A. E. KNOCH.

BINDER.

APPLICATION FILED JAN. 13, 1919.

1,359,606. **Patented Nov. 23, 1920.**

Fig. 1.

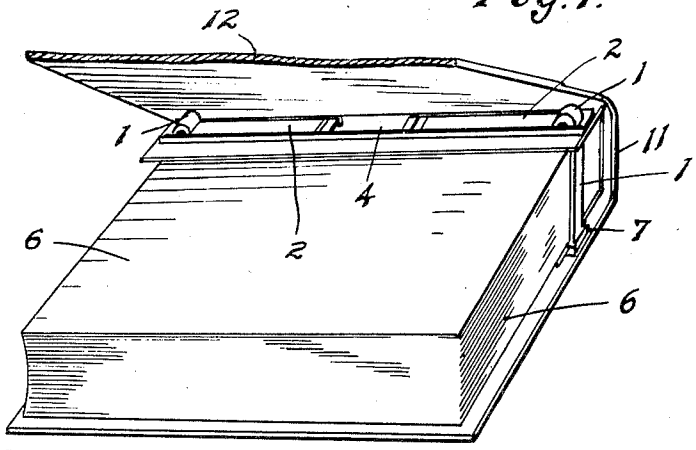


Fig. 2.

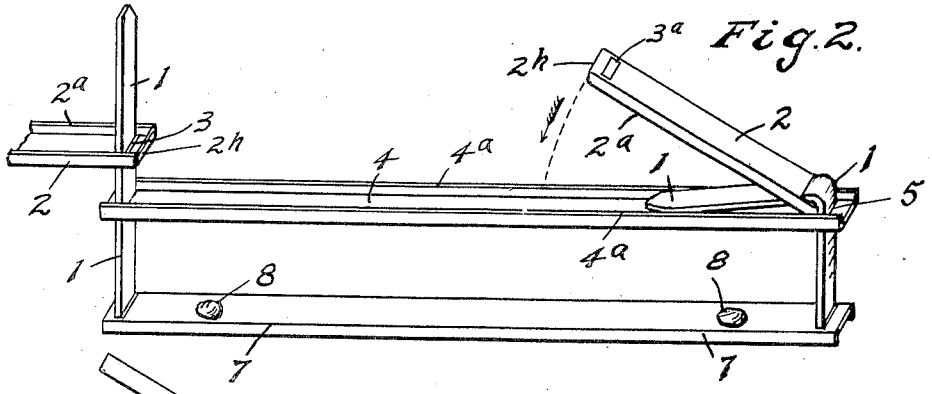


Fig. 3.

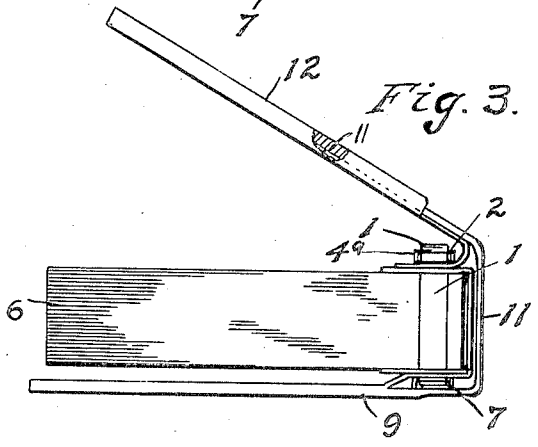


Fig. 4.

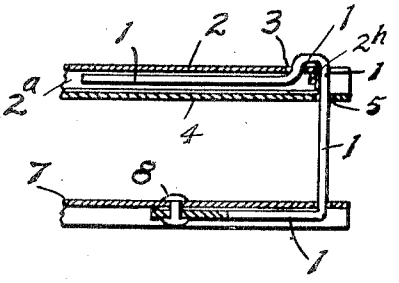
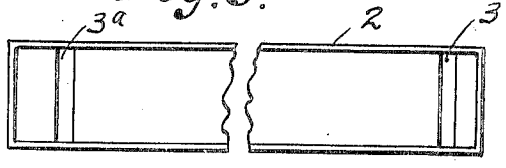


Fig. 5.



Inventor:
Adolph E. Knoch
By Albert H. Merrill
atty.

UNITED STATES PATENT OFFICE.

ADOLPH E. KNOCH, OF LOS ANGELES, CALIFORNIA.

BINDER.

1,359,606. Specification of Letters Patent. Patented Nov. 23, 1920.

Application filed January 13, 1919. Serial No. 270,902.

To all whom it may concern:

Be it known that I, ADOLPH E. KNOCH, a citizen of the United States, residing in the city and county of Los Angeles, State of California, have invented a new and useful Binder, of which the following is a specification.

An object of this invention is to provide for binders, retaining means which can be applied to and removed from leaves, pamphlets or other like objects which it is desired to bind together without the necessity of previously preparing such objects with any aperture or slot.

A further object of the invention is to provide a binder having a wide range of adjustability, so that the binder may be constructed to hold from one sheet to as large a number of sheets as it is desirable to assemble in a single book, and yet to retain the levers in place as securely when a large number are assembled together as when but few are used.

A still further object of the invention is to provide a binder applicable to sheets already assembled in pamphlet or book form where it is desirable to collect a number of such objects in one binder.

Other objects and advantages, such as durability of parts and extreme simplicity of construction, will hereinafter appear.

The invention consists in the various parts, combinations of parts, and details of construction, which are illustrated in the accompanying drawings. set forth in the descriptive portion of the specification, and then specifically set forth in generic and also in more limited claims.

Referring in detail to the drawings, Figure 1 is a perspective view of the binder, a portion of one of the covers being broken away to contract the view. In this view the levers are shown in closed position.

Fig. 2 is a slightly isometric view illustrating in detail the levers for operating the connections and showing also the clamping bars.

Fig. 3 is a side view of the device looking at the same from right to left of Fig. 1.

Fig. 4 is a vertical section of the right hand portion of Fig. 2.

Fig. 5 is a broken plan view of one of the levers illustrating, in a somewhat exaggerated manner the difference in the amount of leverage provided at each end of the lever by the slot or keeper for the flexible connection.

Referring in detail to the drawings, the flexible connections 1 are each operated by a locking lever 2, said connections being led through the keeping apertures 3, said apertures 3 being located close to the ends of the levers as shown. As well shown in Fig. 2 the levers 2 are each desirably channel-bars broadly U-shaped in cross section, the aperture 3 being through the broad portion or back of the lever. Each lever 2 operates by its flanged heel portion 2^h against a lever-supporting bar 4 which also has apertures 5 near each end through which the connections 1 are led. Each connection 1 is led across the binder on opposite sides and near one end of the body of leaves 6 and is secured to another bar 7 by any suitable means as by the attaching rivet 8 of Fig. 2.

Referring again to the flexible connections 1, best shown in Fig. 2, said connections are preferably leather straps and the keeping apertures 3 are slots through which the connection passes freely but with a rather close fit. The free end of each strap 1 is housed within the channeled portion of the lever 2 when the latter is in the closed position.

Each lever 2 is releasably held in the closed position, in the illustrated embodiment of the invention by reason of the flange portions 2^a of said lever engaging like flanges 4^a of the bar 4. If it is desired to increase the retaining power of the spring flanges 4^a upon the end of the lever 2 when the latter is in closed position, it is only necessary to slightly compress the spring flanges 4^a with a pair of pliers, or otherwise.

In the drawings, the invention is illustrated as applied to a binder adapted to retain a large body of leaves and the back 9 is provided with a flexible extension 11 which is housed in a cover 12. The means which the connection 1 operates to grip and release the body of leaves 6 are here shown as

the channel bars 4 and 7, but it is to be understood that various changes in detail may be made, such as fall within the scope of the appended claims, without departing from the spirit of the invention.

The strap 1 moves freely through the lever 2 when the latter is in the open position, shown at the left of Fig. 2, but said strap is tightly gripped by the keeper portion of said lever as the latter is moved toward the closed position.

The connections 1 need not be of leather, but should be of supple material. The efficient operation of the binder depends largely upon these connections being thick enough to occupy the greater portion of the width of slots 3, and upon the sides of said connections being frictionally resistant where they come into contact with the side edges of slots 3.

In Fig. 5, where the preferred construction of levers is shown in detail the keeper slot 3 at the right of the view is shown placed near to that end of the lever in order to provide a shorter fulcrum than is afforded by the slot 3^a at the left end of the lever, the latter slot being farther from its end of the lever.

In operation, after the desired number of parts to be bound have been assembled within the cover upon the lower gripping or clamping bar 7, the upper bar 4 is put in place, the connection 1 at each side is led through the aperture 5, said connection then being led through keeping aperture 3 as indicated at the left in Fig. 2. The lever 2 is then dropped upon the bar 4 and brought to the closed position as indicated at the right of Fig. 2.

When it is desired to put in fresh sheets or other parts to be bound the operation is reversed. If a moderate tension is placed upon the connections 1 while the levers 2 are open and in contact with the upper clamping bar 4, a strong tension will be placed upon said connections when said levers are moved to the closed position, thereby gripping the leaves or other parts held by the binder very securely between the bars 4 and 7.

I claim:

1. In a binder, a flexible connection, a lever to operate said connection, said lever consisting of a channel-bar operable to increase and diminish the tension upon said connection, the flanges of said bar having a heel portion which forms the fulcrum thereof, and means in operative relation to said connection to releasably hold in place the leaves or other objects to be bound.

2. In a binder, a flexible connection, a lever having a keeper through which said connection passes, said connection being adjustable in said keeper, said lever being movable to a closed position to increase the tension upon said connection, said lever having a laterally extending portion adjacent to said connection to cause that end of the lever to rise slightly when the free end of the lever is depressed, means to releasably hold said lever in such closed position, and means operable by said connection to grip and to release the leaves or other objects to be bound.

3. In a binder, a pair of coöperating bars, a plurality of flexible connections adapted to draw one of said bars laterally toward the other, and levers adapted to vary the tension upon said connections, said levers consisting of channel-bars within which are housed the free ends of said connections.

4. In a binder having a flexible connection to operate the binding elements, a lever to draw upon said connection, said lever being reversible and having at each end thereof a keeper to receive said connection and hold said connection at a predetermined distance from the fulcrum point of that end of the lever, the keeper at one end of said lever providing for a shorter fulcrum than the keeper at the other end thereof, said connection removably engaging said keepers to permit of the reversal of said lever.

ADOLPH E. KNOCH.