Jan. 30, 1923. 1,443,522

H. G. BUCHAN.
SPRING BINDER.
FILED DEC. 10, 1920. 2 SHEETS-SHEET 1

FIG. 1

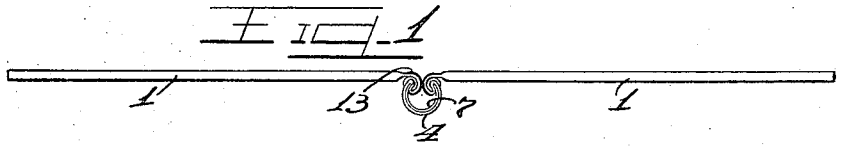


FIG. 2

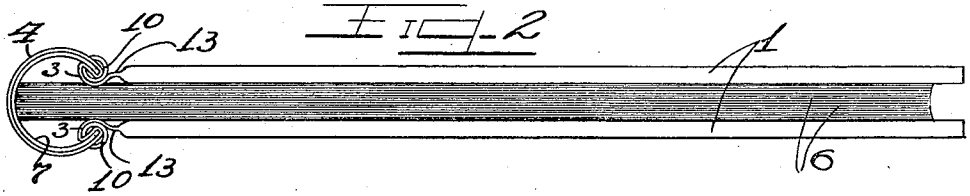


FIG. 9

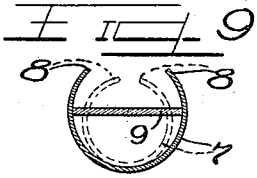


FIG. 11

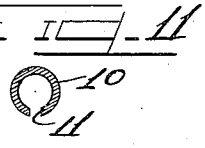


FIG. 10

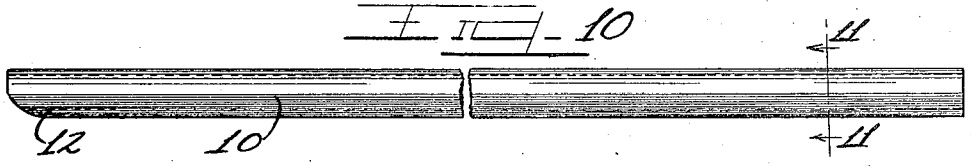


FIG. 8

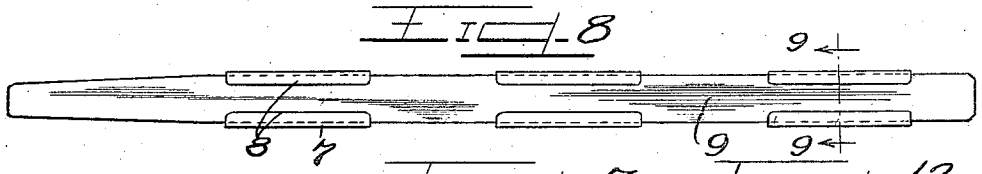


FIG. 3

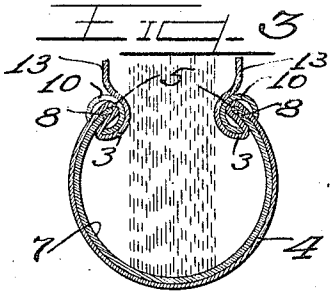
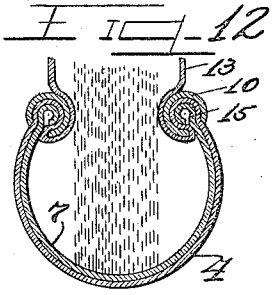


FIG. 12



WITNESSES

H. G. Banks

INVENTOR

Hugh G. Buchan

BY Charles O. Hills ATTY.

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H. G. BUCHAN.
SPRING BINDER.
FILED DEC. 10, 1920. 2 SHEETS-SHEET 2

FIG. 4

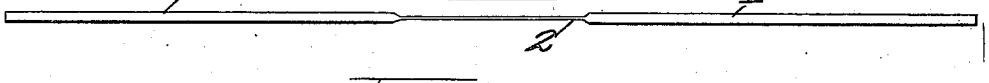


FIG. 5

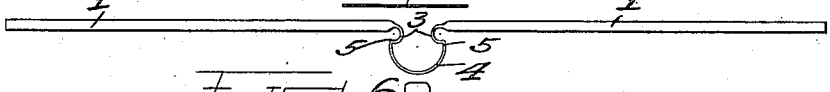


FIG. 6

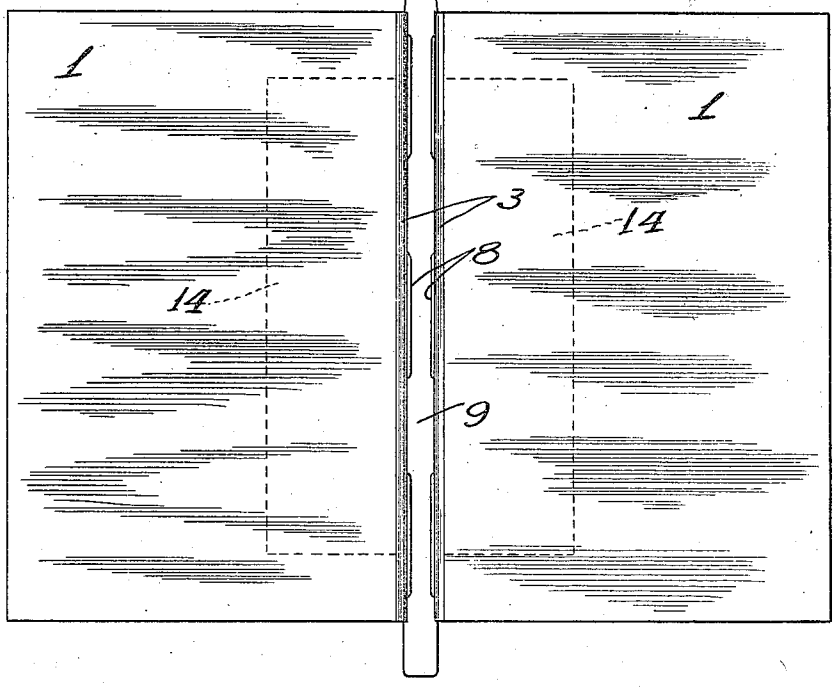
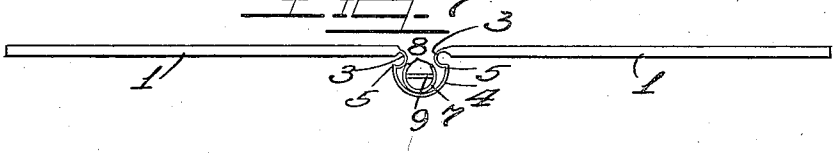


FIG. 7



WITNESSES

H. G. Hinks

BY

INVENTOR

Hugh G. Buchan

BY

ATTY

Patented Jan. 30, 1923. 1,443,522

UNITED STATES PATENT OFFICE.

HUGH GELLROY BUCHAN, OF NEWARK, NEW JERSEY.

SPRING BINDER.

Application filed December 10, 1920. Serial No. 429,611.

To all whom it may concern:

Be it known that I, HUGH GELLROY BUCHAN, a citizen of the United States, and a resident of the city of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in a Spring Binder; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, and to the numerals of reference marked thereon, which form a part of this specification.

This invention relates more particularly to an improved spring binder and the method of assembling the same to permit loose leaves, pamphlets, magazines and the like to be removably clamped in place between the binder covers.

It is an object of this invention to provide an improved type of a binder wherein the back clips or springs are adapted to be clamped to the binding by split spring tubes.

Another object of the invention is to provide a convenient method for assembling a spring binder.

It is also an object of the invention to construct a spring binder wherein the clamping springs are adapted to be inserted in place by means of a wedge bar which is removed after the assembly of the binder by expanding the springs by means of the binder covers.

It is furthermore an object of this invention to provide a binder wherein split springs or clamping clips are held in place between transversely creased portions of a one-piece covering by split retaining tubes.

A further object of the invention is to provide a binder wherein a flexible binding is adapted to be held clamped around the longitudinal margins of split cylindrical springs by means of split resilient tubes.

It is also an object of the invention to provide a simple method for inserting and retaining binder clamping springs within a binding connecting the binder covers.

It is an important object of this invention to provide a binder of simple, inexpensive and effective construction wherein the clamping springs for retaining loose leaves in place are inserted in place between the creased portions of a binder covering by means of a wedge bar removable after the creased portions of the covering have been secured to the longitudinal margins of the clamping springs by exterior split resilient tubes, said wedge bar being removable by opening said clamping springs by operation of the binder covers.

Other and further important objects of this invention will be apparent from the disclosures in the specification and drawings.

The invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is an end view of the binder in open position.

Figure 2 is an enlarged end view of the binder in closed position showing leaves or sheets clamped in place.

Figure 3 is an enlarged detail transverse section of the binding or clamping portions of the device.

Figure 4 is an end view of the binder covers in open position connected by an unformed flexible binding.

Figure 5 is a similar view after the binding has been shaped.

Figure 6 is a plan view of the partly formed binder in open position showing the wedge and springs in place.

Figure 7 is an end view thereof.

Figure 8 is an enlarged plan view of the wedge engaged through a plurality of binder clamping springs.

Figure 9 is an enlarged section taken on line 9—9 of Figure 8 showing the normal position of a spring in dotted lines.

Figure 10 is an enlarged side elevation of one of the clamping or retaining tubes.

Figure 11 is a section taken on line 11—11 of Figure 10.

Figure 12 is a section similar to that shown in Figure 3, but covering a modified form of clamping spring or back clip.

As shown on the drawings:

The reference numeral 1 indicates a pair

of binder covers connected to one another by a flexible binding 2. The binding 2 is integral with the coverings of the binder cover stiffening boards and is adapted to be formed or shaped as shown in Figure 5 to afford two small inwardly curved parallel beads 3 connected by means of a large curved portion 4 of semi-cylindrical form. Edges or creases 5 are formed where the large or main portion 4 of the binding joins the smaller curved beads 3. The next step in the construction of the binder is to provide clamping means for binder insert leaves 6. For this purpose a plurality of cylindrical plate springs or back clips 7 are provided, said springs being slit longitudinally to afford clamping edges or margins 8. To mount the springs 7 a wedge bar 9 tapered at one end is driven or forced longitudinally through a plurality of the split springs 7 to force the clamping margins 8 apart as shown in Figures 8 and 9. The springs 7 are equally spaced from one another on the wedge bar and said wedge bar with the springs thereon is then placed within the main portion 4 of the binding as illustrated in Figures 6 and 7.

To secure the binding to the springs 7 metal retaining tubes 10 are provided. Each tube 10 is split longitudinally as at 11. The corners at one end of each tube 10 are cut away or rounded as at 12 to facilitate mounting of said tubes. To secure the tubes 10 in place the creased binder portions 5 are positioned so that part of the bindings are disposed on opposite sides of the longitudinal margins 8 of the springs 7 as illustrated in Figure 3. The split tubes 10 are next slidably engaged on the looped portions of the binding thereby rigidly clamping said looped portions around the margins 8 of the springs 7. The tubes when secured in place on the exterior of the binder seat in the binder beads 3. With the two split retaining tubes 10 secured in place to clamp the binding to the springs 7, the binder is ready for use except that the wedge bar 9 must be removed from engagement with the springs 7. To remove the wedge bar the binder covers 1 are thrown back and forced toward each other until the outer surfaces contact. This action of the covers forces the clamping margins 8 of the springs 7 apart into their outermost or open position, thereby permitting the wedge bar 9 to be withdrawn. Upon releasing the covers 1 the tensioned springs 7 act to force the binder beads 3 into tight contact with each other as illustrated in Figure 1 to permit even a single loose leaf to be held in place thereby if desired. The covers may now be closed swinging on the flexible hinge strips 13 which of course form part of the binding.

To place loose leaves, sheets of paper, pamphlets, or magazines in the binder the covers are thrown back and forced toward each other to force open the springs 7 and thereby separate the clamping beads 3. The binding margins of the sheets or leaves 6 are then inserted between the beads 3 and the covers are released to permit the springs to clamp the leaves 6 between the clamping beads 3 as illustrated in Figure 2.

In cases where flexible binder covers are desired instead of stiff covers, the large sized stiffening boards may be omitted and small plates or boards 14 substituted therefor as illustrated in dotted lines in Figure 6. These small boards are supplied for the purpose of permitting the clamping springs to be opened to permit loose leaves to be inserted in place and removed from the binder.

Figure 12 covers a modified form of the device similar to the form already described with the exception that the longitudinal margins of the clamping springs or back clips 7 are curled or rolled to afford beads 15, around which portions of the binding 4 are adapted to be clamped by the split retaining tubes 10.

It will of course be understood that if desired only one long split spring may be used instead of a plurality of shorter springs, and that the flexible binding portions 4 may be secured to covers instead of being integral with the covering of the cover stiffening boards.

I am aware that numerous other details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted otherwise than necessitated by the prior art and indicated by the claims.

I claim as my invention:

1. The method of assembling a binder by connecting two covers with a flexible binding, forming the binding to afford longitudinal creases therein, opening a plurality of split springs by forcing a wedge therethrough and placing the open springs and the wedge within the binding, then clamping the creased portions of the binding around the longitudinal edges of said springs by sliding split tubes endwise onto the creased portions of the binding, and then removing the wedge from engagement with said springs by forcing the springs open to a greater extent by moving the binder covers outwardly into contact with each other.

2. In a device of the class described, a pair of covers, a flexible binding connecting said covers, a plurality of C-shaped springs within said binding, portions of the binding being folded about the edges of said springs, and two split tubes constituting clamping devices holding said folds in place

by clamping the flexible material against the springs, one of said tubes extending along one edge of each of the springs and the other device extending along the opposite edge of each of the springs, the flexible material extending around the adjacent sides of said split tubes beyond them and being connected to the covers.

In testimony whereof I have hereunto subscribed my name in the presence of two subscribing witnesses.

HUGH GELLROY BUCHAN.

Witnesses:

F. E. CREGAR,

MADELINE SHAFFERY.