June 20, 1933. J. N. NIELSEN 1,914,816

PAPER CLIP

Filed April 12, 1932

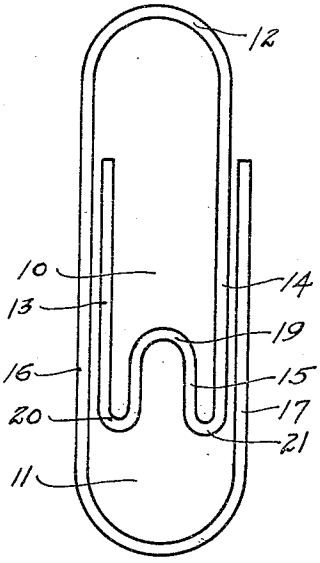


FIG. 1

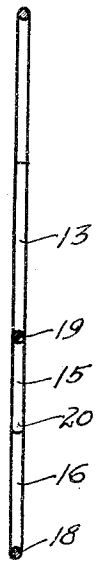


FIG. 2



FIG. 3

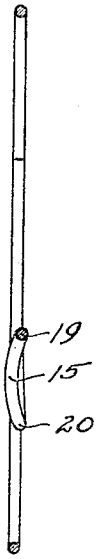


FIG. 4

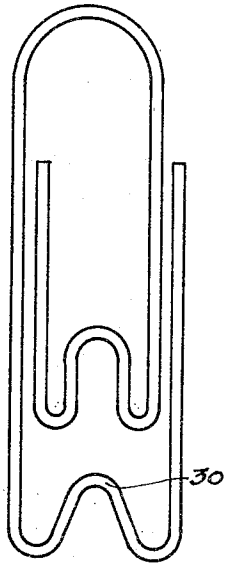


FIG. 5



FIG. 6



FIG. 7



FIG. 8

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UNITED STATES PATENT OFFICE

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PAPER CLIP

Application filed April 12, 1932. Serial No. 604,831.

This invention relates to spring clips made from wire for securing papers together and has for its distinguishing feature the provision of a reentrant curve or loop in the fold of a member of a clip frame.

Spring clips of wire comprise a wire frame of two gripping members connected by a fold or curved integral portion. The members are formed to lie in the same plane the one within the other. As heretofore made both are U shaped or consist of two legs connected by a fold or outwardly curved portion, the inner gripping member being made materially shorter than the other. The object in view is to secure ready and easy entrance of papers between the gripping members while at the same time obstructing removal of the papers from the clip.

According to the present invention the inner gripping member is provided with a reentrant curve or loop thus forming two points connected by an inwardly turned arched portion. It is found that such a construction improves the gripping action, particularly if bent slightly from the plane of the clip to provide a ready entrance for papers.

A clip and various modifications thereof illustrative of the subject matter of this invention are shown in the accompanying drawing in which

Fig. 1 is an elevation of one embodiment of the clip forming the subject matter of this invention;

Fig. 2 is a longitudinal central cross section of the clip shown in Fig. 1;

Fig. 3 is a similar cross section illustrating a modification of the reentrant curve;

Fig. 4 is a similar cross section showing another modification of the loop;

Fig. 5 is an elevation of another embodiment of the clip;

Fig. 6 is a longitudinal central cross section of the embodiment shown in Fig. 5;

Fig. 7 is a cross section similar to that of Fig. 6 showing a modification of the reentrant curve; and

Fig. 8 is a cross section showing another modification.

The embodiment disclosed in Fig. 1 consists of two gripping members 10, 11 united by the curved portion 12. Each member is generally U shaped in form, the inner gripping member 10 comprising legs 13, 14 united by the fold or loop 15, and the outer member 11 comprising legs 16, 17 united by the fold 18. These members preferably lie in the same plane as shown by the cross section in Fig. 2.

The fold or loop 15 of the inner member is given a reentrant curvature or loop 19 thereby forming points 20, 21. The fold or loop 15 and points 20, 21 can lie in the plane of the clip as in Fig. 2, or they can be bent out of the plane as shown in the cross sections of Figs. 3 and 4. In the cross section of Fig. 3, the points 20 extend in one direction from the plane of the clip and the loop 19 in the opposite direction, while in that of Fig. 4 both the points and the loop are curved to extend in the same direction, thus giving an arc form to the loop.

When in use the inner and outer gripping members are spaced apart in the usual manner sufficiently to permit entrance of paper sheets between them. This gives an angular disposition to the members; but as the loop 15 is a reentrant curve, it is thrown inward toward the sheets giving an increased frictional drag to resist withdrawal of paper. With the modified forms of Figs. 3 and 4, the entrance of paper sheets between the fold 18 and points 20, 21 is facilitated while the gripping action of the loop 15 is increased.

Figs. 5, 6, 7 and 8 illustrate a modified form in which the outer fold 18 is likewise given a reentrant curvature 30. Fig. 6 shows a cross section in which all parts lie in the same plane, while Fig. 7 shows the form wherein the loop 15 and points 20, 21 are bent out of the plane.

The points 20 and 21 can be made blunt as shown by shaping them about four pieces in the usual manner, or they can be given a sharper formation by further compressing them or shaping them by means of dies.

I claim:

1. Paper clip comprising in combination inner and outer gripping members and a fold integrally uniting said members, each of said

members including a pair of legs and a fold uniting them, each of the folds of said members being shaped into the form of reentrant loops.

2. Paper clip comprising in combination inner and outer gripping members and a fold integrally uniting said members, each of said members including a pair of legs and a fold uniting them, the fold of the inner gripping member being shaped as a reentrant loop inclined to the plane of the clip.

3. Paper clip comprising in combination inner and outer gripping members and a fold integrally uniting said members, each of said members including a pair of legs and a fold uniting them, the fold of the inner gripping member being shaped as a reentrant loop of arcuate form in a plane transverse to that of the clip.

4. Paper clip comprising in combination inner and outer members cooperating to form a gripping structure, both members being of a U formation extending in the same axial direction, and a fold integrally uniting said members, each of said members including a pair of legs and a fold uniting to give the U formation, the fold of one of said members being formed as a reentrant arch extending but a minor fraction of the length of the member.

In testimony whereof, I affix my signature.

JOSEPH N. NIELSEN.