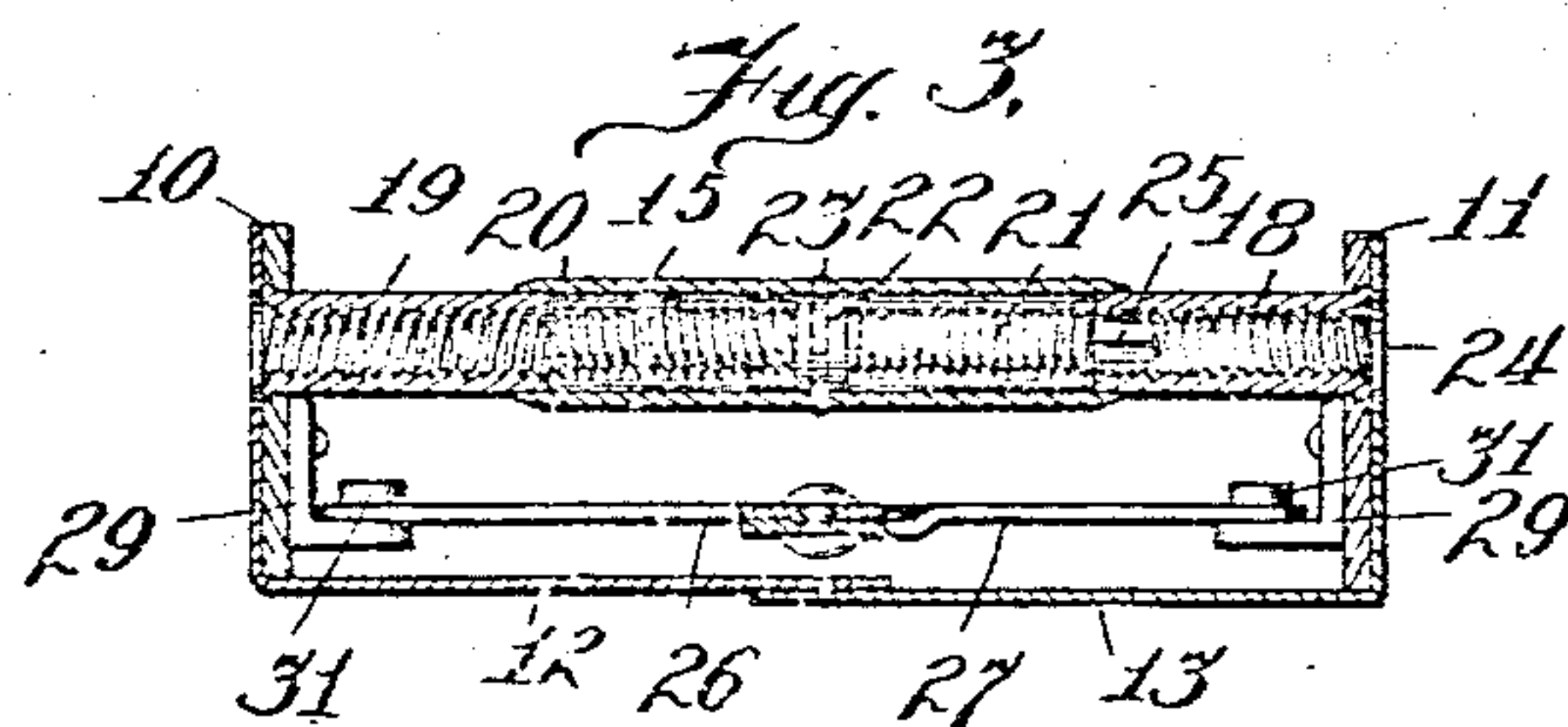
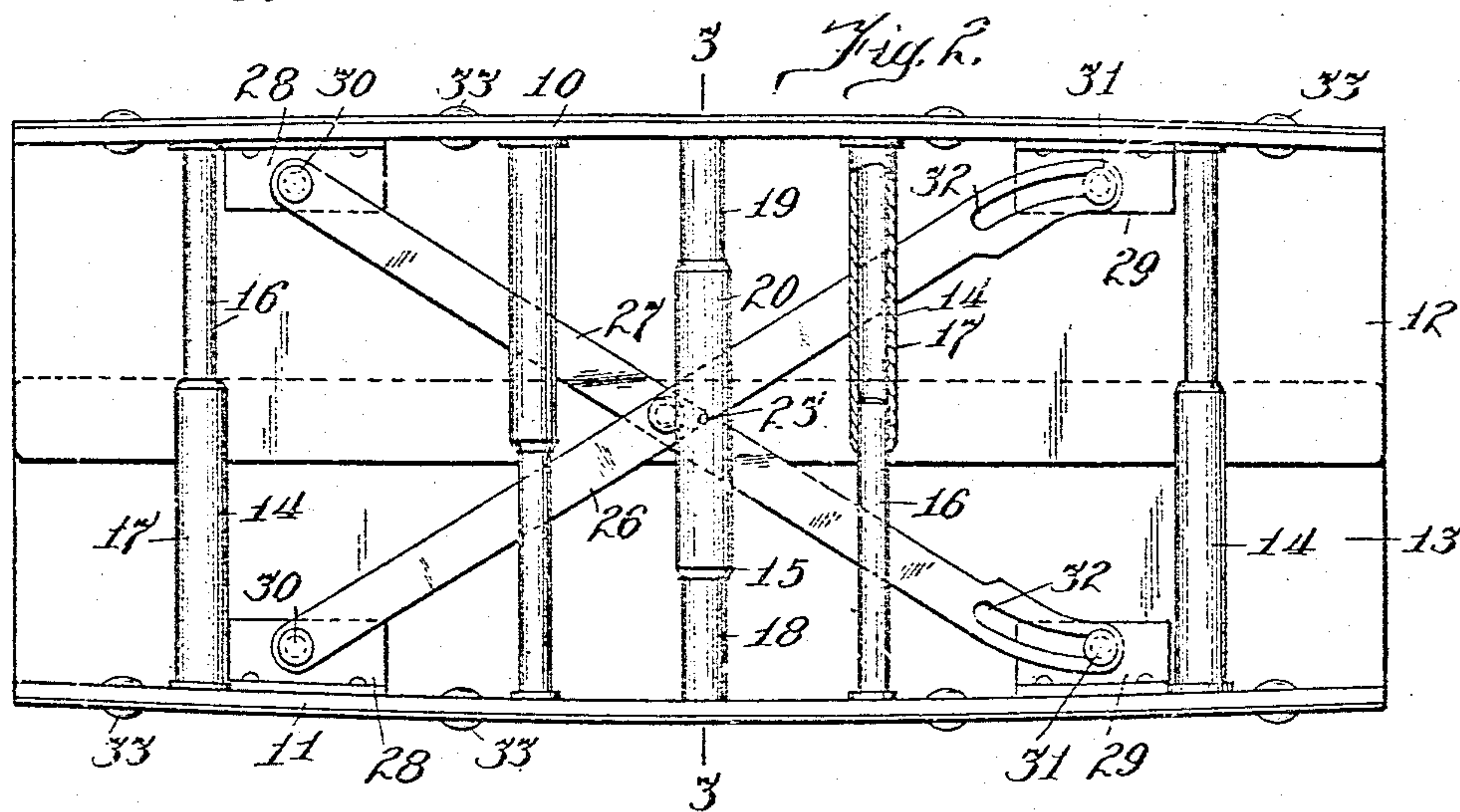
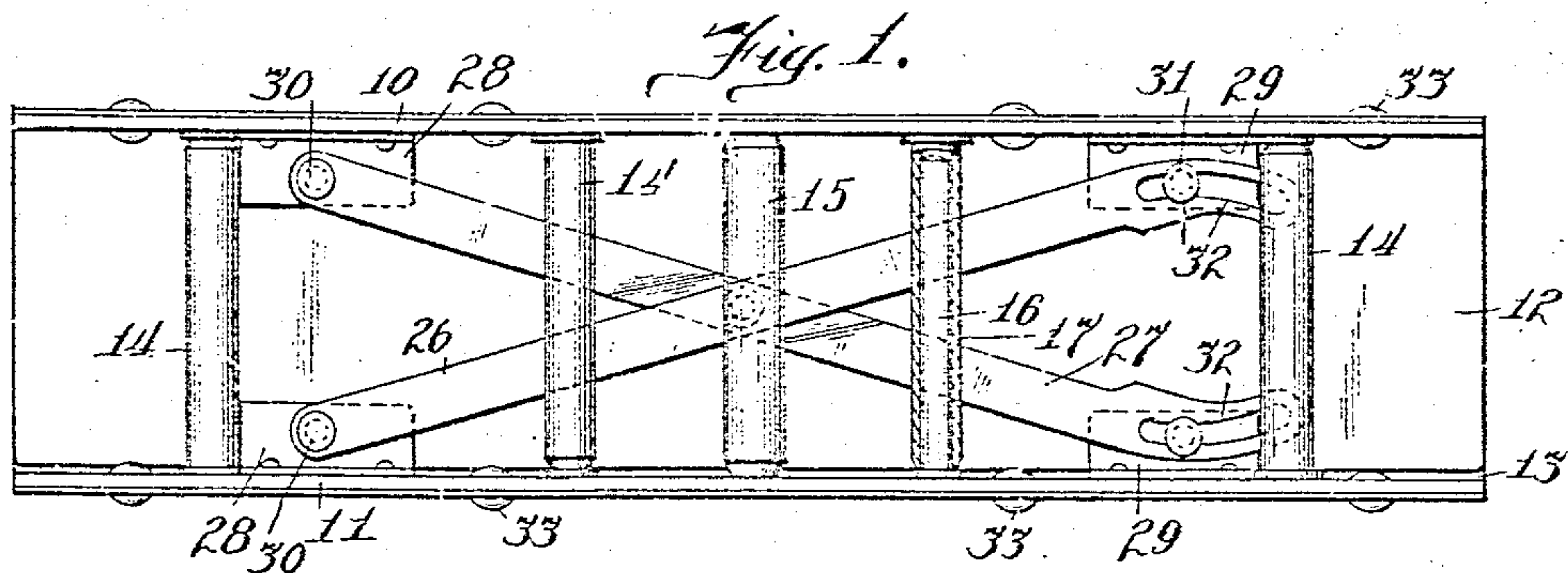


T. E. HEETER.  
LOOSE LEAF BINDER.  
APPLICATION FILED JULY 22, 1910.

978,744.

Patented Dec. 13, 1910.



Witnesses  
Hilton Lenoir  
E. M. Klatchers

Inventor  
Thomas E. Heeter.  
By *Gilson & Gilson*  
Attorneys.



# UNITED STATES PATENT OFFICE.

THOMAS E. HEETER, OF ST. LOUIS, MISSOURI, ASSIGNOR TO SIEBER & TRUSSELL MANUFACTURING CO., A CORPORATION OF MISSOURI.

## LOOSE-LEAF BINDER.

978,744.

Specification of Letters Patent.

Patented Dec. 13, 1910.

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*To all whom it may concern:*

Be it known that I, THOMAS E. HEETER, a citizen of the United States, and a resident of St. Louis and State of Missouri, have invented a certain new and useful Improvement in Loose-Leaf Binders, of which the following is a specification, and which is illustrated in the accompanying drawings, forming a part thereof.

The invention relates to loose leaf binders comprising a pair of clamping plates and telescoping filing posts extending between the plates.

The object of the invention is to provide improved means for imparting relative movement between the plates and for limiting their separation.

The invention is exemplified in the structure to be hereinafter described and illustrated in accompanying drawings, in which:—

Figure 1 is a plan view showing loose binder mechanism constructed in accordance with the invention, the parts of the binder being shown in the closed position. Fig. 2 is similar to Fig. 1 but shows the parts of the binder in open position. Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2.

The clamping plates of the binder are designated in the drawings by the numerals 10, 11. These clamping plates are preferably made of material, such as soft steel bars or so-called band iron, capable of being elastically flexed by pressure. As shown the clamping plates 10, 11, carry inwardly extending over-lapping leaves or flanges, designated 12, 13, which serve to close the back of the binder.

The filing posts are designated by the numerals 14, 15. These filing posts are telescopically expansible, the posts 14 being each formed of two sections 16, 17, one of which, as 17, is tubular and of sufficient diameter to receive the other section, 16. The post 15 is formed of three sections designated 18, 19, 20. The sections 18, 19, are each carried by one of the clamping plates as 10, 11, and extend inwardly therefrom in alinement. The section 20 is tubular and of sufficient diameter to slidably receive the sections 18, 19, which, as shown, enter it from opposite ends.

A clamping screw 21, connects the sections 18, 19, of the post 15, within the tubu-

lar section 20. As shown the clamping screw 21 has a hub portion 22 about midway of its length, and is threaded at each side of its hub portion to the end of the screw, but in opposite directions, the screw at one side of the hub being a so-called right hand thread and that at the other side being a so-called left hand thread. Preferably the hub portion of the screw fits snugly within the tubular section 20, and is secured thereto as by means of a pin 23, which passes through the walls of the part 20 and through the hub 22.

The sections 18, 19, of the post 15, are made tubular and are internally threaded to receive the ends of the clamping screw 21, the two sections 18, 19, being oppositely threaded in a manner corresponding to the threading of the respective ends of the clamping screw 21. The post 15 may be lengthened or shortened by turning the screw 21, and this movement causes a corresponding movement of the clamping plates 10, 11. As the section 20, of the post 15, is rigidly connected to the clamping screw 21 by the pin 23, this screw may obviously be turned by turning the part 20, which serves as a sleeve for covering the screw and the ends of the sections 19, 20. Inasmuch, however, as the several parts of the post 15, will commonly be covered by the sheets contained in the binder, access to one of the ends of the screw 21 is preferably had, as through an aperture 24, provided in one of the side plates, as 10, in line with the bore of the post 15. As shown at 25, Fig. 3, the end of the screw 21, adjacent the clamping plate 10, is squared to receive a wrench (not shown) inserted through the aperture 24.

Preferably provision is made for limiting the separation of the clamping plates 10, 11, and the screw 21 is so proportioned in length that it will leave the ends of the post sections 19, 20 immediately after the limit of separation of the clamping plates 10, 11, has been reached in order that the parts may not be broken by a continued turning of the screw. As shown, a pair of crossed levers 26, 27, connect the clamping plates 10, 11, to limit their separation. Each of these levers is pivotally connected to one of the clamping plates at one of its ends and has a limited sliding engagement with the other clamping plate adjacent its other end. As shown



brackets 28, 29 are applied to the inside faces of the clamping plates 10, 11, for connection with the ends of the levers 26, 27. A pivot pin 30 connects one end of each of the levers with one of the brackets 28. The brackets 29 each carry a stud 31, which runs in a curved slot, 32, formed in one of the levers 26, 27, adjacent its end. The separation of the clamping plates 10, 11, is limited by the engagement of the studs 31 with the outer ends of the slots 32, as shown in Fig. 2 of the drawings. Upon the separation of the clamping plates 10, 11, the studs 31 reach the ends of the slots 32, in the levers 26, 27, just before the ends of the screw 21 run out of the ends of the post sections 18, 19. A continued turning of the screw 21 therefore causes the clamping plates 10, 11, to be slightly bowed outwardly between the pivots, 30, and the studs, 31, but the length of the screw 21 is such that it leaves the ends of the post sections 18, 19, before this bending of the clamping plates becomes excessive. The bowing out of the clamping plates 10, 11, causes them to exert a spring pressure upon the post sections 18, 19, whereby, upon a turning of the screw 21, in the reverse direction, its threads will immediately enter the threads of the corresponding post sections, and a closing of the binder ensue. In turning the screw 21 to open the binder a sharp click will be heard when the threads of the screw leave the threads of the post sections 18, 19, owing to the spring pressure then being exerted on the post sections by the bending of the clamping plates 10, 11. This sharp click denotes that the binder has been completely opened and that the turning of the screw should be discontinued.

By reason of the telescopic engagement of the post sections, 20, with each of the post sections 18, 19, a proper alinement of the screw, 21, with each of the threaded members with which it coöperates is maintained, even though the screw, 21, has been turned so far as to cause its ends to leave the ends of the post sections 18, 19.

The overlapping back plates 12, 13, of the binder are preferably formed from sheet metal bent to angular form and having one

of the leaves of the angle applied to the outside face of one of the clamping plates 10, 11, and connected thereto by rivets, as 33.

I claim as my invention:—

1. In a loose leaf binder, in combination, a pair of oppositely facing clamping plates, one thereof being elastically flexible, connection between the clamping plates limiting their separation adjacent their ends, and telescoping threaded members projecting inwardly from the clamping plates intermediate their ends, the combined length of such members being greater than the distance between the clamping plates at the limit of their separation adjacent their ends.

2. In a loose leaf binder, in combination, a pair of oppositely facing clamping plates, an internally threaded tubular post section projecting inwardly from each clamping plate, the two post sections being in alinement and being oppositely threaded, and one of the clamping plates being apertured in line with the bore of the post sections, a sleeve telescopically receiving both of the post sections, and a screw inclosed by the sleeve and secured thereto and having oppositely threaded ends engaging the threads of the post sections, that end of the screw adjacent the apertured clamping plate being adapted for the reception of a rotating tool.

3. In a loose leaf binder, in combination, a pair of oppositely facing clamping plates, one thereof being elastically flexible, connection between the clamping plates limiting their separation adjacent their ends, an internally threaded tubular post section projecting inwardly from each clamping plate intermediate its ends, the two post sections being in alinement and being oppositely threaded and a screw having oppositely threaded ends engaging the post sections, the combined length of the screw and the post sections being greater than the distance between the clamping plates at the limit of their separation adjacent their ends.

THOMAS E. HEETER.

Witnesses:

F. W. RISQUE,  
FRED. COFFMAN.