

J. SCHADE, JR.
 LOCKING DEVICE FOR LOOSE LEAF BINDERS.
 APPLICATION FILED APR. 4, 1911.

1,024,525.

Patented Apr. 30, 1912.

Fig. 1

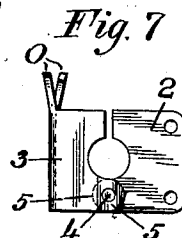
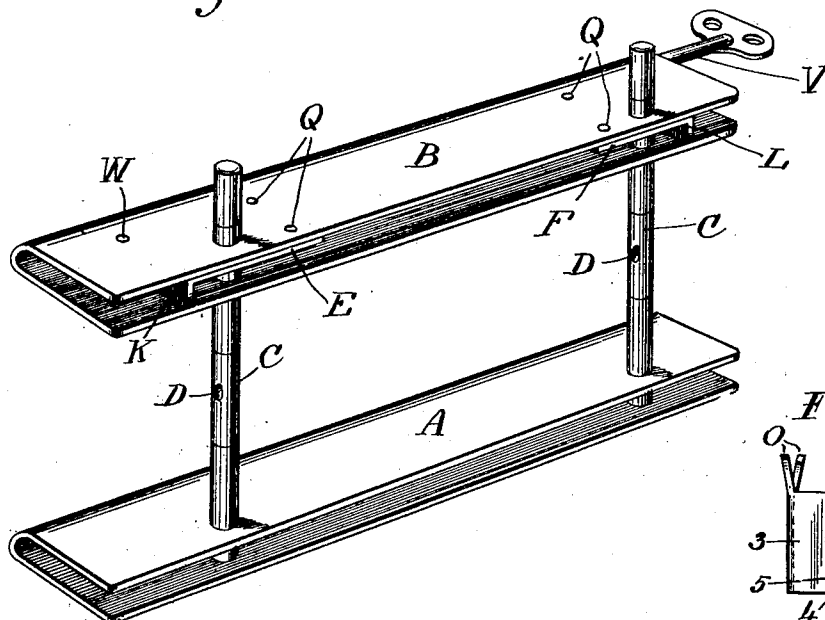


Fig. 2

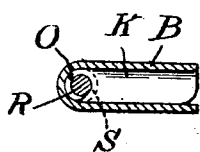
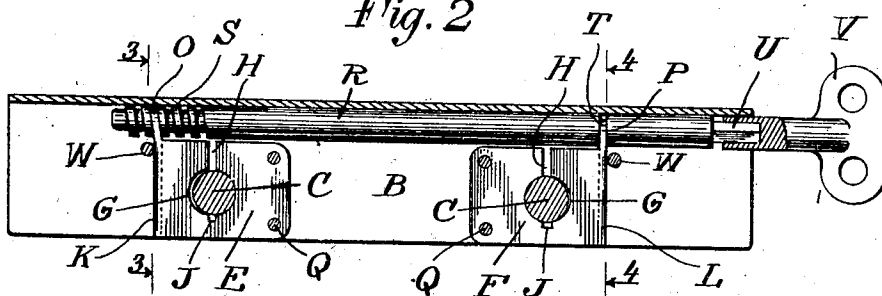


Fig. 3

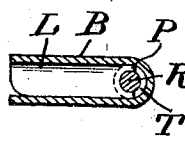


Fig. 4

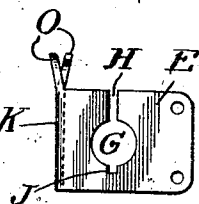


Fig. 5

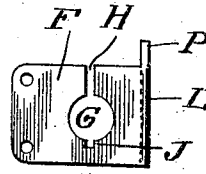


Fig. 6

Witnesses:
 M. W. P. R. R. R.
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John Schade, Jr. Inventor
 By his Attorney Herbert W. R. R.

UNITED STATES PATENT OFFICE.

JOHN SCHADE, JR., OF NEW YORK, N. Y., ASSIGNOR OF ONE-HALF TO LOUIS FINK, OF NEW YORK, N. Y.

LOCKING DEVICE FOR LOOSE-LEAF BINDERS.

1,024,525.

Specification of Letters Patent.

Patented Apr. 30, 1912.

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To all whom it may concern:

Be it known that I, JOHN SCHADE, JR., a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Locking Devices for Loose-Leaf Binders, of which the following is a specification, accompanied by drawings.

This invention relates to locking devices for loose leaf binders and the objects of the invention are to improve upon the construction of such devices, increase the strength and durability of the component parts of the device to enable the binder to receive and securely hold bulky contents without breaking or getting out of order, and afford ready and convenient means for manipulating the locking devices from such position on the binder, as at the side, that interference from the contents of the binder is obviated.

Other objects of the invention are to enable the movable binding plate or frame to be securely locked and clamped in position on the back rods with small effort and by means of devices which will withstand constant and hard usage without breaking, and to construct the device in such manner that the operative locking parts are protected so that they will not become bent by usage or blows and rendered inefficient, and require repairs.

Further objects of the invention will hereinafter appear and to all of these ends the invention consists of a locking device for loose leaf binders embodying the features of construction, combinations of elements and arrangement of parts having the general mode of operation substantially as hereinafter fully described and claimed in this specification and shown in one of its preferred forms in the accompanying drawings, in which—

Figure 1 is a perspective front view of a device embodying the invention; Fig. 2 is a horizontal sectional view taken through the top or movable binding frame or plate; Fig. 3 is a transverse sectional view taken on the line 3—3 of Fig. 2 looking in the direction of the arrows; Fig. 4 is a transverse sectional view on line 4—4 of Fig. 2 looking in the direction of the arrows; Fig. 5 is a detail top plan view of one of the locking plates or washers; and Fig. 6

is a detail top plan view of another of the locking plates or washers. Fig. 7 is a plan view of a modified form of washer.

Referring to the drawings, A and B represent the binding plates or frames for a loose leaf binder. In this instance A is the base plate and B is the movable plate, which is movable along the back rods or uprights C, to accommodate a greater or less number of papers. The back rods C may be formed in the usual manner in sections detachably connected one to the other as by means of suitable screw threads (not shown), and each section may be provided with an aperture D through which an instrument may be inserted to unscrew the sections. By this means the back rods C may be made as long or short as desired, depending upon the use of the device.

The binding plates or frames A and B are preferably constructed out of sheet metal and bent into U-shaped form as shown in Fig. 1. This increases the strength of the binding frames, and affords a convenient construction for securing suitable covers to the frames. The back rods C as shown are suitably secured to the base plate A and pass through the movable or top plate B and means are provided for adjusting and locking the movable binding plate B at any desired height on the back rods. It will be understood that in using the binder the papers to be bound are punched and inserted over the rods C before the movable plate B is placed in position, and then the plate B is placed over the rods C and adjusted and clamped on top of the papers or at any desired height.

Great inconvenience has been experienced in locking devices heretofore made, because of the liability of the parts to become bent or broken, requiring repairs or the purchase of new devices. This invention is designed to afford a strong and durable locking device which may be used with papers of any bulk and with papers of any desired dimensions. The stack of paper may be very large and heavy and strong locking devices are required to keep the papers in position. The locking devices should be of such construction that they will withstand blows and hard usage in case the binder for instance should fall from the desk or shelf.

As shown, the movable binding frame or plate B is provided with locking devices in

the form of split or divided washers or plates E and F. These plates as shown are provided with apertures G and they are divided or split at H. Preferably notches 5 J are provided in the washers opposite the divided portions H to afford a greater spring action between the parts of the washers. One side of each washer is preferably bent at an angle at K and at L and the portion K is provided with the forked projection O, while the bent portion L is provided with the fork P.

The split plates or washers E and F are suitably secured to the binding frame B between the sides of the same as by means of rivets Q. The portions of the plates E provided with the tabs O and fork P are left free to move and unsecured to the binding plate B. A locking rod R extends longitudinally of the plate B between the back of the plate and the locking devices E and F. This locking rod R is provided with a worm S at one end meshing with the fork O on the plate E. At the other end the rod R is provided with a circumferential groove T meshing with the fork P on plate F. The rod R is provided with the squared end U over which is adapted to fit a key V for turning the rod about its longitudinal axis. Stops W are preferably arranged adjacent the free ends of the plates E and F to limit the outward movement of the parts.

In the operation of the device the binding rods C are thrust through the apertures G in the locking devices or plates and by turning the key V the rod R is rotated about its own axis, and the free portions of the plates E and F are drawn inwardly toward each other, thus tending to close the apertures G and cause the plates E and F to grip the posts or rods C. By turning the key V in the opposite direction the locking devices are loosened.

By means of my device the top binding plate E is firmly clamped in any desired position by devices which are simple and strong and not liable to get out of order. It will be observed that the squared end U of locking rod R extends at one end of the binding plate B, so that the key V for manipulating the rod is located at one side of the binder and free and clear of the contents of the binder. By this construction the locking devices may be readily manipulated with small effort and by removing the

key there are no projecting parts to be broken. The locking devices are all inclosed within the sides of the U shaped binding plate B and are thus protected from injury.

My device is simple and cheap to manufacture and highly efficient in operation for the purposes for which loose leaf binders are used.

In Fig. 7 a modified form of washer is shown comprising two parts 2 and 3 formed substantially like the parts of the washer shown in Fig. 5, but separate from each other and pivoted together by the pin 4 extending through the ears.

I claim and desire to obtain by Letters Patent the following:

1. A locking device for loose leaf binders comprising back rods and a movable binding plate, split or divided locking plates connected to said binding plate at one side of the divided portion, leaving the remainder of the plates free to move, said free portions of the locking plates being provided with forked projections, a locking rod extending longitudinally of the binding plate and having a worm at one end meshing with the projections on one locking plate and a circumferential groove coöperating with the projections on the other locking plate, whereby rotation of the rod about its own axis clamps and unclamps the locking plates.

2. A locking device for loose leaf binders comprising back rods and a movable binding plate bent along its longitudinal length into U shaped form, locking devices in the form of split or divided washers encircling the back rods and mounted on the binding plate between the sides thereof, projections on the movable portions of said locking devices, a locking rod extending longitudinally of the binding plate and located in the groove formed at the back of the U shaped binding plate, a worm at one end of the locking rod and a groove at the other end engaging the projections on the locking devices respectively, and means for rotating said locking rod about its longitudinal axis to tighten and loosen the locking devices.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN SCHLADE, JR.

Witnesses:

ARNOLD HENNEMANN,
HENRY A. ROBERTS.