W. E. & H. J. GAYLORD.

LOOSE LEAF BINDER.

APPLICATION FILED NOV. 13, 1911.

1,067,019. Patented July 8, 1913.

Fig. 1.

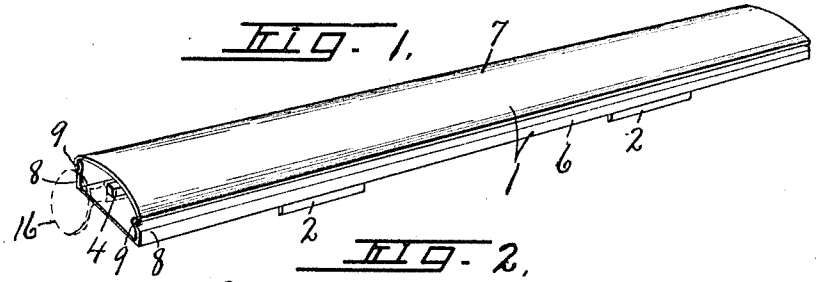


Fig. 2.

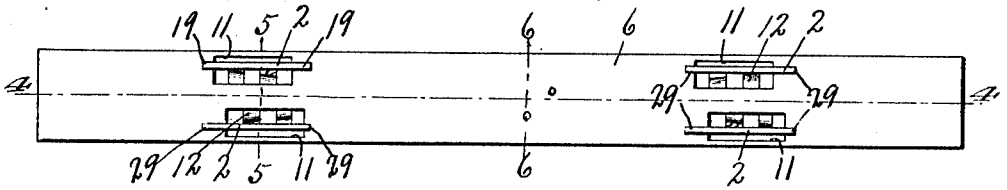


Fig. 3.

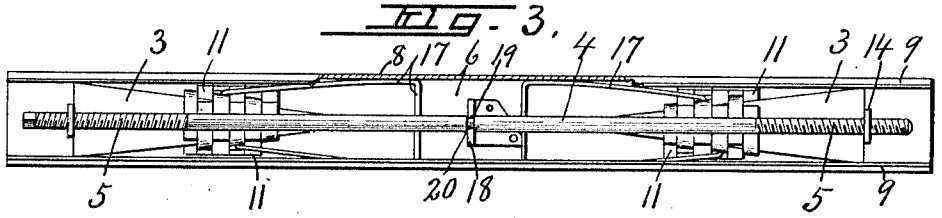


Fig. 4.

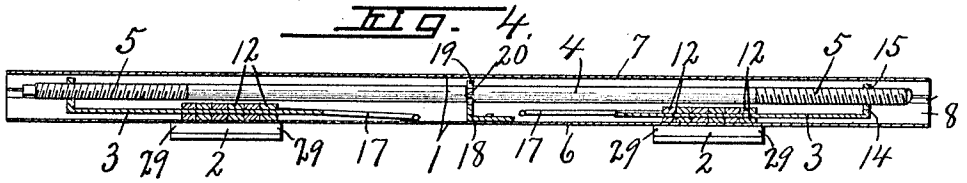


Fig. 5

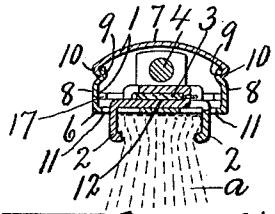


Fig. 6.

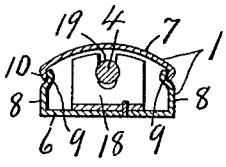


Fig. 7.

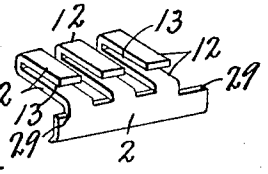


Fig. 9.

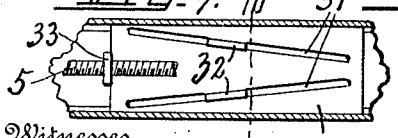


Fig. 8.

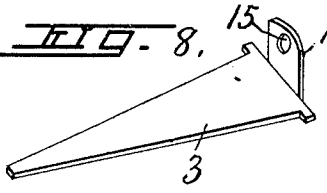
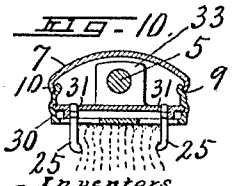


Fig. 10.



Witnesses

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UNITED STATES PATENT OFFICE.

WILLIS E. GAYLORD AND HENRY J. GAYLORD, OF SYRACUSE, NEW YORK.

LOOSE-LEAF BINDER.

1,067,019. Specification of Letters Patent. Patented July 8, 1913.

Application filed November 13, 1911. Serial No. 659,995.

To all whom it may concern:

Be it known that we, WILLIS E. GAYLORD and HENRY J. GAYLORD, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Loose-Leaf Binders, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in temporary binders for loose leaves, magazines, newspapers and other periodicals, and involves the use of one or more pairs of jaws slidable transversely upon a suitable supporting frame and adapted to be operated through the medium of a sliding plate or plates having one or more pairs of inclined bearings and a screw or screws for reciprocating said plates.

The main object is to provide simple means for temporarily binding magazines, loose leaves and similar articles for reference without puncturing or otherwise mutilating such articles.

Another object is to permit such articles to be clamped together with sufficient force to prevent the intermediate articles from becoming detached by the manipulation of the outer sheets.

Other objects and uses will be brought out in the following description.

In the drawings—Figure 1 is a perspective view of a temporary binder embodying the various features of our invention. Fig. 2 is an inverted plan of the same binder. Fig. 3 is a top plan partly in section of said binder except that the back is removed. Fig. 4 is a longitudinal vertical sectional view of the same binder taken on line 4—4, Fig. 2. Figs. 5 and 6 are transverse sectional views taken respectively on lines 5—5 and 6—6 Fig. 2. Fig. 7 is a perspective view of one of the jaws. Fig. 8 is a perspective view of one of the jaw operating plates. Fig. 9 is a horizontal sectional view of a portion of a modified form of binder similar to one end of Fig. 3. Fig. 10 is a transverse sectional view taken on line 10—10 Fig. 9.

The binder shown in Figs. 1 to 8 inclusive comprises a tubular case —1— for receiving and supporting separate pairs of transversely slidable jaws —2— and lengthwise operating plates —3— which are adapted to be reciprocated by means of a rotary spindle —4— having threaded portions —5— of opposite pitch. The tubular case —1— preferably comprises a base portion —6— and a cap portion —7— in sliding interlocking engagement therewith, the base portion —6— having its opposite edges provided with upturned parallel flanges —8— having longitudinal grooves —9— for receiving inturned lengthwise ribs or flanges —10— on the longitudinal edges of the cap or back —7— as best seen in Figs. 1, 5 and 6. The cap or back —7— may be removed from or inserted upon the base —1— from either end thereof by simply engaging the ribs or flanges —10— in the grooves —9— and sliding the parts —1— and —7— endwise relatively to each other, said cap or back being preferably concavo-convex in cross section with its convex surface uppermost or at the back according to the position of the binder.

All of the parts thus far described except the spindle —4— are preferably made of sheet metal, the base —1— being made in the form of a channel iron or longitudinally grooved bar, leaving a clear open space entirely through the case —1— from end to end for the reception and operation of the screw spindle —4— and jaw operating plates —3—.

The jaws —2— of each pair are opposed to each other and preferably consist of angle plates slidable along and upon the inner face of the bottom of the base —6— and having pendant portions or jaws proper projecting through laterally elongated openings —11— in the bottom of said base. Each jaw is provided with a plurality of, in this instance three, laterally projecting arms —12— spaced a distance apart corresponding to the width of said arms for receiving the arms of the other jaw, the ends of said arms being returned toward the main body to form loops or grooves —13— for the reception of the adjacent operating plate —3—.

It is apparent upon reference to Figs. 5 and 7 that the arms —12— of the coacting jaws of each pair are extended in opposite directions, those of one jaw sliding in the spaces between the arms of the other jaw so that these arms engage opposite edges of the operating plate —3— and also form lower and upper bearings for said operating plate to guide it in its reciprocatory movement.

Each of the plates —3— is preferably tapered from its outer toward its inner end

and its outer end is provided with an upturned flange or lug —14— having a threaded aperture —15— for engagement with the adjacent threaded portion —5— of the spindle —4— so that when these plates are assembled in the manner shown more clearly in Figs. 3 and 4 and the screw rotated by means of a key or other operating member as —16— shown by dotted lines in Fig. 1, the tapering plates —3— will be moved simultaneously lengthwise in opposite directions to impart transverse movement to the jaws —2— of each pair. In order that this action may be more clearly understood it may be stated that each jaw of each pair at one side of the operating plate —3— is engaged with the adjacent edge of said plate so that by moving the plates inwardly or in the direction of their taper, the jaws of each pair will be forced toward each other, while the opposite or outward movement of the operating plates will permit the jaws to spread apart, this latter operation being effected through the medium of separate springs 17— one for each pair of jaws as best seen in Figs. 3, 4 and 5.

The edges of the flanges —8— having the grooves —9— are drawn or contracted inwardly toward each other and serve to retain the springs —17— in operative position and also serve as guides for the wedge-shape jaw-operating members —3—.

The spindle —4— is held against endwise movement by means of a bracket —18— which is secured to the bottom of the base portion —6— and is provided with an open-sided slot —19— for receiving a reduced portion —20— of the spindle, thereby permitting said spindle to turn freely and at the same time permitting it to be removed when disengaged from the lugs —14— of the operating members —3— after the cap or back —7— is removed.

The combined width of the overlapping arms —12— of each pair of jaws is substantially equal to the length of the openings —11— through which they project so that the end walls of the opening form guides to hold the jaws against lengthwise movement relatively to the casing, said openings being staggered longitudinally a distance corresponding to the width of one of the arms —12—.

The gripping portions of the jaws —2— which are exterior to the case extend longitudinally beyond the outermost arms —12— and are therefore longer than the openings —11— to form shoulders —29— for engaging the outer face of the base portion of the casing, while the laterally offset arms engage the inner face of the same portion of the base, thereby holding the jaws against undue inward or outward movement or displacement and permitting them to slide transversely.

The pamphlets, leaves or other articles as —*a*— to be clamped are arranged with their backs in alinement and resting against the base —11— between the jaws —2—, said jaws being then drawn together by means of the screw portions —5— of the spindle —4— and tapering operating members —3—. That is, by applying the key —16— to the angular end of the spindle —4— and rotating said spindle in one direction, the tapering members —5— will be drawn toward each other so that their tapering ends advance into the grooves —13— between the closed ends of the arms —12— until the jaws —2— are firmly clamped and held against the interposed portions of the pamphlet or leaves —*a*—, the reverse rotation of the spindle serving to withdraw the wedge-shape operating members from the arms —12—, thereby permitting the springs to force the jaws apart to release such articles.

In Figs. 9 and 10, we have shown positive means for moving the jaws in opposite directions, thereby eliminating the use of springs, said means consisting of a plate —30— having inwardly converging slots or ways —31— for receiving projections —32— on the jaws as —25—, said plates —30— being provided at their outer ends with lugs —33— having threaded apertures for receiving screw portions —5— of the spindle —4—. Otherwise the structure of the jaws is substantially like that shown in Fig. 7, except that they are not provided with the laterally projecting arms —12— and the length of the openings through which the lugs —32— pass are substantially equal to the length of the lugs.

What we claim is:

1. A loose leaf or pamphlet binder comprising a tubular supporting base having openings in its front side, jaws movable transversely of and upon the base and projecting through said openings, an operating member movable lengthwise of the base and having tapering bearings in sliding contact with the jaws, and means for moving said operating member.

2. In a loose leaf or pamphlet binder, a supporting base having a front plate and a back plate, the front plate being provided with openings, a jaw operating member movable lengthwise of the base, and coöperative contacts between said member and jaws in sliding engagement with each other, one set of contacts being convergent in the direction of movement of said operating member, and means for moving said operating member endwise.

3. In a loose leaf or pamphlet binder, a tubular supporting base having openings in its front side, opposite jaws movable in said openings transversely of the base, an operating member for said jaws having convergent bearings in sliding contact with the

jaws, and means for moving the operating member in the direction of convergence of said bearings.

4. In a loose leaf or pamphlet binder, a supporting base, separate pairs of jaws movable transversely of and upon the base, separate operating members for said jaws having wedging bearings in contact with the jaws, and means for moving said members longitudinally of the base.

5. In a loose leaf or pamphlet binder, a tubular supporting base having openings in its front side, a pair of jaws slidable transversely of and upon the base and projecting through said openings, a tapering operating member in sliding contact with the jaws, and movable lengthwise of the base, and means for operating said member.

6. In a loose leaf or pamphlet binder, a base having separate pairs of openings therethrough, separate pairs of jaws movable in said openings transversely of the base, separate wedge-shape operating members each in sliding contact with the jaws of each pair and provided with threaded apertures of opposite pitch, a rotary spindle having threads of opposite pitch engaged in said apertures, and means for holding the spindle against endwise movement.

In witness whereof we have hereunto set our hands this 7th day of November 1911.

WILLIS E. GAYLORD.
HENRY J. GAYLORD.

Witnesses:
H. E. CHASE,
E. F. SPEARING.

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