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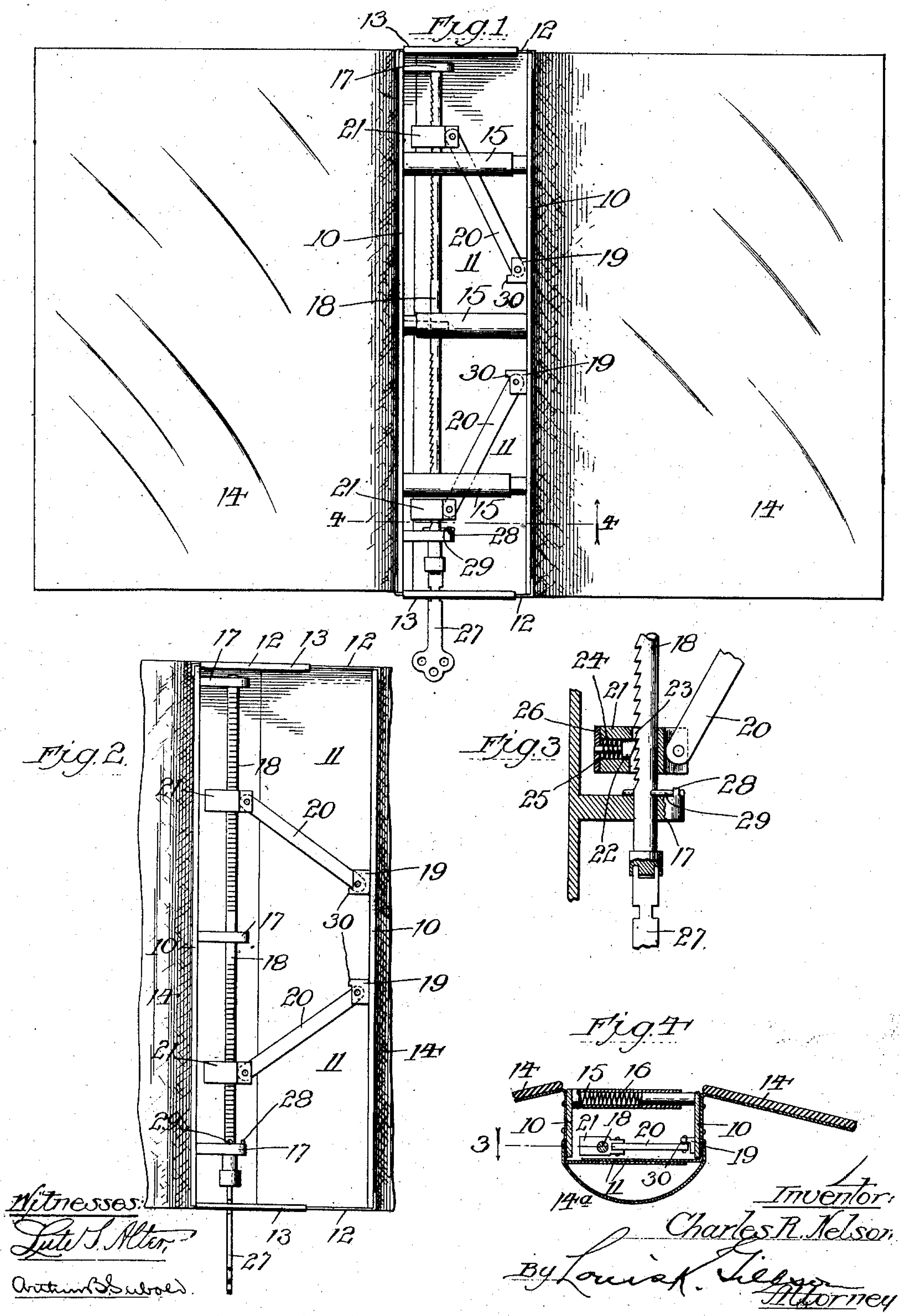
C. R. NELSON.

LOOSE LEAF BINDER.

APPLICATION FILED APR. 3, 1903.

NO MODEL.



Witnesses:

Lute S. Alter,

Arthur B. Dubois.

Inventor:

Charles R. Nelson.

By Louis K. Gillson

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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UNITED STATES PATENT OFFICE.

CHARLES R. NELSON, OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

SPECIFICATION forming part of Letters Patent No. 737,005, dated August 25, 1903.

Application filed April 3, 1903. Serial No. 150,874. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. NELSON, a citizen of the United States, and a resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Loose-Leaf Binders, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

This invention relates to improvements in that class of loose-leaf binders in which the leaves or sheets are held between a pair of adjustable clamping members, and particularly to the means employed for holding the clamping members normally in compressed position and also for releasing the holding means when it is desired to remove or insert a sheet.

The invention comprises, in general terms, a pair of clamping members, one of which is provided with a rod parallel therewith and having teeth along one side thereof and the other of which has pivotally connected thereto a pair of links provided with pawl-carriers slidably mounted on the rod and the pawls of which normally engage the rod-teeth. To permit of the separation of the two clamping members, the ratchet-rod is rotatably mounted and when turned becomes disengaged from the pawls, which being released enables the springs to separate the clamping members.

The invention consists of the arrangement and combination of parts hereinafter fully described, particularly designated in the claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a plan of a loose-leaf binder constructed in accordance with my invention. Fig. 2 is a similar view with the ratchet-rod thrown out of engagement with the holding-pawls and the telescoping connecting-posts removed. Fig. 3 is a detail, on an enlarged scale and partially in section, of the pawl-carrier, pawl, and ratchet-rod; and Fig. 4 is a section on the line *x x* of Fig. 1.

The clamping members of the binder comprise a pair of parallel plates 10, which are preferably provided with right-angle extensions or attached plates 11, which overlap and form the back of the binder. The ends of the clamping members are also provided with overlapping extensions 12, each of one pair of which is bent over to embrace the other, as at 13, so as to guide the clamping members in their movement toward and away from each other. Covers 14 are flexibly attached to the upper edges of the clamping members, as shown in Fig. 4, in the usual manner, and a flexible strip 14ª, attached to the opposite lower edges of the clamping members and made of leather or other material, is designed to provide an ornamental back for the binder and give it the appearance of an ordinary book. The clamping members 10 are connected by the usual tubular telescoping posts 15, shown as three in number in the present instance, in which are located spiral springs 16, acting normally to separate the clamping members. Mounted in bearings 17, fixed to one of the clamping members 10 and disposed longitudinally of the latter, is an oscillatable rod 18. This rod is provided with teeth at each end which are preferably inclined in opposite directions—that is to say, the teeth adjacent each end are directed or inclined toward such end. Pivotally connected, as at 19, to the other clamping member 10 is a pair of diverging links 20, each of which has pivoted thereto a pawl-carrier 21, having mounted therein a pawl 22, which normally engages the teeth of the adjacent end of the rod 18.

In the construction shown the pawl-carriers 21 are in the form of blocks provided with passages 23, through which the rod 18 passes, and each having a right-angle cavity 24, in which is seated the pawl 22, the latter being forced into engagement with the teeth of the rod, as shown in Fig. 3, by means of a coil-spring 25, seated in the cavity 24 and reacting against a plate 26, closing the bottom of the cavity. The teeth of the rod 18 extend along one side only thereof, and when the said rod is rotated to a slight extent—say through an angle of ninety degrees, which may be accomplished through the medium of a key 27 passed through an aperture in the end of the binder and engaging the adjacent end of the rod 18—the teeth are thrown out of engagement with the pawls 22, thereby permitting the springs 16 to expand and force the clamping members apart. The rotation of the rod 18 may be limited by a stop 28,

fixed to one of the bearing-posts 17 and adapted to be engaged by the ends of a pin 29 passing through the rod 18.

In order to prevent the straightening of the links 20 when the clamping members are forced apart by the expansion of the springs 16, a stop 30 is disposed in the path of each of the links 20, which arrests the said links before they reach a point of dead-center.

The leaves intended to be used with the binder may be of ordinary character and provided with apertures which fit around the posts 15 and are provided with slits in the edge to permit of their being slipped onto the posts. After the insertion of a leaf or leaves the rod 18 is turned so as to have its teeth engage with the pawls 22, and then the binder is forced together, preferably by pressing upon the opposite ends of the two clamping members.

By providing a pair of pawls arranged as shown, engaging the rod 18 at or near its ends, the rocking of one member upon the other when one end only of the binder is compressed or unequal pressure is applied is avoided, inasmuch as the pawl at each end of the binder responds immediately to the slightest compression of the members and holds the same against separation until the rod is turned.

I claim as my invention—

1. In a loose-leaf binder, in combination, a pair of clamping members, a ratchet-rod carried by and parallel with one of the clamping members, and a pawl normally engaging the ratchet-rod and connected by a pivoted link to the other member.

2. In a loose-leaf binder, in combination, a pair of clamping members, a longitudinally-disposed oscillatable rod carried by one of the members and provided with teeth along one side, a pawl normally engaging the teeth at each end of the rod, and a link pivotally connecting the said pawl with the opposite clamping member.

3. In a loose-leaf binder, in combination, a pair of clamping members, telescoping posts connecting the members, springs normally acting to separate the members, a rod parallel with, and oscillatably mounted in bearings fixed to, one of the members and provided with teeth along one side thereof, pawl-carriers slidably mounted on the rod, pawls mounted on the carriers and engaging the rod-teeth, and links pivotally attached to the carriers and to the other member.

4. In a loose-leaf binder, in combination, a pair of clamping members having telescoping tubular posts provided with springs normally acting to separate the members, a rod parallel with, and oscillatably mounted in bearing-posts fixed to, one of the members and provided with teeth along one side thereof, the teeth adjacent each end being inclined toward such end, a pawl-carrier slidably mounted on each end of the rod, spring-pressed sliding pawls carried by the carrier and normally engaging the rod-teeth, and links pivotally connected to the carrier and to the other clamping member.

5. In a loose-leaf binder, in combination, a pair of clamping members one of which is provided with an oscillatable rod parallel therewith and having teeth along one side thereof and the other of which has pivotally connected thereto a pair of links provided with pawl-carriers slidably mounted on the rod and the pawls of which normally engage the rod-teeth.

6. In a loose-leaf binder, in combination, a pair of clamping members one of which is provided with an oscillatable rod parallel therewith and having teeth along one side thereof and the other of which has pivotally connected thereto a pair of links provided with pawl-carriers slidably mounted on the rod and the pawls of which normally engage the rod-teeth, stops in the path, and for limiting the movement, of the links, projections on the rod, and an abutment for engaging the rod projections.

CHARLES R. NELSON.

Witnesses:
ARTHUR B. SEIBOLD,
E. M. KLATCHER.