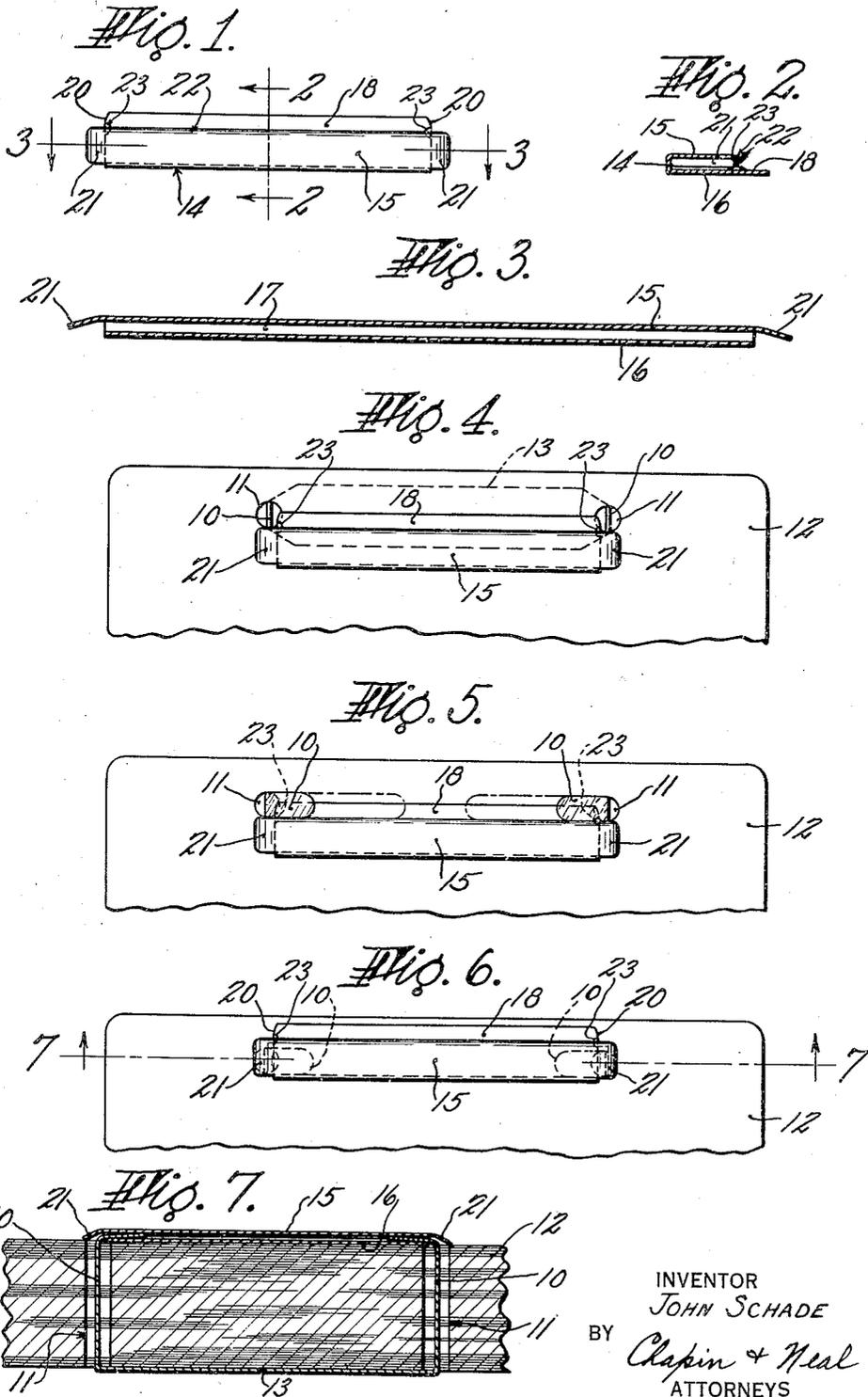
Aug. 2, 1938.

J. SCHADE

2,125,464

PAPER FASTENER

Filed Sept. 15, 1933



INVENTOR
JOHN SCHADE
BY *Chapin & Neal*
ATTORNEYS

UNITED STATES PATENT OFFICE

2,125,464

PAPER FASTENER

John Schade, Holyoke, Mass., assignor to National
Blank Book Company, Holyoke, Mass., a cor-
poration of Massachusetts

Application September 15, 1933, Serial No. 689,617

15 Claims. (Cl. 24—153)

This invention relates to paper clips, and is specifically directed to the improvement of clips of the customary form in which two spaced prongs pass through spaced holes in the paper stack and are held in folded down position by a keeper. In prior practice the prongs have been formed as projections from a single metallic back piece, or have been attached to or formed integral with eyelets secured to a heavy paper folder. The present invention is not concerned with the specific type of prong construction used, and while for convenience the prongs have been shown in the drawing as arising from a single back piece it is equally applicable to prongs of other types.

Keeper plates previously proposed have all been subject to numerous disadvantages, which have been overcome by the construction about to be described. The keeper plate forming the subject of the present invention is of extreme simplicity and cheapness of construction, can be applied with great rapidity to the prongs, and offers a minimum of exposed surfaces upon which other papers or files may catch. It works with equal facility on either a thin or a thick stack, and gives an improved degree of tightness or compactness to the sheets. Additional advantages and objects of the invention will appear in the description and claims below.

Referring to the drawing,

Fig. 1 is a plan view of a keeper constructed in accordance with the preferred form of the invention;

Fig. 2 is a section on line 2—2 of Fig. 1, taken on an enlarged scale;

Fig. 3 is a section, on an enlarged scale, on line 3—3 of Fig. 1;

Fig. 4 is a view showing the first step in the operation of applying the keeper to a pair of prongs projecting through the holes of a paper stack;

Fig. 5 is a similar view showing the prongs folded over but the keeper still in the position of Fig. 4;

Fig. 6 is a similar view showing the keeper in its final position; and

Fig. 7 is a section on line 7—7 of Fig. 6.

The spaced prongs 10 which pass through the punched holes 11 in the stack of paper 12 may be made in any desired form, and as shown are bent from the ends of a back piece 13. Many such devices are now on the market, and are used with or without keepers. The keeper which forms the present invention is adapted for use with practically any of these usual types, and

has a wide adaptability to different prong widths and thicknesses.

The keeper in its preferred form is made of a single piece of sheet metal folded upon itself at 14 to form an upper wall 15 and a lower wall 16, with the walls spaced apart to provide a narrow prong-receiving channel 17. When the prongs 10 are bent over parallel to the top of the stack the keeper may be pushed over them to prevent their becoming unfolded. To permit this the lower wall at least is made slightly shorter than the distance between the prongs when these are extending straight through the holes 11 in the manner shown in Fig. 4. In order that the folding over of the prongs may be made rapidly and accurately the lower wall 16 is extended laterally beyond the upper wall along one side of the keeper as at 18. When the keeper is placed on top of the stack in the position of Fig. 4 this extension forms a template over which the prongs may be turned down by the fingers in the manner indicated in Fig. 5. By this means the prongs are always folded with sharp corners and at a constant elevation above the top of the stack just sufficient to clear the bottom plate 16, thereby bringing them in correct position to enter the channel 17.

As a desirable refinement the ends of the extension 18 are beveled or tapered at 20 so that they converge in a direction away from the body of the keeper. When the upstanding prongs are bent over upon an extension 18 constructed in this manner they are drawn slightly closer to one another than would otherwise be the case, and when the keeper is then forced into place a slight pull is exerted on the prongs which serves to draw the keeper and the back plate together and thus condense the paper stack. A very tight clamping of the separate sheets of paper results. This effect is of particular utility in rendering the device adaptable to the clamping of sheet stacks containing widely differing numbers of sheets. In the practical use of fasteners constructed in accordance with my invention equally good results have been obtained when the paper stack contained two or three sheets or when it was so thick that only a short length of the prongs showed above the hole. As far as I am aware, this uniformity of action with stacks of differing thicknesses has not heretofore been obtainable.

It is also desirable to extend the upper wall 15 longitudinally as at 21 so that it covers the holes 11 when the keeper is in place, and to bend these extensions down towards the plane of the bot-

tom wall 16. Several advantages accrue from this construction. A much neater appearance of the assembled clip results, as is clearly apparent from Fig. 6, for the upper wall 15 covers up the prongs and also the holes in the paper stack, leaving nothing visible from the top of the stack except the keeper itself. By bending the extensions downwardly the keeper is given a longitudinally curved form which prevents it from catching upon other papers or files, a result which has been extremely objectionable with other forms of clips using exposed sliders or presenting thick blunt edges. Not only do these extensions add to the utility of the assembled device, however, but they greatly facilitate the rapidity and accuracy of its assembly. Returning to the start of the assembling operation in Fig. 4, where the extension 18 of the lower channel wall is passed between the upstanding prongs 10, it will be seen that the end extensions 21 operate as stops to limit the lateral movement of the keeper since they strike against the edges of the prongs when the keeper has reached its proper position. When this construction is used great rapidity and uniformity in the assembly of the clip can be attained without the necessity for any practice whatsoever.

One additional refinement, adding both to the appearance and security of the clip will now be described. It will be noted in Fig. 2 that the forward edge of the upper channel wall 15 is bent slightly downwardly as at 22. The extent to which this edge is bent is insufficient to interfere with the sliding of the keeper over the folded over prongs 10; but it is enough so that, when the prongs are fully within the channel and spring upwards by their natural resiliency, they will not permit the keeper to slide off unless some force is exerted on it. The downward curve of the edge adds to the smooth appearance of the keeper, and it also acts to prevent the keeper catching on other articles in the same way as did the down curve at the longitudinal ends of the upper wall.

In case the retention of the prongs 10 by the channel is required to be more positive than would be secured by the construction described, a detent may be provided on one of the channel walls, preferably on the lower one. Such an arrangement has been shown in Fig. 2, where a slight localized elevation or hump 23 is formed at or near each end of the lower wall 16 in position to have the prong 10 snap over it when the keeper is forced into the position of Fig. 6. The operation is the same as before, except that when the keeper is once pushed into position slightly more effort is necessary to remove it. The humps 23 act with the prongs as spring detents to keep the keeper positively in place. It is preferable to have the detents located adjacent the zones of bending of the prongs, as in this position there is a minimum tendency to twist or displace the prongs when putting the keeper on or taking it off.

The material of which the keeper is made is not of importance as long as sufficient rigidity for the purpose is obtained. On account of the simplicity of its formation comparatively little working of the metal need be done, this being in direct contrast to the complicated formations of many of the previous devices. Since the metal is not greatly distorted it is possible to use sheet metal which has received its final surface finish while still in sheet form, no marring of exposed portions of the surface being incurred. Prior

devices have been universally sold commercially in unfinished form, as the amount of distortion required for their fabrication was such that they could only be surface finished after they were completely formed—a prohibitively expensive operation. The present device is not only quicker and more reliable in operation, but lends itself readily to fabrication out of material having a comparatively inexpensive surface finish given to it while in sheet form.

What I claim is:

1. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper plate extending longitudinally between the prongs and formed with walls spaced apart to provide between them a prong receiving channel open at one side, said keeper being adapted to be pushed laterally onto the folded down prongs to retain them in folded condition, and having its lower wall extending laterally beyond its upper wall to provide a form for binding down the prongs, the upper wall having its longitudinal edge adjacent the extended portion of the lower wall bent downwardly to form a constricted entrance to the channel facilitating the retention of the prongs therein and avoiding the presence of a blunt paper-engaging edge on that side of the upper wall.

2. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper plate extending longitudinally between the prongs and formed with walls spaced apart to provide between them a prong receiving channel open at one side, said keeper being adapted to be pushed laterally onto the folded down prongs to retain them in folded condition, and having its lower wall extending laterally beyond its upper wall and formed with its longitudinal ends converging away from the body of the keeper whereby when the prongs are folded down on the lower wall and the keeper pushed laterally into prong embracing position the prongs will be tensioned and the paper stack tightly bound, the upper wall having its longitudinal edge adjacent the extended portion of the lower wall bent downwardly to form a constricted entrance to the channel facilitating the retention of the prongs therein and avoiding the presence of a blunt paper-engaging edge on that side of the upper wall.

3. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper plate extending longitudinally between the prongs and formed with walls spaced apart to provide between them a prong receiving channel open at one side, said keeper being adapted to be pushed laterally onto the folded down prongs to retain them in folded condition, the upper wall being extended longitudinally beyond the lower wall and having its extended ends turned towards the plane of the lower wall to cover the holes in the paper and avoid the presence of blunt paper-catching ends on the keeper, the upper wall having its longitudinal edge bent downwardly to form a constricted entrance to the channel facilitating the retention of the prongs therein and avoiding the presence of a blunt paper-engaging edge on that side of the upper wall.

4. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper plate extending longitudinally between the prongs and formed of a single sheet of metal folded on itself to form walls spaced apart and providing between them a prong re-

ceiving channel open at one side, said keeper being adapted to be pushed laterally onto the folded down prongs to retain them in folded condition, and having its lower wall extending laterally beyond its upper wall and formed with its longitudinal ends converging away from the body of the keeper whereby when the prongs are folded down on the lower wall and the keeper pushed laterally into prong embracing position the prongs will be tensioned and the paper stack tightly bound, the upper wall being extended longitudinally beyond the lower wall and having its extended ends turned toward the plane of the lower wall to cover the holes in the paper, the upper wall also having its longitudinal edge bent downwardly to form a constricted entrance to the channel facilitating the retention of the prongs therein, curved surfaces preventing catching on adjacent files being provided on one side by the longitudinal fold, on the opposite side by the bent down longitudinal edge of the upper wall, and on opposite ends by the bent down end extensions of the upper wall.

5. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper plate formed of a single piece of sheet metal folded upon itself to form a prong receiving channel, one wall of the channel extending laterally beyond the other wall and being of a length substantially equal to the distance between the prongs, said extending wall having humps formed therein substantially at the entrance to the channel and adjacent the zone of bending of the prongs to engage the outer sides of the prongs when the prongs are received within the channel.

6. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack and folded down thereon, a keeper plate formed with walls permanently spaced one above the other at a side of the keeper plate to form a channel opening laterally at said side of the keeper plate with its lower wall extending laterally beyond the upper wall at the open side of the channel and having end edges spaced apart the distance between the spaced prongs and converging in said extending portion in a direction away from the channel, the lower wall of the channel being located between the spaced prongs and underneath their folded portions, and the upper wall of the channel overlying the folded portion of the prongs when the fastener is in assembled condition, the lateral extension of the lower channel wall forming a template upon which the prongs may be bent down in position to be received within the channel, and the converging end edges acting to tension the prongs and bind the paper stack tightly as the keeper is pushed laterally to bring the folded down portions of the prongs within the channel.

7. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper plate formed with walls permanently spaced one above the other throughout the distance between the prongs to form a channel opening laterally at said side of the keeper plate, the lower wall of the channel being located between the spaced prongs and underneath their folded portions when the fastener is in assembled condition and the upper wall of the channel overlying the folded portions of the prongs and having portions extending longitudinally beyond the lower wall to cover the prong-receiving holes in the paper, said longitudinally extending portions of the upper wall being turned

towards the plane of the lower wall to avoid the presence of blunt paper-catching ends on the keeper.

8. In a paper fastener adapted for use in combination with spaced prongs passing through a paper stack and folded down thereon, a keeper plate formed with walls permanently located one above the other at a side of the keeper plate to form a channel opening laterally at said side of the keeper plate, the lower wall of the channel being of a length substantially equal to the space between the spaced prongs and adapted to underlie their folded portions when the fastener is assembled, and the upper wall of the channel adapted to overlie the folded portions of the prongs.

9. In a paper fastener adapted for use in combination with spaced prongs passing through a paper stack and folded down thereon, a keeper plate formed with members permanently located one above the other at a side of the keeper plate to form a channel opening laterally at said side of the keeper plate, the lower channel forming member extending laterally beyond the upper channel forming member at the open side of the channel and presenting prong engaging edges spaced apart a distance substantially equal to the spacing of the prongs so as to serve as a template upon which the prongs may be bent down into position to be received within the channel by a relative lateral sliding movement of the prongs and the keeper plate, the upper channel forming member of the channel overlying the folded portions of the prongs when the fastener is assembled.

10. In a paper fastener adapted for use in combination with spaced prongs passing through a paper stack and folded down thereon, a keeper plate formed with walls permanently located one above the other at a side of the keeper plate to form a channel opening laterally at said side of the keeper plate, the lower wall of the channel being of a length substantially equal to the space between the spaced prongs and extending laterally beyond the upper wall at the open side of the channel so as to serve as a template upon which the prongs may be bent down into position to be received within the channel by a relative lateral sliding movement of the prongs and the keeper plate, the upper wall of the channel being adapted to overlie the folded portions of the prongs when the fastener is assembled, and means positioned to engage releasably the outer sides of the folded down prongs when the latter are positioned within the channel to retain them therein.

11. In a paper fastener adapted for use in combination with spaced prongs passing through a paper stack and folded down thereon, a keeper having a substantially uninterrupted upper plate covering the bent down portions of the prongs when the fastener is in assembled condition, and prong engaging means integral with the upper plate and permanently extending down and under the same from one longitudinal edge thereof to a position substantially parallel to the upper plate and underlying the prongs when the latter are covered by the upper plate, said prong engaging means being unattached to the upper plate at the side opposite the point of attachment to said upper plate and having prong engaging edges spaced apart a distance substantially equal to the space between the prongs, to permit association of the keeper and the bent down prongs solely by a relative lateral sliding movement of the keeper and the prongs by which said prong

engaging edges are caused to pass along the prongs while retaining engagement with them as the upper plate of the keeper is brought into overlying relation to the bent down prongs.

5 12. In a paper fastener adapted for use in combination with spaced prongs passing through a paper stack and folded down thereon, a keeper having a substantially uninterrupted upper plate covering the bent down portions of the prongs
10 when the fastener is in assembled condition, and prong engaging means integral with the upper plate and permanently extending down and under the same from one longitudinal edge thereof to a position substantially parallel to the upper
15 plate and extending beyond the upper plate, at the second longitudinal edge thereof to present projecting edges spaced apart a distance substantially equal to the space between the prongs and over which the prongs may be bent, said
20 prong engaging means being unattached to the upper plate at said second longitudinal edge to permit association of the keeper and the bent down prongs solely by a relative lateral sliding movement of the keeper and the prongs, said
25 projecting prong engaging edges having continuations thereof underneath the upper plate whereby the bent down prongs will be held positively by their inner surfaces as the keeper is brought into full covering relation to the prongs.

30 13. In a paper fastener adapted for use in combination with spaced prongs passing through a

paper stack, a keeper plate formed of a single piece of sheet metal permanently folded upon itself to form a prong receiving channel, one wall of the channel extending laterally beyond the other wall and being of a length substantially 5 equal to the distance between the prongs.

14. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper provided with a top member and a base member permanently located one above 10 the other at a side of the keeper plate to form a channel-like recess between them opening laterally at said side of the keeper plate, whereby the folded down prongs may be inserted laterally into the recess in the keeper, and means at each 15 end of said keeper for restricting the entrance to the recess under said top member.

15. In a paper fastener of the type adapted for use with spaced prongs passing through a paper stack, a keeper provided with a top member and a 20 base member permanently located one above the other at a side of the keeper plate to form a channel-like recess between them opening laterally at said side of the keeper plate, whereby the folded down prongs may be inserted laterally into the 25 recess in the keeper, and prong retaining means on one of said members consisting of a portion of said member at each end thereof folded into the space between the two members.

JOHN SCHADE.

30