Dec. 25, 1934. G. H. DAWSON 1,985,364

SHEET RETAINING DEVICE

Filed Jan. 22, 1934

FIG. 1

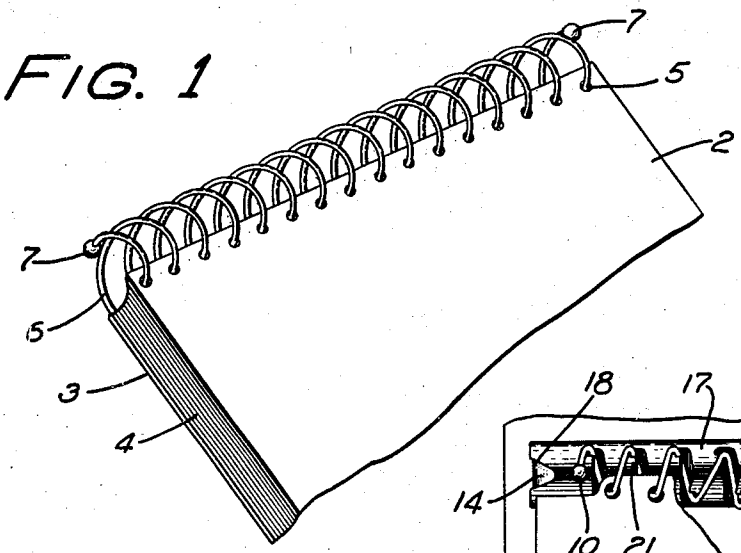


FIG. 5

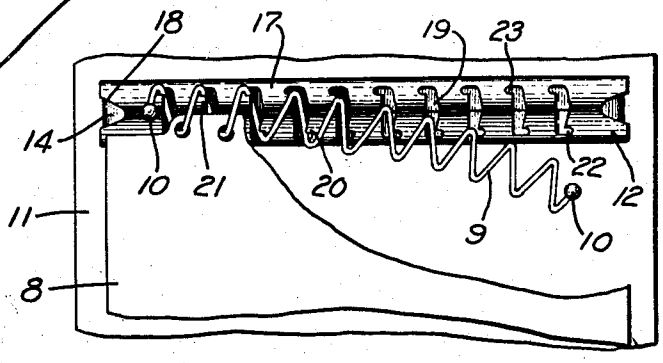


FIG. 6

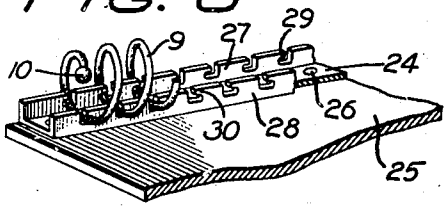


FIG. 4

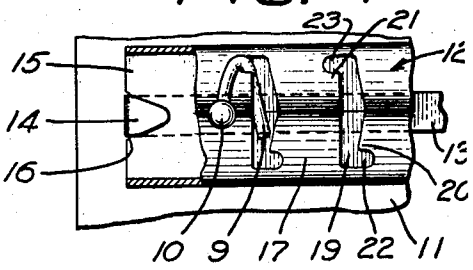
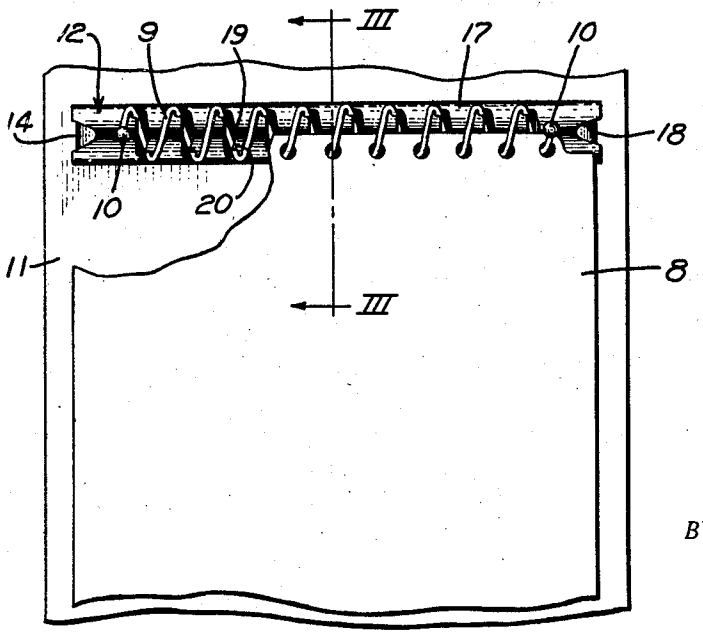


FIG. 2



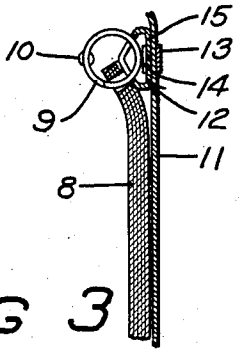


FIG 3

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SHEET RETAINING DEVICE

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Application January 22, 1934, Serial No. 707,624

11 Claims. (Cl. 281—25)

This invention relates to a sheet retaining device which includes a plurality of loose sheets permanently bound together by means of a helical wire threaded through apertures adjacent one edge of the sheets and means to protect the sheets held by the device.

It is an object of this invention to provide simple and inexpensive means to bind a plurality of sheets together permanently. It is a further object of this invention to provide means for holding a unit of such permanently bound sheets securely throughout the useful life of said unit and which may be refilled by the insertion of a new unit upon the termination of the usefulness of the original unit. Other objects of this invention will become apparent upon reading the following description taken in conjunction with the accompanying drawing in which:

Figure 1 is a fragmentary perspective of a unit of permanently bound sheets adapted for use in my sheet retaining device.

Figure 2 is a fragmentary top plan view of a preferred embodiment of my invention;

Figure 3 is a cross sectional view taken along the line III—III of Figure 2;

Figure 4 is an enlarged fragmentary plan view of the structure illustrated in Figure 2;

Figure 5 is a view similar to Figure 2 showing the sheet holding wire partially removed from the cover; and

Figure 6 is a fragmentary view of another embodiment of my supporting base structure.

In Figure 1, the reference numerals 2 and 3 indicate a pair of cover members positioned on opposite sides of a plurality of sheets 4. The sheets and covers are each provided with a plurality of apertures 5 of uniform size, arranged along one edge thereof at predetermined intervals. A previously formed helical wire 6, having a pitch equal to the distance between adjacent apertures, is threaded through the apertures to bind the covers and sheets together. This type of binding permits a free movement of the covers and sheets on the binding wire and allows the sheets to lie flat against either cover. This structure is old in the art, being disclosed in United States Letters Patent No. 1,516,932 issued November 25, 1924 to Ludwig Staab.

I provide a bead 7, or any similar stop member, of larger diameter than the apertures 5, on each end of the helical wire to prevent disengagement of the wire from the sheets. These beads may be formed of metal, fiber, glass, or any suitable composition. Both beads may be secured to the ends of the wire after the wire has been threaded through the sheets, or one bead may be secured before the wire is threaded through the sheets and the other bead secured to the forward end of the wire after the wire is threaded through the sheets.

The method of securing the stops to the ends of the wires will depend upon the material of which the beads are formed. When metal beads are used, they may be preformed and then driven on the ends of the wire, or they may be molded directly on the ends of the wires. Fiber or wooden beads must be driven on the wires. Glass or porcelain beads may be cemented on the ends of the wires. Beads formed of phenolic condensation products or similar compositions may be driven on the wires and then squeezed to provide added security. Any bead that may be permanently secured to the ends of the wire will prevent disengagement of the wire and sheets. Although the sheets are permanently bound together by the wire, it is obvious that any sheet may be torn from the wire and discarded without interfering with the other sheets through which the wire is threaded.

In Figures 2 to 5, inclusive, the sheets 8 are permanently bound together by a helical wire 9 provided with beads 10 to prevent disengagement of the wire from the sheets. The book is provided with a supporting base member 11 to which a metal plate 12 is secured. The member 11 may be a board or metal plate, or, as shown in Figures 2–5, may be made of leather, imitation leather or any suitable material ordinarily used for note book covers.

The specific means of securing the plate 12 to the supporting base member or cover 11 is immaterial, as long as the plate is held securely in place. I have shown a back plate 13 having its opposite ends 14 projecting through the base member and clinched against the ends of the back wall 15 of the plate 12 to secure the plate 12 to the base member. The ends of the wall of the plate 12 adjacent the base member 11 are notched, as indicated at 16, to insure a rigid securement of the plate 12 to the base member. The front wall 17 of the plate 12 is notched, as indicated at 18, to facilitate bending of the ends 14 against the back wall of the plate.

The plate 12 is preferably tubular, as shown in Figures 2 to 5, inclusive. However, it may be formed in any suitable manner. The essential requirement of the plate is that it must include as an equivalent of the front wall 17, a surface spaced from the supporting base a distance suf-

ficient to allow a portion of the helical wire to lie therebelow.

A plurality of transverse apertures 19 are provided in the front wall 17 of the plate 12. These apertures are spaced apart a distance equal to the pitch of the helical wire 9 so that each aperture may receive a portion of the wire. Each aperture 19 is provided with a pair of shoulders 20, 21 at opposite ends. The shoulders are formed by extending the apertures at right angles in opposite directions, as indicated at 22, 23.

The wire may be forced into the apertures 19 by direct downward pressure. The wire will then spring under the shoulders 20, 21 and will be securely held in place. The shoulders 20, 21 prevent removal of the wire from the apertures in any manner except by a progressive transverse movement starting at one end of the wire as illustrated in Figure 5. It will be obvious that any force to remove the wire from the plate shown in Figure 5 would have to be applied in a clockwise direction regardless of which end is used as the starting point of the removal movement.

The wire 9 is resilient so that it may be removed from the metal plate 12 and reinserted as frequently as desired. When the sheets 8 are eventually discarded, a new unit, consisting of a plurality of new sheets 8 bound together by another wire 9, may be inserted into the apertures of the tubular plate 12.

In the embodiment of my invention illustrated in Figure 6, a metal plate 24 is secured to a supporting base member 25 by means of a plurality of rivets 26 or similar fastening means. The supporting base member may be a board or metal plate, or may be a book cover similar to the member 11. The metal plate 24 is provided with a pair of upstanding flanges 27 and 28. The flanges 27 and 28 are recessed to provide projections 29 and 30, respectively. The flanges 27 and 28 are adapted to receive the helical wire 9 in the same manner as the front wall 17 of the embodiment of Figures 2 to 5, inclusive. The method of removing and inserting the helical wire 9 is the same in the embodiment of Figure 6 as in the embodiment illustrated in Figures 2 to 5, inclusive.

Although I have described several preferred embodiments of my invention in detail, it will be understood that the description thereof is illustrative rather than restrictive, as many details may be modified or changed without departing from the spirit or scope of my invention. Accordingly, I do not desire to be restricted to the exact construction described, except as limited by the appended claims.

I claim:

1. In a sheet retaining device, a supporting base member, a metal plate secured thereto, said plate having a plurality of projections, a plurality of sheets, and a helical wire threaded through said sheets, said wire being engageable with said projections to hold said sheets adjacent said supporting base member.

2. In a book, a cover member, a metal plate secured thereto, said plate being provided with a plurality of transverse apertures, each of said apertures having a shoulder adjacent each end thereof, a helical wire engaging said shoulders and retained in said cover member thereby, said helical wire carrying the sheet contents of the book.

3. In a sheet retaining device, a supporting base member, a metal plate secured thereto, and a helical wire carrying a plurality of sheets, said wire being retained in engagement with said supporting base member by means of a plurality of projections in said plate and being removable therefrom by progressive transverse movement starting from either end of the wire.

4. In a sheet retaining device, a supporting base member, a metal plate secured thereto, said plate being provided with a plurality of projections, and a helical wire carrying a plurality of sheets, said wire being engageable with said projections by a straight downward pressure, and said wire being removable from said projections only by a progressive transverse movement starting from either end of the wire.

5. In a sheet retaining device, a supporting base member, a metal plate secured thereto, said plate being provided with a plurality of projections, a plurality of sheets, a helical wire threaded through said sheets, and means secured to each end of said wire to prevent disengagement of said wire from said sheets, said wire being engageable with said projections to retain said sheets adjacent said base member.

6. In a sheet retaining device, a supporting base member, a metal plate secured thereto, said plate being provided with a plurality of transverse apertures, a shoulder adjacent each end of each aperture, and a helical wire threaded through a plurality of sheets and engaging said shoulders, said shoulders permitting removal of said helical wire only by a progressive transverse movement starting from either end of said wire.

7. In a sheet retaining device, a supporting base member, a plurality of sheets bound together by means of a helical wire threaded therethrough, and means secured to said base member to retain said helical wire in engagement with said base member.

8. In a book, a cover member, a helical wire, a plurality of sheets carried by said wire, bead members on the ends of said wire to prevent disengagement of said wire and sheets, and means to removably secure said helical wire in said cover member.

9. In a sheet retaining device, a supporting base member, a helical wire carrying a plurality of sheets, a metal plate secured to said base member, said plate being provided with a pair of flanges, and means on said flanges adapted to engage successive turns of said wire to retain said wire adjacent said supporting base member.

10. In a sheet retaining device, a supporting base member, a plate member secured to said base member, said plate member being provided with a pair of upstanding flanges having a plurality of recesses at their upper edges, and a helical wire carrying a plurality of sheets, said recesses being adapted to receive portions of said wire to retain said sheets adjacent said supporting base member.

11. In a sheet retaining device, a flanged member having a plurality of recesses adjacent the upper edges of said flanges, a coiled wire having a portion of each coil engaged with said recesses, and projections adjacent said recesses adapted to prevent removal of said wire from said recesses except by a progressive transverse movement starting from either end of said wire.

GEORGE H. DAWSON.