Dec. 27, 1927. 1,654,076

G. F. GRIFFITHS

PAPER CLIP

Filed April 24, 1923

Fig. 1.

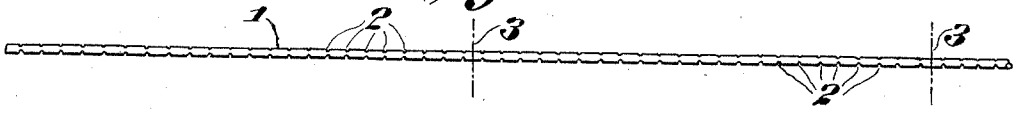


Fig. 2.

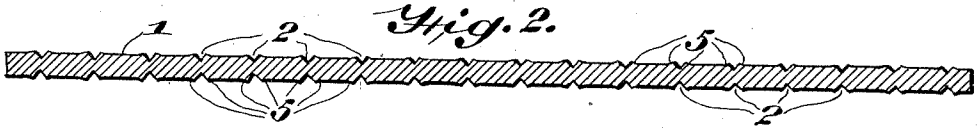


Fig. 5.

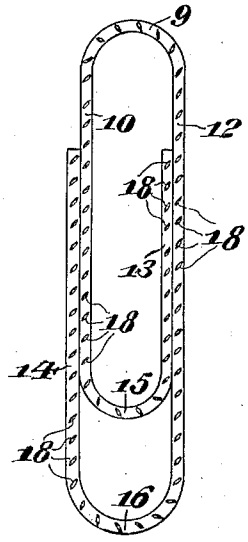


Fig. 6.

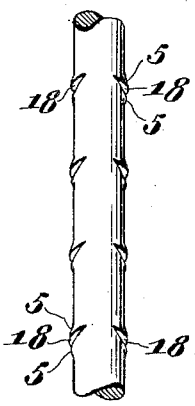


Fig. 3.

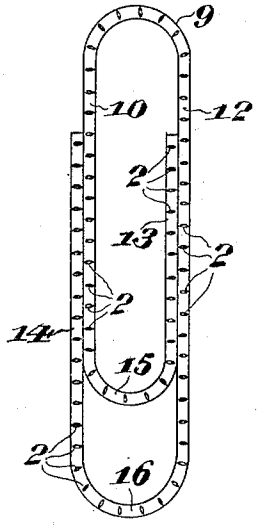


Fig. 4.

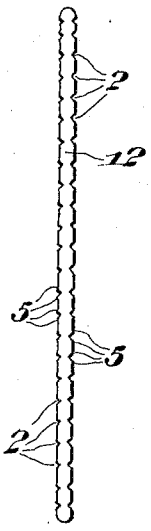


Fig. 7.

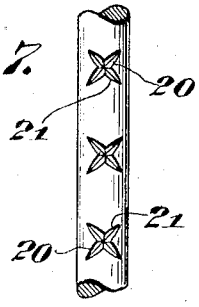
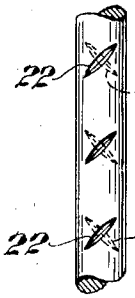


Fig. 8.



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UNITED STATES PATENT OFFICE.

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PAPER CLIP.

Application filed April 24, 1923. Serial No. 634,243.

My invention relates to improvements in paper clips of the type known generally as "Gem" clips and it has for its general object to provide a clip in which the portions of the surfaces which are adapted to contact with the sheets of paper or other like material held thereby are roughened so as to more firmly hold and grip such sheets.

A further object of the invention is to provide a clip which is adapted to clamp and hold efficiently a plurality of sheets of paper or the like but without marring and without puncturing the same.

Other objects and advantages of the invention will be pointed out in the detailed description thereof which follows or will be apparent from such description.

In order that the invention may be readily understood and its practical advantages fully appreciated reference may be had to the accompanying drawings in which I have illustrated the invention as embodied in a number of clips.

In the drawing:

Fig. 1 is a view in side elevation of a wire provided with oppositely disposed notches therein which notches extend at right angles across the said wire;

Fig. 2 is a longitudinal sectional view of the wire taken at right angles to the said notches;

Fig. 3 is a plan view of a paper clip constructed of a section of the wire shown in Figs. 1 and 2;

Fig. 4 is a view in side elevation looking toward the left in Fig. 3;

Fig. 5 is a plan view of a paper clip showing the notches in the wire extending at an acute angle thereto;

Fig. 6 is a view in side elevation of a portion of the wire of the clip shown in Fig. 5;

Fig. 7 is a view in plan of a portion of wire showing the notches crossing each other; and

Fig. 8 is a view showing a still further modification of the structure in which the notches upon one side of the wire are extended in one direction while those upon the opposite side are extended in crosswise relation thereto.

Referring to the drawing: 1 designates a wire of indefinite or undetermined length provided with notches 2 arranged at intervals thereon. These notches are provided upon opposite sides of the wire in opposed relation to each other, as shown. The said notches may be produced in any suitable manner and by any suitable means but I have found that they may be most economically and efficiently produced by passing the wire between a couple of oppositely disposed and co-acting knurled rollers. After a wire has been notched either as indicated in Figs. 1 and 2 or otherwise it is cut into sections as indicated by the dash and dot lines 3 in Fig. 1 which sections are subsequently bent to form clips of the character shown in plan in Figs. 3 and 5 of the drawing.

In the formation of the notches in the wire the metal upon opposite sides of the notch is slightly expanded, as indicated at 5, so as to form slightly elevated or projecting portions upon the opposite sides of the notches. The presence of such elevations and notches in the sections of wire from which the clips are constructed causes the said clips to firmly hold a plurality of sheets of paper or the like upon which the said clips may be placed.

In Figs. 3 and 4 of the drawing I have shown a clip constructed of wire in which the notches are of the character illustrated in Figs. 1 and 2; that is to say, the notches extend at right angles to the length of the wire. In the manufacture of the clips from wire such as is shown in Figs. 1 and 2 such wire is cut into short lengths or sections, as above indicated, which sections are bent to form a U-shaped portion 9 having parallel legs 10 and 12. The end portions of these legs are bent and extended, as indicated at 13 and 14. The extended portion 13 is connected with the portion 10 by means of a bend, as indicated at 15, while the extended portion 14 is connected with the part 12 by means of a bend, as indicated at 16. The bends 15 and 16 are spaced from each other as indicated and may be described as being concentric with respect to each other. The extended portion 13 is located inside of the portion 12 and in parallel relation thereto. It is situated between the portions 10 and 12. The extended portion 14 is situated outside of and in parallel relation to the portion 10. The portions 13 and 14 are illustrated as being in contact respectively with the portions 12 and 10, but such contact relationship is not essential to the invention.

It will be noted that the portions 10 and

13 with the bend connecting portion 15 and the portions 12 and 14 with the bend connecting portion 16 constitute a couple of U-shaped portions which are connected together by the bend which connects the portions 10 and 12 together. The said U-shaped portions formed in the opposite end portions of the wire constitute the holding portions of the fastener.

Referring now to Figs. 5 and 6 it will be observed that the notches 18 are arranged at an inclination with respect to the length of the wire; that is to say, at acute angles with respect to the said wire. The clip, as shown in Fig. 5, is provided with the portions 10, 12, 13, 14, 15 and 16 corresponding to the parts similarly designated in Fig. 3 of the drawing.

In Fig. 7 I have shown a construction in which the notches 20 and 21 are arranged in couples upon opposite sides of the wire and in which the notches of each couple cross each other, as indicated. I have shown the notches only upon one side of the wire but it will be understood that similar notches are provided in opposed relation upon the opposite side of the wire.

In Fig. 8 of the drawing I have shown a construction in which the notches 22 and 23 are arranged at intervals singly upon opposite sides of the wire and at angles to each other. In the construction as shown the notches 22 upon the top sides of the wire which are shown in full lines are arranged at an angle of substantially ninety degrees with respect to the notches 23 shown in dotted lines upon the opposite side of the wire.

It will be seen from the foregoing that the notches may be arranged in almost any manner as may be desired or preferred. It will also be seen that by reason of the expansion of the material in the formation of the notches immediately adjacent the opposite sides of the same the gripping surfaces of the portions of the wire constituting the clip are of such character that they hold securely and efficiently the sheets which may be placed between the holding parts of the clips.

It will also be seen that the notches are provided continuously along opposite surfaces of the wire of which the clips are produced so that in the completed clips the notches are provided upon all portions thereof thereby rendering more efficient the action of the clips in holding a number of sheets upon which the said clips may be placed.

It will be noted further that the notches and slight elevations upon opposite sides of the wire of a clip are arranged in diametrically opposed relation to each other. This arrangement is preferred because it has been found that by arranging the notches and the slight elevations of the metal upon opposite sides thereof in opposed relation to each other they co-operate more directly with each other and therefore are more efficient in their action in holding a number of sheets of paper which may be placed therein.

Although it is preferred that the notches shall be provided upon opposite sides of the wire of which the clip is constructed, as shown in the drawing, yet if desired the clips may be made of wire having notches only on one side thereof.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A paper clip comprising a section of wire, the opposite ends of which terminate in U-shaped portions, the intermediate portion of the said wire being bent to U-shape so as to locate the said U-shaped portions in nested and operative relation with respect to each other, and the wire of the said clip being provided with notches upon its opposite sides which notches extend at an inclination with respect to the length of the said wire.

2. A paper clip comprising a section of wire, the opposite ends of which terminate in U-shaped portions, the intermediate portion of the said wire being bent to U-shape so as to locate the said U-shaped portions in nested and operative relation with respect to each other, and the wire of the said clip being provided with groups of notches arranged at intervals on opposite sides thereof, the notches of each group extending at angles with respect to each other.

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 18 day of April, A. D., 1923.

GEORGE F. GRIFFITHS.