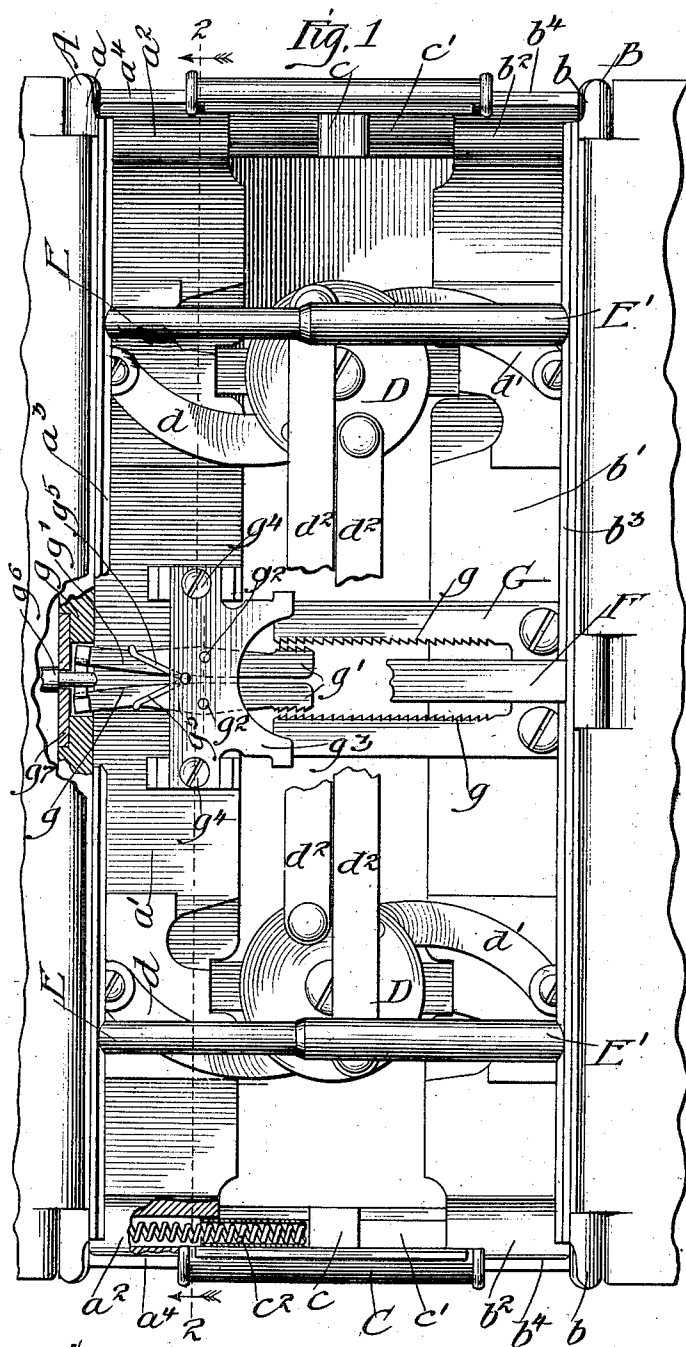
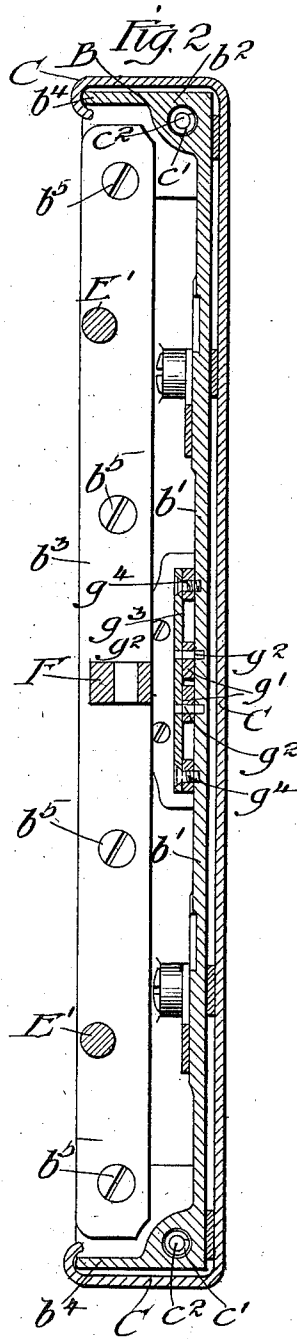


1,038,616.

2 SHEETS—SHEET 1.



Frank Blanchard
Inez Bergstrom.

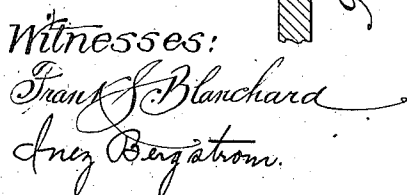


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Patented Sept. 17, 1912.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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BINDER-FRAME.

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Specification of Letters Patent.

Patented Sept. 17, 1912.

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To all whom it may concern:

Be it known that I, FRED L. MANNY, of the city of Benton Harbor, county of Berrien, and State of Michigan, have invented certain new and useful Improvements in Binder-Frames; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings.

My invention relates to that class of binders in which all the binding parts are included between two clamping bars and resides in the various novel devices and combinations of the same herein illustrated and described and pointed out with more particularity in the claims appended hereto.

In the drawings, Figure 1 represents a front elevation of my binder frame in an unlocked or open position. Fig. 2 represents a sectional plan view taken through Fig. 1 at the line 2-2. Fig. 3 represents a front elevation of my binder frame in a locked or closed position. Fig. 4 is a sectional view of Fig. 3 taken through the line 4-4 of Fig. 3. Figs. 5 and 6 represent details of the locking mechanism of my binder frame.

More particularly described, A and B represent the binding members of my binder and consist of a and b the binder bars a' and b' the back flanges of the same, and a^2 and b^2 , tubular sockets secured to the bars a and b at their juncture with the back flanges a' and b' , and secured oppositely to each other. These parts a , a' and b , b' and b^2 of the binder members A and B are preferably made of one casting or if of more than one piece are secured rigidly together. The covers P and P' are hinged respectively to the members A and B.

C represents the middle back of my binder and consists of a strip of rigid material lying back of and parallel with the said binding members A and B, and overlapping the flanges a' and b' . In the process of opening and closing or expanding and contracting the parts of my binder, the members A and B are designed to move from and toward each other, thereby alternately increasing and diminishing the dis-

tance between the flanges a' and b' . Inasmuch as the flanges a' and b' together with the back C are intended to cover and protect the back ends of the leaves, the back C must be so constructed that when the flanges a' and b' are drawn apart in the expansion of the device, the back C will at all times cover the space between the said flanges, thereby effectually protecting the back end of the leaves. I provide, therefore, means whereby the back C is held at all times in the same relative position to the members A and B. This means I describe as follows:—A series of disks or pitmen cranks D D, I secure pivotally to the inner face of the back C. To these disks or pitmen cranks D D, I secure pivotally one end of the pitmen d d' , the other end of which are secured by like pivotal engagement to the inner face of the flange a' . Opposed to the pitmen d d' , I also secure pivotally to the cranks D D, one end of the pitmen d' d , and the other end of them also pivotally to the inner face of the flange b' . In the expansion and contraction of the binder, see Figs. 1 and 2 of the drawing, the flanges a' and b' move toward and from each other and, carrying with them the pitmen d and d' , the cranks D D are caused to rotate. The pitmen d and d' operating in exact relation with each other, the pivotal connection of the cranks D D with the back C are held in a fixed position thereby retaining the back C in its middle position as designed.

As it is desirable to insure the members A and B in operation to move toward and from each other uniformly throughout their length, I provide means for effecting this end: The cranks D D and their accompanying pitmen d and d' forming respectively connections between the flanges a' and b' at different points, I secure the cranks D D together by the parallel connecting rods d^2 d^2 , pivotally connected at their ends to the cranks D D respectively. These connecting rods d^2 d^2 insure exact relation in the rotation of the cranks D D and through them maintain the same relation between the binder members A and B. They also

act as a stop to prevent the rotation of the cranks D D and the consequent separation of the members A and B farther than is desirable. The connecting rods d^2 d^2 lying parallel to each other and attached to the same face of the cranks D D come into contact with each other laterally at the point of greatest expansion of the binder frame as shown in Fig. 1. This contact acts to check the expansion of the binder frame.

I provide spring posts in my device as follows: To the inner face of the back C and opposite the sockets a^2 b^2 of the members A and B, I secure clamps c c . Within the clamps c c I secure tubes c' c' engaging at their opposite ends the sockets a^2 a^2 and b^2 b^2 respectively. These tubes c' c' are of such size and length that in the operation of the binder they will telescope into the said sockets a^2 b^2 and at no point in the expansion of the binder will they disengage from said sockets. Within the said tubes c' c' and the engaging sockets a^2 a^2 and b^2 b^2 , I place expansion springs c^2 c^2 which force the members A and B apart when released from a locked position.

The construction of the binding posts in my device is inconsequential so far as it relates to the style and shape of them. Any desirable shape and any desirable style of extensible post may be used. I prefer, however, to use the telescoping posts E E E' E'. These posts I intend to be attached either to the respective binding bars a b or to the metal strip a^3 b^3 . These metal strips a^3 b^3 are removably attached to the inner face of the said bars a b by means of screws a^5 b^5 . The screws b^5 are shown at Fig. 2 and the screws a^5 are not shown but attach the strip a^3 to the bar a in like manner as b^3 is shown to be attached to b at Fig. 2. By attaching the posts E E E' E' to these metal strips a^3 b^3 the posts may be readily removed from the binder and a different style or a different number of binder posts be inserted in their stead. This form of attaching the posts I prefer to attaching them direct to the binder bars a b . I also provide a post F which is rectangular in cross section and is constructed of two dovetailing sections attached respectively to the strips a^3 b^3 having sliding engagement with each other as shown at Fig. 4, and if, for the purpose of more secure alinement of the leaves, some square cornered posts should be necessary to supplement the posts E E, this form of posts may be used. It will also effect a greater rigidity to the binder itself.

My locking mechanism is described as follows: To the inner face of the flange b' , I attach a U shaped plate G, fitted on the inner face of the U and opposite to each other with the ratchets g g . To the flange a' and in opposition to the ratchets g g , I affix pawls g' g' which are rotatably connected

with the flange b' by an axis g^2 g^2 which is secured at one end to the flange b' and at the other end to the plate g^3 which plate covers the pawls g' g' and is secured at its ends to the plate b' by means of screws g^4 . The pawls g' g' are held normally in contact with the ratchet g g by means of the springs g^5 . The outer ends of the pawls g' g' have engagement through suitable perforations in the bar a with a key g^6 , by the rotation of which, the pawls g' g' are made to disengage the ratchets g g . An escutcheon plate g^7 is designed to cover the perforations in the bar a within which said key g^6 engages with the pawls g' g' .

What I claim as my invention is:

1. In a binder frame, the combination with binder members, a binder back, pitmen cranks attached to said binder back and having operative engagement with the binder members, extensible posts, and spring carrying tubes attached to said binder back and engaging at their respective ends with sockets attached to said binder members, of a lock consisting of a two faced rack attached to one of said members and pawls rotatably attached to the other of said binder members and adapted respectively to engage the faces of the said rack.

2. In a binder frame, the combination with binder members, a binder back, pitmen cranks attached to said binder back and having operative engagement with the binder members, and extensible posts, of a lock constituting a two faced rack consisting of a U shaped piece ratcheted on its inner face and attached to one of said binder members, and pawls rotatably attached to the other of said binder members and having engagement with the said ratcheted faces respectively.

3. In a binder frame, the combination with binder members, a binder back, spring carrying tubes attached to said binder back and having telescoping engagement at their respective ends with sockets attached to the said binder members, automatic means for maintaining sliding engagement between the said binder back and the said binder members, and extensible posts, of a lock consisting of a multiple faced rack attached to one of said binder members, a corresponding multiple of pawls rotatably attached to axes held between the other of said binder members and a supporting plate also attached to said other binder member, said pawls adapted to engage said multiple faced rack.

4. In a binder frame, the combination with binder members, a binder back, pitmen cranks attached to said binder back and having operative engagement with said binder members, extensible posts, and spring carrying tubes attached to said binder back and having telescoping engagement at their respective ends with sockets attached to said binder members, of a lock consisting of a U

shaped piece provided with ratchets on the inner face thereof attached to one of said binder members, and spring actuated pawls rotatably secured to axes which in their
5 turn are secured at one end to the other of said binder members and at the other end to a plate attached to and projecting from said other binder member, said pawls being adapted to engage said ratchets.

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Witnesses:

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INEZ BERGSTROM.
