No. 809,496. PATENTED JAN. 9, 1906.

F. A. CLEVELAND.

BINDER.

APPLICATION FILED JULY 7, 1905.

Fig. 1

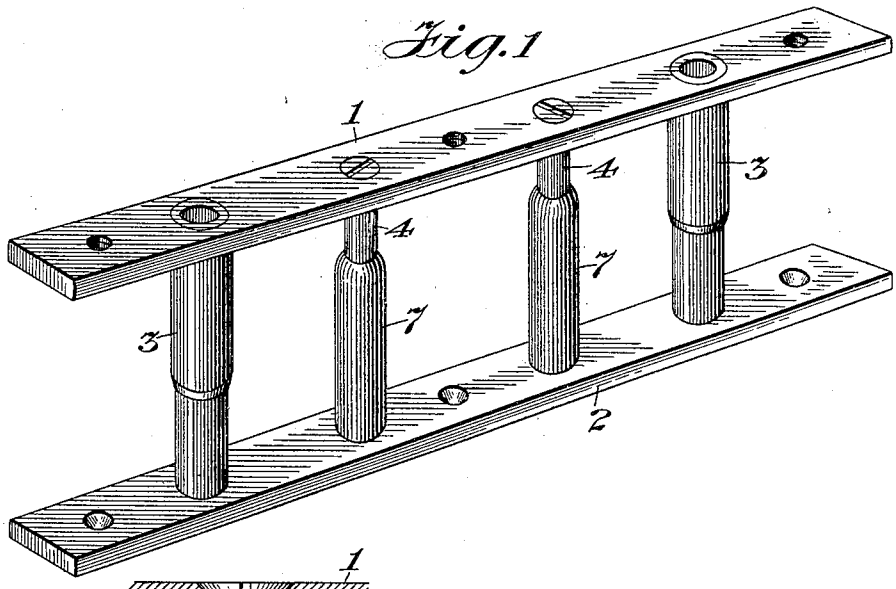


Fig. 2

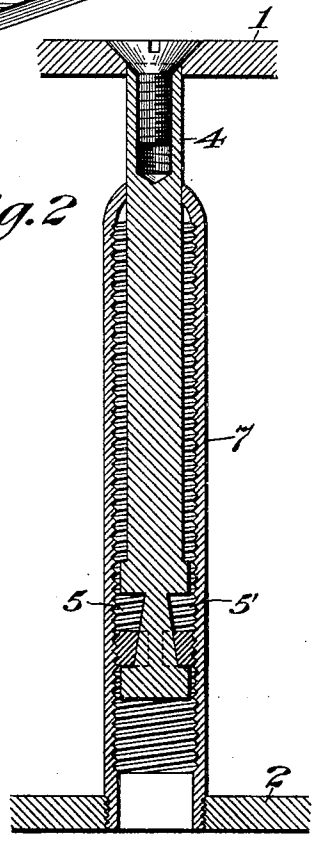
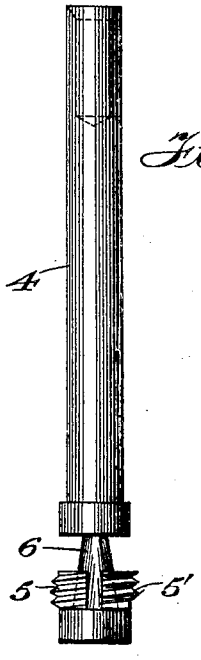


Fig. 3



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UNITED STATES PATENT OFFICE.

FREDERICK A. CLEVELAND, OF NEW YORK, N. Y.

BINDER.

No. 809,496. Specification of Letters Patent. Patented Jan. 9, 1906.

Application filed July 7, 1905. Serial No. 268,665.

To all whom it may concern:

Be it known that I, FREDERICK A. CLEVELAND, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Binders, of which the following is a specification.

This invention relates to a device which may be applied to binders of the loose-leaf type, the object being to provide a device of simple construction which may be used in connection with covers or binders of this class, which may be easily operated, and which will be positive in its action. The use of binders of this description is well understood, and it is not thought necessary to enter into an explanation of their operation further than to state the principal requirement, which is that any number of pages or leaves may be inserted, replaced, or taken out without disturbing the remaining leaves.

The object of my invention is to provide a device which shall meet this requirement and accomplish the desired result by the use of a simple locking mechanism which does not require separate keys or other devices to operate the same and which shall be self-contained and operated by turning the book on one side to lock the covers in any desired position and to release the same by simply reversing the position of the hook. To accomplish this result, I provide an upper and lower clamping-section, which may be attached to the covers of the binder. These clamping-sections are normally held apart by the action of springs contained in telescoping members attached to said clamping-sections in the usual manner. Attached to one of these clamping-sections, preferably the upper, I provide a post having a tapered shank which carries an expanding nut or dog which is adapted to engage projections on the interior of the coöperating post or casing which is secured to the lower clamping-section. This latter post or casing is adapted to telescope over the post carrying the nut or dog. The construction of these parts is such that when the clamping-sections and attached covers are in the position shown in the drawings a free inward movement is permitted and the leaves are held between the clamping-sections by pressing the upper cover down. A nut or dog carried by the inner post will engage the projections on the inner surface of the outer post or casing, and so hold the parts in position.

The construction and operation of the device will be more fully explained in connection with the drawings accompanying this specification.

Figure 1 is a perspective side elevation of a pair of clamping-sections or binder-frames with the covers and leaves of the book omitted Fig. 2 is an enlarged side elevation in section of a post and casing carrying a locking mechanism. Fig. 3 is an enlarged side elevation and detail view of the post carrying the nut or dog.

In Fig. 1 at 1 and 2 is shown an upper and lower clamping-section, respectively, which may be attached by any suitable means to the cover of the binder, or, if preferred, the covers themselves may form the clamping-sections and have a locking device attached directly thereto. At 3 3 are shown telescoping members containing springs which operate normally to separate the clamping members 1 and 2 when not held in position by means of the locking mechanism carried by the post 4 and the casing 7.

The distinguishing features of this device are found in the construction and mode of operation of the dog, which is in the form of an expanding-nut, which is operated by a tapered shank portion of the post 4. This dog or nut is divided in two sections and has the outer surface thereof provided with projections or threads which are adapted to engage corresponding projections on the interior of the casing 7 when the covers are in the position shown and will drop out of engagement with the said projections, allowing the clamping members and covers to be separated when the same are reversed in position.

At 4 is shown a post which is secured to the upper clamping member 1 by any suitable means and preferably in such a manner that it may be rotated in relation to said clamping member. This may be done by socketing the post 4 in the clamping member 1 and holding the same in position by means of a flat-headed screw, as shown in the drawings. This screw may be secured in the post 4 by any suitable means, and by using an ordinary screw-driver in the slot thereof the post may be rotated as desired. At the lower end of this post 4 is provided a conical-shaped portion 6, forming a tapered shank which carries a dog or nut which is divided into two

half portions 5 and 5′. This forms an expanding-nut having the outer portion thereof provided with projections or threaded to engage corresponding projections or threads on the interior of the casing 7 when the parts stand in the position shown in the drawings. The inner surface of the two half portions 5 and 5′ is tapered to correspond to the shape of the shank 6, and a part of each of said half portions is cut away to permit the same to come together at the upper or smaller end of the shank 6 when the position of the covers is reversed, and so bring the outer portion out of engagement with the casing 7 and allow the members 4 and 7 to be separated by the action of the springs in the telescoping members 3, already referred to, or by other suitable means. It is thus seen that gravity operates to lock the members in position when the covers stand as shown and to release the same when reversed.

The casing 7 may be secured to the lower clamping member 2 by threading the same therein, as shown, or by any other suitable means. This casing is adapted to telescope over the post 4 and has the inner surface thereof provided with serrations or projections which are preferably in the form of a screw-thread or spiral. The object of a screw-threaded interior surface of the casing 7 is to provide means for a further tightening of the covers after the same have been pressed together upon the leaves therein, as already described. This may be effected by using an ordinary screw-driver in the slot of the screw which holds the post 4 in its socket in the upper clamping member 1, or a knurled head may be provided for the post 4, if desired.

The lower portion of the post 4 is provided with two slightly-enlarged portions forming stops to limit the movement of the expanding-nut. Between these two enlarged portions is a tapered or conical-shaped portion forming a shank which projects through the expanding-nut and operates to separate the same when the book is in such a position that gravity causes said nut to drop to the lower or large portions of said shank. This shank is shown in the drawings at 6, and the expanding-nut is shown in the position which it will occupy when clamping or holding the members from separating. In this position the action of the leaves which are clamped or held between the clamping members 1 and 2 tends to separate the members, and consequently the tapered shank 6 tends to separate the half portion 5 and 5′ of the expanding-nut, causing it to engage the inner surface of the casing 7 and prevent the members from being separated. Upon reversing the position of the covers a slight inward pressure upon the same will release the expanding-nut from engagement with the casing 7 by reason of the movement of the tapered shank 6 on the interior of the said nut. The two half-sections of the nut will now drop to the smaller end of the tapered shank against the stop at that point, in which position the covers may be separated for the removal or replacing of leaves, &c.

It will be noted that the device herein shown and described as an illustration of an operative embodiment of my invention is composed of a very small number of parts and that such parts are of a simple construction and may be easily and cheaply manufactured. It will also be noted that the clamping device when assembled is very compact in form and that the operating parts are self-contained within the same.

I do not confine myself, however, to the exact details of construction shown and described, as it will be evident that various modifications and changes may be made therein to adapt the device to its several uses without departing from the scope of my invention.

What I claim is—

1. In a binder, the combination of a pair of clamping members, a post having a tapered shank at the lower end thereof attached to one of said clamping members, a member having a serrated surface carried by said post on said shank and adapted to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

2. In a binder, the combination of a pair of clamping members, a post having a tapered shank at one end thereof attached to one of said clamping members, a member having a serrated surface carried by said post on said shank in such a manner that the movement thereof is limited in one direction so that the outer surface of said member will engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

3. In a binder, the combination of a pair of clamping members, a post having a conical portion at the lower end thereof attached to one of said clamping members, a semicircular member having a serrated surface carried by said post on said conical portion and adapted to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

4. In a binder, the combination of a pair of clamping members, a post having a conical-shaped portion with a stop at one end thereof, a semicircular dog having a serrated surface carried by said post on said conical-shaped portion and adapted to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

5. In a binder, the combination of a pair of clamping members, a post having a conical-shaped portion with a stop at one end thereof, a pair of semicircular dogs having a serrated surface carried by said post on said conical-shaped portion and adapted to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

6. In a binder, the combination of a pair of clamping members, a post having a tapered shank forming a portion thereof, a semicircular dog having a serrated surface carried by said post on said tapered portion and adapted to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

7. In a binder, the combination of a pair of clamping members, a post having a tapered shank forming a portion thereof a pair of semicircular dogs having a serrated surface carried by said post on said tapered portion and adapted to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

8. In a binder, the combination of a pair of clamping members, a post having a tapered shank with a stop portion at one end of said shank, a semicircular dog having a serrated surface carried by said post on said tapered portion and adapted to be operated by gravity to the larger end of said shank when the members are in one position and to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

9. In a binder, the combination of a pair of clamping members, a post having a tapered shank with a stop portion at one end of said shank, a pair of semicircular dogs having a serrated surface carried by said post on said tapered portion and adapted to be operated by gravity to the larger end of said shank when the members are in one position and to engage the inner surface of a casing, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

10. In a binder, the combination of a pair of clamping members, a post having a tapered shank portion, a dog having a serrated surface carried by said post on said tapered portion and adapted to be operated by gravity to the larger end of said shank and to engage the inner surface of a casing when the members are in one position and adapted to be operated by gravity to the smaller end of said shank out of engagement with said casing when the members are reversed in position, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

11. In a binder, the combination of a pair of clamping members, a post having a tapered shank portion, a pair of dogs having a serrated surface carried by said post on said tapered portion and adapted to be operated by gravity to the larger end of said shank and to engage the inner surface of a casing when the members are in one position and adapted to be operated by gravity to the smaller end of said shank out of engagement with said casing when the members are reversed in position, a casing secured to the other of said clamping members and adapted to telescope over said post, substantially as described.

Signed at New York, in the county of New York and State of New York, this 28th day of June, A. D. 1905.

FREDERICK A. CLEVELAND.

Witnesses:
LEWIS J. DOOLITTLE,
ALBERT T. JOHNSTON, Jr.