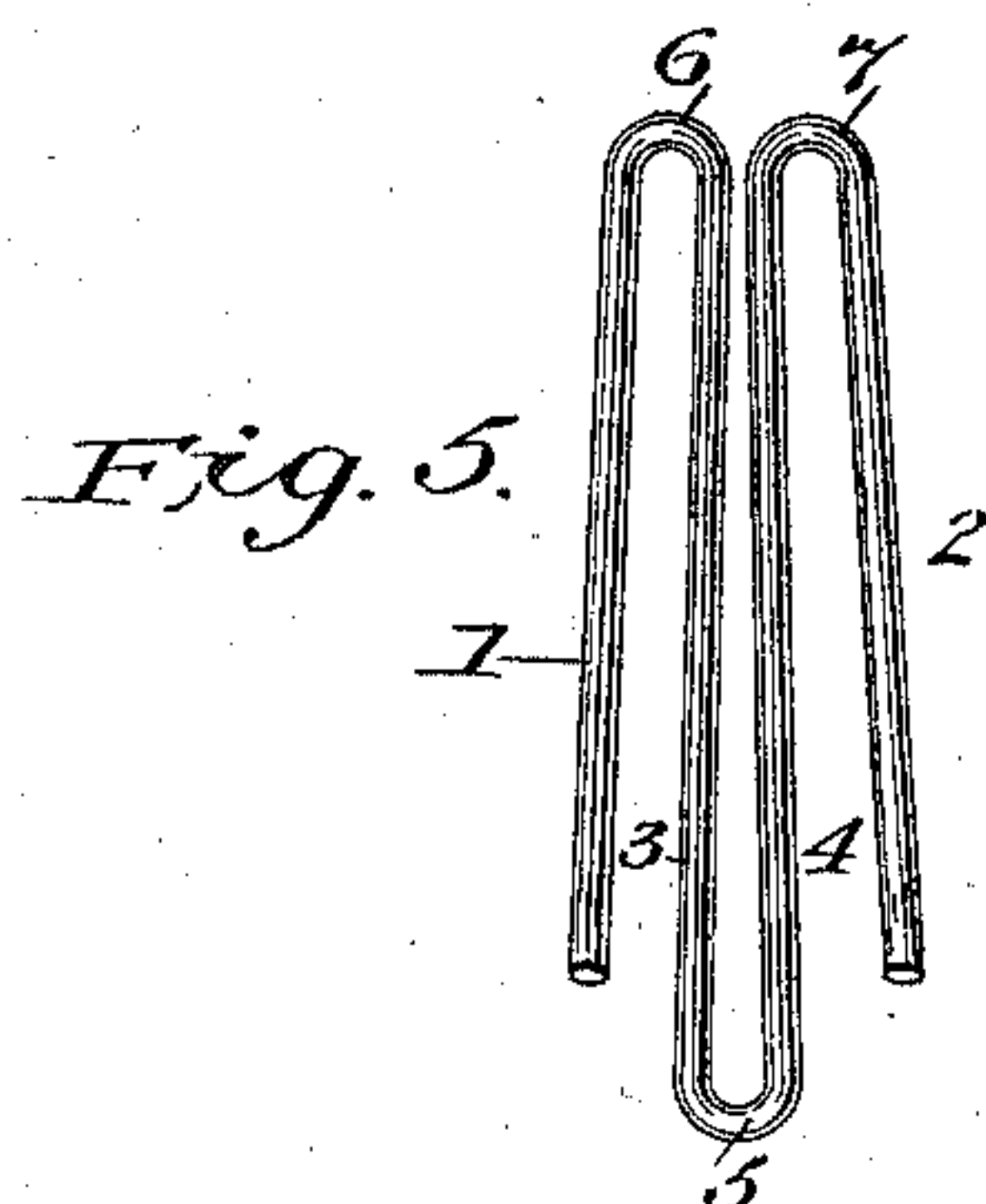
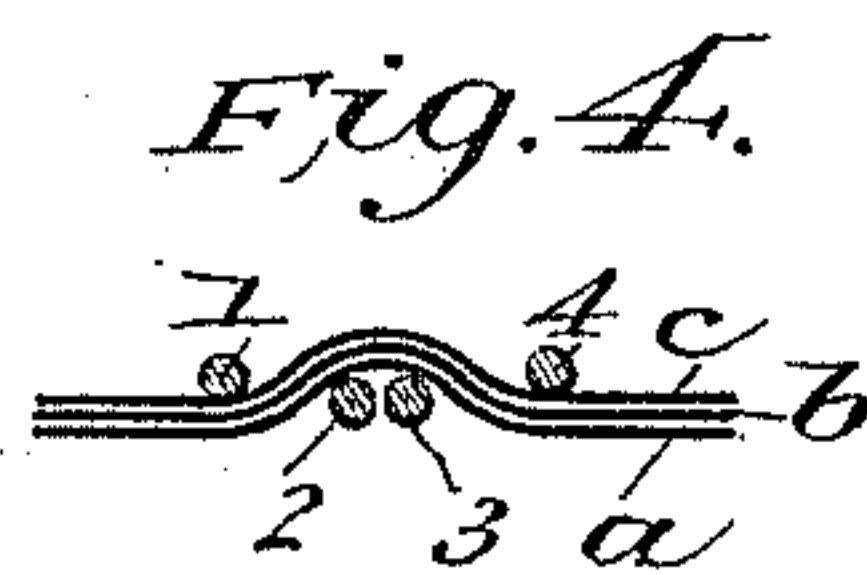
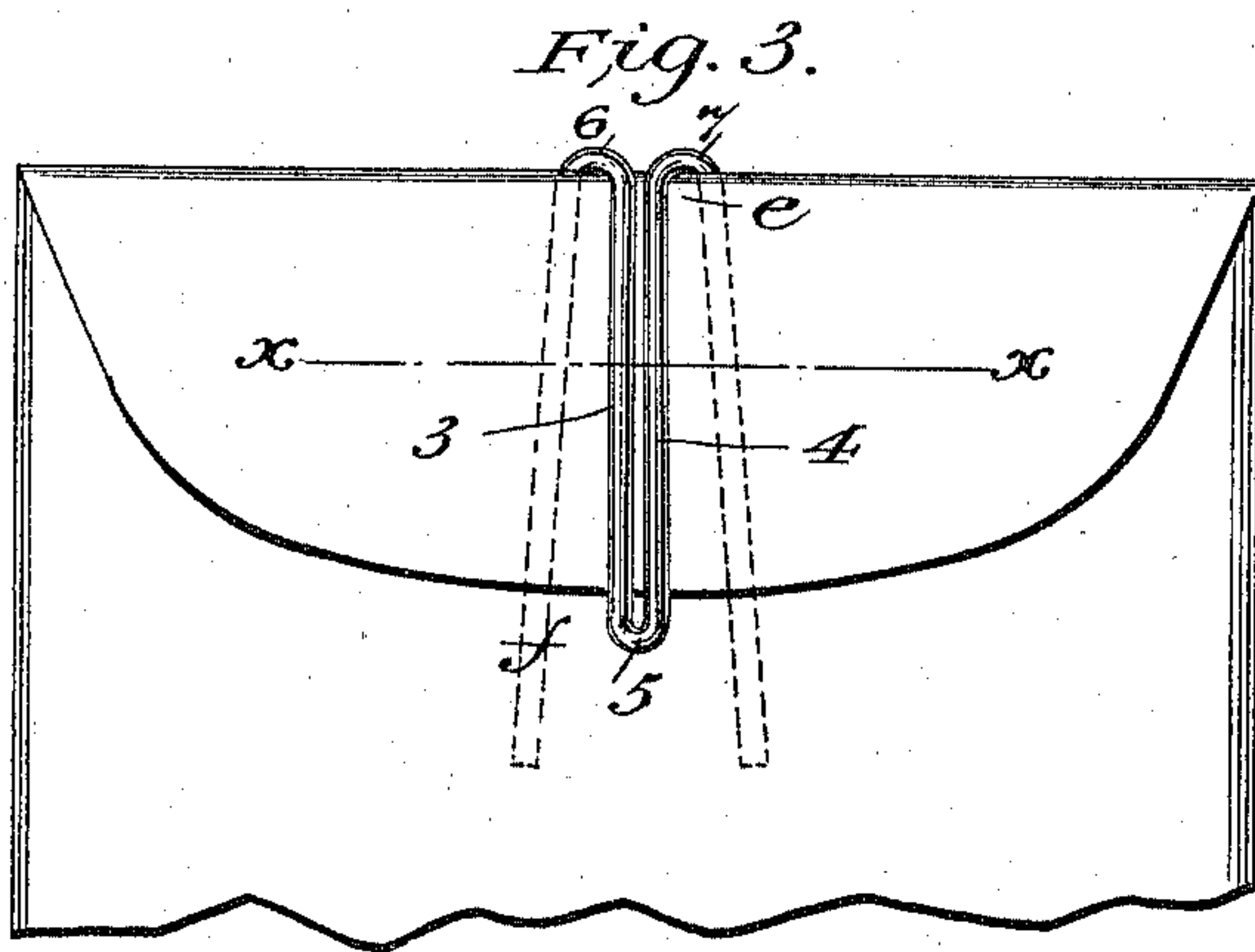
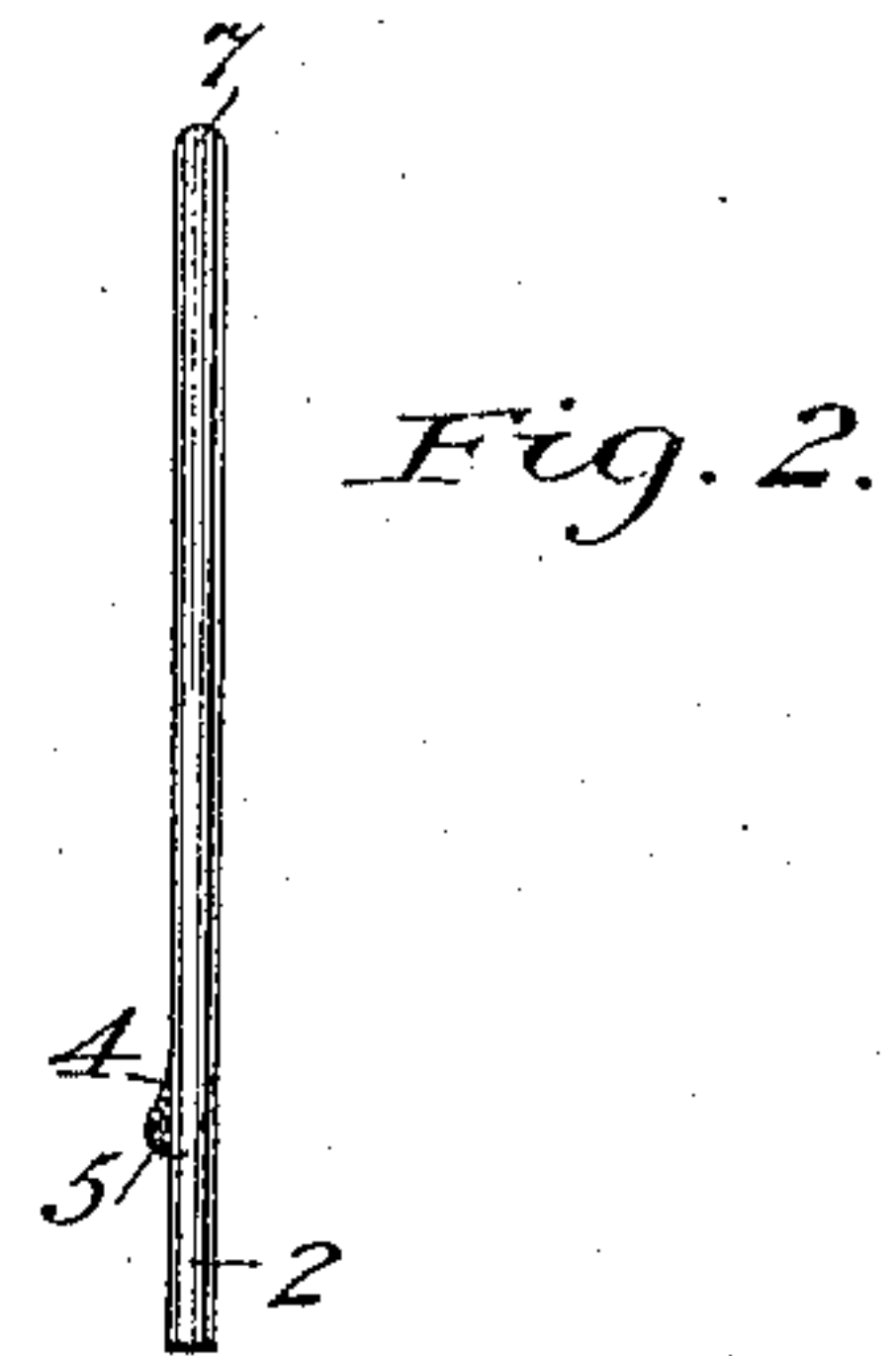
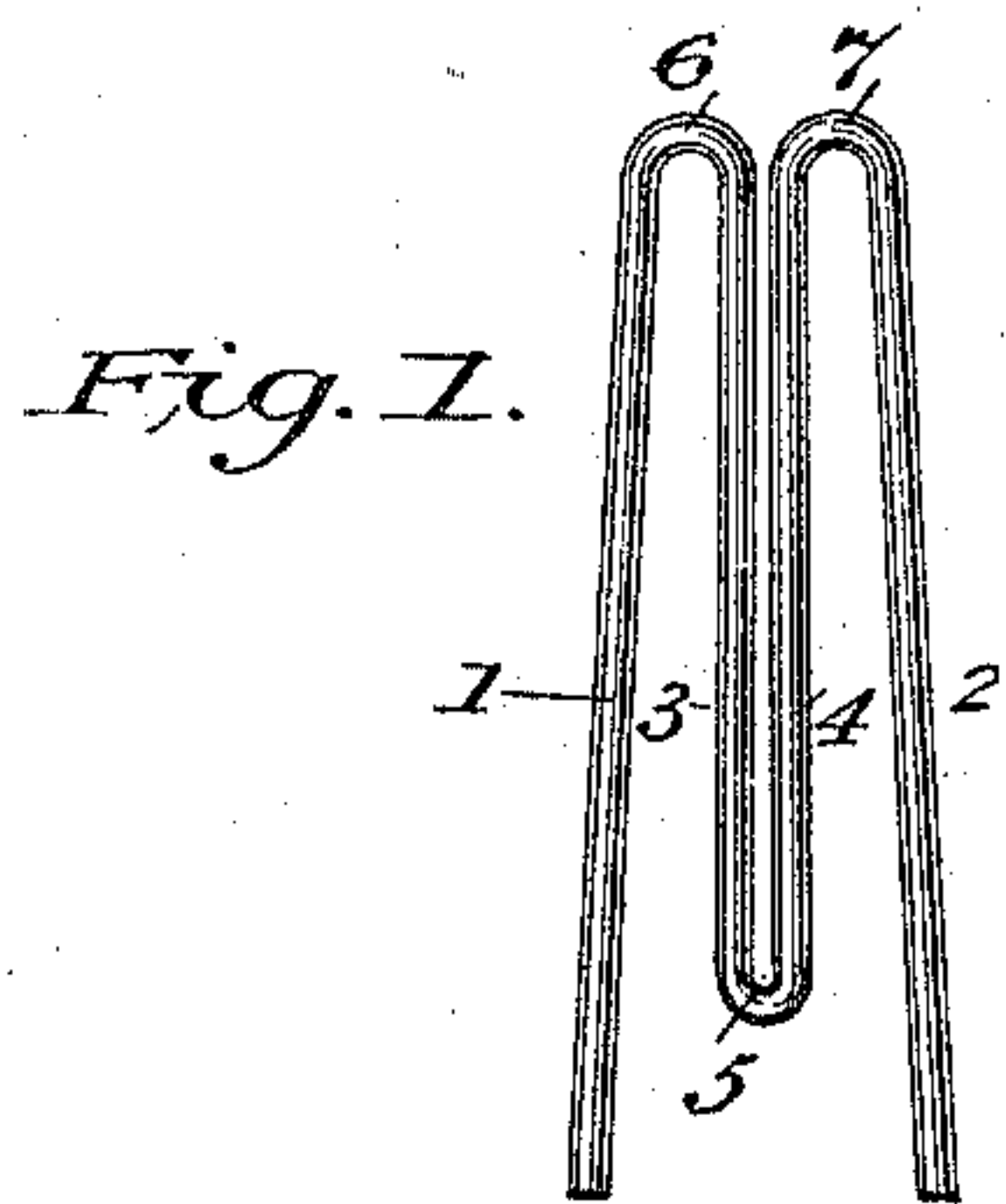


(No Model.)

W. W. COLE.
PAPER CLIP.

No. 581,901.

Patented May 4, 1897.



Witnesses
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UNITED STATES PATENT OFFICE.

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PAPER-CLIP.

SPECIFICATION forming part of Letters Patent No. 581,901, dated May 4, 1897.

Application filed April 13, 1896. Serial No. 587,256. (No model.)

To all whom it may concern:

Be it known that I, WARREN W. COLE, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented a certain new and useful Improvement in Paper-Clips, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to that class or type of "paper-clips" made of wire, bent into some suitable form and operating by its springy quality or resiliency to securely grasp and hold papers to which the clip may be applied.

Previous to my invention various forms or constructions of bent-wire clips have been devised and used with more or less convenience and usefulness to those needing such articles for the retention together and filing away of papers, but so far as my knowledge of and experience in the use of the different forms of such clips heretofore known go no one of the old forms is perfectly satisfactory to the user in general practice. Some of them do not grip the articles or pieces of paper to be held together with sufficient force to insure their retention together when filed away and during handling, while others take such a firm grip on the papers to which they have been applied as to endanger a tearing of the paper either in applying or removing the clip. Others are difficult or inconvenient of manipulation by the user, and others still, while easy to apply to and remove from the papers, are clumsy or have some portion projecting transversely to the plane of the papers and are also expensive to manufacture.

I propose by my improvement to provide for use a neat wire clip which may be cheaply manufactured, that will be convenient of manipulation in applying it to and removing it from the papers to be temporarily fastened together, that will securely hold together properly the papers on which it may be placed, that will not endanger the slightest injury to or mutilation of the papers, and which will, by reason of lying smoothly in the plane of the papers, permit a series of batches of papers to lie evenly when piled one on top of another (in a pigeonhole, for instance) and to freely slide one batch on another in handling; and

to these main ends and objects my invention may be said to consist in a bent-wire paper-clip composed of a single piece of wire bent at or near its middle and also bent reversely at points about equidistant from the first-named bend, all in such manner as to form a figure somewhat resembling the letter **M**, (or the letter **W**,) with all the plies or strands substantially in the same plane, as will be more fully explained hereinafter and as will be most particularly pointed out in the claim of this specification.

To enable those skilled in the art to make and use my improved paper-clip, I will now proceed to more fully describe its construction and operation, referring by letters and figures to the accompanying drawings, which form part of this specification.

In the drawings, Figure 1 is a face view of one of my improved paper-clips. Fig. 2 is an edge view of the same. Fig. 3 is a view showing the clip applied to the closed flap end of a paper bag or envelop designed to be retained in a closed condition by the clip. Fig. 4 is a partial or detail section at the line *x x* of Fig. 3. Fig. 5 is a view showing a modification of the new clip.

In the several figures the same part will be found always designated by the same letter or figure of reference.

As clearly illustrated, the clip is composed of a single piece of (preferably round) wire bent into about the form seen—that is, with all four of its comparatively straight portions, or strands, 1, 2, 3, and 4 arranged in a plane—and the wire should, of course, possess the proper and usual degree of spring or resiliency to cause the several parts of the clip to resume or tend to resume their normal relative positions when bent or forced out of them. Hence when the clip is applied to a paper article or to a series of paper slips, as shown at Figs. 3 and 4, the tendency of the four legs or strands 1 2 3 4 to resume and maintain their normal relative position (seen at Figs. 1 and 2) operates to make these parts clamp or grip the several plies of paper *a b c*, (see Fig. 4,) and thus securely cling or attach itself to the latter, as shown, this grip of the parts 1 2 3 4 on the paper plies *a b c* operating, as seen at Fig. 4, to slightly crinkle the paper. As the free ends of the

two legs 1 2 extend beyond the extremity 5 of the middle loop, as best seen at Fig. 1, it follows that in applying the clip to the papers or article (see Figs. 3 and 4) it is easy to insert the edges of the plies of paper between the overlying legs or strands 1 2 and the underlying (loop) strands 3 4; and by having the loop extremity 5 very slightly bent out of plane with the other parts, as best seen at Fig. 2, the insertion of the papers may be rendered still easier.

Preferably the strands 3 4 are about parallel, while those marked 1 and 2 run slightly divergently from the loops or bends 6 7 outwardly, for by this spreading apart of the free legs 1 2 the clip is rendered capable of gripping the papers *a b c* with a gradually-increasing force as it is pushed along into its final position, (seen in Figs. 3 and 4,) the papers being clamped tighter at the point *e*, Fig. 3, than at *f*.

In lieu of having the outer strands or legs 1 2 to project or extend beyond the loop end 5, as so far described, they may be shorter than the central strands 3 4, as illustrated at Fig. 5, in which case it may be desirable or expedient to very slightly bend out of plane the extreme ends of these (shorter) legs 1 2 to facilitate the entrance, in a sort of interlaced fashion, of the edges of the papers between the overlapping and the underlying parts of the clip.

Instead of having the strands 3 4 arranged exactly as seen at Figs. 1 to 4, inclusive, they may be arranged as shown in the modification illustrated at Fig. 5; and of course the sizes and proportions of the parts may be varied from what I have shown them to be, and the form of the clip may be more or less changed, without departing from the principle of my invention, so long as the clip be made to operate substantially as I have herein explained.

A clip made substantially as herein shown and described, while economic of manufacture, I have found by experiment and practice to be capable of easy or convenient application to and removal from the papers to be held by it, adapted to securely hold the papers properly together, and not liable to injure them in being more or less frequently applied to and removed from them, while at the same time, by reason of the legs or strands all lying substantially in a plane, a series of batches of clipped papers will pile evenly when filed away (in a pigeonhole, for in-

stance) and the batches will freely slip or slide on each other while being handled, which is a great convenience in handling the series of batches.

By reason of the clip being formed of wire and in the manner shown not only do the legs or strands grip the confined papers throughout their entire lengths, but with a slightly tighter grip near the edge of the batch; but, furthermore, if the batch be a comparatively thick one, there is a tendency of the legs 1 2 (see Fig. 1) to spring slightly out of plane with those marked 3 4 by a little twist in the bends 6 7, which tendency operates to prevent an undue forcing of the central legs (or tongue) 3 4 out of plane with the legs 1 2.

My improved wire clip should not be confounded with one made of sheet metal and having a tongue cut out of the stock, but united therewith at its root, for in this species of paper-clip the principle of construction and mode of action are substantially different, and as the tongue must always be forced by the inserted papers into a plane oblique to that in which lies the other part of the device not only is the tongue liable to break at its root or junction with the other part of the sheet of metal, but it must be widely separated from the opposing part of the plate at the vicinity of its free end, thus causing the separated ends of the clip to stick out in the way, which renders the device objectionable in use. Furthermore, such sheet-metal devices are more expensive to make than my bent-wire clip, which, having all its bends in the same plane, can be manufactured by wire-bending machinery very rapidly and cheaply.

Having now so fully explained my improved wire paper-clip that those skilled in the art can make and use the same, what I claim as new is—

As an improved article of manufacture, a wire paper-clip composed of a single piece, having three bends and comprising a central double-strand leg, and two outer single-strand legs; all of the said bends and legs lying in the same plane; the middle leg being of a different length from the two outer legs; and all arranged and operating in the manner set forth.

In witness whereof I have hereunto set my hand this 9th day of April, 1896.

WARREN W. COLE.

In presence of—

STEPHEN W. CARLE,
HERBERT W. ROLINSON.