June 5, 1951 C. D. TRUSSELL 2,555,947

BINDER RING CLOSING MECHANISM

Original Filed July 3, 1945

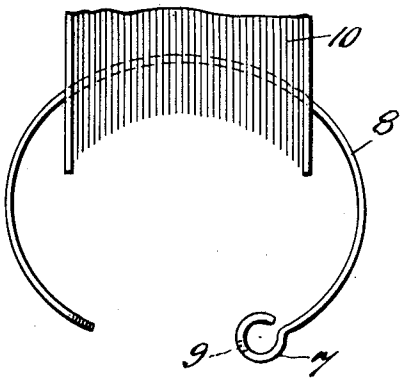


Fig. 1.

Fig. 2.

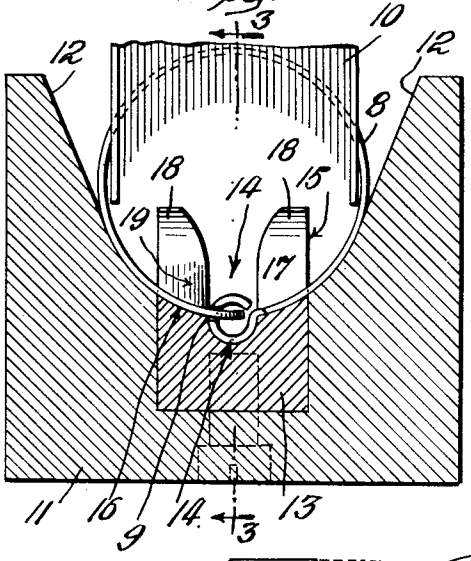


Fig. 3.

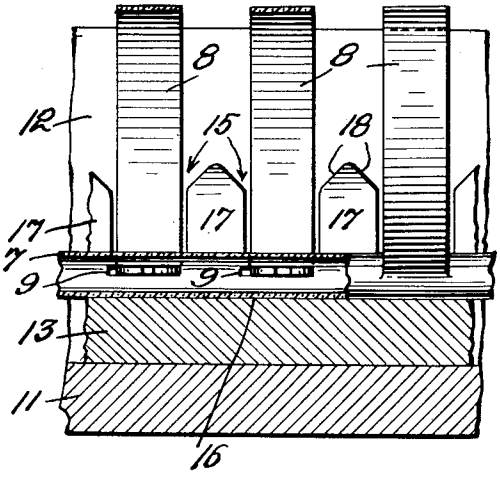
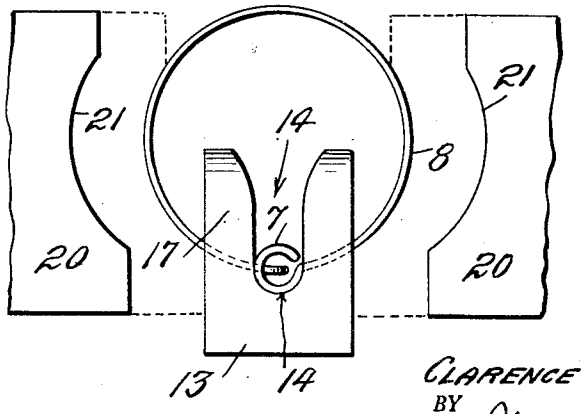


Fig. 4.



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Patented June 5, 1951 2,555,947

UNITED STATES PATENT OFFICE

2,555,947

BINDER RING CLOSING MECHANISM

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Original application July 3, 1945, Serial No. 602,985, now Patent No. 2,502,493, dated April 4, 1950. Divided and this application March 18, 1950, Serial No. 150,432

3 Claims. (Cl. 11—1)

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The invention herein disclosed relates to apparatus for effecting the closing of the rings of mechanical bindings, particularly those of the type disclosed in copending patent application, Serial No. 602,985, filed July 3, 1945, now Patent 2,502,493, granted April 4, 1950, of which this case is a division.

The mechanical bindings referred to consist in general of a tubular rib formation having ring forming fingers projecting from one side and having free ends adapted to be interlockingly engaged in slots provided in the opposite side of the tubular rib.

The objects of the present invention are to provide a simple and effective closer for engaging and interlocking the free ends of the ring forming fingers in the rib as aforesaid.

Further special objects of the invention are to provide this mechanism in a simple practical form quickly and easily operable without requiring any particular skill or training.

Other desirable objects attained by the invention will appear or are set forth in the course of the following specification, in which the invention is particularly defined and broadly claimed.

The drawing accompanying and forming part of the specification illustrates certain present preferred embodiments of the invention. Structure, however, may be modified and changed in certain respects, all within the true and proper scope of the invention as hereinafter defined and claimed.

Figure 1 in the drawing is a broken end view showing one of the bindings with the leaves and backing sheets engaged therein and the binding ready to be closed.

Figure 2 is a similar view with parts in section showing the binding forced down in the closing die or fixture to interlock the ring forming fingers in the tubular rib.

Figure 3 is a broken and longitudinal part sectional view as on substantially the plane of line 3—3 of Figure 2.

Figure 4 is a broken end elevation of a modified form of the ring closing mechanism.

In Figure 1 a mechanical binding similar to that disclosed in the parent patent application, Serial No. 602,985, is shown comprising a backbone structure or tubular rib, as it is ordinarily termed, 7, having ring forming fingers 8, projecting from one side of the same and arranged to have their free ends caught in slots 9 provided in the opposite side of the rib.

The material to be bound, indicated at 10, is engaged on the ring forming fingers while the latter are in the opened relation indicated in Figure 1.

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After such assemblage of the parts the rings may be closed in the fixture illustrated in Figures 2 and 3 by simply forcing the binding down into the trough-shaped guide 11 which has the inclined downwardly convergent sides 12 arranged to close the rings and force the ends of the same into the slots in the side of the tubular rib.

This fixture is shown as having a centering bar 13 at the bottom, channeled in the top at 14 to admit and centrally locate the rib and notched downwardly in opposite sides at 15 to admit the rings.

The lower ends of these notches are shown as inclined or curved inwardly at 16 to match or approximate the downwardly inclined and inwardly curved sides of the trough and the bottom of the channel may be curved, as indicated, to approximately fit and more or less closely hold the tubular rib of the binding.

This construction provides in effect a ring closing die which can be used, after the filler has been engaged on the rings, by simply grasping the filler and forcing the binding down into the trough, the rings then slipping into the notches and the rib entering and holding in the center channel while the free ends of the rings slide downwardly into and through the slots in the side of the tubular rib.

The upper ends of the ring spacing projections 17 left by notching the sides of the centering channel, may be beveled or tapered, as indicated at 18, to guide the rings down into the notches and these notches may be widened at the outer edges, as indicated at 19, to center and accurately line up the free ends of the rings with the slots in the rib.

Also, for handling bindings of the type disclosed in patent application, Serial No. 602,985, where the ring forming fingers have notches or hooks in the edges of the same and the slots in the rib are slightly offset so as to effect an automatic holding engagement of these hooked ends in the slots, the guiding walls 19 at the entering edges of the notches may be designed to take care of this offset and to properly guide the hooked ends of the fingers into interlocking engagement in the slots.

In the alternative form of ring closer illustrated in Figure 4, opposing jaws 20 are provided which will come together over opposite sides of the binder rings after the rib of the binding has been located in the channel of the centering bar.

In this particular view the jaws are shown as resting or opened up after accomplishing the ring closing action.

The opposing faces of the ring closing jaws may be shaped to the approximate final curvature of the rings, as indicated at 21, so that they will act to hold down and center the binding in the notched centering bar as they force the rings to the fully closed position.

While particularly designed for closing mechanical bindings such as disclosed in the parent application of which this is a division, it will be evident that the mechanisms disclosed may be designed and proportioned for closing other forms of mechanical bindings.

What is claimed is:

1. Mechanism for closing a mechanical binding having a tubular back portion with longitudinally spaced slots in one side and ring forming elements projecting from the opposite side and insertible at their free ends in said slots and comprising a centering bar channeled to receive said tubular back portion and notched in the sides to admit said ring forming elements, and means at the opposite sides of said centering bar for guiding and forcing the free ends of said ring forming elements through said notches in the sides of the centering bar into said slots in the tubular back portion.

2. Mechanism for closing a mechanical binding having a tubular back portion with longitudinal spaced slots in one side and ring forming

elements projecting from the opposite side and insertible at their free ends in said slots and comprising a centering bar channeled to receive said tubular back portion and notched in the sides to admit said ring forming elements, and means at the opposite sides of said centering bar for guiding and forcing the free ends of said ring forming elements through said notches in the sides of the centering bar into said slots in the tubular back portion, including a ring closing trough having inclined sides convergent toward said notches in the sides of the centering bar.

3. Mechanism for closing a mechanical binding having a tubular back portion with longitudinally spaced slots in one side and ring forming elements projecting from the opposite side and insertible at their free ends in said slots and comprising a centering bar channeled to receive said tubular back portion and notched in the sides to admit said ring forming elements, and means at the opposite sides of said centering bar for guiding and forcing the free ends of said ring forming elements through said notches in the sides of the centering bar into said slots in the tubular back portion, including ring closing jaws operating toward and away from each other at opposite sides of said centering bar.

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No references cited.