Aug. 6, 1946. W. W. GUYON 2,405,421

METHOD OF ATTACHING A PLURALITY OF SHEETS

Original Filed May 25, 1944

Fig. 7

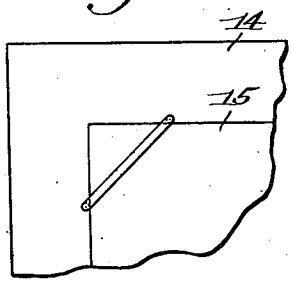


Fig. 1

Fig. 2

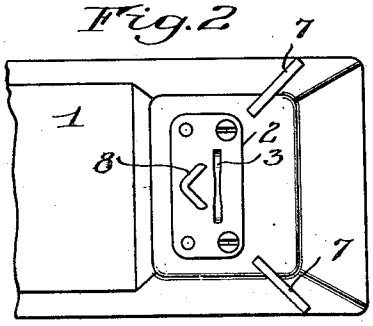


Fig. 3

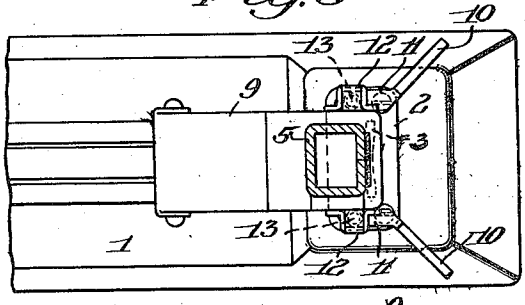


Fig. 6

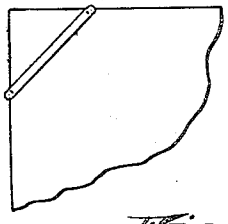


Fig. 5

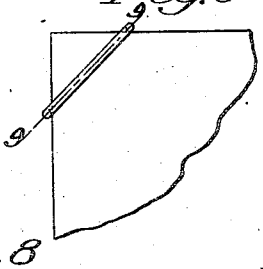


Fig. 4

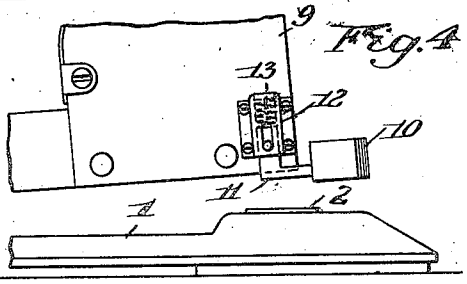


Fig. 8

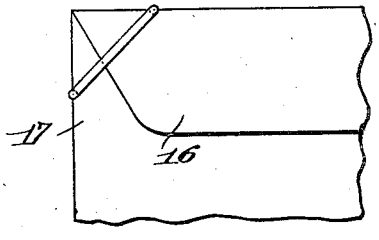
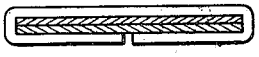


Fig. 9



INVENTOR.
Walter W. Guyon
BY
Harold E. Stonebraker,
his Attorney

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METHOD OF ATTACHING A PLURALITY OF SHEETS

Walter W. Guyon, Rochester, N. Y.

Original application May 25, 1944, Serial No. 537,246. Divided and this application December 6, 1944, Serial No. 566,877

3 Claims. (Cl. 1—3)

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This invention relates to a method of attaching a plurality of sheets, or a sheet and another element, and has for its principal purpose to enable fastening a staple to a sheet or plurality of sheets in such a manner that the staple grips the sheets tightly by frictional engagement and without having to penetrate the body of a sheet.

More particularly, the invention has for its purpose to afford a method of attaching a plurality of superposed sheets by affixing a staple around the adjacent edges forming the extreme corner portions of the sheets and across each corner portions in tight frictional engagement with the outer surfaces of the sheets, so as to permit a sheet to be easily removed by pulling it from under the staple, or by tearing the sheet along the line of the staple and removing the body of the sheet from the corner portion held by the staple.

Still a further purpose of the invention is to provide a method of attaching a card or sheet to a larger sheet or other supporting surface by means of a staple extending across a corner portion of the smaller sheet or card and in frictional engagement with the outer surface of such corner portion, which is thereby held against the larger sheet or supporting surface, or for similarly attaching an element to the corner portion of a sheet or card.

Another object of the invention is to afford a method of closing an envelope by fastening a staple around adjacent edges of a corner portion of the envelope and across such corner portion in frictional engagement on one side with the sealing flap and on the opposite side with the body of the envelope, so as to permit the envelope to be opened readily by forcibly disengaging the staple from the corner portion or by tearing the envelope along the line of the staple at the corner portion.

Heretofore in fastening a multiplicity of sheets together or otherwise fastening elements by means of staples, the practice has been to force the staple through the body of the paper sheets at a point in substantial spaced relation to the adjacent edge, which has the disadvantage that when it is desired to separate the sheets or to remove one or more sheets, it is necessary to employ a sharp instrument to insert under and bend back the ends of the staple in order to remove the staple from the sheets, or else to deface the sheet by tearing it away leaving a considerable portion attached to the staple, and it is a purpose of the invention to attach a multiplicity of sheets together at such a point and in such a manner that the body of the sheet is not penetrated by the

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staple, the staple can be removed by exerting the tension required to overcome its frictional engagement with the sheets, one or more sheets can be easily removed by tearing them along the line of the staple, the torn portion being small and located at the extreme corner of the sheet so that it does not affect the matter printed or written thereon or interfere with the subsequent use of the sheet, or a sheet can be forcibly withdrawn from the rest without destroying or defacing it.

The invention enables the use of staples as temporary retaining devices, superior in effectiveness to the conventional paper clips, and effecting a considerable saving in cost, while affording a method of holding together a multiplicity of sheets with sufficient tightness to function satisfactorily as a permanent fastener, but permitting easy removal of the fastener or of one or more sheets when desirable.

An additional object is to afford a method which can be carried out on conventional types of stapling machines when modified to enable positioning the sheets as required.

To these and other ends, the invention consists in the method and procedure that will appear clearly from the following description when read in conjunction with the accompanying drawing, the novel steps of the method being pointed out in the claims following the specification.

In the drawing:

Fig. 1 is a view in side elevation showing a stapling machine such as may be employed for practicing the method forming the invention;

Fig. 2 is a plan view of the base of the machine partially broken away;

Fig. 3 is a horizontal sectional view through the plunger of a modified form of stapling machine by which the invention may be performed, showing the base and head in elevation;

Fig. 4 is a side elevation of the construction shown in Fig. 3;

Fig. 5 is a plan view showing the manner in which a staple is affixed across the corner portion and around the adjacent edges of a series of sheets;

Fig. 6 is a similar view showing the staple applied in a somewhat different manner, and slightly penetrating the edges of the sheets;

Fig. 7 is a similar view showing the manner in which a staple is applied to the corner portion of a card or sheet to affix the latter to a larger supporting sheet or surface;

Fig. 8 is a similar view showing the manner in which a staple is applied to the corner portion

of an envelope for holding the flap against the body of the envelope, and

Fig. 9 is a sectional view on the line 9—9 of Fig. 5.

This application is a division of application Serial No. 537,246, filed May 25, 1944, and is directed to the method disclosed in said application, which method can be practiced by the mechanism also disclosed therein and may also be performed with other mechanisms.

The invention is useful and of particular advantage wherever it is desirable to attach together two or more sheets of paper or other material, or to attach a sheet and another element, or to close the flap of an envelope, in such a manner as to maintain the attached relationship as long as desired by means of a staple in frictional engagement with a corner portion or portions of one or more attached sheets, thus permitting quick removal of the staple, or of a sheet without defacing the latter, by forcibly removing the sheet or staple by overcoming the resistance of their frictional engagement, or by tearing a sheet along the line of the staple at the corner portion where attached.

Such method of attachment can be successfully employed for fastening a check, price list, folder, return card, or other sheet to a remittance blank, statement, letter, or advertising broadside, for fastening a small card or sheet on to a larger sheet or surface in spaced relation to its edges as in securing merchandise on display boards, for fastening together a multiplicity of superposed alined sheets so that one can be removed without disturbing the remainder or the staple can be easily removed from the entire assembly of sheets without defacing them, or for closing an envelope by fastening the flap against the body of the envelope.

To practice the invention, it is preferable to employ a flat or rectangular cross-section staple of about three-fourths of an inch or more in length, so that when the staple is fastened across the corner portions of a plurality of sheets, and extends around the adjacent edges in frictional engagement with the exposed surfaces of the outer sheets, the staple is of sufficient length and has sufficient flat surface to engage a considerable portion of the surfaces of the sheets, and thus to exert frictionally enough pressure to prevent their accidental separation or displacement and to afford an attachment that is practically permanent, until it is desired to remove one or more sheets which can be accomplished by forcibly withdrawing the staple against its frictional engagement or by tearing the sheet along the line of the staple and thus removing the body of the sheet from its extreme corner portion which remains attached to the staple.

The invention may be carried out on different machines, the structures shown in Figs. 1 to 4 being illustrative of two possible mechanisms for performing the invention, and referring to Figs. 1 and 2, 1 designates the base of a conventional stapling machine, 2 is the anvil having the usual staple recess 3, and 4 designates the pivotally mounted head provided with a plunger 5 that is operable to force a staple through the staple channel 6 into the staple recess 3 of the anvil.

In practicing the method of the invention, it is necessary to hold the sheet or sheets in predetermined relation to the staple recess 3, or to the staple channel 6, so that the corner portion of the sheet will extend across the staple recess with the adjacent edges forming the corner

portion symmetrically inclined to the longitudinal axis of the staple recess and located between the ends of the latter, or substantially coincident with the ends of the recess, and this can be accomplished by maintaining the sheets at a certain position in respect to indicating lines, dots, or other instrumentalities, or in contact with positioning devices which may be in the form of pins, stops, or suitable abutments, and in the structure shown in Figs. 1 and 2, the sheets are held against the straight flanges or guides 7 which are formed integrally with or otherwise attached to the base 1, and preferably located symmetrically on opposite sides of the longitudinal center of the staple recess 3.

The guides or stops 7 are arranged along lines at right angles to each other and symmetrically inclined to the staple recess in such relation that when sheets are inserted cornerwise and edgewise over the staple recess and their adjacent edges forming the corner portions are brought into contact with the guides 7, said edges of the sheets are located between or coincident with the ends of the recess and the staple is affixed as shown in Fig. 5, or the edges of the sheets are slightly beyond the ends of the recess so that when the staple is affixed, it penetrates slightly the edges of the sheets, as illustrated in Fig. 6, thus affording a slightly tighter engagement between the staple and the sheets while permitting removal of a sheet by tearing along the line of the staple or by forcibly disengaging the staple from the sheets, which can be accomplished without defacing the sheets.

When the staple is fastened to a multiplicity of sheets, it extends entirely around the edges of the sheets as shown in Fig. 5, and across the corner portions in frictional engagement with the outer surfaces of the sheets, as illustrated in Figs. 5 and 9, or it may partially penetrate the edges and extend through the pockets or notches thus formed in the edges of the sheets, as illustrated in Fig. 6, or the staple may extend slightly beyond the edges of the corner portions, as long as the frictional engagement between the staple and the sheets is sufficient to hold the sheets together.

The guides 7 illustrated in Figs. 1 and 2 are arranged in front of the staple recess 3 and movable head 4, and if desirable, an additional guide 8 of V-shaped form may be provided behind the staple recess to engage the corners of the sheets and the edges immediately adjacent to the corners, the guide 8 being formed integrally with or suitably attached to the base 1 and accommodated in the opening or space in the conventional stapling machine head when the latter is moved downwardly into contact with the anvil. It is to be understood that the method can be practiced either with the guides 7, or with the guide 8, or with both guides, or with other suitable stops, guide members, or positioning instrumentalities arranged and functioning to enable readily positioning and holding a sheet or sheets in the required predetermined relation to the staple recess or staple channel with their adjacent edges inclined symmetrically to the recess or channel.

While the sheets are held in position with adjacent edges contacting the guides 7 and 8, the plunger 5 is depressed, and a staple is thereby affixed across the corner portions of the sheets and around their adjacent edges, as illustrated in Fig. 5, or as in Fig. 6 where the edges are slightly penetrated by the staple. When the staple is thus affixed, the sheets are securely held

against accidental displacement, and if it is desired to remove the staple, this can readily be accomplished by holding the sheets with one hand, engaging the staple between the thumb and forefinger, and pulling it away from engagement with the sheets. Or if it is desirable to remove a single sheet, this can easily be accomplished by tearing the sheet along the line of the staple, thus removing only the small corner portion of the sheet which does not interfere with the reading matter on the sheet and does not deface the sheet. If preferred, a single sheet can be removed by holding the sheets and staple with one hand while pulling the selected sheet away from the remaining sheets which are still held by the frictional engagement with the staple.

In some instances, it is desirable to secure a sheet to the surface of a larger sheet and in spaced relation to the edges of the latter but in such a way as to permit quick removal of the smaller sheet, by affixing the staple across a corner portion thereof, and to accomplish this, the positioning means may be provided on the movable head instead of on the base as already described.

Thus the movable head **9**, see Figs. 3 and 4, may be provided with guides **10** projecting somewhat below the bottom of the head so as to enable positioning a sheet under the movable head and in contact with the guides **10**. Each guide **10** is preferably movable vertically with relation to the head **9** in order to permit the latter to be brought down into engagement with the anvil, and this is accomplished by mounting each guide **10** on an arm **11** that is slidable vertically in a guiding chamber **12** carried by the side wall of the head, while **13** is a spring that normally holds the guide **10** down in its lowermost position for controlling the proper locationing of the sheet.

In operation, the larger sheet **14** is arranged in the desired position over the anvil so as to bring any portion of its surface under the head and plunger, while the smaller sheet **15** is held by the operator with its adjacent edges against the guides **10** of the movable head as the plunger is forced downwardly. This causes the smaller sheet **15** immediately under the movable head to occupy the desired predetermined relationship to the staple, staple channel, and staple recess, so that when fastened to the larger sheet **14**, the staple extends across the extreme corner portion of the smaller sheet, as illustrated in Fig. 7, and around the adjacent edges of the corner portion, thence through the larger sheet, the ends of the staple being bent downwardly against the rear surface of the larger sheet. Thus the smaller sheet is held securely against the larger sheet by the frictional engagement of the staple, but can be removed if desired by forcibly pulling it from under the staple.

The method can also be employed for closing an envelope, as illustrated in Fig. 8, in which case the flap **16** is held against the body **17** of the envelope by means of the staple which is affixed by positioning the envelope in the manner already described, so that when the staple is fastened, it extends across a portion of the flap **16** and the adjacent portion of the body of the envelope, around the adjacent edges of the envelope, and

across the opposite exposed surface of the body of the envelope. Two staples can be attached at the two corners of the envelope where the flap **16** is connected, so as to hold the flap securely closed, and the envelope thus is held tightly sealed, and may be opened by forcibly sliding the staples away from frictional engagement with the corner portions, or by tearing the envelope along one or both of said corner portions, leaving a discharge opening at such corner of the envelope.

The method can also be carried out in connection with tacking, stapling, or stitching machines having no anvil, the fastening staple or element being driven into and held by a wooden or other body to which a card or sheet is to be temporarily fastened by means of the staple which extends across the corner portion of the card and thence inwardly into the supporting surface at points adjacent to or beyond the edges of the card forming the corner portion.

While the invention has been described in connection with certain specific structures, its performance is not confined to the mechanisms herein shown and described, and this application is intended to cover such other uses as may come within the purposes of the invention and the scope of the following claims.

I claim:

1. The method of attaching a sheet to another element which consists in positioning said parts with a corner portion of the sheet underlying the staple channel of the head of a stapling machine and with the adjacent edges forming said corner in predetermined position inclined to and located between the ends of the channel, and affixing a staple around said adjacent edges of the sheet and across opposite surfaces of said corner portion in frictional engagement with the outer surfaces of the sheet and element.

2. The method of attaching a sheet to another element which consists in positioning a corner portion of the sheet in parallel relation opposite to the central portion of a staple with the edges of said corner portion inclined to said central portion of the staple and the end portions of the staple extending angularly to the plane of the sheet, and bending said end portions of the staple around the edges of said corner portion until said end portions and said central portion of the staple lie on opposite sides extending across the corner portion and around its edges and frictionally engage the sheet.

3. The method of attaching a plurality of sheets which consists in positioning the sheets with superposed and alined corner portions in parallel relation and opposite to the central portion of a staple with the edges of said corner portions inclined to said central portion of the staple and the end portions of the staple extending angularly to the plane of the sheets, and bending said end portions of the staple around the edges of said corner portions and against the outermost surfaces thereof until said end portions and said central portion frictionally engage outer surfaces of the sheets and extend across said corner portions and around the edges forming said corner portions.

WALTER W. GUYON.