No. 802,042. PATENTED OCT. 17, 1905.

G. HIGGINSON.

LOOSE LEAF BINDER, FILE, AND THE LIKE.

APPLICATION FILED JULY 8, 1905.

2 SHEETS—SHEET 1.

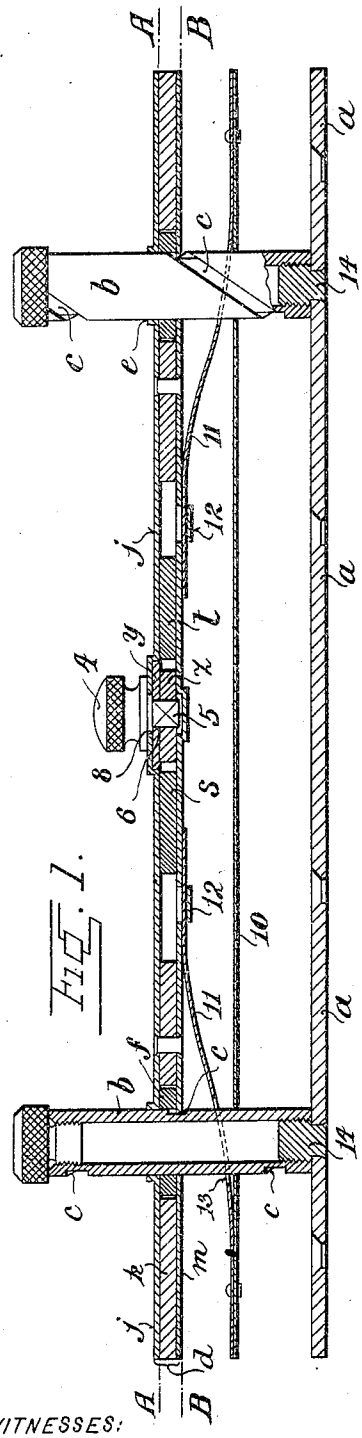


FIG. 1.

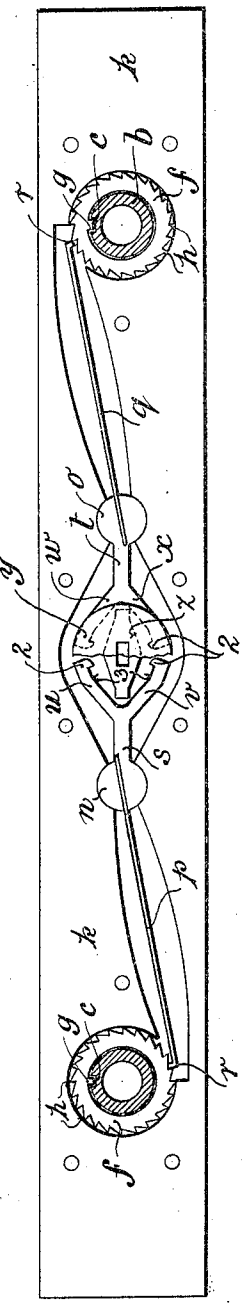


FIG. 2.

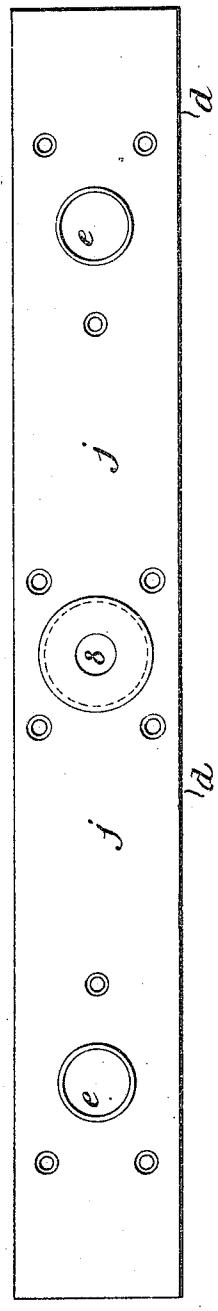


FIG. 3.

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2 SHEETS—SHEET 2.

FIG. 4.

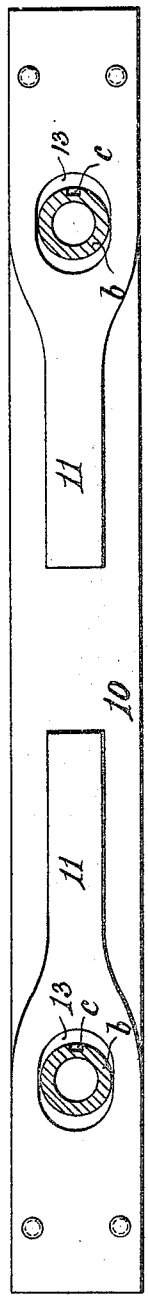


FIG. 7.

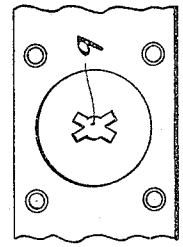


FIG. 6.

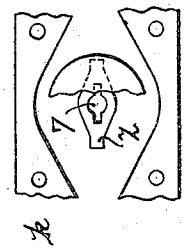
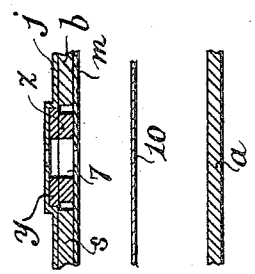


FIG. 5.



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GEORGE HIGGINSON, OF LONDON, ENGLAND, ASSIGNOR TO THE PULMAN PATENTS COMPANY, LIMITED, OF LONDON, ENGLAND.

LOOSE-LEAF BINDER, FILE, AND THE LIKE.

No. 802,042. Specification of Letters Patent. Patented Oct. 17, 1905.

Application filed July 8, 1905. Serial No. 268,785.

To all whom it may concern:

Be it known that I, GEORGE HIGGINSON, mechanical engineer, of 1 and 2 Ham Yard, Piccadilly Circus, London, England, have invented certain new and useful Improvements in and Relating to Loose-Leaf Binders, Files, and the Like, of which the following is a specification.

This invention relates to loose-leaf binders, files, and the like, and has for its object to provide a simple and efficient means for binding papers, documents, and the like.

A loose-leaf binder or file made in accordance with this invention comprises a base-plate, filing-posts, pins or pillars rigidly secured to said base-plate, a spiral or screw-thread or worm on said posts, pins or pillars, a plate provided with holes and adapted to be passed over the pillars, sleeves or collars revolubly mounted in the plates and adapted to engage with the thread or worm on the posts, pins, or pillars and to turn as the plate is moved along the posts, pins, or pillars, and means for locking the sleeves or collars to the plate, thus preventing the movement of the plate in relation to the posts, pins, or pillars in one direction.

Referring now to the drawings, Figure 1 is a sectional side elevation of one form of device made in accordance with this invention. Fig. 2 is a sectional plan on line A A, Fig. 1. Fig. 3 is a plan of the plate *j*. Fig. 4 is a sectional plan on line B B, Fig. 1. Fig. 5 shows in section a modified means of operating the locking mechanism. Fig. 6 is a plan of same; and Fig. 7 is a part plan of the device, showing keyway.

This form of filing device is especially adapted for use as a binder for leaves transferred from a loose-leaf ledger or the like, and comprises a base-plate *a*, two posts *b b*, rigidly secured to said plate, each provided with a screw thread or threads *c*, preferably of long pitch, a plate *d*, provided with holes *e e* and adapted to be passed over the posts *b b*, sleeves or collars *f f*, loosely mounted on the plate *d* and each provided with a projection *g*, adapted to gear with the screw-thread *c* in the posts *b b*, so as to turn as the plate *d* is traveled along the posts, teeth *h* on said collars, and pawls *r r*, mounted on or in the plate *d* and adapted to be locked in or out of engagement with the teeth *h* to prevent the turning of the collars *f f* in one direction.

The plate which carries the sleeves or collars may be conveniently constructed of three plates *j k m*, screwed or riveted together, the center plate *k* being perforated to receive the sleeves *f f* and the locking mechanism, the outer plates *j* and *m* forming covers for the same.

The locking mechanism comprises two bosses *n o*, mounted in recesses in the center plate *k* and forming the pivotal points of lever-arms. The arms *p q* of said levers are resilient, and each is provided with a head *r*, forming a pawl. The other arms *s t* of the levers are bifurcated, as at *u v w x*, and said bifurcations engage with means for simultaneously operating the pawls *r r*, so as to lock them in or out of engagement with the teeth *h* on the sleeves *f f*. These means comprise a disk *y*, adapted to rotate in a recess in the plate *j*, a double-armed lever *z*, secured to the disk *y*, so as to rotate coaxially therewith and to engage with the bifurcations *u v w x*. Each of said bifurcations is provided with a stop 2 and a flat face 3, against which a flat end of the double-armed lever *z* lies when said lever is in extreme position against the stops 2.

The disk *y* and lever *z* may be operated by a milled head 4, provided with a squared end 5, adapted to pass through a corresponding hole 6 in said disk and lever, as shown in Figs. 1 and 2, or they may be operated by a key, in which case the disk *y* and lever *z* will be provided with a keyway-hole 7, as shown in Figs. 5 and 6. When a milled head is used, the plate *j* will be provided with a circular hole 8, as shown in Fig. 3, and when a key is used, with a keyway-hole 9, as shown in Fig. 7.

To operate the locking mechanism to hold the pawls *r r* out of engagement with the teeth *h*, the disk *y* and lever *z* are rotated so as to cause the ends of the lever to bear against the parts *u* and *x* of the arms *s* and *t*, thus causing the levers to pivot on their bosses *n o* and bring the pawls *r r* away from the teeth *h*. The rotation is continued until arrested by the stops 2, when the ends of the levers *z* will be in engagement with flat faces 3 of the parts *u* and *x*, and thus temporarily lock the lever *z* in that position. Similarly, when it is required to lock the pawls *r r* in engagement with the teeth *h* the lever *z* is rotated so as to bear against the parts *w* and *v* of the arms *t* and *s* until the stops 2 arrest the rotation.

10 is a plate provided with holes and passed over the posts *b b* and connected to the plate *d* by springs 11 11. The outer ends of these springs 11 are rigidly secured to the plate 10, and the inner ends are freely passed through loops 12 12, stamped out from the plate *m*, and are adapted in use to slide therethrough. The springs are also provided with slotted holes 13 13, through which pass the posts *b b*. The posts *b b* are secured to the base-plate *a* by screwed lugs 14 14, which are permanently fixed to said base-plate. Thus the posts *b b* may be readily removed and replaced by others of different size.

In use the pawls *r r* are locked out of engagement with the teeth *h* on the collars *f f*, and the plates *d* and 10 are drawn away from the base-plate *a*, the collars *f f* revolving freely on the posts *b b*. The loose leaves or the like are then put on the posts *b b*, the pawls *r r* locked in engagement with the teeth *h*, and the plates *d* and 10 moved down onto the papers so as to hold them firmly in position, the collars *f f* rotating on the posts *b b*, the pawls passing over the teeth *h h*. When the plate 10 is in contact with the papers, further motion of the plate *d* is transmitted through the springs 11 11, which at the same time slide through the loops 12 12. Thus the resilient mounting of the plate 10 allows of one of the teeth *h* always being held by each pawl *r*. Otherwise without the resiliently-mounted plate 10 it might happen that when the plate *d* is firmly on the papers the pawls *r r* might not exactly be in engagement with the teeth, and therefore the papers would not be securely held. Thus the use of the resiliently-mounted plate 10 always insures a firm grip on any thickness of papers. The engagement of the pawls *r r* with the teeth *h* prevents the collars *f f* from turning, and thus keeps the plates *d* and 10 from moving along the posts *b b* away from the papers. To remove the papers, the pawls *r r* are moved and locked out of engagement with the teeth *h*, the plates *d* and 10 moved away, and the papers withdrawn. The base-plate *a* or the plate *d* may be secured to boards or suitable binding-covers.

What I claim, and desire to secure by Letters Patent, is—

1. In loose-leaf binders, a base-plate, filing-posts rigidly secured to the base-plate, a screw-thread in said filing-posts, a plate provided with holes and adapted to be passed over the filing-posts, collars revolubly mounted in the plate, a projection on each of said collars engaging with said screw-thread, teeth on said collars, pawls mounted in said plate, and means for moving said pawls into and out of engagement with said teeth, substantially as and for the purpose set forth.

2. In loose-leaf binders, a base-plate, filing-posts rigidly secured to the base-plate, a screw-thread in said filing-posts, a plate provided with holes and adapted to be passed over the filing-posts, collars revolubly mounted in the plate, a projection on each of said collars engaging with said screw-thread, teeth on said collars, levers pivotally mounted in said plate, resilient arms to said levers, pawls on said resilient arms, means for moving said pawls into and out of engagement with said teeth, substantially as and for the purpose set forth.

3. In loose-leaf binders, a base-plate, filing-posts rigidly secured to the base-plate, a screw-thread in said filing-posts, a plate provided with holes and adapted to be passed over the filing-posts, collars revolubly mounted in the plate, a projection on each of said collars engaging with said screw-thread, teeth on said collars, levers pivotally mounted in said plate, resilient arms to said levers, pawls on said resilient arms, bifurcations to said levers, means for engaging said bifurcations and moving said pawls into and out of engagement with said teeth, substantially as and for the purpose set forth.

4. In loose-leaf binders, a base-plate, filing-posts rigidly secured to the base-plate, a screw-thread in said filing-posts, a plate provided with holes and adapted to be passed over the filing-posts, collars revolubly mounted in the plate, a projection on each of said collars engaging with said screw-thread, teeth on said collars, levers pivotally mounted in said plate, resilient arms to said levers, pawls on said resilient arms, bifurcations to said levers, a double-armed lever revolubly mounted in said plate so as to engage said bifurcations and move said pawls into and out of engagement with said teeth, substantially as and for the purpose set forth.

5. In loose-leaf binders, a base-plate, filing-posts rigidly secured to the base-plate, a screw-thread in said filing-posts, a plate provided with holes and adapted to be passed over the filing-posts, collars revolubly mounted in the plate, a projection on each of said collars engaging with said screw-thread, teeth on said collars, pawls mounted in said plate, and means for moving said pawls into and out of engagement with said teeth, and a second plate resiliently mounted on said plate substantially as and for the purpose set forth.

6. In loose-leaf binders, a base-plate, a non-rotatable screw-threaded filing-post connected thereto, a member carrying a rotatable collar engaging said post, and means for fixing said collar against rotation.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEORGE HIGGINSON.

Witnesses:
ROBERT MILTON SPEARPOINT,
H. D. JAMESON.