H. F. BUSHONG.

TEMPORARY BINDER OR LOOSE SHEET HOLDER.

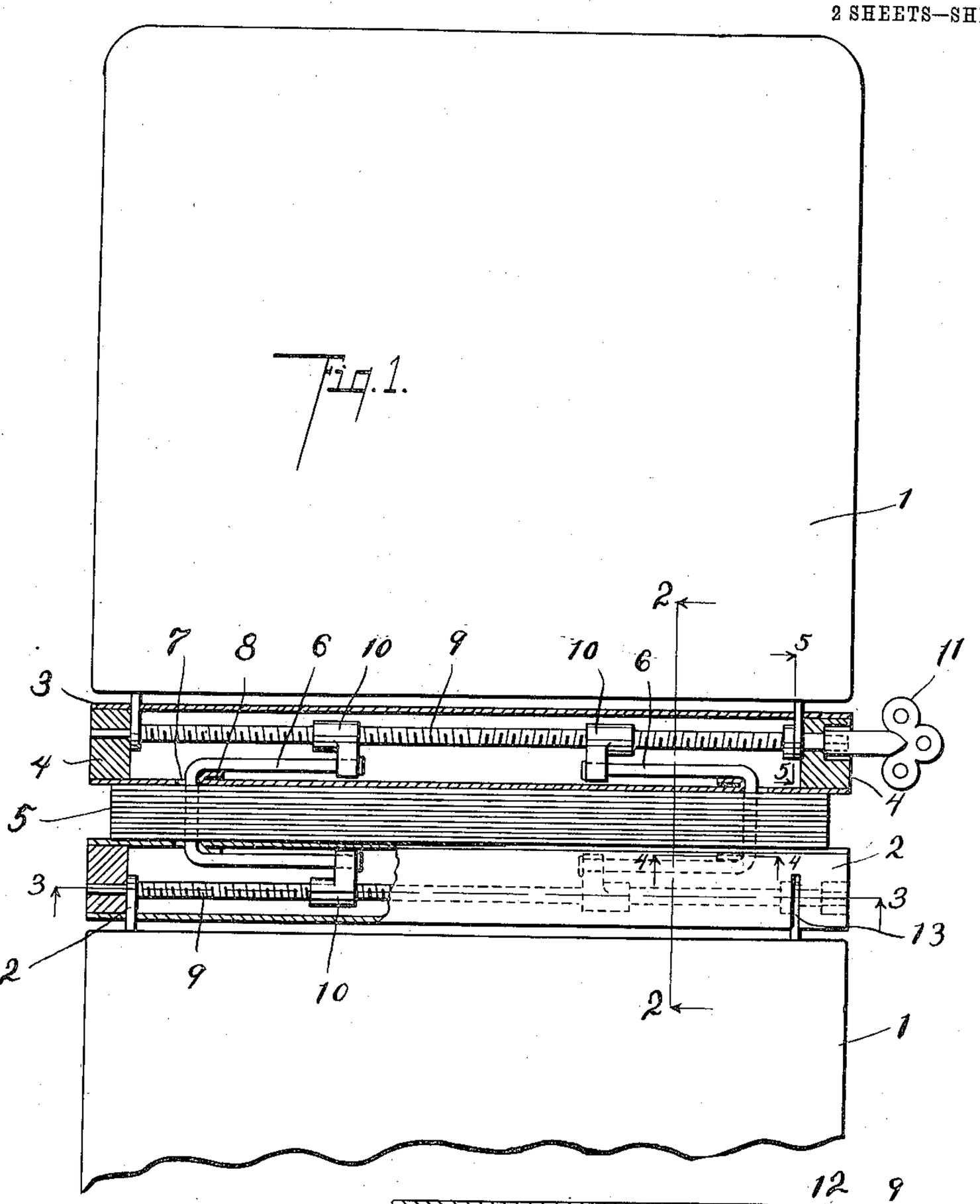
APPLICATION FILED APR. 18, 1907.

944,256.

Patented Dec. 28, 1909.

2 SHEETS—SHEET 1.

Fig. 1.



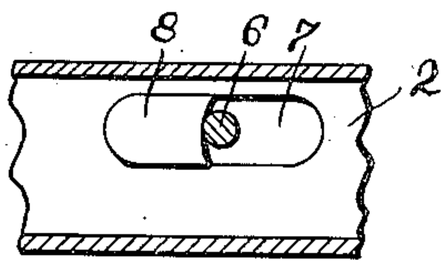




Fig. 4.

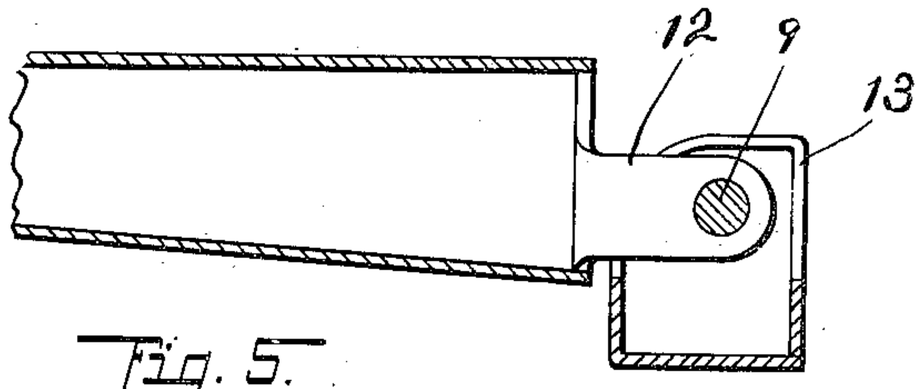



Fig. 5.

Witnesses

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2 SHEETS—SHEET 2.

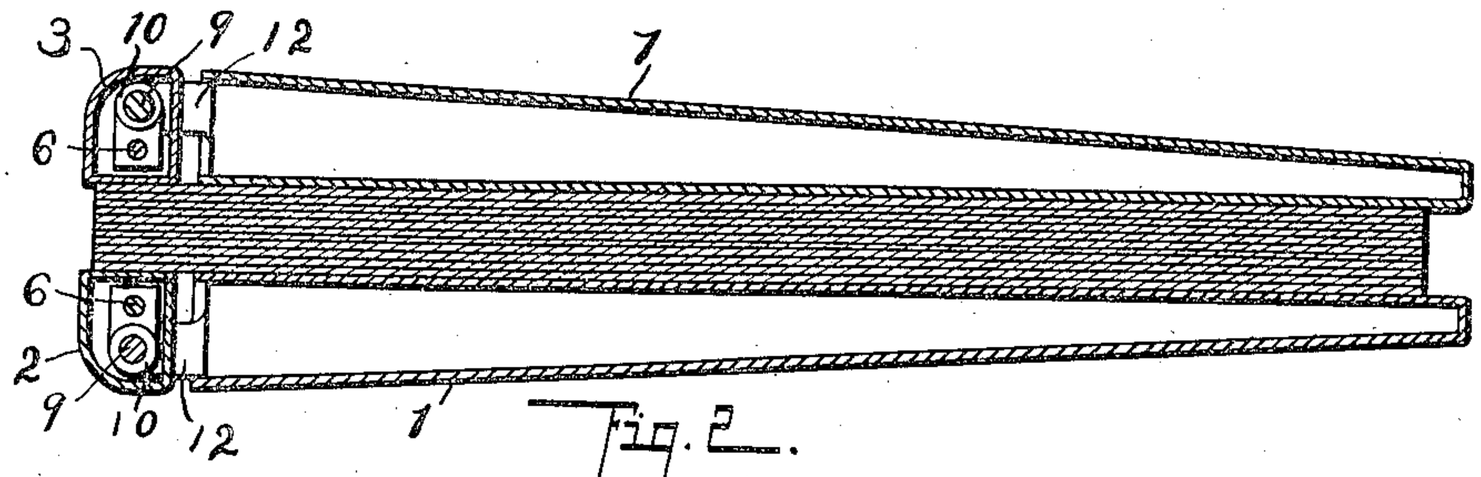


Fig. 2.

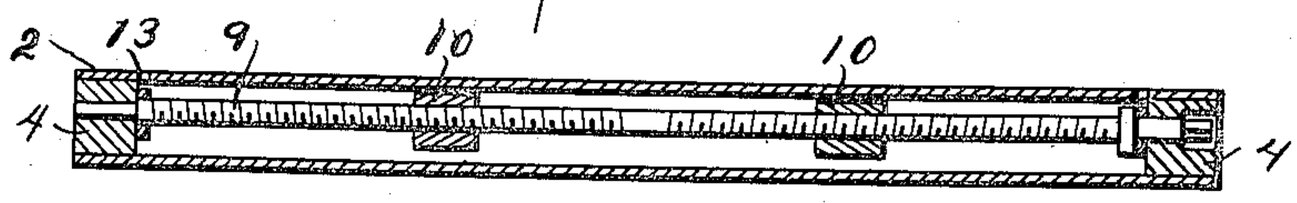


Fig. 3

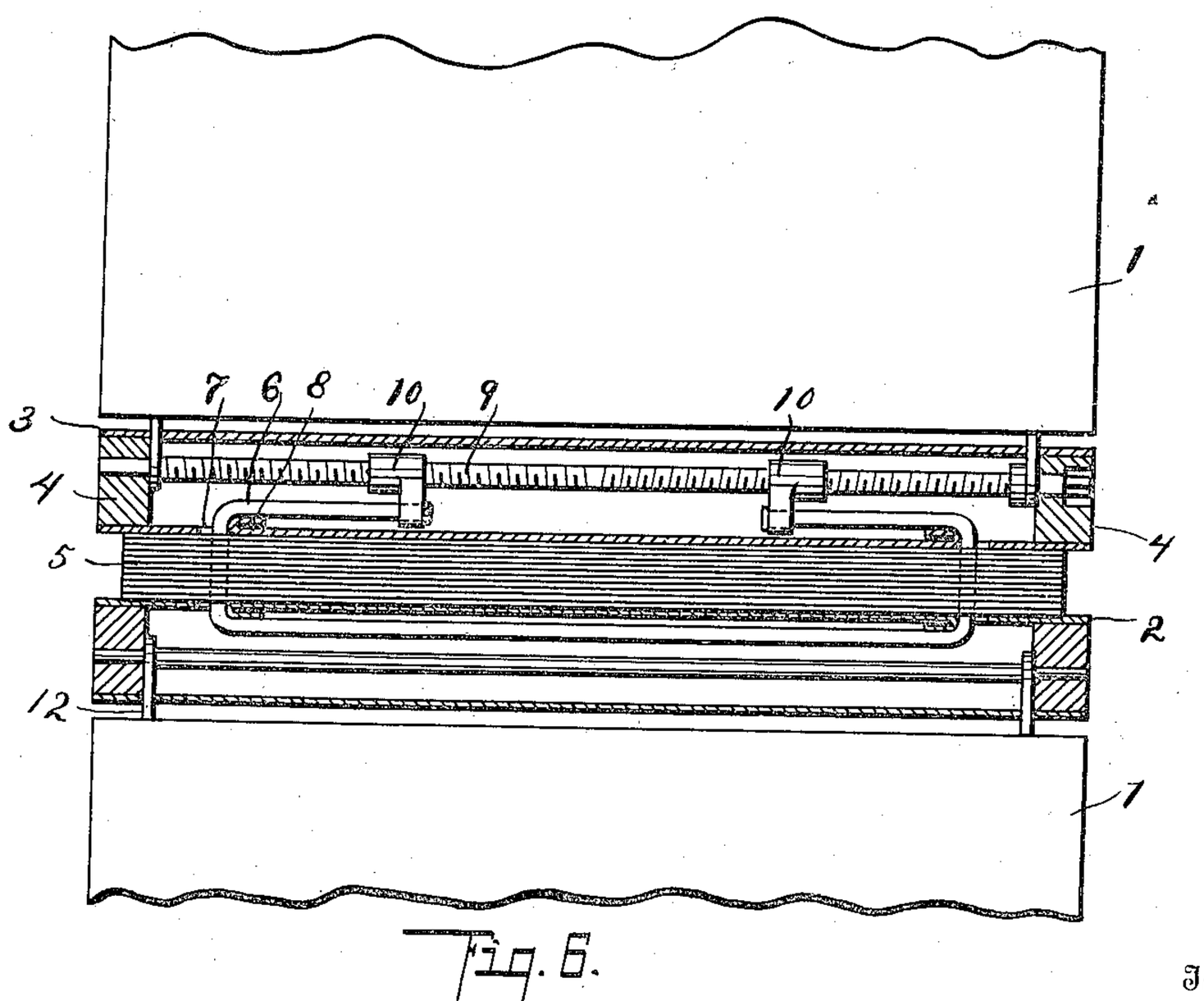


Fig. 6.

Witnesses

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# UNITED STATES PATENT OFFICE.

HARRY F. BUSHONG, OF KALAMAZOO, MICHIGAN, ASSIGNOR TO KALAMAZOO LOOSE LEAF BINDER COMPANY, OF KALAMAZOO, MICHIGAN.

## TEMPORARY BINDER OR LOOSE-SHEET HOLDER.

944,256. Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed April 18, 1907. Serial No. 368,999.

*To all whom it may concern:*

Be it known that I, HARRY F. BUSHONG, a citizen of the United States, residing at the city and county of Kalamazoo, State of Michigan, have invented certain new and useful Improvements in Temporary Binders or Loose-Sheet Holders, of which the following is a specification.

This invention relates to improvements in temporary binders or loose sheet holders.

My present invention is a modification of and in some respects an improvement upon my temporary binders or loose sheet holders illustrated in my applications for Letters Patent filed July 15, 1904, Serial No. 216,663, and August 5, 1904, No. 219,624.

The main objects of this invention are, First, to provide an improved temporary binder or loose sheet holder which is light in weight, simple in structure, and at the same time very durable and strong. Second, to provide an improved temporary binder or loose sheet holder which is very economical to produce and at the same time a desirable structure and one which is convenient and easy to use, holding the leaves in a very desirable and effective manner.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which,

Figure 1 is an inside detail of a structure embodying the features of my invention, the covers being open, one of the clamping bars being shown in longitudinal section and portions of the other being broken away to show the structural details, a number of sheets or leaves being shown in conventional form therein. Fig. 2 is a longitudinal section taken on a line corresponding to line 2—2 of Fig. 1, with the binder in its closed position, a number of sheets or leaves being shown in conventional form therein. Fig. 3 is a longitudinal section through one of the clamping bars taken on a line corresponding to line 3—3 of Fig. 1. Fig. 4 is an enlarged detail section showing the structural details of the clamping bar, the same being taken on a line corresponding to line 4—4 of Fig. 1. Fig. 5 is a large detail transverse section taken on a line corresponding to line 5—5 of Fig. 1. Fig. 6 is a detail inside plan, partially in section, of a modified constructon, one adjusting screw only being illustrated.

In the drawing similar reference characters refer to similar parts throughout the several views.

Referring to the drawings, the covers 1 are preferably chambered as illustrated, for the sake of strength and lightness. I provide a pair of leaf clamping bars or jaws 2, which are chambered to receive the binder adjusting mechanism. These bars are preferably formed of metal shells 3 and end blocks 4. The sheets or leaves 5 are clamped between these bars, substantially in the same manner as in the structures of my applications for patents hereinbefore referred to. The clamping bars are connected by flexible binding cords 6, the binding cords being arranged through suitable openings 7 provided therefor in the inner or clamping faces of the clamping bars.

Suitable bearing blocks for the binding cords are provided, being preferably formed by turning over the portions 8, which are punched out to form openings 7 for the binding cords. Arranged longitudinally within the clamping bars are threaded shafts or screws 9, the ends of these shafts being oppositely threaded. The shafts are provided with suitable journals at each end, the end blocks 4 of the clamping bars being preferably arranged to form bearings therefor.

I preferably arrange an adjusting shaft in each of the clamping bars, as by this means the scope of the adjustment is considerably increased. A satisfactory structure may, however, be produced by providing only one of the clamping bars with an adjusting screw, the binding cords being

locked through the other clamping bar, as is illustrated in the modified construction of Fig. 6.

The ends of the binding cords are connected to suitable threaded nuts or blocks 10 carried by the adjusting shafts. It is evident with the parts thus arranged by turning the shafts in one direction the binding cords are tightened and by turning them in the opposite direction they are loosened. The shafts are adapted to be manipulated by means of a suitable key as 11.

The clamping bars are hinged or pivotally connected to the covers, the covers being preferably provided with inwardly projecting rigid hinge members 12, which are preferably pivoted upon the screw shafts 9. It is obvious that independent pivots might be provided, but I by this means secure a very simple structure and at the same time a very strong one.

The clamping bars are slotted transversely as at 13 to receive the hinge members 12, so that the clamping bars and covers may move independently of each other in the opening or closing of the book.

The clamping bars are of such shape that by means of the rigid hinge members and the pivotal connections of the bars thereto the clamping bars are held in alinement with the covers, so that while a very free and independent movement is secured in opening and closing the book or in adjusting the leaves in the clamping bars, the structure is attractive in appearance and the parts are always held in their proper relation whether the binder be opened or closed.

I have illustrated and described my present improvements in detail in the form preferred by me on account of structural simplicity and economy and convenience in use. I am, however, aware that it is capable of great modification in structural details and I desire to be understood as claiming the same specifically as illustrated, as well as broadly.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars comprising metal shells having end blocks secured therein, said clamping bars having openings formed in their inner or clamping faces; shafts having oppositely-threaded ends arranged in said clamping bars, said shafts being journaled in said end blocks thereof; binding cords arranged through the said openings in said clamping bars, the portion of the clamping bars punched out to form said openings being turned inwardly to form bearing-blocks for said binding cords; nuts to which the ends of said binding cords are secured, threaded upon said shafts, and inwardly-projecting rigid hinge members at the inner ends of said covers, pivoted on said shafts, said clamping bars having transverse slots therein adapted to receive said hinge members.

2. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars comprising metal shells having end blocks secured therein, said clamping bars having openings formed in their inner or clamping faces; shafts having oppositely-threaded ends arranged in said clamping bars, said shafts being journaled in said end blocks thereof; binding cords arranged through the said openings in said clamping bars; nuts to which the ends of said binding cords are secured, threaded upon said shafts, and inwardly-projecting rigid hinge members at the inner ends of said covers, pivoted on said shafts, said clamping bars having transverse slots therein adapted to receive said hinge members.

3. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars comprising metal shells having end blocks secured therein pivotally connected to said covers, said clamping bars having openings formed in their inner or clamping faces; shafts having oppositely-threaded ends arranged in said clamping bars, said shafts being journaled in said end blocks thereof; binding cords arranged through the said openings in said clamping bars, the portion of the clamping bars punched out to form said openings being turned inwardly to form bearing-blocks for said binding cords, and nuts to which the ends of said binding cords are secured, threaded upon said shafts.

4. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars comprising metal shells having end blocks secured therein pivotally connected to said covers, said clamping bars having openings formed in their inner or clamping faces; shafts having oppositely-threaded ends arranged in said clamping bars, said shafts being journaled in said end blocks thereof; binding cords arranged through the said openings in said clamping bars, and nuts to which the ends of said binding cords are secured, threaded upon said shafts.

5. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars comprising metal shells having end blocks secured therein, pivotally connected to said covers, said clamping bars having openings formed in their inner or clamping faces; binding cords

arranged through the said openings in said clamping bars, the portion of the clamping bars punched out to form said openings being turned inwardly to form bearing blocks for said binding cords, and adjusting means for said binding cords arranged in said clamping bars.

6. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of chambered clamping bars having openings in their inner or clamping faces; shafts having oppositely-threaded ends arranged in said clamping bars; binding cords arranged through the said openings in said clamping bars; nuts to which the ends of said binding cords are secured, threaded upon said shafts, and inwardly-projecting rigid hinge members at the inner ends of said covers, pivoted on said shafts, said clamping bars having transverse slots therein adapted to receive said hinge members and to allow the independent movement of said covers and clamping bars in the opening and closing of the binder or in the manipulation of the sheets clamped thereby.

7. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of chambered clamping bars having openings in their inner or clamping faces; shafts having oppositely-threaded ends arranged in said clamping bars; binding cords arranged through the said openings in said clamping bars; nuts to which the ends of said binding cords are secured, threaded upon said shafts, and inwardly-projecting rigid hinge members at the inner ends of said covers, pivoted on said shafts.

8. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of chambered clamping bars having openings in their inner or clamping faces; shafts having oppositely-threaded ends arranged in said clamping bars; binding cords arranged through the said openings in said clamping bars; nuts to which the ends of said binding cords are secured, threaded upon said shafts, and inwardly-projecting rigid hinge members at the inner ends of said covers to which the said clamping bars are pivotally connected, the pivots being arranged within said clamping bars to allow the independent movement of said covers and clamping bars in the opening and closing of the binders or in the manipulation of the sheets clamped thereby.

9. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of chambered clamping bars having openings in their inner or clamping faces; a shaft having oppositely-threaded ends arranged in one of said clamping bars; binding cords arranged through the said openings in said clamping bars; nuts to which the ends of said binding cords are secured, threaded upon said shaft, and inwardly-projecting rigid hinge members at the inner ends of said covers to which said clamping bars are pivotally connected, the pivots being arranged within said clamping bars to allow the independent movement of said covers and clamping bars in the opening and closing of the binder or in the manipulation of the sheets clamped thereby.

10. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars; binding cords connecting said clamping bars; screw shafts for adjusting said binding cords carried by said clamping bars, and inwardly-projecting rigid hinge members at the inner ends of said covers, pivoted on said shafts.

11. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of chambered clamping bars having openings in their inner or clamping faces; binding cords arranged through the said openings in said clamping bars; a screw shaft for adjusting said binding cords arranged in one of said clamping bars, and inwardly-projecting rigid arm like hinge members at the inner ends of said covers to which said clamping bars are connected by pivots arranged within said clamping bars, the pivots being arranged to allow the independent movement of said covers and clamping bars in the opening and closing of the binders or the manipulation of the sheets clamped thereby.

12. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars; hinge connections for said cover and clamping bars comprising a pair of arm-like rigid hinge members projecting from the inner ends of said covers, and pivots for securing said bars to said hinge members arranged within said bars; binding cords connecting said clamping bars; and adjusting means therefor inclosed within said clamping bars.

13. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars; hinge connections for said covers and clamping bars comprising a pair of arm-like rigid hinge members projecting from the inner ends of said covers, and pivots for securing said bars to said hinge members arranged within said bars; binding cords connecting said clamping bars; and adjusting means therefor inclosed within one of said clamping bars.

14. In a temporary binder or loose sheet holder, the combination with the covers, of a pair of clamping bars; hinge connections for said covers and clamping bars comprising a pair of arm-like rigid hinge members projecting from the inner ends of said cov-

ers and pivots for securing said bars to said hinge members arranged within said bars; and flexible binding cords uniting said clamping bars.

15. In a temporary binder, the combination with the covers; clamping bars; a connection for said clamping bars to said covers comprising inwardly-projecting rigid arm-like hinge members at the inner ends of said covers, said members projecting into said clamping bars, said bars being arranged to lie in substantially the same plane as the covers to which they are attached; pivots for said clamping bars to said members arranged within said clamping bars; and flexible binding cords uniting said clamping bars.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

HARRY F. BUSHONG. [L. S.]

Witnesses:

ADELAIDE I. ADAMS,

OTIS A. EARL.