No. 875,834. PATENTED JAN. 7, 1908.

L. M. MORDEN.

LOOSE LEAF LEDGER OR TEMPORARY BINDER.

APPLICATION FILED MAR. 11, 1907.

FIG. 1

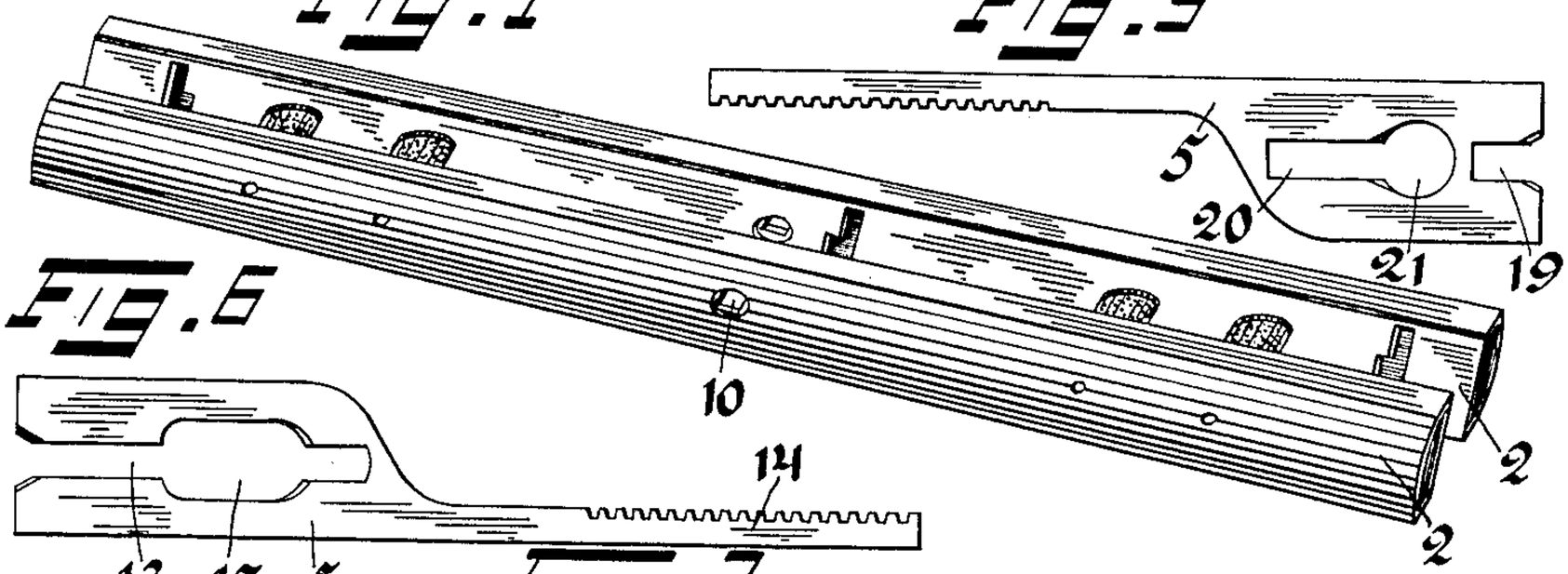


FIG. 5

FIG. 6

FIG. 2

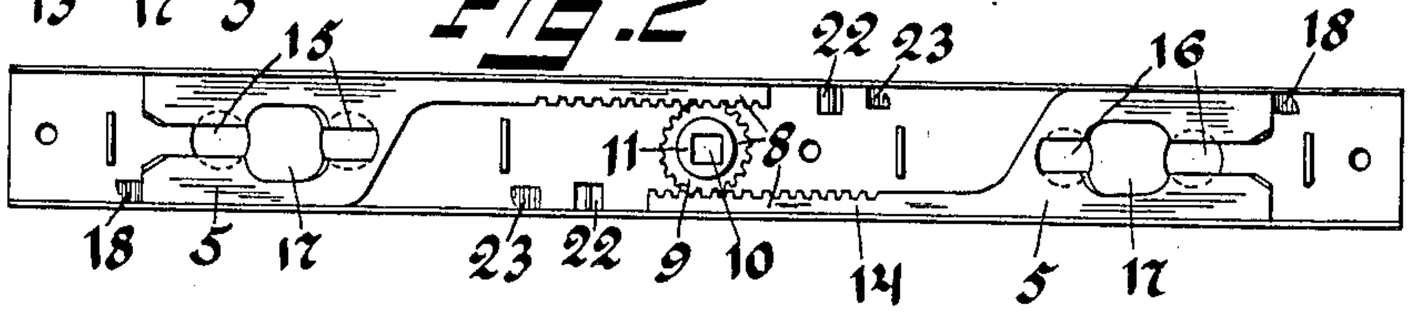


FIG. 3

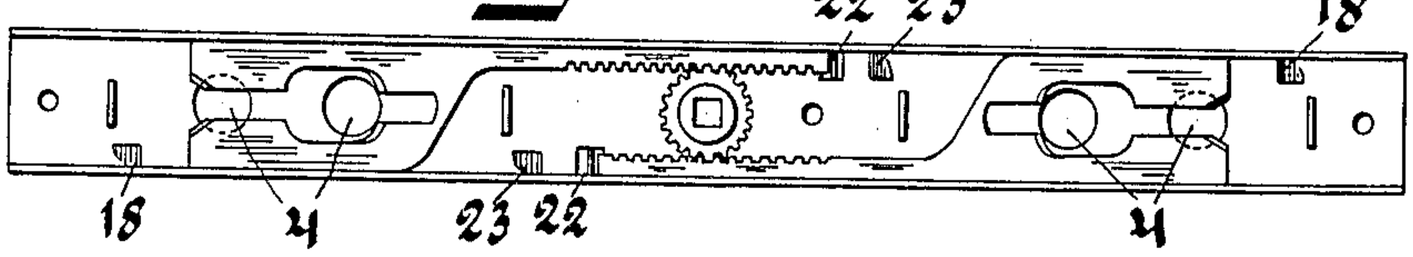


FIG. 4

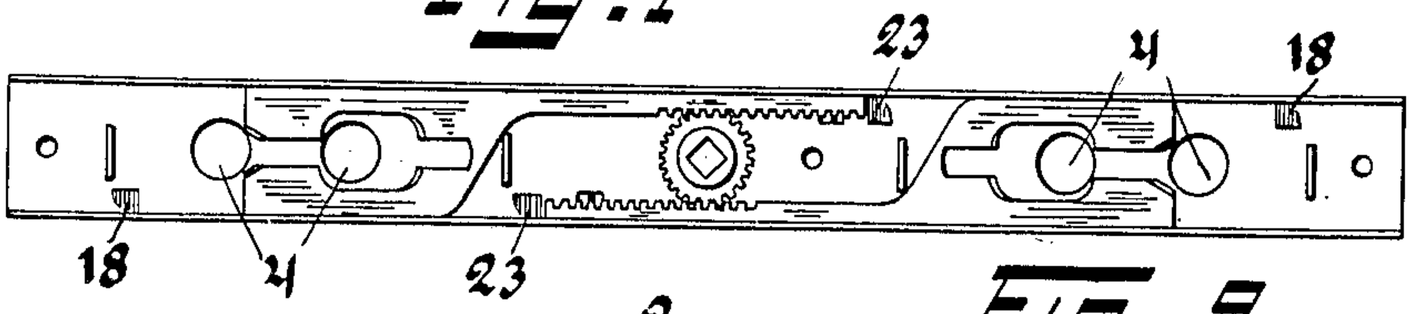


FIG. 8

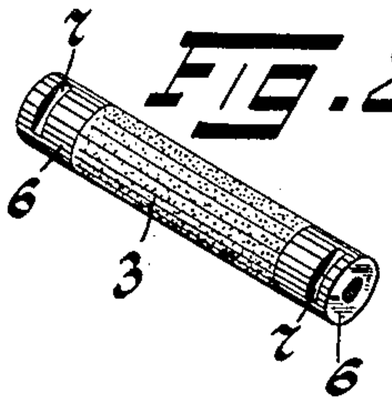


FIG. 9

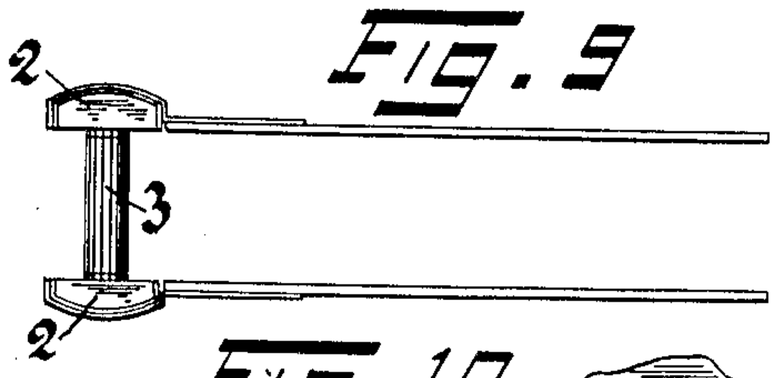


FIG. 10

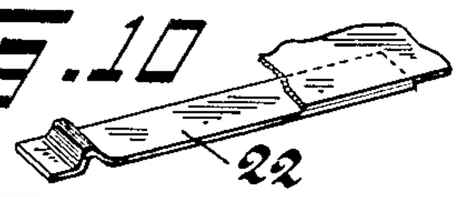
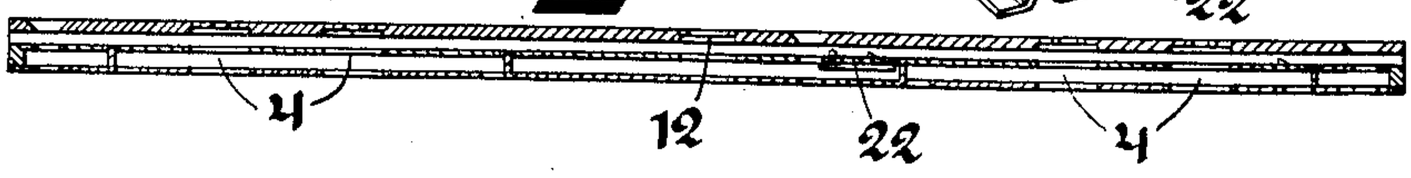


FIG. 7



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UNITED STATES PATENT OFFICE.

LUCENA M. MORDEN, OF WATERBURY, CONNECTICUT.

LOOSE-LEAF LEDGER OR TEMPORARY BINDER.

No. 875,834. Specification of Letters Patent. Patented Jan. 7, 1908.

Application filed March 11, 1907. Serial No. 361,647.

To all whom it may concern:

Be it known that I, LUCENA M. MORDEN, a citizen of the United States, residing in Waterbury, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Loose-Leaf Ledgers or Temporary Binders, of which the following is a specification.

This invention relates to loose leaf ledgers or temporary binders adapted for filing and securing loose leaves, the object of the invention being to provide an improved binder of this class so constructed that the book or ledger may be more effectively opened than heretofore, and also the removal or insertion of leaves more quickly and effectively accomplished, while at the same time providing a binder which is not only extremely simple in construction and operation and in which the operating mechanism or parts are protected from accidental injury by being completely inclosed within the binder members, so that all injury such as scratching or marring of the desk by protruding parts or posts prevented, but one in which posts or studs of one length may be substituted for posts or studs of a different length, thereby enabling the same binder to be used with different sizes or thicknesses of books.

In the drawings accompanying and forming part of this specification, Figure 1 is a perspective view of the metal parts of this improved binder; Fig. 2 is an interior view of one of the binder members with the locking members or bolts in position for locking the studs or posts; Fig. 3 is a similar view to Fig. 2, but showing the locking members partly withdrawn so as to release a pair of the studs of the set of four; Fig. 4 is a view similar to Figs. 2 and 3, but illustrating the locking members or bolts entirely withdrawn so as to release the other two studs of the set of four; Fig. 5 is a detail view of one of the locking members or bolts of one of the binder members; Fig. 6 is a detail view of one of the locking members or bolts of the other binder member; Fig. 7 is a cross-sectional view of one of the binder members shown in Fig. 1; Fig. 8 is a perspective view of one of the binder studs or posts; Fig. 9 is a view of this improved binder attached to a cover; and Fig. 10 is a detail view showing one of the spring or resilient stops on an enlarged scale.

Similar characters of reference indicate corresponding parts in the several figures of the drawings.

The metal parts of this improved binder comprise two binder members 2 of metallic formation, between which are located the sheet receiving studs or posts 3, these projecting into openings 4 formed in each of said binder members, the studs preferably comprising a set of four and located two adjacent to each end of the binder members. Each of these binder members and its operating mechanism is similar to the other, except that the formation of the stud-locking members 5 of one binder member is different from that of the other,—that is to say, the locking members or bolts of one binder member are of such formation that the ends of the outer studs of the set of four of one member may be released prior to the release of the inner studs of said binder member, while the locking members of the other binder member will release the ends of the inner set of studs prior to releasing the ends of the other set of studs. In other words, the construction of the locking members or bolts 5 of one binder member differs from that of the other binder member in the manner in which the locking parts or slots are formed, Figs. 2, 3 and 4 illustrating that form of locking member 5 shown enlarged in Fig. 6.

Each of the studs or posts 3 is of flexible construction, this being obtained in the present instance by forming the studs of some suitable flexible material, such for instance as leather belting, the ends of which are provided with caps or metal pieces 6 having grooves or recesses 7 therein with which the locking bolts or members engage to lock the said studs in position. Each binder member into the openings of which the studs project in the manner hereinbefore set forth is of such formation that the mechanism for locking the studs in position is inclosed therein, and this locking mechanism, as hereinbefore stated, comprises a pair of locking members or bolts 5 moved to and fro by means of a rack and pinion mechanism 8, the pinion 9 being operated from the exterior of the binder member by the insertion of a key having a polygonally shaped formation into a similarly formed opening 10 in the pinion, the hub 11 of which is journaled in an opening 12 of the binder member for the passage of the key into said hub. Each locking bolt comprises a slotted portion 13 and a rack

portion 14, the latter engaging the pinion and the former located adjacent to a pair of the openings for the studs, the slotted portion of the bolt being so formed that one stud of each pair at one end will be engaged prior to the engagement and locking of the stud of the same pair at the same end, and for this purpose each locking bolt 5 is shown in Figs. 2, 3, 4 and 6 as provided with a pair of narrow portions 15 and 16, each of which is movable into and out of engagement with the grooved end 7 of a pair of studs, between which narrow portions is an enlarged portion 17, the bolts being so located and timed with relation to the openings through which the studs project that when the locking bolts are in the position shown in Fig. 3 the outer ends of the bolts will pass into the grooved ends of the outermost studs while at this time the enlarged portion 17 of these bolts will be adjacent to the innermost pair of studs, and consequently the latter pair of studs will not be locked until the two bolts have been further moved outwardly or toward the ends of the binder members or frame into the position shown in Fig. 2, at which point their further movement is limited by a pair of stops 18, one for each locking bolt.

The locking bolt 5 shown in Fig. 5, a pair of which are used for the other binder member, is likewise provided with a pair of narrow slotted portions 19 and 20, intermediate which is an enlarged portion 21 for precisely the same purpose. But the formation of this locking member with relation to those shown in Figs. 2, 3, 4 and 6 is such that the two innermost studs or posts are locked prior to the locking of the two outermost studs or posts of the same binder member. In order that the operator may know exactly when two or all of the ends of a set of four posts of either binder member are released, a pair of stops 22, 23 are provided for each locking member or bolt, one, as 22, of each pair being of spring formation so that, for instance, when the two innermost studs or posts of the binder member shown in Figs. 2, 3 and 4 are released the inner ends of the locking members or bolts will engage with the spring stops, the two outermost studs or posts being still locked. On the further turning of the pinion, however, the springs will be depressed, thus permitting the ends of the locking members to pass thereover and release the outer posts in the manner shown in Fig. 4, at which time the other pair of stops will be engaged by the ends of the locking members, so that further retraction of such member is prevented, the mechanism of the other binder member operating in precisely the same manner except that the two outer studs are first released, succeeding the release of which the two inner studs are released. By this construction it will be seen that all four of the studs or posts can be released at either side of the book, thus permitting leaves at that side to be removed or inserted without the necessity of pushing all of the leaves to one side or the other as is usually the case. Or should it be necessary to remove or insert leaves near the middle or center of the book, this can be done by unlocking two of the studs from one binder member, as for instance the two inner ones as shown in Fig. 3, leaving the two outer ones locked, and then releasing the opposite ends of these two outer studs from the other binder member, so that each binder member would carry two studs still locked thereto, one binder member having the two inner studs locked thereto, the opposite ends of which, however, are released from the other binder member, while said last binder member has the two other studs locked thereto, the opposite ends of which are, however, released from said first binder member. Thus one half or a portion of the book may be carried by each binder member as the same is separated, the two studs of each carrying a section of the book, thus permitting the insertion or removal of the leaves near the center without the necessity of removing a large section or nearly half of the book to insert or remove additional leaves. Moreover, when a pair of the studs are withdrawn the leaves will still be held against lateral displacement and such of the leaves as it may be necessary to remove taken off without affecting or displacing those leaves which it is not necessary to remove.

The metal binder member may be attached to any suitable book cover in any of the well known ways, each side of the back having an opening communicating with the key opening in the side of the binder adjacent thereto for the insertion of the key.

By forming the studs of a flexible material it will be readily understood that the book can be opened to much better advantage owing to the flexible character of the studs, since the same will bend as the backs are thrown open.

From the foregoing it will be seen that binders made in the manner set forth have no protruding parts or mechanism to mar the desk or table, and that as all four, or the entire set of posts or studs can be entirely removed from the binder members other posts or studs, either longer or shorter as may be desired, can be substituted therefor, so that when each pair of binder members is furnished with several sets of posts, each set of a different length, it will be immediately apparent that one pair of binder members can be used for different sizes or thicknesses of books or ledgers, and with this style of ledger it would not be necessary to fill the posts entirely full but a half inch or so of such posts could be left for expansion and when the posts were entirely filled they could be

removed and a longer set inserted, thus enabling the number of leaves of the ledger to be very materially increased without the necessity of changing from one size binder to another.

I claim as my invention:

1. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and duplicate means carried by said binder members for simultaneously releasing some without releasing all or for releasing all of the studs from either binder member.

2. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for simultaneously releasing some without releasing all or for releasing all of the studs from one of said binder members.

3. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for simultaneously releasing some without releasing all or for releasing all of the studs from both of said binder members.

4. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from one of said binder members, said means comprising a pair of locking members each having a plurality of locking positions.

5. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from one of said binder members, said means comprising a pair of locking members each having a plurality of locking positions, and means for determining each of said positions.

6. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from one of said binder members, said means comprising a pair of locking members each having a plurality of locking positions, and means for determining each of said positions, said means comprising stops.

7. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from one of said binder members, said means comprising a pair of locking members each having a plurality of locking positions, and means for determining each of said positions, said means comprising stops one of which is of spring formation.

8. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from one of said binder members, said means comprising a pair of locking members having a plurality of positions and embodying a pinion and rack mechanism for operating said locking members.

9. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from each of said binder members, said means comprising a pair of locking members each having a plurality of locking positions.

10. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from each of said binder members, said means comprising a pair of locking members each having a plurality of locking positions, and means for determining each of said positions.

11. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from each of said binder members, said means comprising a pair of locking members each having a plurality of locking positions, and means for determining each of said positions, said means comprising stops.

12. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from each of said binder members, said means comprising a pair of locking members each having a plurality of locking positions, and means for determining each of said positions, said means comprising stops one of which is of spring formation.

13. In a loose leaf binder, the combination of a pair of binder members, a set of studs carried thereby, and means for releasing some or all of the studs from each of said binder members, said means comprising a pair of locking members having a plurality of positions and embodying a pinion and rack mechanism for operating said locking members.

14. In a loose leaf binder the combination of a pair of binder members, a set of studs therebetween, and means for simultaneously releasing some without releasing all of said set of studs at one or both ends thereof.

15. In a loose leaf binder the combination of a pair of binder members, a set of four studs carried thereby, and means for releasing two without releasing all or for releasing all of the studs from one of said binder members.

16. In a loose leaf binder the combination of a pair of binder members, a set of four studs carried thereby, and means for releasing two without releasing all or for releasing all of the studs from either or both of said binder members.

17. In a loose leaf binder, the combination of a pair of binder members, flexible studs

therebetween, and means for simultaneously releasing some or all of said studs from either or both of said binder members.

18. In a loose leaf binder, the combination of a pair of binder members, flexible studs therebetween, and means for simultaneously releasing some or all of said studs from either or both of said binder members, and comprising duplicate locking bolts.

19. In a loose leaf binder, the combination of a pair of binder members, a set of studs therebetween, each binder member carrying locking mechanism for the studs, the locking parts of one alternating with the locking parts of the other, and organized so that some or all of the studs are releasable from one binder member while others or all of said set of studs are releasable from the other binder member.

20. In a loose leaf binder, the combination of a pair of binder members, and a set of studs therebetween, each binder member carrying locking mechanism for the studs, the locking parts of one alternating with the locking parts of the other whereby some of the studs are releasable from one binder member while others of said set of studs are releasable from the other binder member, said locking mechanism comprising movable bolts and stops for limiting the outward and inward movements thereof and also an intermediate position thereof.

21. A flexible stud or post for a loose leaf binder, made up of leather and having a metallic cap inclosing each end thereof, each cap provided with a locking groove or grooves.

22. A loose leaf binder comprising a pair of binder members, a set of flexible studs therebetween, each made up of a flexible material with a rigid cap inclosing each end thereof, and means for releasing some without releasing all or for releasing all of said studs at one or both ends thereof.

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