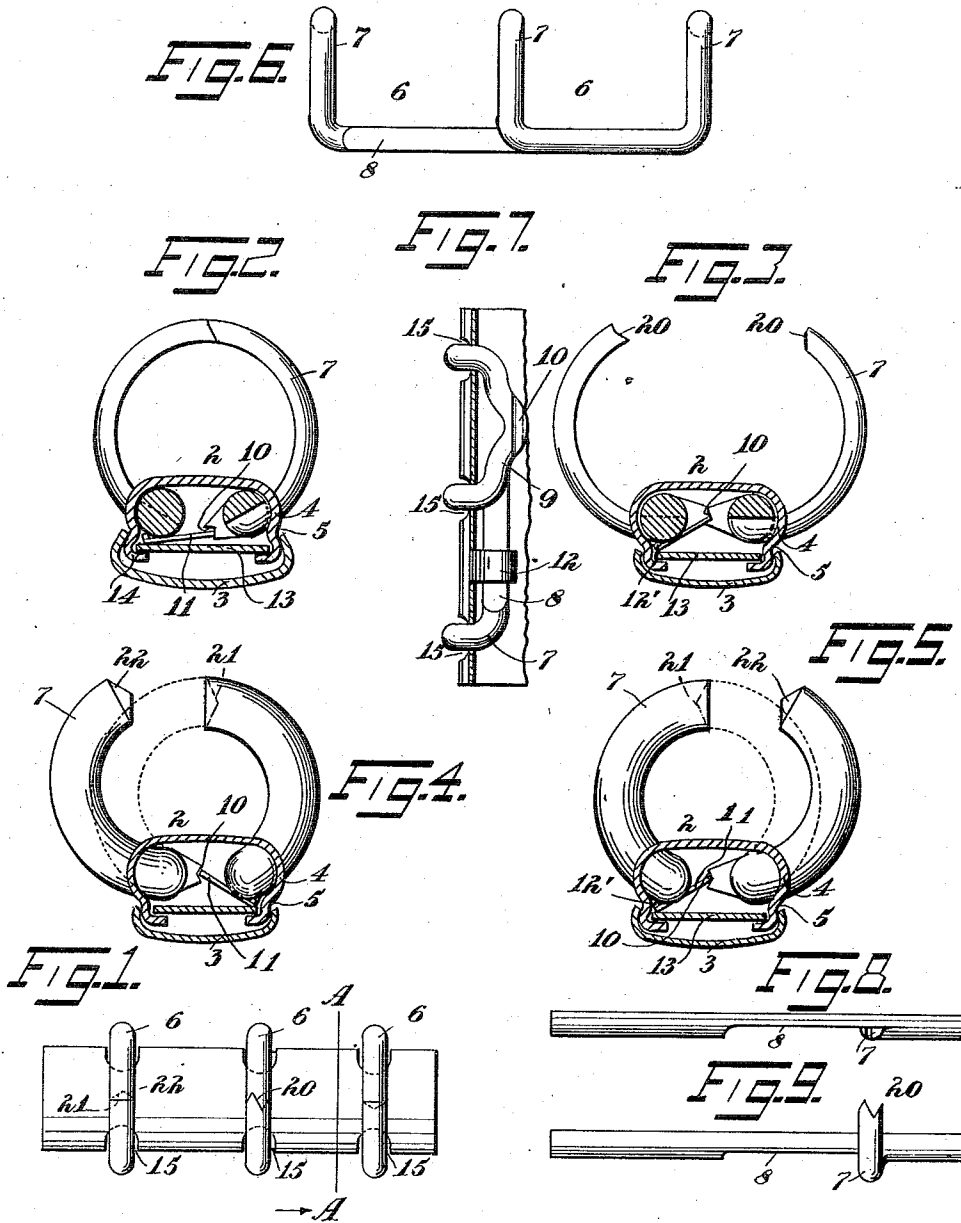


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TEMPORARY BINDER.

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973,453.

Patented Oct. 18, 1910.



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UNITED STATES PATENT OFFICE.

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TEMPORARY BINDER.

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To all whom it may concern:

Be it known that we, LUCENA M. MORDEN, a citizen of the United States, residing at Waterbury, in the county of New Haven and State of Connecticut, and LUCIEN R. HITCHCOCK, a citizen of the United States, residing at Watertown, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Temporary Binders, of which the following is a specification.

This improvement relates to temporary binders, sometimes designated as loose-leaf binders, the object of the invention being to provide an improved binder of this character extremely simple in construction and inexpensive to manufacture, and particularly to provide a binder the prongs of which may be made up of wire, each set of three or more integral one with another.

A further object of the invention is the provision of an improved binder which will enable either set of arches to be opened not only independently of its companion set, but both together, as may be found desirable.

In the drawings accompanying and forming part of this specification, Figure 1 is a top view of this improved temporary binder; Fig. 2 is a cross-sectional view, on an enlarged scale, taken in line A—A of Fig. 1, with the prongs closed; Fig. 3 is a similar view showing a pair of prongs open; Fig. 4 is a similar view showing a left hand prong open; Fig. 5 is a similar view showing a right hand prong open; Figs. 6 and 7 are views illustrating one set of integrally connected wire formed prongs, the latter figure being an underside view of one set of prongs and illustrating a part of the top plate of the casing; and Figs. 8 and 9 are detail views illustrating the formation of the intermediate prongs of a set.

Similar characters of reference indicate corresponding parts throughout the different figures of the drawings.

In providing temporary binders with wire-formed arches or prongs it has been the usual practice to form each end of the wire into a prong, thus providing a pair of prongs for each wire, one at each end. But it is desirable to have the temporary binders provided with at least three pairs of mating prongs. Consequently it is necessary to have an intermediate prong between the end prongs of each set. But to form the

intermediate prong of each set from the same wire of which the end prongs are formed has not, prior to our present improvement, been found practicable, and therefore one of the objects of this improvement is to provide, intermediate of the pair of end prongs, another prong formed from the same wire of which the end prongs are formed. Furthermore, in most forms of binders, in opening one pair of prongs both are opened, it not being possible to open one set of prongs, as those located at one side, independently of the other set, and it is therefore an object of the present improvement to open either set of prongs, or both, as may be desired. By opening both the prongs or those at one side independently of those at the other side an unusually wide opening is obtained, and further, a distinct advantage is also obtained by enabling all of the leaves to be thrown one side of the binder before the prongs are opened, thereby enabling a better purchase to be obtained upon the prongs for opening them, while at the same time enabling the arches to be more easily opened and the leaves less liable to be disarranged.

Furthermore, one of the objects is to provide a temporary binder so assembled that it will have a strong, stiff back or base, thus materially increasing the strength of the device.

In the present embodiment the casing comprises a pair of members, one, as 3, consisting of a suitably channeled bottom plate, and the other, as 4, a channeled top plate, the latter having longitudinal grooves for the reception of the edges of the bottom plate 3. In practice the cloth or other material for securing the metal parts of the binder to the back of a book-cover may be clamped between the sides of the casing members.

In the present improvement the members, for insuring a toggle action of the prongs, are all carried by the top casing member 4 instead of in the lower casing member 3, so that the plate 3 may be readily slipped on last, thus furnishing a much simpler method of assembling, while making a stronger device, due to the form of the channeled top casing member 4, which is also reinforced by the plate 3. Thus a binder is provided having the strongest possible construction for resisting a bending or twisting strain, to which loose-leaf devices are particularly subjected.

The prongs in the present improvement comprise three pair of mating prongs 6 made up in two sets. Each set of prongs 7, consisting of three located at one side of the casing, is made from a single wire, whereby they are all integral one with another. In making these prongs a piece of wire of suitable length is bent up at each end to form an arch, and intermediate these end prongs another prong is formed, this being accomplished by slabbing the wire, as at 8, and utilizing the slabbed off portion which is thus left half round or partially round in form, by bending it upon the wire and then shaping it to form a prong. The prongs extend through openings 15 in the edge of the top casing, and the connecting wire between each set of prongs is clamped in position by bending a portion of the casing around it, thus forming a clip 12 to hold the set of prongs in its proper position in the top plate. The resilient action of this clip may also act to snap shut the prongs when they approach their closed positions.

The connecting wire between a pair of prongs is bent or bulged inwardly, as at 9, and is slotted, as at 10, for the reception of one edge of a plate 11 forming the other member of the toggle, the opposite edge of which plate is located at the opposite side of the casing and is provided with a small projection 12' for preventing the dislocation of the plate 11. For the two sets of mating prongs two toggle plates are provided, one for each set of prongs. The pair of plates 11 is maintained in position by a flat strip or plate 13 supported at the underside of the prong wires by the intumed edges 14 of the top casing member. This plate may be slipped into position from the end of the casing and tends to hold the top plate in its proper shape and give it more rigidity and also acts as a stop for the arches on either side when the opposing arches are opened, as it holds the closed arches firmly in closed position. It also prevents the arches from closing too far and the disconnection of the toggle members.

The mating ends of the prongs may be formed in any desired manner. In the present instance the intermediate prongs are provided with serrated ends 20, while each pair of end prongs has one a cavity or recess 21 and the other a pointed end 22, the cavities and pointed ends of the end pairs of prongs alternating. It will, of course, be understood that the end prongs, in the present improvement, could be made in a similar manner as is the intermediate prong, that is to say, by forming each prong from a slabbed off portion of the wire. In fact, any number of prongs, one or more, could be made from the wire in this manner, and in some forms of binders would be quite an improvement, in that it would give a thinner prong

and make a lighter device. By forming the prong thinner, this would also give a greater capacity for leaves than would be possible with an arch of equal size made of round wire.

The space between the bottom casing member 3 and the plate 13 tends to prevent injury to the working members contained in the top casing, as the lower casing member might be dented or mutilated without such injury being transmitted to the working mechanism in the top casing. By forming the prongs in the manner specified each set of integral prongs is made exactly alike, and it is therefore unnecessary to make rights and lefts in manufacturing the sets of prongs, thus minimizing mistakes and waste.

We claim as our invention:

1. A temporary binder having a set of wire-formed and arched prongs comprising end and intermediate prongs, all integral with and bent from one piece of wire without requiring a greater length of stock than would be required for the making of an equal size binder with only a pair of end prongs.

2. A temporary binder having two sets of wire-formed prongs comprising two pairs of arched and mating end prongs and an intermediate pair of prongs each of a single wire and all integral with and bent from one piece of wire.

3. A temporary binder having a wire-formed and arched prong formed by slabbing the wire lengthwise thereof and bending such slabbed off portion at right angles to said wire to form the arch.

4. A temporary binder having a pair of mating wire-formed and arched prongs, each formed by slabbing the wire lengthwise thereof and bending the slabbed off portion to form an arch.

5. A temporary binder comprising two sets of mating wire-formed and arched prongs, each set comprising a pair of end prongs and an intermediate partially round prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending such slabbed off portion to form an arch.

6. A temporary binder having a pair of wire-formed and arched mating prongs, each formed by slabbing the wire lengthwise thereof and bending the slabbed off portion to form an arch and means effective to permit either prong of the pair to be opened or closed independently of its companion prong.

7. A temporary binder comprising two sets of mating wire-formed prongs, each set comprising end and intermediate prongs some of such prongs formed by slabbing the wire lengthwise thereof and bending such slabbed off portion to form an arch and means effective to permit either set of prongs to be

opened or closed independently of the other, or both to be opened or closed together.

8. A temporary binder comprising two sets of mating wire-formed prongs, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending such slabbed off portion to form an arch, and toggle means effective to permit either set of prongs to be opened or closed independently of the other.

9. A temporary binder comprising two sets of mating wire-formed prongs, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending such slabbed off portion to form an arch, and toggle means effective to permit either set of prongs to be opened or closed independently of the other or both to be opened or closed together.

10. A temporary binder comprising two sets of mating prongs, and separated plates effective to permit either set to be opened or closed independently of the other.

11. A temporary binder comprising two sets of mating prongs, and separated plates effective to permit either set to be opened or closed independently of the other or both opened or closed together.

12. A temporary binder comprising two sets of mating prongs, and toggle means effective to permit either set to be opened or closed independently of the other.

13. A temporary binder comprising a casing consisting of a top and a bottom plate, two sets of prongs carried by the top plate of the casing, and means carried by said top plate for maintaining the prongs open or closed.

14. A temporary binder comprising a casing consisting of a top and a bottom plate, two sets of prongs carried by the top plate of the casing, and toggle means carried by said top plate for maintaining the prongs open or closed and for permitting either set of prongs to be opened or closed independently of the other or both to be opened or closed together.

15. A temporary binder comprising a casing consisting of a top and a bottom plate, two sets of prongs carried by the top plate of the casing, toggle means carried by said top plate for maintaining the prongs open or closed and for permitting either set of prongs to be opened or closed independently of the other or both opened or closed together, and a plate carried by said top plate of the casing below said toggle means.

16. A temporary binder comprising two sets of wire-formed mating prongs, and toggle members cooperating therewith, one for each set of prongs and effective to permit either set of prongs to be opened or closed independently of the other.

17. A temporary binder comprising two sets of mating wire-formed prongs, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending such slabbed off portion to form an arch, and toggle members for the prongs, one for each set, and engaging the connecting wire between the prongs and effective to permit either set of prongs to be opened or closed independently of the other.

18. A temporary binder comprising a casing, two sets of mating wire-formed prongs carried thereby, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending the slabbed off portion to form an arch, the connecting wire of each set of prongs projecting inwardly and having a slotted portion and forming one member of a toggle, a toggle member for each set of prongs and comprising a plate engaging such slotted portion, and means carried by the casing for maintaining said toggle members in position.

19. A temporary binder having a pair of wire-formed prongs, each formed by slabbing the wire lengthwise thereof and bending the slabbed off portion to form an arch, and toggle means effective to permit either arch of each pair to be opened or closed independently of its companion arch.

20. A temporary binder comprising a casing, two sets of wire-formed prongs carried thereby, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending the slabbed off portion to form an arch, a clip carried by the casing for each set of prongs and overlapping the connecting wire between the prongs, and toggle means carried by the casing and cooperating with the connecting wires of the prongs for permitting either set thereof to be opened independently of the other.

21. A temporary binder comprising a casing, two sets of wire-formed prongs carried thereby, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending the slabbed off portion to form an arch, a clip carried by the casing for each set of prongs and overlapping the connecting wire between the prongs, toggle means carried by the casing and cooperating with the connecting wires of the prongs for permitting either set thereof to be opened independently of the other, and means for maintaining said toggle means in position and cooperating with the prongs to maintain one set closed when the other is opened.

22. A temporary binder comprising a casing, two sets of wire-formed mating prongs

carried thereby, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending the
 5 slabbed off portion to form an arch, a clip carried by the casing for each set of prongs and overlapping the connecting wire between the prongs, toggle means carried by the casing and cooperating with the connect-
 10 ing wires of the prongs for permitting either set thereof to be opened independently of the other, and means for maintaining said toggle means in position and cooperating with the prongs to maintain one set closed
 15 when the other is opened, said casing comprising a top plate and a bottom plate, the latter sliding on the former.

23. A temporary binder comprising a casing, two sets of wire-formed prongs carried
 20 thereby, each set comprising a pair of end prongs and an intermediate prong, each intermediate prong formed by slabbing the wire lengthwise thereof and bending the slabbed off portion to form an arch, a clip
 25 carried by the casing for each set of prongs

and overlapping the connecting wire between the prongs, and toggle means carried by the casing and cooperating with the connecting wires of the prongs for permitting either set thereof to be opened independently
 30 of the other and comprising a pair of members, one for each set of prongs and means carried by the top plate of the casing for maintaining said toggle means in position
 35 and cooperating with the prongs to maintain one set closed when the other is open, said casing comprising a top plate and a bottom plate, the latter sliding on the former, each pair of end prongs having one a
 40 cavity and the other a pointed end, the cavities and pointed ends of the end pairs of prongs being arranged in alternation and each intermediate pair of prongs having serrated ends.

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