B. V. EDWARDS.

BINDER.

APPLICATION FILED DEC. 10, 1912.

1,187,420.

Patented June 13, 1916.

2 SHEETS—SHEET 1.

Fig. 1

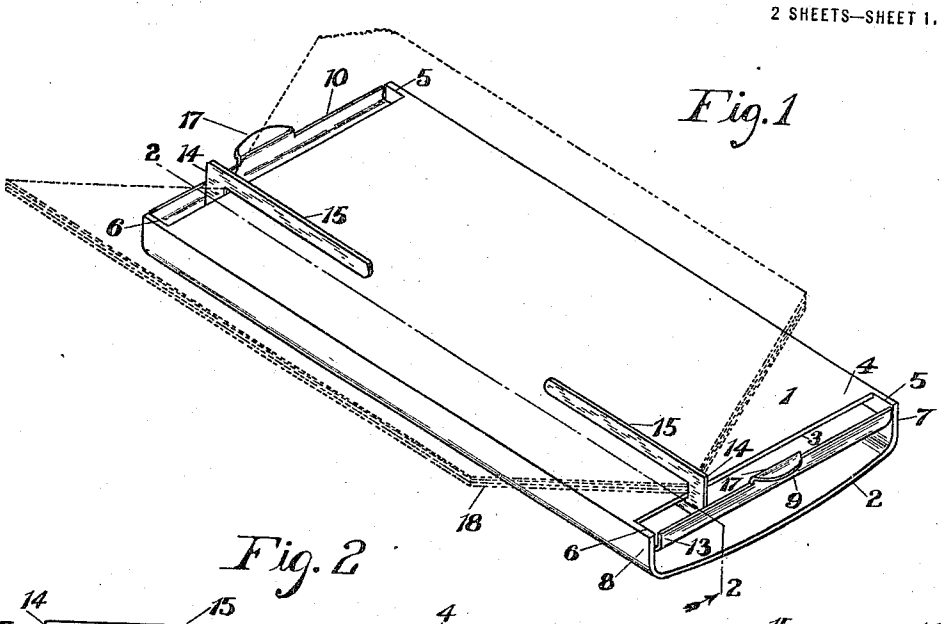


Fig. 2

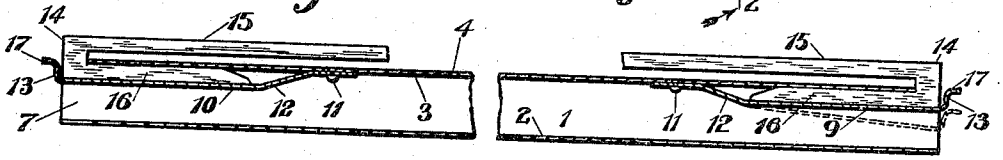


Fig. 3

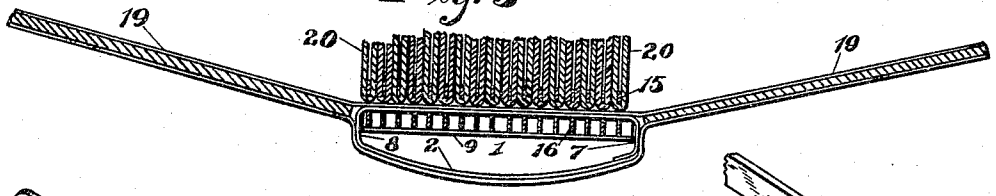


Fig. 4

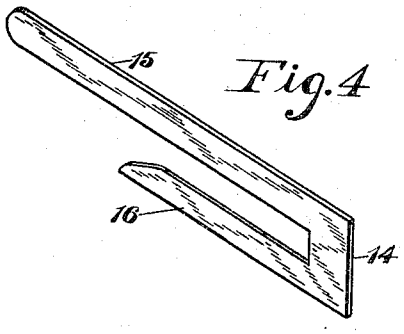
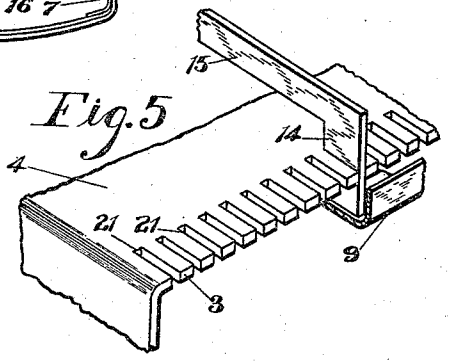


Fig. 5



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2 SHEETS—SHEET 2.

Fig. 6

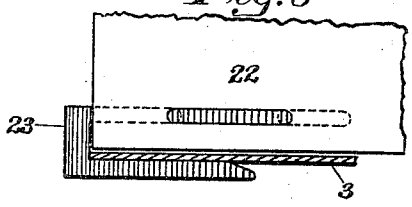


Fig. 8

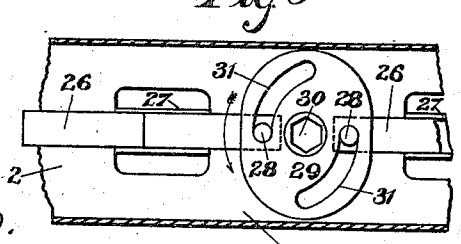


Fig. 7

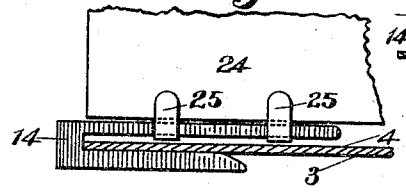
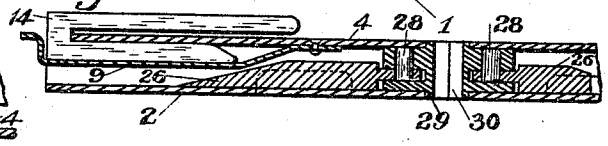


Fig. 9.



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UNITED STATES PATENT OFFICE.

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BINDER.

1,187,420. Specification of Letters Patent. Patented June 13, 1916.

Application filed December 10, 1912. Serial No. 735,966.

To all whom it may concern:

Be it known that I, BRUCE V. EDWARDS, a citizen of the United States, residing at Newark, in the county of Essex, State of New Jersey, have invented a new and useful Improvement in Binders, of which the following is a specification.

My invention relates to binders such as are commonly used for the retaining or the filing, in a more or less temporary form, of printed matter or publications,—such as the successive issues of magazines and periodicals; catalogues and price lists; music; tariff sheets, and the like;—or for retaining in a secure and convenient manner the containers for flat gramophone records and the like.

One of the objects of my invention is to provide binding means of such character as to make unnecessary the cutting, punching, or mutilation of the objects to be filed or bound.

Another object of my invention is to provide binding means of such construction as will allow of the filing of additional objects from time to time without disturbing or removing those previously filed; and from which, conversely, any desired object may be removed without disturbing others filed therewith.

Another object of my invention is to provide a binder of such form and design that the separate objects to be filed therein from time to time may be mounted or filed therein independently of one another by means of separate retaining devices.

A further object of my invention is to provide a binder or file of such construction that the objects filed therein—such as music, magazines, periodicals, and such like matter as is usually filed or bound for use or for ready reference,—are enabled to open very flat and in such a manner as to admit of very ready and convenient perusal and reference.

A further object of my invention is to provide binding means so constructed as to be readily locked to prevent the removal, by unauthorized persons, of the objects filed therein.

A further object of my invention is to provide a binder having a base or frame so constructed as to be integral and self-contained in itself, and capable of being used in a wide variety of forms and for many purposes without substantial change; for instance,—it may be used as a book-binder by attaching covers to it; or it may be used inside a filing case of standard construction; or attached inside a desk drawer; or in any other desired fashion.

It is also my purpose to provide a binder which, while having all of the enumerated advantages, is of an extremely simple and compact design; free from intricate devices and parts, and combining ease of manipulation with durability and cheapness.

In illustrating my invention I have shown a binder made up in book style, having a cover of any desired material and shape fastened on to the base frame in which and about which I embody my invention. For this frame I preferably use a formed sheet metal structure, open at the opposing ends. Against one of the plane surfaces of this frame lie the binding edges—folded, creased, or bound, as the case may be—of the filed objects; each one being held, lengthwisely and independently, against this plane surface by a pair of flat, open-ended, U-shaped, tie pins or binding members. These tie pins are passed into the open opposing ends of the objects to be filed and into the open ends of the base frame of the binder, in such manner as to include, simultaneously, in the open interspace between the projecting, parallel extensions of the tie pins, the binding edge of the filed object and the wall section of the common binding surface. In each of the opposing, open ends of the frame is mounted a retaining member which coöperates with all of the tie pins at the respective ends, and retains them in position when inserted in place; this retaining member at each end is resiliently mounted and is pressed away from its normal or retaining position by the finger of the operator to allow the inserted tie pins to be passed into filing position.

It is sometimes desirable to retain the filed objects at a definite distance apart from each other,—as in the case of flat gramophone records or disks,—or whenever the filed objects are all of an exactly uniform thickness. In such cases I provide the binder frame with series of slots or sawcuts, forming these slots in each end of the common, plane binding surface in any suitable manner, so

that they will serve to locate and retain each pair of tie pins at a definite and predetermined distance from the next pair.

The essentials of my invention consist in providing an open-ended binder frame having a common binding surface, combined with a plurality of sets or pairs of independent, flat, open-ended binding members designed to include the binding edges of filed objects and the wall section of the common binding surface, in such manner as to retain the filed objects against said binding surface; and in providing a resiliently-mounted retaining device common to each of the opposing series of binding members.

While I have here illustrated and described some of the preferred forms of my invention I desire it to be understood that I do not restrict myself to the precise mechanical forms and terms in which I have illustrated and described my invention; since it is manifest that such may be very widely varied by the skilled designer without departing from the essentials of my invention, and without obtaining any material change in the result produced.

Referring to the drawings; Figure 1 represents, perspectively, a binder base frame, with an object attached thereto by a pair of binding members. Fig. 2 represents a sectional view taken longitudinally on the lines 2—2 of Fig. 1. Fig. 3 represents a sectional view taken transversely through a complete binder made up in book style with a number of objects filed therein. Fig. 4 represents a perspective view of one of the binding members or tie pins. Fig. 5 is a partial, perspective view showing a portion of a binder base frame in which a plurality of slots has been formed, together with a binding member and its retaining member. Fig. 6 represents in a partial section a view of my invention as used for the filing of sheets or objects already perforated. Fig. 7 is a similar view of my invention as applied to the filing of objects having filing projections of any kind on their edges. Figs. 8 and 9 represent, respectively, views in plan and in side elevation of a binder locking device.

Referring to the drawings,—the base frame of the binder is designated as 1 and is shown as consisting of a rectangular, hollow casing. This casing may be formed from any suitable material, but I prefer to make it from sheet metal for many reasons. So long as it preserves the essential characteristics shown and described, this frame may be formed in many variant shapes, conforming to distinct and specific uses. In Figs. 1 and 3 the wall 2 is shown somewhat rounded in order to give the conventional shape to the outer covering of cloth or other material with which the covers of a book binder are usually secured to the frame. The opposite or inner wall 3 is formed with an approximately flat or plane surface 4, against which the objects to be filed are retained. The base frame 1 is preferably made with its opposing ends open, the wall 3 being recessed across its width, inwardly from these open ends, as shown at 5 and 6, in such manner as to expose the side walls 7 and 8, for purposes to be specified hereinafter.

The tie pin retaining members, designated as 9 and 10, are preferably formed from sheet metal, with offset or shouldered projections at their opposing extremities, and are mounted in the open ends of the frame 1, at a definite distance from the inner surface of the wall 3 and parallel therewith. These retaining members extend across the open ends in the space between the side walls 7 and 8, and are secured to the frame 1 in any suitable way,—as, for instance, by means of rivets 11,—and in such a manner that their outer ends are free to vibrate resiliently from, and to, a normal position. I secure this free movement of these members by fastening them within the frame 1, at some distance from the ends thereof, and by forming an inclined, offset portion, 12, proceeding from the point of fastening, 11, and serving to carry the main surface outwardly toward the open end of the frame 1 at a definite distance from the inner surface of the wall 3, and by forming a second offset portion 13, perpendicularly to the said main surface, and across it from side to side, at the point where the retaining members aline with the ends of the frame 1. The offset 13 is designed to support and retain the tie pins or binding members 14, so that their accidental displacement from the operative filing position is prevented. About the center of the offset portion 13, on each of the retaining members 9 and 10, a thumb projection 17 is formed, so that the retaining members may more readily be displaced or pressed away from their normal position when desired.

The binding members 14—shown clearly in Fig. 4—are preferably formed from sheet metal and are preferably, also, of a flat, rectangular section. Each of them is shaped somewhat like the letter U, and consists of two parallel extensions, 15 and 16, connected together at one of the ends. For ordinary binding or filing purposes the extension 15 is preferably made somewhat longer than its fellow, 16,—this length being, however, varied according to the character of the object to be filed. For instance,—when filing thick, heavy objects such as standard magazines or railway guides a binding member having a short extension, 15, is preferably used; but this extension is used in a much longer length when filing light, thin, flimsy objects such as music and the like,—the

greater length giving stability to the object and making for more certain retention. The unconnected ends of the extensions 15 and 16 are rounded or beveled in such a manner as to facilitate their entrance into any object to be filed, as well as into the space between the wall 3 of the frame 1 and the retaining members 9 and 10.

In making use of my invention I contemplate the use at each end of the frame 1 of one of the binding members 14, the object to be filed being laid upon the binding surface 4 in either an open or closed position, and the extensions 15 and 16 being passed, simultaneously, into the end of the object, and into the space beneath the wall 3, respectively. The periodical, 18, shown in Fig. 1 in dotted lines, is shown as attached in this manner to the frame 1. The tie pins 14 are preferably put into binding position separately, one after the other, the resilient member 9, or 10, as the case may be, being pressed away from its normal retaining position while the tie pin 14 is being passed into place to retain the object. It will be obvious that any object filed in this manner by means of my invention will be held securely to the common binding surface 4 of the frame 1, since the parallel extensions of the members 14 embrace or include the binding edge of the filed object and the wall section of the surface against which the objects are retained, and since the binding members are themselves held against longitudinal displacement by the offset shoulder on the retaining members 9 and 10. A certain amount of lateral freedom is allowed filed objects, depending upon the size of the binder and the number of objects filed therein; in any case, however, the exposed or upstanding end portions 5 and 6 of the side walls 7 and 8 prevent the binding members 14 from leaving the binding frame 1 in a lateral direction.

In using a binder of the kind described herein it is unnecessary to cut, or punch, or otherwise mutilate the objects which it is desired to bind therein; furthermore, additional objects may be filed in such a binder from time to time until the limit of capacity is reached without disturbing or removing the objects already filed, or objects may be removed without interfering with, or disturbing their fellows; the objects are filed independently of one another; and, when filed, may be opened very flat for persual and reference.

Fig. 3 illustrates in a transverse, sectional view one of my binders as it would appear when made up in the form of a book binder,—the usual covers being indicated by 19, 19, and the plurality of filed objects by 20, 20, &c.

When filing objects which require for any reason to be kept at definite distances from one another I preferably use a form of binder frame such as I illustrate in partial view in Fig. 5, with a plurality of slots or sawcuts 21, 21, &c., formed in the wall 3 at the open, opposing ends thereof. These slots may be formed to any desired depth, and serve, as shown, to retain and locate the binding members 14 in predetermined relation to one another. It will be obvions that in a binder of this kind the binding members 14 have no lateral play, and the objects filed therein exert little pressure upon one another, thus preventing unnecessary rubbing or abrasion.

When objects are already perforated for filing they may be filed in a binder of the kind shown in Figs. 1, 2, and 3, by using a somewhat modified tie pin. This construction is illustrated in Fig. 6, in which the modified member 23 is shown threaded through the perforations near the binding edge of the perforated object 22, the binding frame and retaining members being similar to those already shown and described.

My binding method is equally applicable to the case of objects having prepared filing devices,—such as metal fasteners or gummed slips,—attached to their binding edges. Objects of this kind, shown in Fig. 7 and designated by 24, may be filed by passing the binding members 14 through the filing devices 25, 25, and beneath the wall 3 of the frame 1, in the manner previously described.

It is sometimes a desirable advantage to be able to lock binders and files to prevent the removal of the filed objects, and I have provided simple locking devices for attachment to binders of the kind described, and constructed according to the essentials of my invention. This locking device is shown in Figs. 8 and 9. The binder locking members of this device consist of two wedge-shaped slides, 26, 26, constructed of any suitable material, and guided in the binder frame 1 by the formed and up-turned portions 27, 27, of the wall 2. These locking members are so mounted within the frame 1 as to lie with their inclined faces between the resilient retaining members 9 and 10 and the outer wall 2 of the frame, their adjacent ends being connected by pins, 28, 28, to a suitably formed, rotatable cam member 29 mounted in the frame 1 in such manner as to maintain a relatively-fixed position therein. This cam member 29 may be rotated in any desired or suitable manner, but I prefer to operate the device by means of a hexagonal key, (not shown) inserted from the outside into the frame 1, into a central and correspondingly-formed part 30 of the cam 29. As the cam is rotated by this means, and the connecting pins 28, 28, follow suitably-grooved cam ways 31, 31, in the cam 30, the locking wedges 26, 26, are driven out-

wardly against the retaining members 9 and 10 in such manner as to make impossible the withdrawal of the binding members 14.

Having thus described my invention, I claim:—

1. In a binder the combination of a hollow rectangular frame with open opposing ends and with a common binding surface upon one of its walls, a series of independent U-shaped binding members adapted to enter said open ends and effect a simultaneous engagement of the object to be filed and of the said wall of the frame, and single and integral resilient retaining devices mounted in the opposing open ends of the frame and adapted to permit such simultaneous engagement by the said binding members and to retain these members in operative position when thus engaged.

2. A binder comprising a hollow rectangular frame having open opposing ends, and a common binding surface, a series of removable independent binding members adapted to bind objects against said binding surface, and normally operative resilient retaining devices mounted in the opposing open ends of the frame to retain said binding members in operative relation to said binding surface, in combination with means to retain said binding members in predetermined relation to one another.

3. In a binder the combination of a hollow rectangular frame having open opposing ends and a common binding surface upon one of its walls, a series of independent U-shaped binding members adapted to enter said frame in the open ends thereof and effect simultaneous engagement of the object to be filed and of the wall of said binding surface, means to retain said binding members in binding engagement with object and wall, so that their longitudinal displacement is prevented, and distinct means to retain said binding members from lateral displacement.

4. In a binder the combination with a hollow rectangular frame having open opposing ends and a common binding surface upon one of its walls, of independently-operating U-shaped members adapted to enter the open ends of said frame and to bind objects against said common binding surface by a simultaneous engagement of the object and the wall of said surface, normally operative devices to retain said binding members when said engagement is completed, and positively acting means to retain the binding members in a predetermined lateral relation to one another.

5. A binder comprising a hollow rectangular frame, independent removable binding members adapted to coöperate with one of the walls of said frame, resilient retaining devices mounted in said frame and adapted to be vibrated from and to a normal position to permit the binding members to be positioned or removed at will, and means to lock said retaining devices in the normal position.

6. A binder comprising a hollow rectangular frame having a common binding surface upon one of its walls, independent binding members adapted to enter said frame and engage said wall, releasable means to retain said binding members in operative engagement with said wall, and means to lock said adjustable means with the binding members thus operatively engaged.

7. A binder comprising a hollow frame having a common binding surface upon one of its walls, a plurality of independent removable binding members adapted to bind objects against said common binding surface by a simultaneous engagement of the object and of the wall of the common binding surface, with means, mounted upon the frame and adjustable to permit said simultaneous engagement, to retain the binding members in operative engagement with said object and said wall, and distinct locking members adapted to be manually operated to maintain the operative engagement of the binding members.

8. In a binder the combination of a frame having a binding surface upon one of its walls, a series of independent U-shaped members adapted to effect a simultaneous engagement of an object and of said wall, means to definitely position said binding members with reference to one another when thus operatively engaged, a common means to retain said members in their definite positions and their operative engagement, and a locking means for said retaining means.

In testimony whereof I hereunto set my hand this second day of December, 1912, in the presence of two attesting witnesses.

BRUCE V. EDWARDS.

Witnesses:

HOWARD W. BROWN,

MARIE D. SCHENK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."