A. TRINI.

LOOSE LEAF BINDER.

APPLICATION FILED AUG. 3, 1909.

954,063. Patented Apr. 5, 1910.

2 SHEETS—SHEET 1.

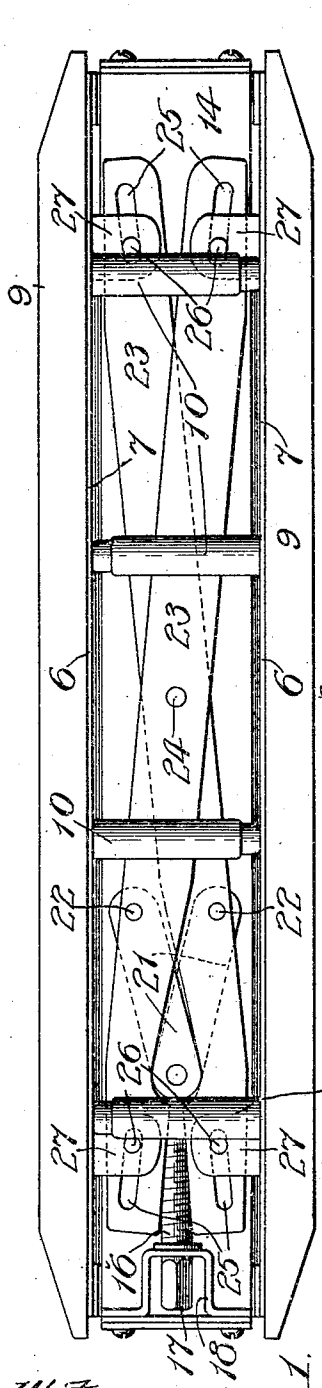

Fig. 1.

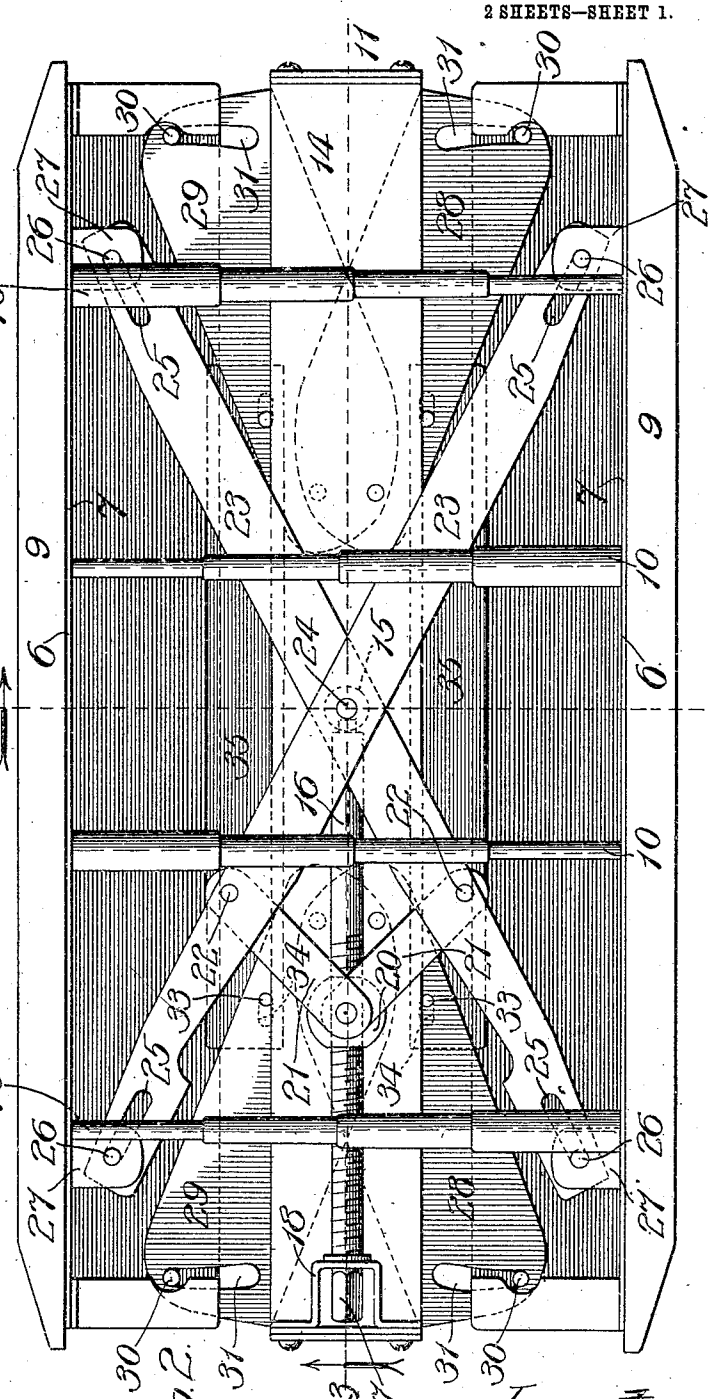

Fig. 2.

Witnesses:
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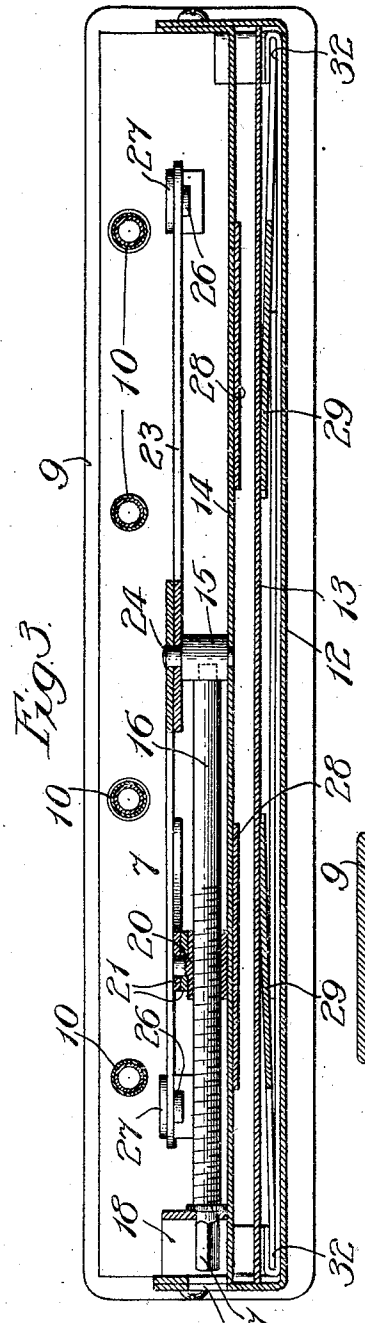

Fig. 3.

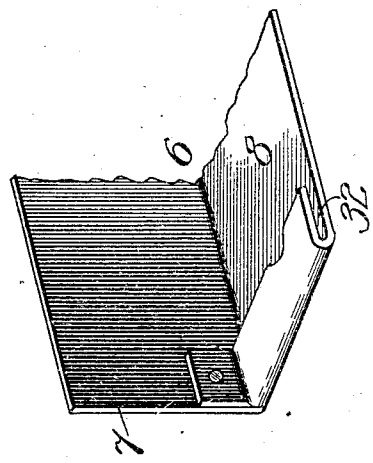

Fig. 5.

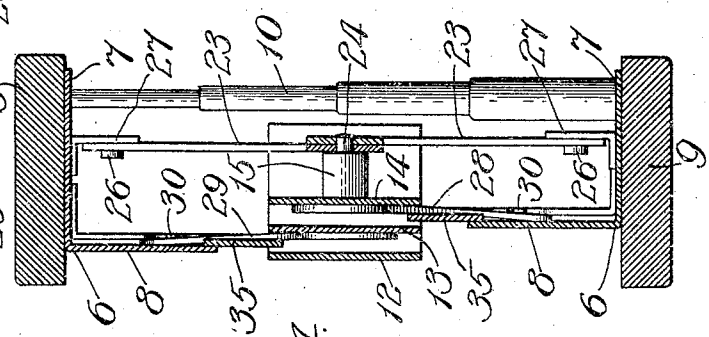

Fig. 4.

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UNITED STATES PATENT OFFICE.

ANTON TRINI, OF CHICAGO, ILLINOIS, ASSIGNOR TO CHARLES P. WEIL AND FRED P. WEIL, BOTH OF CHICAGO, ILLINOIS.

LOOSE-LEAF BINDER.

954,063. Specification of Letters Patent. Patented Apr. 5, 1910.

Application filed August 3, 1909. Serial No. 511,048.

To all whom it may concern:

Be it known that I, ANTON TRINI, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Loose-Leaf Binders, of which the following is a specification.

My invention relates to loose-leaf binders having telescoping members forming the back for permitting of the adjustment of the binder to different thicknesses of bundles of sheets to be secured together, thereby to form a book; and my object is to provide improvements in binders of this type to the end of affording maximum expansion and contraction of the binder and rendering it easy of manipulation and strong and durable.

Referring to the drawings—Figure 1 is a face view of a binder constructed in accordance with my invention, the binder being shown in contracted condition. Fig. 2 is a similar view of the binder in expanded condition. Fig. 3 is a section taken at the line 3 on Fig. 2 and viewed in the direction of the arrow. Fig. 4 is a section taken at the line 4 on Fig. 2 and viewed in the direction of the arrow; and Fig. 5 is a perspective view of a detail of one end of one of the two similar angle-shaped cover-members of the binder.

The outer members of the binder are represented at 6, and each is preferably of angle shape in cross-section, as clearly represented in Fig. 4, to afford plates 7 and 8, the plates 7 being parallel and having secured thereto the covers 9 of the binder. Spanning the space between the plates 7 is a series of transversely extending sheet-engaging cross-members 10, which are of the telescoping sleeve-and-pin type formed in sections as illustrated, the end sections of these members being secured to the opposed plates 7, whereby when the latter are operated as hereinafter described, the members 10 will be lengthened or shortened as is well understood in the art, these members being spaced from the edges of the plates 7 to permit sheets to be bound together to be introduced into the binder and held at their slotted portions by the members 10. The back-member proper of the binder is represented at 11 and is formed of three parallel plates 12, 13 and 14 spaced apart and extending in spaced relation throughout the length of the binder. Journaled at one end in a bearing-head 15 carried by the plate 14 intermediate its ends, is a screw-shaft 16, its opposite squared end, represented at 17, being journaled in a yoke-piece 18 secured to the back 11 and adapted to be rotated by a key, not shown, which may be applied to the squared end of the shaft through an opening 19 in the back 11. A nut 20 having threaded connection with the shaft 16 is pivotally connected with the inner ends of two toggle-arms 21, the latter being pivotally connected at their outer ends, as represented at 22, with two levers 23 intersecting each other intermediate their ends, and at which point of intersection they are pivoted to the upper reduced end 24 of the block 15, the toggle-arms 21 being connected with these levers at points intermediate the ends thereof and their point of intersection. The levers 23 are longitudinally slotted at their end portions, as indicated at 25, and engage at said slots with pins 26 carried by lugs 27 on the inner faces of the plates 7 toward the opposite ends of the latter, whereby turning the shaft 16 will cause the levers 23 to turn at their pivotal connection with the block 15 and be drawn together or separated at their ends, depending upon the direction in which the shaft is rotated.

Pivoted to the plates 13 and 14 of the back-member 11, toward their ends and superposed thereon, are links 28 and 29, respectively, these links being arranged in pairs toward the opposite ends of the binder and having sliding connection with the ends of the plates 8 through the medium of studs 30 carried by the latter and extending into arc-shaped slots 31 in the ends of the links, the ends of the plates 8 being provided with inwardly-opening recesses 32, preferably formed by turning back the metal of these plates, into which the ends of the links extend.

Each of the links 28 and 29 carries a stud 33 intermediate its ends, these studs extending through slots 34 provided in the end-portions of strips 35 paralleling the

back-member 11 and plates 8 and so arranged as to cause them to overlap the edges of the back-member and the inner edges of the plate 8 at all times, regardless of the degree of separation of the parts of the binder.

When the binder is in the telescoped condition represented in Fig. 1, the links 28 and 29, plates 8 and strips 35 lie in superposed condition in the spaces provided between the plates 12, 13 and 14. When the shaft 16 is rotated to spread the levers 23, and consequently force the members 6 away from each other, the links 28 and 29 will turn at their pivotal connection with the plates 13 and 14 by reason of the engagement of the studs 30 with the outer ends of the slots 31, thus causing the links to swing away from the back-member 11 as the members 6 are forced outwardly, the strips 35 in this movement also moving bodily in parallel relation to the plates 8 to close the spaces which would otherwise be produced between these plates and the back-member 11. Turning the shaft 16 in a direction to cause the levers 23 to swing toward each other at their ends causes the members 6 to be drawn toward each other, the engagement of the studs 30 with the inner ends of the slots 31 causing the links 28 and 29 to be swung toward the back-member.

From the foregoing description it will be readily understood that the links 28 and 29 and strips 35 connected therewith are moved toward and away from the back-member 11 as the members 6 are drawn together and separated, and thus by this telescoping action a wide range of adjustment of the members of the binder is permitted. Furthermore, by providing the link connections between the back-member 11 and plates 8, an exceedingly strong and durable and positively actuated construction is afforded.

What I regard as new and desire to secure by Letters Patent is—

1. A loose-leaf binder comprising, in combination, a pair of outer sections, a member forming the back proper with relation to which the outer sections are adapted to be moved and telescope therewith, links pivotally connected with said member and operatively engaging with said sections and telescoping therewith, and means for moving said sections with relation to said member, for the purpose set forth.

2. A loose-leaf binder comprising, in combination, a pair of outer sections, a series of parallel plates connected together and forming the back proper of the binder with relation to which the outer sections are movable and with which they telescope, links pivotally connected with said plates and operatively engaging with said sections and telescoping therewith, and means for moving said sections with relation to said plates, for the purpose set forth.

3. A loose-leaf binder comprising, in combination, a pair of outer sections, a member forming the back proper of the binder with which the outer sections are adapted to telescope, studs carried by said sections toward their end-portions, links pivotally connected with said member and containing slots toward their outer ends into which said studs extend, said links being adapted to telescope with said member and sections, and means for moving said sections with relation to said member, for the purpose set forth.

4. A loose-leaf binder comprising, in combination, a pair of outer sections provided toward their opposite ends with guideways, a member forming the back proper of the binder with which the outer sections are adapted to telescope, links pivotally connected with said member and telescoping therewith, said links extending into said guideways on the sections and being operatively connected with the latter, and means for moving said sections with relation to said member, for the purpose set forth.

5. A loose-leaf binder comprising, in combination, a pair of outer sections provided at their end portions with guide-ways, a plurality of spaced plates forming the back proper of the binder with which the outer sections are adapted to telescope, studs carried by said sections toward their outer ends, links pivotally connected at their inner ends with said plates and extending into said guideways and containing slots near their outer ends into which said studs extend, said links telescoping with said plates and sections, and means for moving said sections with relation to said plates, for the purpose set forth.

6. A loose-leaf binder comprising, in combination, a pair of outer sections, a member forming the back proper with which the outer sections are adapted to telescope, the combined width of said sections and member being less than the width of the binder when fully extended, links pivotally connected with said member and operatively engaging with said sections and telescoping therewith, strips connected with the links on each side of said member and serving to close the space between said sections and member when the binder is expanded, and means for moving said sections with relation to said member, for the purpose set forth.

7. A loose-leaf binder comprising, in combination, a pair of outer sections, a member forming the back proper with which said sections are adapted to telescope, the combined width of said sections and member

being less than the width of said binder when fully extended, links pivotally connected with said member and operatively engaging with said sections and telescoping therewith, strips having sliding connection with said links intermediate their ends and disposed at opposite sides of said member to close the spaces between the latter and said sections, for the purpose set forth.

ANTON TRINI.

In presence of—
WILLIAM B. DAVIES,
FRANCIS M. PHELPS.