

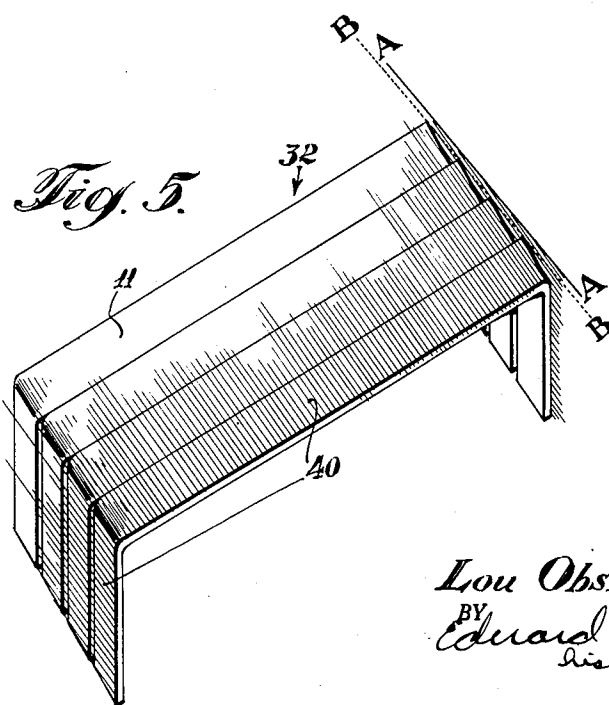
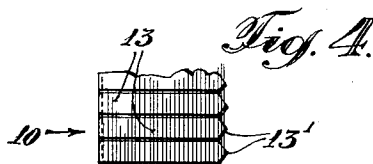
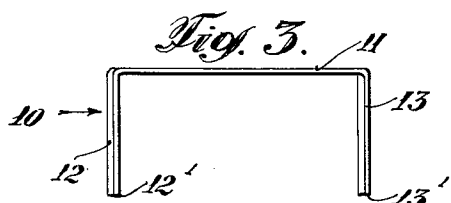
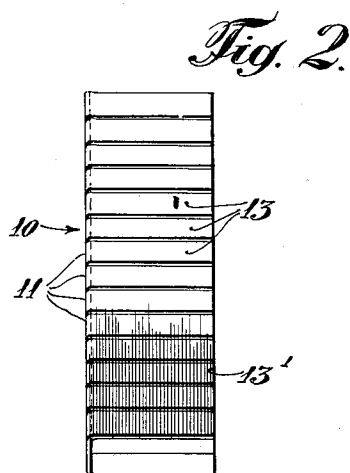
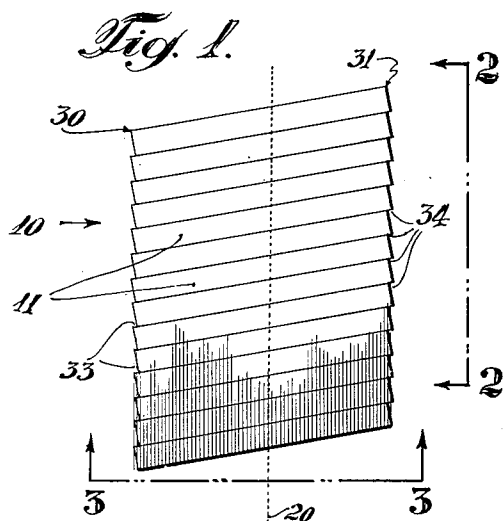
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L. OBSTFELD

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STAPLE CLIP AND METHOD OF FABRICATING THE SAME

Filed March 18, 1930



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STAPLE CLIP AND METHOD OF FABRICATING THE SAME

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My present invention relates to staple clips and the like, and to methods of fabricating the same, and aims to devise staple clips for fastening paper, cardboard, wood and other materials, the staple clips of the present invention being characterized by their convenient form, the ease and economy with which such clips may be fabricated and assembled, and the relatively firm adherence of the staples or the like, making up the clips of the present invention, to each other so as to prevent too easy separation or fracture of the staples or the like from each other, while still permitting ready separation or severance of such staples or the like by means of the usual cutting member when so desired, the methods of the present invention being characterized by their simplicity, the ease, convenience and economy with which such methods may be practised and the superior characteristics of the resulting staple or similar clips which the methods produce. Other objects and advantages of the methods and resulting products of the present invention, particularly as exemplified in the following illustrative embodiments of the same, will in part be pointed out in detail hereinafter and will in part be obvious to those skilled in the art to which the present invention relates.

In the accompanying specification I shall describe, and in the annexed drawings more or less diagrammatically exemplify, an illustrative embodiment of the methods of the present invention. In the accompanying specification I shall also describe, and in the annexed drawings show, an illustrative embodiment of the product of the present invention, particularly the product produced by the practise of the aforesaid illustrative embodiment of the methods of the present invention. It is, however, to be clearly understood that my invention is not limited to the specific embodiments thereof herein shown and described for purposes of illustration only, nor is the method necessarily restricted in its use to the production of the aforesaid illustrative embodiment of the article, nor the article necessarily restricted to its fabrication by means of the aforesaid

illustrative embodiment of the methods of the present invention.

Referring to the drawings, in which I have illustrated the aforesaid illustrative embodiment of the articles of the present invention, and in which I have also more or less diagrammatically exemplified the aforesaid illustrative embodiment of the methods by means of which such article may be made:

Fig. 1 is a top plan view of a series of staples or the like assembled in contiguous relation in the arrangement constituting a part of the aforesaid illustrative embodiments of the present invention;

Fig. 2 is a side view of the series of clips illustrated in Fig. 1 of the drawings;

Fig. 3 is a front view of the clip shown in Figs. 1 and 2 of the drawings;

Fig. 4 is a side view of a modified form of staple clip in which the lower ends of the staples have a pointed configuration; and

Fig. 5 is a detailed perspective view, on an enlarged scale, of the manner in which the film or layer of adhesive is applied to the substantially triangular spaces between successive staples or the like making up the clip.

Before describing the aforesaid illustrative embodiments of the article of the present invention in detail, it may be desirable briefly to describe the aforesaid illustrative embodiment of the method by means of which such article may be conveniently and economically fabricated and assembled. In practising such method, I prefer to take staples or the like, for example, staples which are of substantially inverted U-shaped cross section or configuration with the bend of the U substantially flat. I arrange such staples or the like in contiguous but wracked relation, that is, with the sides of successive staples or the like parallel to each other but in different planes. In other words, the sides of the staples will form an angle other than a right angle with the line passing through the centers of the tops of the staples. This results in the series of contiguous staples forming the clip presenting a saw-tooth conformation.

In this relation of the staples or the like to each other it will be noted that on each side of the clip formed by assembling the staples or the like there will be a succession or series of triangular pockets. This is a feature of great importance, since it permits the series of staples or the like to be assembled in the form of a novel clip having certain definite advantages for the purposes for which such clips are intended to be used.

In order to maintain the series of wracked staples or the like in assembled position, I apply to the same a layer or film of adhesive. Such adhesive may be applied to any portion or portions of the clip but is preferably applied at least along a part or all of one or both sides of the assembled staples forming the clip. The adhesive may be applied by spraying or in any suitable manner. When applied to the side portion or portions of the assembled clip, the adhesive will lodge in the substantially triangular pockets formed between successive staples or the like. This is a feature of great importance since it results in the series of staples being much more adherently held together, the arrangement increasing the binding surface between successive staples, to which adhesive has been applied, in an effective manner.

Upon the solidification of the liquid adhesive the clip is completed. The advantages of this arrangement are numerous. The application of the adhesive in the substantially triangular indentations provided along the sides of the wracked staples or the like increases the resistance of the clip to fracture and breakage while permitting the staples of the series to be readily separated from each other in the usual manner. It may here be stated that while the staple or similar clip thus produced may be used in a stapling machine in the usual manner, it will be necessary that the edge of the staple bar adjacent the cutting member shall have the same angle with respect to the axis of the staple bar as the front and rear edges of the successive staples have to the line passing through the centers of the tops of the staples and thus to the axis of the staple bar itself. Similarly, the cutting blade or other member must be at the same angle to the axis of the staple bar and thus parallel to the front and rear edges of the staples themselves and to the edge of the staple bar adjacent the cutting blade or other cutting member.

This completes the description of the aforesaid illustrative embodiment of the methods of the present invention. It will be noted that such method is simple and may be easily and conveniently practised. It will also be noted that the method produces the desired staple in an economical and effi-

cient manner. Other superiorities and advantages of the methods of the present invention, particularly as exemplified in the foregoing illustrative embodiment of the same, will readily occur to those skilled in the art to which the present invention relates.

Referring now to the illustrative embodiment of the article of the present invention illustrated in Figs. 1, 2, 3 and 4 of the drawings, 10 indicates one of a series of staples or the like to be assembled in clip form in accordance with the principles of the present invention. It may here be stated that a considerable variety of articles may be assembled in such form in accordance with the principles of the present invention without departing from the spirit of the same. The bodies of the staples or the like 10 are of substantially inverted U-shaped form, being substantially rectangular and having the substantially flat tops or webs 11 and the substantially flat legs 12 and 13, respectively. The ends 12' and 13' of the legs 12 and 13, respectively, of the staples or the like 10 may be pointed or not, as desired, to facilitate their penetrating the paper, cardboard, wood or other material to which they are to be applied. While staples having legs and webs of substantially flattened cross-section are intended in a preferred arrangement, it may here be stated that it is not intended that the invention be restricted to any particular form of staples within the scope and application of the invention hereof. For example, staples made of circular or "round" stock, those having webs and legs of circular cross-section, may likewise be employed with equal success.

In accordance with the principles of the present invention, the staples or the like 10, instead of being assembled with their sides as well as their tops in alignment or in substantially the same relative planes, are assembled in wracked relation, as clearly shown in Figs. 1 and 2 of the drawings. That is, the side faces of the legs 12 and 13 of the staples 10 are at an angle other than a right angle to the line 20 drawn through the centers of the tops 11 of such staples or the like 10. This results in the side edges 30 and 31 of the assembled clip, which has been generally designated by reference character 32, being of saw-tooth conformation. Another way of expressing the form which the staple clips arranged according to the present invention take, is that the mean planes of the bodies of the staples are obliquely disposed with respect to the mean planes of the aligned legs of such staples. There is thus provided in the case of staples formed of stock of substantially rectangular cross-section a series of substantially triangular pockets 33 on the side 30 and 34 on the side 31 of the clip 32.

It may here be stated that where the staples or the like 30 are made of "round" wire, the advantages of this arrangement are found to be present, although possibly less in degree than where such staples and the like are made of flat material. However, in substantially all practical staple work, the dies which form the staples, for example, from circular wire, apply pressure in such manner that a change in its cross section from a substantially circular one to a substantially elliptical and somewhat rectangular cross section generally results. As an example of this, it may be noted that the so-called "round" wire which is used in numerous wire machines on the market is actually not round, there being an actual difference from about three to about five-thousandths of an inch between the dimensions of the wire, demonstrating that it has been somewhat flattened by the forming die.

To the assembled clip thus prepared is applied a suitable adhesive to enable the clip to remain in assembled position during handling and use without interfering with the desired separation or severance of the staples or the like making up the clip. For this purpose, I may apply, as by spraying, a layer or film of adhesive 40 to any desired portion or portions of the clip thus formed. For this purpose I prefer to use a transparent adhesive which dries readily. While such adhesive may be applied to various portions of the clip, I prefer to apply the same to a part at least of at least one of the sides 30 or 31 of the clip obtained as above described. In this way the adhesive 40 will enter the substantially triangular spaces or indentations 33 or 34, as the case may be, or both series of such indentations. By means of this arrangement the effective surface presented to the adhesive and thus acting to hold the staples or the like together in clip form is substantially increased. This arrangement is shown more in detail in Figs. 3 and 4 of the drawings.

The result is a staple or similar clip characterized by the relatively firm adherence of the various staples or the like making up the clip to each other, and the relatively high resistance of the assembled clip to breakage and fracture, while leaving the individual staples readily separable or severable in the stapling machine when intended for use.

It may here be stated that by means of the present invention, a greater degree of adhesiveness between the staples making up the clip is thus obtained without the necessity of providing for greater clearance, as would be the case if a greater thickness of adhesive were applied to the staples assembled in the usual manner. By the expression "mean plane of the body of the staple," as used herein, I mean a plane which

passes through both the web and leg portions of the staple and which substantially bisects these members. Likewise, by the expression "mean plane of the aligned legs", I mean a plane which would pass through every one of a series of aligned legs in the plane of the wall formed by such legs and in uniform relation to each of such legs. It may here also be stated that the wracked or equivalent disposition of the staples in the clip in accordance with the principles of the present invention affords the additional advantage that the paper, cardboard, wood or other material which is stapled by means of the staple clip of the present invention will so be stapled at an angle which will in most instances afford additional binding power under ordinary conditions of usage.

This completes the description of the aforesaid illustrative embodiment of the product of the present invention. It will be readily noted that the device is simple in construction, may be readily and economically fabricated and assembled, and presents numerous advantages over the prior art. Other superiorities and advantages of the articles of the present invention will readily occur to those skilled in the art to which the present invention relates.

It may here be stated that the manner in which the additional adhesive power is obtained is clearly indicated on the right hand side of Fig. 5 of the drawings where the solid line A—A indicates the outer bounding line of adhesive and the dotted line B—B indicates with the solid line A—A the amount of adhesive which would normally be present if the staples were not wracked, the triangular space between the dotted line B—B and the bounding space of the staples indicating the additional amount of adhesive which is made possible by means of the present invention.

What I claim as my invention is:

1. As an article of manufacture, a staple clip comprising a series of contiguous staples of general inverted U-shaped form, the legs of the staples having flattened portions, the tops of said staples being in substantially the same plane, and the faces of the flattened portions of said legs being wracked relatively to each other into saw-tooth conformation.

2. As an article of manufacture, a staple clip comprising a series of contiguous staples of general inverted U-shaped form, the legs of the staples having flattened faces, the tops of said staples being in substantially the same plane and the planes of the flattened faces of said legs being obliquely disposed relatively to a line passing through the centers of the tops of the staples, in combination with a film of adhesive applied to a portion at least of said clip to maintain the

staples thereon in readily severable assembled position.

3. As an article of manufacture, a staple clip comprising a series of contiguous staples having legs of noncircular cross-section, the mean planes of said staples being obliquely disposed relatively to the mean planes of the legs thereof in combination with a film of adhesive applied to a portion at least of said clip to maintain the staples thereon in readily severable assembled position.

4. As an article of manufacture, a staple clip comprising a series of contiguous staples of general inverted U-shaped form, the legs of the staples having flattened faces, the tops of said staples being in substantially the same plane, with their legs having the longitudinal planes of their faces wracked relatively to each other into saw-tooth conformation, in combination with a film of adhesive applied to a portion at least of said clip to maintain the staples thereon in readily severable assembled position.

5. As an article of manufacture, a staple clip comprising a series of contiguous staples having legs of noncircular cross-section, the legs of said staples being disposed in wracked relation to each other so that the planes of the legs are disposed in substantially parallel relation to each other but in different planes, in combination with a film of adhesive applied to a portion at least of said clip to maintain the staples thereon in readily severable assembled position.

6. As an article of manufacture, a staple clip comprising a series of contiguous staples of general inverted U-shaped form, the legs of the staples having flattened faces, the tops of said staples being in substantially the same plane and the planes of the flattened faces of said legs being disposed obliquely to a line passing through the centers of the tops of the staples, in combination with a layer of adhesive applied to a portion at least of one side at least of said staple clip in such relation thereto that said adhesive fills a portion at least of the pockets provided by the flattened faces of said legs when the staples are in assembled position.

7. As an article of manufacture, a staple clip comprising a series of contiguous staples having web and leg portions, the webs of said staples being obliquely disposed relatively to the mean planes of said legs, in combination with a layer of adhesive applied to a portion at least of one side at least of said staple clip in such relation thereto that said adhesive fills a portion at least of the pockets provided by the arrangement of said staples when the staples are in assembled position.

8. As an article of manufacture, a staple clip comprising a series of contiguous staples of general inverted U-shaped form, the legs of said staples having flattened faces, the

tops of said staples being in substantially the same plane and the planes of said flattened faces being wracked relatively to each other into saw-tooth conformation, in combination with a layer of adhesive applied to a portion at least of one side at least of said staple clip in such relation thereto that said adhesive fills a portion at least of the pockets provided by the arrangement of said flattened faces when the staples are in assembled position.

9. As an article of manufacture, a staple clip comprising a series of contiguous staples having downturned legs, the legs of said staples having flat faces disposed in wracked relation to each other so that the flat faces are arranged in substantially parallel relation to each other but in different planes, in combination with a layer of adhesive applied to a portion at least of one side at least of said staple clip in such relation thereto that said adhesive fills a portion at least of pockets provided by the arrangement of said flat faces when the staples are in assembled position.

10. The method of assembling a clip of staples, which comprises, arranging a plurality of staples having flattened leg portions, in contiguous, wracked relation with their planes obliquely disposed relatively to a line passing through the centers of the tops of the staples, and thereafter applying a film of adhesive to said clip of staples along a portion at least, of one face of the clip of staples, formed by said legs.

11. The method of assembling a clip of staples which comprises, arranging a plurality of staples having legs provided with flat faces in contiguous, wracked relation with said flat faces in substantially parallel relation to each other but in different planes, and thereafter applying a film of adhesive to said clip of staples along a portion at least, of one face of the clip of staples, formed by said legs.

12. The method of assembling a clip of staples which comprises, arranging a plurality of staples and having flattened legs in contiguous, wracked relation with the planes of the flat faces of the legs at an oblique angle to a line passing through the centers of the tops of the staples, and thereafter applying a film of adhesive to said clip of staples along a portion at least of one side of the clip of staples within the substantially triangular pockets provided at the sides of the clip of staples between successive staples.

13. The method of assembling a clip of staples which comprises, arranging a plurality of staples having legs provided with flat faces, in contiguous, wracked relation with the flat faces of the legs in substantially parallel relation to each other but in different planes so as to form triangular pockets

between successive staples, and thereafter applying a film of adhesive to said clip of staples along a portion at least of one side of the clip of staples within the substantially triangular pockets provided at the sides of said clip between successive staples.

14. In combination, a plurality of substantially similar staples of inverted U-shape, the bodies of said staples being disposed in parallel relation and in a contiguous series, the legs at common sides of said staples being arranged in substantially aligned relationship, the mean planes of the bodies of said staples being obliquely disposed relatively to a mean plane passing through said aligned legs, thereby forming pockets between successive staples, and an adhesive material applied to said staples at least along a portion of said pockets.

15. In combination, a plurality of substantially similar staples of inverted U-shape, the bodies of said staples being disposed in parallel relation and in a contiguous series, the legs at common sides of said staples being arranged in substantially aligned relationship, said legs having substantially planar faces, said planar faces on aligned legs being disposed in different planes, the mean planes of the bodies of said staples being obliquely disposed relatively to a mean plane passing through said aligned legs, thereby forming pockets between successive staples, and an adhesive material applied to said staples at least along a portion of said pockets.

16. In combination, a plurality of substantially similar staples of inverted U-shape, the bodies of said staples being disposed in parallel relation and in a contiguous series, the legs at common sides of said staples being arranged in substantially aligned relationship, said legs having substantially planar faces, said planar faces on aligned legs, being disposed in different planes, thereby forming pockets between successive staples, and an adhesive material applied to said staples at least along a portion of said pockets.

17. In combination, a plurality of substantially similar staples of inverted U-shape, the bodies of said staples being disposed in parallel relation and in a contiguous series, the tops of said staples being disposed in substantially the same plane, the legs at common sides of said staples, being arranged in substantially aligned relationship, the mean planes of the bodies of said staples being obliquely disposed relatively to a mean plane passing through said aligned legs, thereby forming pockets between successive staples, and an adhesive material applied to said staples at least along a portion of said pockets.

18. In combination, a plurality of substantially similar staples of inverted

U-shape, the bodies of said staples being disposed in parallel relation and in a contiguous series, the tops of said staples being disposed in substantially the same plane, the legs of common sides of said staples being arranged in substantially aligned relationship, said legs having substantially planar faces, said planar faces on aligned legs being disposed in different planes, the mean planes of the bodies of said staples being obliquely disposed relatively to a mean plane passing through said aligned legs, thereby forming pockets between successive staples, and an adhesive material applied to said staples at least along a portion of said pockets.

19. In combination, a plurality of substantially similar staples of inverted U-shape, the bodies of said staples being disposed in parallel relation and in a contiguous series, the legs at common sides of said staples being arranged in substantially aligned relationship and the mean planes of the bodies of said staples being obliquely disposed relatively to a mean plane passing through said aligned legs, and an adhesive material to maintain the staples in readily severable assembled position.

20. In combination, a plurality of substantially similar staples of inverted U-shape, the bodies of said staples being disposed in parallel relation and in a contiguous series, the legs at common sides of said staples being arranged in substantially aligned relationship, and the mean planes of the bodies of said staples being obliquely disposed relatively to a mean plane passing through said aligned legs, and an adhesive material applied to a portion at least of said staples to maintain the same in readily severable assembled position.

21. In combination, a plurality of discrete, substantially similar staples arranged in a series, adjacent staples being in contiguous relation so that the extreme portions of the side edges of said staples lie in substantially the same plane, the bodies of the staples being obliquely disposed to the planes of the extreme side edges, thereby forming pockets between adjacent staples, and an adhesive received in at least a portion of said pockets.

In testimony, whereof, I have signed my name to this specification this 14th day of February, 1930.

LOU OBSTFELD.