

No. 649,649.

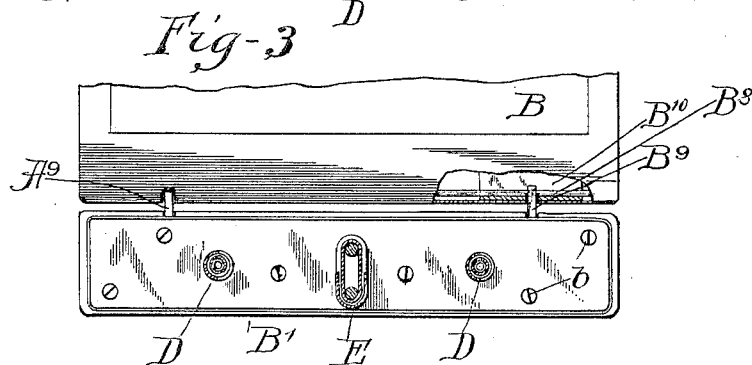
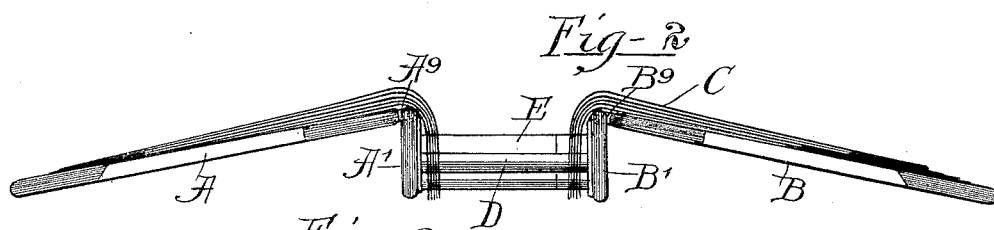
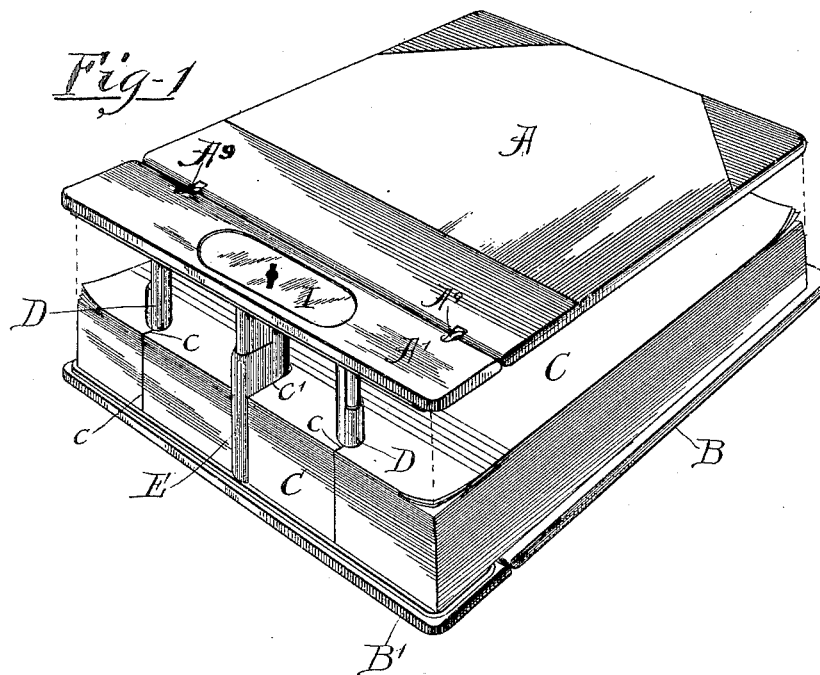
C. H. STOELTING.
PAPER BINDER.

Patented May 15, 1900.

(Application filed Mar. 27, 1897.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
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(No Model.)

4 Sheets—Sheet 2.

Fig-5 \mathcal{A}'

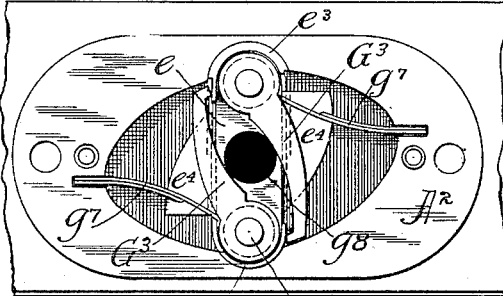
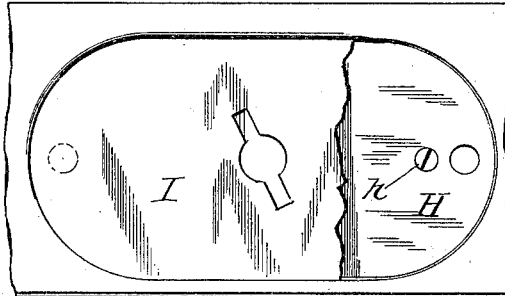
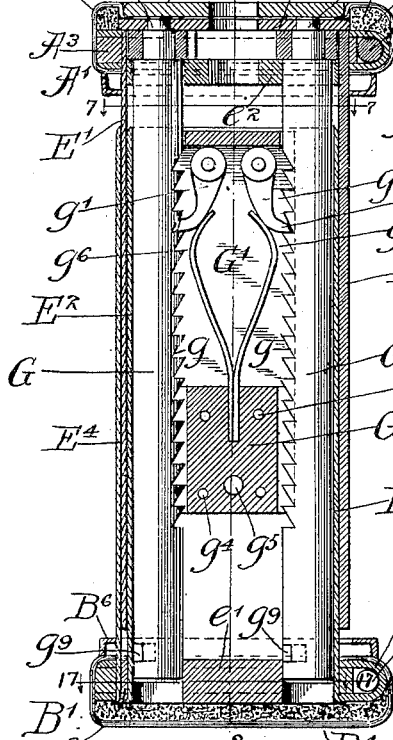


Fig-A A1



\mathcal{A}^5 e^5 I $\frac{\text{Fig-6}}{8} \mathcal{A}^4$ H e^5 J



$\mathcal{H}^2 \mathcal{H}^7$ H G^3 Fig-8 $\mathcal{H}^5 \mathcal{H}^4$
 \mathcal{H}^2 \mathcal{H}^7 \mathcal{H}^5 \mathcal{H}^4

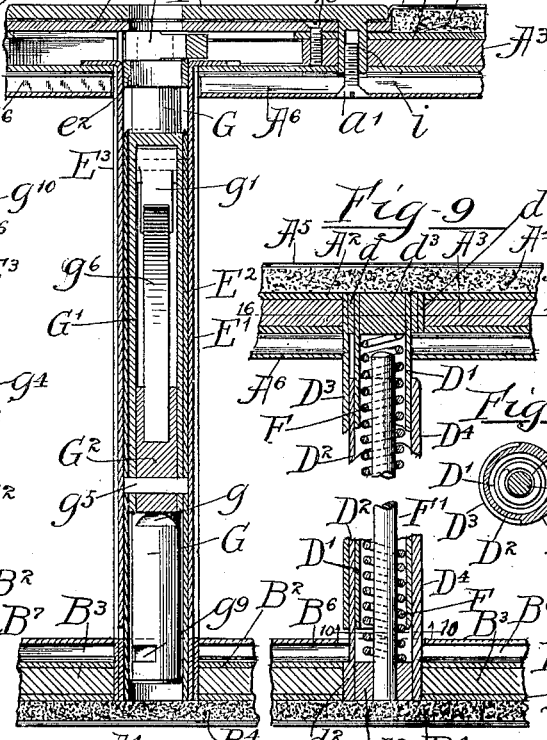


Fig-9

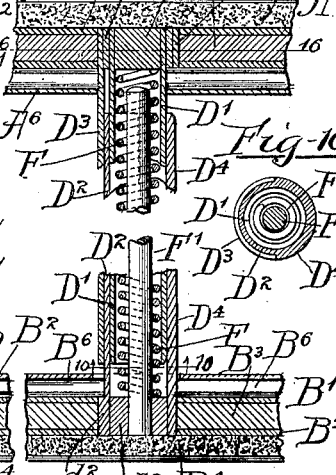


Fig-10

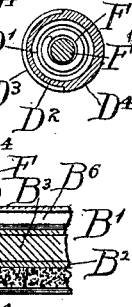


Fig-7 B^{\pm} \mathcal{R}^3

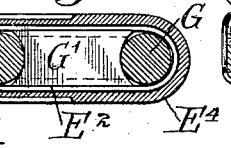


Fig-11 A^8 $B^{\frac{1}{2}}$



Witnesses F^r
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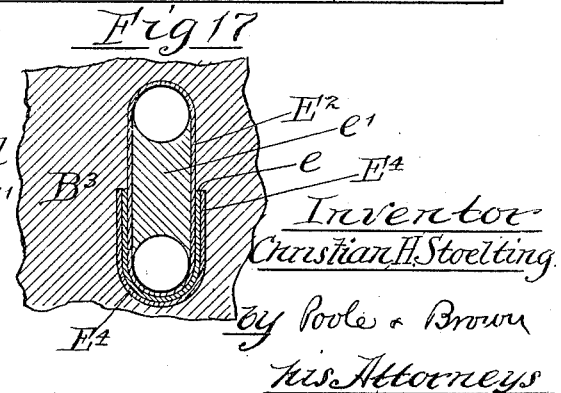
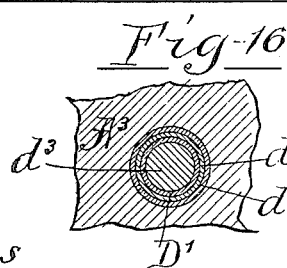
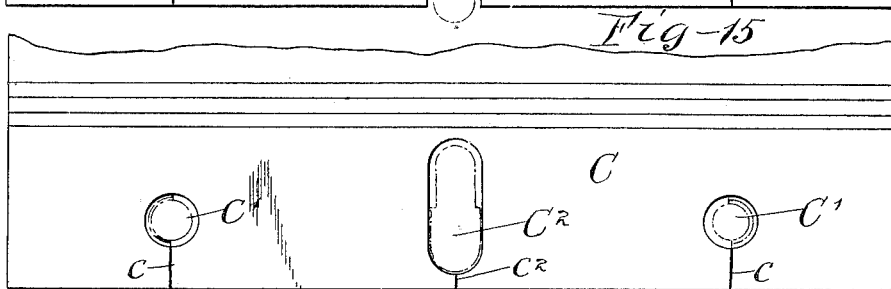
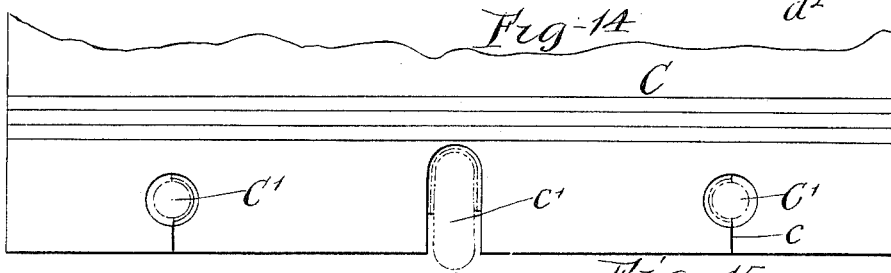
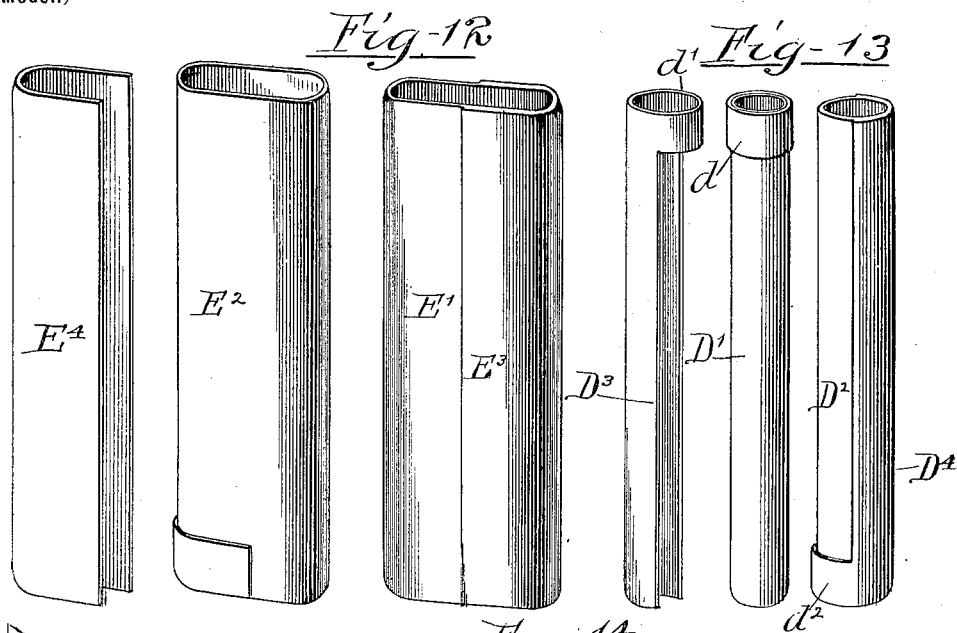
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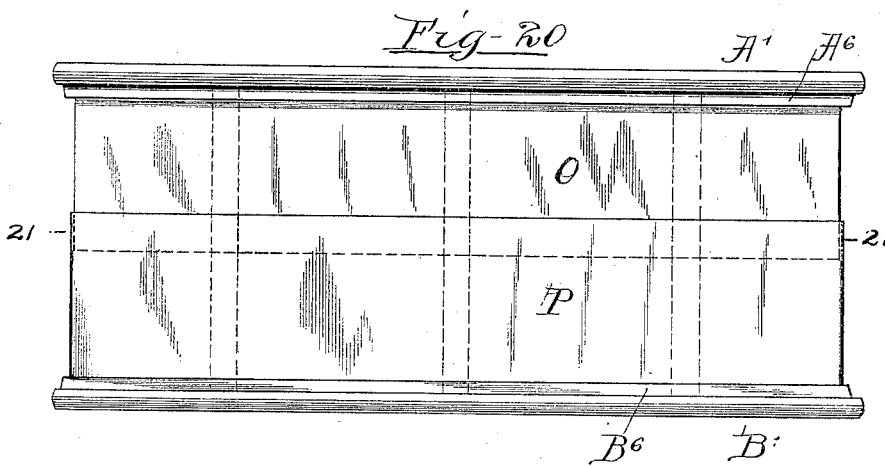
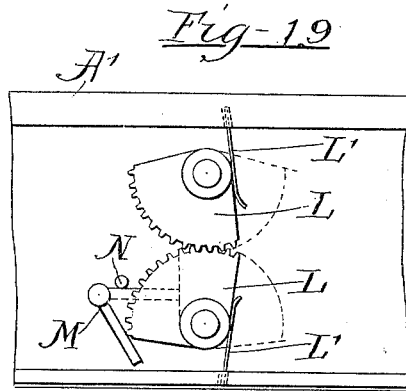
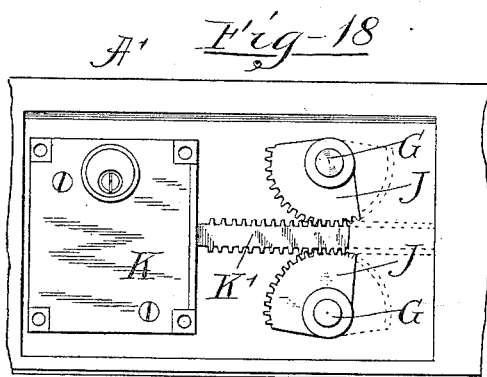
(No Model.)

4 Sheets—Sheet 3.



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UNITED STATES PATENT OFFICE.

CHRISTIAN H. STOELTING, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM A. VAWTER, OF SAME PLACE.

PAPER-BINDER.

SPECIFICATION forming part of Letters Patent No. 649,649, dated May 15, 1900.

Application filed March 27, 1897. Serial No. 629,519. (No model.)

To all whom it may concern:

Be it known that I, CHRISTIAN H. STOELTING, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Paper-Binders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in loose-leaf binders of that class comprising two lids or covers detachably locked together at one edge thereof and between which are adapted to be temporarily secured a plurality of sheets of paper by means of impaling pins or posts attached to the covers near their locking edges, said posts being adapted to pass through bearing-apertures in the adjacent edges of the sheets.

The invention relates more especially to an improved means for locking the covers together and for securing the sheets between the same so that they will be firmly held in position when the covers are locked upon the same, but which may be removed therefrom without the necessity of detaching the covers from each other. The invention relates also to an improved hinge in said covers whereby the same may be opened, so that the sheets or leaves forming the book thereby made may be opened flat, so as to be used to the best possible advantage.

Binders of this character are especially adapted for use in books of account, such as ledgers, as a sheet or sheets containing any particular account may be removed from the book when the account is closed or at any other time without disturbing the remaining sheets therein. In this way only current accounts need be kept in the ledger which is in daily use, the sheets containing the closed accounts being filed away in a similar binder or elsewhere, as desired. It will be understood, however, that the binder herein described may be used for any other purpose wherein it is desired to temporarily bind a plurality of sheets together, so that each may be easily and quickly removed therefrom

without the necessity of disturbing the remaining sheets.

The invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims.

In the drawings illustrating one embodiment of the invention, Figure 1 is a perspective view of a temporary binder embodying my invention. Fig. 2 is a view of the same with a portion of the leaves removed, showing the covers in their open position. Fig. 3 is a top plan view of the rear portion of the bottom cover. Fig. 4 is a top plan view of the rear portion of the top cover, showing the outer lock-plate. Fig. 5 is a top plan view of the means by which the locking mechanism is actuated. Fig. 6 is a longitudinal vertical section of the locking-post, showing the details of the locking mechanism. Fig. 7 is a cross-section taken on line 7 7 of Fig. 6. Fig. 8 is a longitudinal vertical section of the locking-post, taken on line 8 8 of Fig. 6, with the covers attached thereto, showing the manner of attaching the same at each end to the covers. Fig. 9 is a longitudinal vertical section of one of the impaling-posts, showing also the manner of attaching the same to the cover, broken at the middle. Fig. 10 is a cross-section taken on line 10 10 of Fig. 9. Fig. 11 is a detail showing the construction of the hinge in the covers. Fig. 12 shows the parts of the locking-post separated from each other. Fig. 13 is a similar detail view of one of the impaling-posts. Fig. 14 shows in plan view the rear edge of a sheet of paper to be bound in said binder. Fig. 15 is a similar view of a modified form of sheet. Fig. 16 is a cross-section taken on line 16 16 of Fig. 9. Fig. 17 is a cross-section taken on line 17 17 of Fig. 6. Fig. 18 illustrates a modified form of actuating means for the locking device. Fig. 19 shows still another form of said actuating means. Fig. 20 shows a telescoping back adapted to inclose the rear portion of the book. Fig. 21 is a section taken on line 21 21 of Fig. 20.

A binder embodying my invention consists generally of an upper and lower lid or cover A and B, respectively, of suitable size and shape to cover the papers to be bound. Such

covers are preferably made of stiff pasteboard to give firmness thereto and will be bound in any preferred manner to protect and to give finish to the same.

5 C designates the several sheets of paper which are to be bound between the covers A and B. Said sheets are herein shown as secured between said covers by means of impaling-posts D D, which pass through bearing-apertures C' C' in the edges of the sheets 10 adjacent thereto. Said impaling-posts are herein shown as being made of two parts or sections, the outer ends thereof being attached to the upper and lower covers, respectively, and the inner ends being adapted to 15 have sliding engagement with each other. Any suitable means for locking the covers rigidly together and upon the sheets of paper contained between them may be employed. 20 That herein shown consists of a locking-post E, made up of two parts or sections, like the impaling-post D just described. Said sections are rigidly attached at their outer ends to the upper and lower covers and have sliding engagement at their inner ends, like the 25 impaling-posts above mentioned. One of said sections is provided with a suitable locking mechanism, which is adapted to have locking engagement with the other section, and such locking mechanism is so arranged 30 that the parts will be automatically locked together when moved upon each other. One part of the locking mechanism carried by one of the sections is made movable, so that it may be moved into and out of engagement 35 with the locking mechanism carried by the other section by means of a suitable key. When the parts are unlocked, the covers will be free to move away from each other. Said 40 movable parts of the lock will desirably be spring-actuated, so that the two parts of the sections will normally be maintained in their locked relation. With this construction the sections will be automatically locked together 45 when moved upon each other and can only be unlocked and moved from each other by the use of a key, thereby rendering it impossible for unauthorized persons to remove a sheet of paper from the binder. In order 50 that the sheets of paper to be bound between the covers may be inserted without the necessity of detaching the covers from each other, each sheet is provided with slits c c, extending rearwardly from the bearing-apertures C' C' to the adjacent margin of the sheet, 55 by means of which said sheets may be inserted laterally in place, the impaling-posts passing through said slits to the apertures C' C'. When the covers are pressed closely 60 upon the sheets and locked in such position, it will be impossible to remove said sheets, owing to the frictional contact between the same and the covers. When it is desired, however, to remove a sheet, the locking mechanism will be released and the covers moved 65 away from each other. At such time the sheets may be easily removed by pulling them

outwardly away from the posts. It will be desirable that the covers may be moved automatically away from each other when the locking mechanism is released, and to this end a 70 suitable spring F will desirably be inserted within each of the impaling-posts, so that the covers will be moved away from each other by the expansive force of said springs. The 75 post E, containing the locking mechanism, is necessarily wider than the impaling-posts D D, and an elongated slot c' is formed in the sheets C, between the bearing-apertures C' C', within which said post rests. Said slot c' will desirably be of a uniform width throughout its 80 length and will extend to the outer margin of the sheet. This is a desirable arrangement of the slot c', as it affords a guide for the sheet when it is being inserted in place, so that particular attention need not be given to the 85 slits of the apertures C' C' when said sheet is being inserted. The post E is of uniform width throughout its length and aids to hold the sheets C in place in the binder. Said 90 covers A and B are provided at their rear edges with narrow rigid clamping-bars A' B', to which the impaling and locking posts are rigidly attached and between which the sheets of paper C are bound at one edge. Said bars 95 comprise metallic straps A² B², approximately equal in length to the width of the cover. Said straps are bent laterally upon themselves in U form and when so bent are of a width 100 equal to the width of the finished bars A' B', and the curved parts of the same are herein shown placed on the inner edge of the bars adjacent to the swinging parts of the covers. Said straps A² B² will preferably be made of 105 brass; but any other suitable material may be used, as desired. Between the arms of the U-shaped straps are placed metal filling-plates A³ B³ of such thickness as to closely fit upon both members of said straps, and thereby give 110 rigidity to the same. Outside of said straps A² B² are placed strips of cardboard or the like A⁴ B⁴, which serve to fill out the said bars and give them finish and also to provide a more yielding surface at such point. After the 115 bars have been made, as described, they will be covered with a suitable binding A⁵ B⁵, of leather or the like, to give proper finish to the same. Said leather covering will be wrapped about the outer faces and edges of the clamping-bars and be folded together upon the 120 inner edges thereof. In order to securely bind the free edges of said leather A⁵ B⁵ upon the inner surfaces of the bars A' B', metallic binding-plates A⁶ B⁶ are secured upon said inner 125 faces of the bars over the meeting edges of the binding by means of securing-screws a b. Said securing-screws will preferably be extended through the filling-plates A³ B³ and into the inner arm of the U-shaped strap beyond the same and when so inserted will serve 130 to rigidly bind said parts together and make said clamping-bars more rigid as a whole. Said binding-plates are of such construction that the edges thereof sink into the leather or

other binding when in place, and thus effectually prevent the binding from slipping. It will be understood that the binding will be secured upon the clamping-bars by paste or the like, as usual; but such binding-plate serves to additionally secure such binding in place. A hinge is provided between said clamping-bars A' B' and the swinging parts of the covers. In the instance shown rods A⁷ B⁷ are placed in the curved parts of the U-shaped straps and rods A⁸ B⁸ are similarly placed in the adjacent edge of the cover. Links A⁹ B⁹, provided with bearing-apertures on each end thereof, are adapted to engage said rods and to thereby form double-jointed hinges about which the movable portions of the covers A and B may be swung. Said links are each herein shown as provided with a square shoulder at the end thereof adjacent the swinging covers, which is adapted to engage opposing shoulders on the cover and to thereby form a stop by means of which movement of the cover relative to said link is limited when in the position shown in Fig. 2. A similar shoulder may be formed on the corresponding corner of the other end of said links, which may engage a suitable shoulder formed on the adjacent clamping-bars, or said shoulder may be formed by the outer edge of the link, which will engage a stop or shoulder when the cover is in the position shown in said Fig. 2. With such a construction the cover will be rigid and will form a support for the leaves or sheets forming the book when in their open position.

As shown in Fig. 2, the hinged portions of the covers A and B may be swung backwardly at an acute angle to the clamping-bars, so that the book formed thereby may be opened flat and the leaves thereof used to the best advantage. Said swinging portions of the covers A and B are constructed mainly of stiff pasteboard; but in order to afford a fastening for the rods A⁸ B⁸ U-shaped straps A¹⁰ B¹⁰, similar to those shown in the clamping-bars A' B', are secured in the rear edges of the swinging portions of the said covers, as shown in Figs. 3 and 11. Obviously, however, said straps A¹⁰ B¹⁰ need not extend the full width of the covers, but each cover may be provided with two shorter straps adjacent to the hinge. Neither will it be essential that the pivot-rods A⁷ A⁸ B⁷ B⁸ extend the full width of the cover.

The impaling-posts are of novel construction and are made as follows: Each post, as before stated, is made of two tubular parts or sections D' D², said section D' being attached at its outer end to the inner side of the upper clamping-bar A' and the section D² being similarly attached to the inner side of the lower clamping-bar B'. Said section D' is herein shown as being made of less external diameter than the internal diameter of the section D² and adapted to telescope upon said section D² and is provided with a slightly-tapered end, so that it may be readily inserted

into the tubular interior of said lower section D². In order to provide a wider bearing for the sheets of paper to be bound within the binder and also to provide a uniform width of bearing throughout the length of the impaling-post, so that the sheets of paper will be held firmly in place with either end of the telescopic section, the sections D' D² are herein shown as each provided with a half sleeve-section D³ D⁴, respectively, each of a length equal to the length of the section to which it is attached and located on opposite sides of said sections. Said half sleeve-sections D³ D⁴ each form a half-section having radii of equal lengths that when so secured to the post-sections and the parts are telescoped together, as shown in Figs. 1, 9, and 10, the two sleeve-sections form a complete circle around the telescoping post-sections D' D², and therefore form a uniform bearing for the sheets of paper throughout the length of the post, as well as increasing the bearing-surface thereof. As the post-section D² in each of the impaling-posts is herein shown as inclosing the section D', it will obviously be necessary to provide a sufficient space between said section D' and the attached sleeve-section D³ within which the adjacent half of the post-section D² may rest and slide. This is conveniently accomplished by placing a short tubular plug *d* around the base of the post D', the gage of which is equal to the gage of the tubular post-section D². Said tubular plug *d* will be of such length as to form a shoulder against which the inner end of the post-section D² abuts when said section is at the inner limit of its movement. Said plug is shown as extending entirely around the base of the section D'. As the half sleeve-section D⁴ and the wall of the post-section D², to which it is attached, pass entirely outside of the post-section D, said sleeve-section D⁴ will lie closely upon said post-section and will preferably be soldered thereto, as illustrated in Figs. 9 and 10. The inner end of said post-section, as before stated, will abut against the shoulder formed by the annular filling-plug *d* when at the inner limit of its movement; but on the side thereof adjacent to the sleeve-section D⁴ said shoulder will be of less width than the combined thickness of said post-section and the half sleeve-section D⁴. An additional bearing-surface for the inner end of the sleeve-section D⁴ will therefore need to be provided. Said bearing surface or shoulder might obviously be formed on the adjacent part of the U-shaped strap A²; but a much simpler construction is shown in Figs. 9 and 13, wherein the half sleeve-section D³ is provided on the opposite side of the post-section D' with an integral short half-circular base *d'*, forming, with the adjacent part of the half sleeve-section, a complete circle having a radius equal to the radius of said half sleeve-section and which completely surrounds and fits closely upon the outside of the tubular plug *d*. Said base *d'* is equal in length to the length of said plug and forms therewith a

shoulder against which the ends of the post-section D² and half sleeve-section D⁴ abut when at the inner limit of their movement. With this construction the aperture within which the post-section is secured will be of circular form and may be made with an ordinary drill. A similar shoulder d² is formed at the base of the sleeve-section D⁴, against which the sleeve-section D³ rests when at the inward limit of its movement. As before stated, the post-sections D' D² are rigidly secured to the clamping-bars A' B', respectively. In the present instance an aperture is provided on the inner surface of each of said bars, which extends inwardly through the U-shaped straps A² B² and filling-plates A³ B³ and rests with its extreme ends flush with the opposite surface of said U-shaped straps. Preferably a filling-plug d³ is inserted into the outer ends of the tubular post-sections, so as to make a firmer construction at this point and to form a suitable support for one end of the spring F. In order that the parts may be rigidly secured together and to the clamping-bars, they will desirably be soldered or brazed upon each other and to the parts of said bars. In the lower post the filling-plug d³ will serve as a shoulder against which the inner end of the post-section D' will rest when at the inner limit of its movement. Any suitable means may be employed, however, for rigidly securing said parts together and to the clamping-bars; but that shown is simple and effective for the purpose designed. The particular arrangement of said impaling-posts as herein shown is obviously not essential. The manner of telescoping the parts upon each other may be reversed, and the arrangement of the sleeves on the post-sections may be changed as desired.

It will be desirable that some means be employed for automatically separating the covers A and B when the locking mechanism is released. In the present instance I have shown a spiral spring F interposed between the opposing shoulder formed by the inner ends of the filling-plugs d³ in the opposite ends of each of the impaling-posts. A guide-pin F' is secured in the lower filling-plug d³, which extends upwardly through said spring to hold it in place. This is a simple and effective means for automatically separating said covers; but it is obvious that other means may be employed, and I do not wish, therefore, to be restricted to the construction herein shown. Any suitable means may be employed for locking said covers from movement with relation to each other when they have been properly adjusted upon the sheets contained between the same. That herein shown consists of a two-part telescoping post-section located centrally between the impaling-posts and which forms an additional bearing and support for the leaves. Said sections forming said locking-post are constructed and operate similarly to the sections of the impaling-posts shown and described. It

is herein shown as of oblong shape in cross-section and mounted with its longer diameter at right angles to the adjacent clamping-bars. Said post comprises two tubular post-sections E' E², secured to the clamping-bars A' B', respectively, at their opposite ends. The post-section E² is herein shown as made of such size as to fit within the tubular interior of the post-section E' and to have telescopic connection therewith. As in the construction of the impaling-posts, said post-sections of the locking-post are provided with oppositely-arranged half sleeve-sections E³ E⁴, so arranged as to engage each other at their inner edges when the posts are telescoped upon each other to form together a complete inclosure for said post-sections and to thereby afford a uniform and continuous bearing for the sheets of paper engaged therewith. As shown in Fig. 7, each sleeve-section covers one edge of the post and engages the opposite sleeve-section on each side of said post midway between said edges. Obviously, however, said sleeve-sections may be otherwise arranged upon the post-sections, as desired. As the post-section E² is arranged to telescope within the section E', the wall of said section E' must pass, therefore, between the wall of the section E² and the half sleeve-section E⁴. In order to provide such space between the sleeve-section and the adjacent wall of the post-section, a filling-plug e of the same shape as said half-sleeve is attached to the base of the post-section E², adjacent to and engaged by said sleeve-section. Said plug e will of course be of sufficient thickness to provide ample space between said sleeve and post sections for the insertion of the wall of the post-section E'. This is a simple and convenient means of providing such space; but obviously any other suitable means may be employed to effect the same result. Like the construction of the impaling-post sections, the half sleeve-section E³, attached to the post-section E', will be brazed or otherwise secured rigidly thereto throughout its length, as clearly shown in Figs. 6 and 7, both of said members passing entirely outside of the post-section E². The lower post-section and attached sleeve-section will be secured to the lower clamping-bar B' in a manner similar to the attachment of the impaling-posts, as described. Said parts are inserted in an aperture formed in the inner side of said clamping-bar, so that the extreme ends thereof will extend inwardly to the paste-board filling-strip B⁴, and the parts thereof will be soldered together and to the adjacent parts of the clamping-bar, as hereinbefore described. To secure additional strength, the extreme ends of the sections may be turned outwardly upon the outer surface of the U-shaped strap, as shown in Fig. 6. As in the construction of the impaling-post sections, the lower end of the section E² is provided with a filling-plug e', which will preferably be soldered therein. In order to provide room for the actuating means for the locking mech-

anism, the upper end of the post E' will be extended flush with the outer surface of the U-shaped strip A² only at the opposite edges e³ thereof, as shown in Fig. 5, while the opposite sides e⁴ will be folded down upon the upper surface of the lower member of said strap. The sleeve-section E³, therefore, will be terminated on the opposite sides of said post-section flush with said upper surface of the lower member of the strip and be engaged by said turned-down portion of the post-section. A filling-block e² is inserted in the upper end of the post-section E', and the parts thus constructed and arranged will preferably be soldered to each other and to the parts of the clamping-bar A', as before described.

The locking mechanism is herein shown as comprising two rotative shafts G, located in the opposite sides of the locking-post E. Said shafts extend at their upper ends through apertures in the opposite ends of the oblong filling-block e² and are adapted to be engaged between their ends by a suitable locking mechanism secured within the tubular post E. As herein shown, said rotative shafts G are provided on their inner surfaces with ratchet-teeth g, which are adapted to be engaged by spring-pressed pawls g', pivotally mounted on a suitable bracket inserted in said post. Said bracket is herein shown as formed by a vertically-extending U-shaped strap G' and a block G², secured between the free lower ends of the same by means of rivets g⁴ and is inserted between the rotative shafts G and secured in place by means of a rivet g⁵ passing therethrough and into the post-section E². The bracket is herein shown as suitably shaped at each side thereof to engage the cylindrical shafts G. Said pawls g' are pivotally mounted upon the upper end of the bracket and are pressed outwardly into engagement with the ratchet-teeth by means of two springs g⁶, mounted at their lower ends in the lower end block G². The upper ends of said rotative shafts G are adapted to be detachably connected with the post-section E', so as to have movement therewith, as hereinafter more fully set forth. As the rotative shafts G and the locking-pawls g' are mounted upon the post-sections E' and E², respectively, it will be obvious that as said post-section E' is telescoped upon said section E² and the ratchet-teeth of the shaft moved relatively to the spring-pressed pawls g' said pawls will act to automatically lock the sections together. In order to release the pawls from engagement with the ratchet-teeth, it will be necessary to rotate said shafts G upon their vertical axes, so as to move said teeth away from the pawls g'. As shown in Figs. 5, 6, and 8, this is accomplished by providing the upper ends of the shafts G above the filling-block e² with rigidly-attached key-engaging arms G³. In order to provide room for said arms to swing outwardly, the upper member of the U-shaped strap A is shown in Fig. 5 as cut away to form an irregular-shaped opening

therein. It is desirable that the shafts should be maintained in their locked relation with the pawls when not engaged by a key, which result is accomplished by means of leaf-springs g⁷, shown as mounted in the adjacent edges of the upper member of the U-shaped strap on opposite sides of said key-engaging arms and adapted to press inwardly upon said arms. The arms G³ are so mounted upon the shafts G with relation to the ratchet-teeth g that when said arms are in the position shown in Fig. 5 said teeth will be engaged by the spring-pressed pawls g'. The filling-block e² is provided between the said shafts G with an aperture g³ for the reception of the shaft of a key to center the same when said key is inserted between the arms to swing them outwardly and to thereby release the locking mechanism. A binding-plate or lock-cover H is secured over the lock-actuating mechanism by means of screws h, passing therethrough and into the iron filling-plate A³. When said plate or cover is thus secured in place, it forms a shoulder, against which the upper end of the shafts abut, so that said shafts are locked between said plate and the block e² and from movement with relation to the post-section E'. It will thus be obvious that when the clamping-bars are pressed together the shafts will be caused to move upon the pawls and to be locked thereby, as before described. The shafts G are herein shown as centered within the plate H by being provided with reduced end portions e⁵, which pass upwardly through suitable apertures in said plate. An escutcheon-plate I is mounted over the plate H and is herein shown as secured in position by means of integral interiorly-screw-threaded lugs i, which pass downwardly through the clamping-bar A' and are engaged by a suitable screw a', passing upwardly through the other side of said bar. This means of securing said escutcheon-plate I in place will obviously prevent unauthorized persons from tampering with the lock, as it will be impossible for the said plate I to be removed when the cover A is in its normal position upon the sheets C. It will be understood that the plates H and I will be provided with key-apertures, by means of which a suitable key may be inserted therethrough to engage the arms G³.

In Fig. 18 is shown still another form of actuating means for the locking mechanism. In said figure, J designates actuating arms or segments rigidly secured to the rotating shafts G. Said arms are herein shown as actuated by means of the locking-bolt K' of a tumbler-lock K. In the present instance said bolt is made in the form of a rack-bar, which is adapted to rest between and engage corresponding gear-teeth on the adjacent inner ends of said segments. With this construction when the locking-bar K' is in its locking position, with the ratchet-teeth in engagement with the adjacent teeth of the actuating-segments J, said segments will be locked

from movement. When the bolt K' is projected, however, it will operate to move the inner ends of the segments from the lock, and to thereby rotate the shafts to release the locking mechanism. The gear-teeth will be formed on an arc of a circle whose radius is equal to the distance between said teeth and the point of pivot of the arms, so that said segments will have operative engagement with the bar throughout their arc of movement. Such lock will obviously afford greater protection against the book being tampered with by unauthorized persons than the lock previously described and will be more positive in its operation.

In Fig. 19 is shown still another form of actuating means for the locking mechanism. In said figure the arms L are provided on their adjacent inner ends with gear-teeth and are of such length that said teeth have engagement with each other instead of with an intermediate reciprocating member, as in the previously-described construction. The gear-teeth on the adjacent ends of the arms L, as in the construction shown in Fig. 18, will be formed on the arc of a circle whose radius is equal to the distance between the same and points of pivot of the arms. Said segments are rotated by means of a suitable key M, which is so located when inserted in the lock that the web thereof will engage between its ends one of the segments at the outer corner thereof or at the intersection of the curved with one of its straight sides. Said key M thus located is adapted to be turned inwardly toward the adjacent segment L, which will act to oscillate said segment upon its pivot away from the key, which will in turn oscillate the other segment L by its engagement therewith. Said parts are so constructed and arranged that when the web of the key has reached a horizontal position, as shown in dotted lines, the shafts G will be rotated so that the gear-teeth g will be out of engagement with the pawls g' . When in said position, the web of the key M will act as a stop to prevent backward movement of the segments L, so as to maintain the shafts in their unlocked relation. The segments will be engaged by suitable springs L' to return the shafts to their locking position when the key M is disengaged from the segment L. A stop N will desirably be provided to limit the movement of the key when the segment has been sufficiently oscillated to disengage the shafts from the pawl.

After the book has been filled it will not be necessary to entirely detach the covers from each other, as the sheets will be gradually removed therefrom and new ones replaced therein in the manner hereinbefore described. In order to prevent detachment of the sections from each other, the lower ends of the rotating locking-shafts are each shown as provided with notches or recesses g^0 , which are so located upon the shaft as to be engaged by the spring-pressed pawls when said shafts are

moved upwardly and turned so that the ratchet-teeth g are out of engagement with the pawls. It will be desirable to lock the covers in their separated position when the sheets are to be transferred, as shown in Fig. 1. This may be accomplished by providing the upper portion of the notches or recesses g^0 with downwardly-facing shoulders and by providing the pawls g' with laterally-projecting parts g^{10} , having upwardly-facing shoulders adapted to engage the shoulders of the notches g^0 . When the pawls g' and notches g^0 are thus formed and are engaged with each other, as described, the shafts G will be prevented from moving upon the ratchets until rotated by means of a key, and the covers will be entirely out of the way of the operator when transferring. It will be obvious, however, that one rotating locking-shaft and one spring-pressed pawl may be employed instead of two, as shown. It will also be obvious that the locking mechanism may be located within each of the impaling-posts instead of in a separate locking-post, as herein shown.

In Fig. 15 I have shown a somewhat-modified form of sheet. In said figure the impaling-post apertures C' are located as in Figs. 1 and 2; but the locking-post aperture C² is shown as being located entirely within the sheet and as being connected with the margin thereof by means of a short slit c^2 like that of the impaling-post apertures. The locking-post of a binder with which said sheet will be employed will obviously need to be set slightly farther inwardly from the edge than that shown in Fig. 1, and the sheet will therefore have a larger bearing than in said other construction. The sheet shown in Figs. 1 and 2 is, however, deemed the preferable form, as it may be more readily inserted into a binder, for the reason that the locking-post aperture c' opening its full width into the margin of the sheet forms a guide for the sheet, so that particular attention need not be given to the impaling-post apertures when said sheet is being inserted. In said Figs. 14 and 15 is illustrated the manner in which the sheets are engaged by the impaling and locking posts, that shown in Fig. 14 indicating the sheets engaged by the upper ends of the posts and that shown in Fig. 15 indicating the sheets engaged by the lower ends thereof. It will be seen, therefore, that the sheet will always have engagement with the posts and can have no lateral movement thereon. In the upper sheets, as seen in Fig. 14, the inner surfaces of the post-apertures will be engaged by the inner half sleeve-section of the impaling-posts and in the lower sheets the outer surfaces of the apertures will be engaged by the outer sleeve-sections thereof. The locking-post E affords a continuous bearing throughout its length for both sides of the sheets, and while the lower sheets will not have engagement therewith at the forward edge of the same longitudinal movement thereof will be prevented by engagement with the impaling-

posts, as clearly shown in said Figs. 14 and 15. It will be understood from the above that it is not essential that the impaling-posts be cylindrical, as shown, but they may be made of any cross-section desired.

It may be found desirable to provide an inclosing covering for the rear edge of the book formed in the manner described, and in Figs. 20 and 21 is shown a convenient means for accomplishing this result. As shown in said figures, O and P designate suitable inclosing flaps secured to the upper and lower covers, respectively. Said flaps are mounted to extend at right angles to the covers and are adapted to have sliding engagement with each other at their free edges. Each flap will desirably be made of such length as to fill the space between the covers when the post-sections are in their innermost positions, so that when said sections are moved to the outer limit of their movement the said flaps will still have engagement with each other. One of said flaps will desirably have such inter-fitting engagement with the other that they will not tend to spring away from each other, and in the present instance the flap P is made somewhat wider than the flap O, and the opposite outer ends are so folded as to engage the inner side of said flap O, so that the parts have telescopic engagement with each other. Said flaps O and P may be made of any suitable material which will possess sufficient rigidity to withstand the wear to which they will be subjected and may be secured to the upper and lower covers in any preferred manner. Said inclosing flaps may be finished on their outer faces to simulate the back of a bound volume.

I claim as my invention—

1. A paper-binding device, comprising two clamping-bars and an impaling-post, comprising two post-sections secured at their outer ends to said clamping-bars, and having sliding engagement at their inner ends, said post-sections being provided on their opposite sides with half sleeve-sections.

2. A paper-binding device, comprising two clamping-bars and an impaling-post comprising two post-sections secured at their outer ends to said clamping-bars having telescopic engagement at their inner ends, said sections being provided on their opposite sides with half sleeve-sections, which together form a complete sleeve inclosing said post-sections.

3. A means for locking together the two clamping-bars of a paper-binder, comprising a rotating notched shaft on one of said bars, a pawl mounted on the other bar and adapted to engage said shaft, and locking means for holding said shaft in engagement with said pawl.

4. A paper-binder, comprising two clamping-bars and a locking device for locking said bars together, comprising two telescopic post-sections, attached at their outer ends to said bars and having sliding engagement at their inner ends, one of said sections being provided

with a rotating notched shaft, which has locking engagement with the other section.

5. A paper-binder, comprising two clamping-bars and a locking device for locking the said bars and comprising two telescopic post-sections, attached at their outer ends to said bars, one of said sections being provided with a rotating notched shaft and the other section being provided with a spring-pressed pawl, adapted to have locking engagement with said shaft.

6. A paper-binder, comprising two clamping-bars and a locking device for locking said bars together, comprising two telescopic post-sections of oblong shape in cross-section, attached at their outer ends to said bars, one of said sections being provided with two rotating notched shafts and the other section being provided with two spring-pressed pawls adapted to have locking engagement with the shafts of said first-mentioned section.

7. A paper-binder, comprising two clamping-bars and a locking device for locking said bars together, comprising two telescopic post-sections rigidly attached at their outer ends to the clamping-bars, one of said sections being provided on each side thereof with a rotating shaft, each provided on its inner side with a plurality of teeth, and the other section being provided with a central plate carrying at one end thereof two spring-pressed pawls adapted to be pressed into locking engagement with the teeth of said shafts.

8. A paper-binder, comprising two clamping-bars, two impaling-posts at one edge thereof, each comprising two post-sections attached at their outer ends to said bars and having sliding engagement at their inner ends, and means for locking said bars together, comprising two rotating notched shafts, attached to one of said bars and two spring-pressed pawls attached to the other bar and adapted to have locking engagement with said shafts.

9. A paper-binder, comprising two clamping-bars, two impaling-posts at one edge thereof, each comprising two post-sections attached at their outer ends to said bars and having sliding engagement at their inner ends, and means for locking said bars together, comprising two rotating notched shafts, two spring-pressed pawls adapted to have locking engagement with said shafts and means for rotating each of said shafts to disengage the same from the pawls comprising a spring-pressed crank-arm at one end thereof, said arms being adapted to be oscillated to rotate the shafts.

10. A paper-binder comprising two clamping-bars and a locking device for locking said bars together, comprising two telescopic post-sections attached at their outer ends to said bars and having sliding engagement at their inner ends, one of said sections being provided with a rotating notched shaft which has locking engagement with the other shaft and means for rotating said shaft, comprising a crank-arm secured to said shaft, and means

for engaging the crank-arm to rotate the shaft.

11. A paper-binder comprising two clamping-bars and a locking device for locking said bars together, comprising two telescoping post-sections attached at their outer ends to said bars and having sliding engagement at their inner ends, one of said sections being provided with a rotating notched shaft which has locking engagement with the other shaft, and means for rotating said shaft, comprising a crank-arm secured to said shaft, and means for engaging the crank-arm to rotate the shaft, comprising a rack-bar operatively connected at one end with a locking-bolt and engaging gear-teeth on said arm.

12. A paper-binder, comprising two clamping-bars, telescopic impaling-posts for holding the sheets of paper in place and a telescopic locking-post passing through said sleeves, each of said posts being provided on opposite sides thereof with half sleeve-sections to give uniform and continuous bearing for the sheets of paper engaged therewith.

13. A paper-binder, comprising two clamping-bars, an impaling-post for holding the sheets of paper in place, comprising two tubular post-sections attached at their outer ends to the bars and having telescopic engagement at the inner ends, means for locking said posts together and means for automatically separating the same when the locking mechanism is released, comprising an expansion-spring within said tubular post-sections and acting against opposing shoulders therein to separate the same.

14. A paper-binder, comprising two clamping-bars, means for holding the sheets of paper between the same and means for locking the said bars together, comprising a rotating notched shaft, attached to one of said bars, and a spring-pressed pawl attached to the other bar and adapted to have locking engagement with the notches of said shaft, the lower notch of said shaft being so located thereon as to be in position to engage the pawl when the other notches are moved out of engagement therewith.

15. A paper-binder, comprising two clamping-bars, means for holding the sheets of paper between the same and means for locking the said bars together, comprising a rotating shaft attached to one of said bars, provided between its ends with a plurality of ratchet-teeth and at its extreme inner end remote from said ratchet-teeth with a notch or recess and a spring-pressed pawl attached to

the other bar and adapted to have locking engagement with said ratchet-teeth, said end notch or recess of the shaft being so located thereon as to be in position for engagement with the pawl when the ratchet-teeth are moved out of engagement therewith.

16. A paper-binder comprising two clamping-bars, means for holding the sheets of paper between the same, and means for locking said bars together comprising a rotating notched shaft attached to one of said bars, and a spring-pressed pawl attached to the other bar and adapted to have locking engagement with the notches of said shaft, the lower notch of said shaft being so located thereon as to be in position to engage the pawl when the other notches are moved out of engagement therewith, and said lower notch being so formed that when the pawl is engaged therewith, it will limit the outward movement of the shaft.

17. A paper-binder, comprising two rigid bars and an impaling-post for holding the sheets of paper in place between the same, comprising two tubular post-sections, one of which is adapted to telescope upon the other, said post-sections being provided on opposite sides thereof with half sleeve-sections, and the sleeve-section which is attached to the inner one of the post-sections being so connected therewith as to leave a space between the same and said inner section for the adjacent wall of the outer post-section.

18. In a cover for a paper-binder, comprising a main cover-section and a clamping-bar at one edge thereof, a hinge between said main cover-section and clamping-bar, comprising a link having pivotal engagement at each end with parallel pins or shafts in the adjacent edges of said bar and section, and stops on said link adapted to engage shoulders on said bar and section.

19. A paper-binder comprising two clamping-bars and a locking device for locking said bars together, comprising one or more extensible posts attached to said bars, and a rotating notched shaft mounted on one of said bars and adapted to have locking engagement with the other bar.

In testimony that I claim the foregoing as my invention I affix my signature, in presence of two witnesses, this 24th day of March, A. D. 1897.

CHRISTIAN H. STOELTING.

Witnesses:

TAYLOR E. BROWN,
CHARLES G. MASON.