

A. B. UNDERWOOD.
 LOOSE LEAF BINDER.
 APPLICATION FILED DEC. 17, 1907.

913,073.

Patented Feb. 23, 1909.
 2 SHEETS—SHEET 1.

Fig. 1.

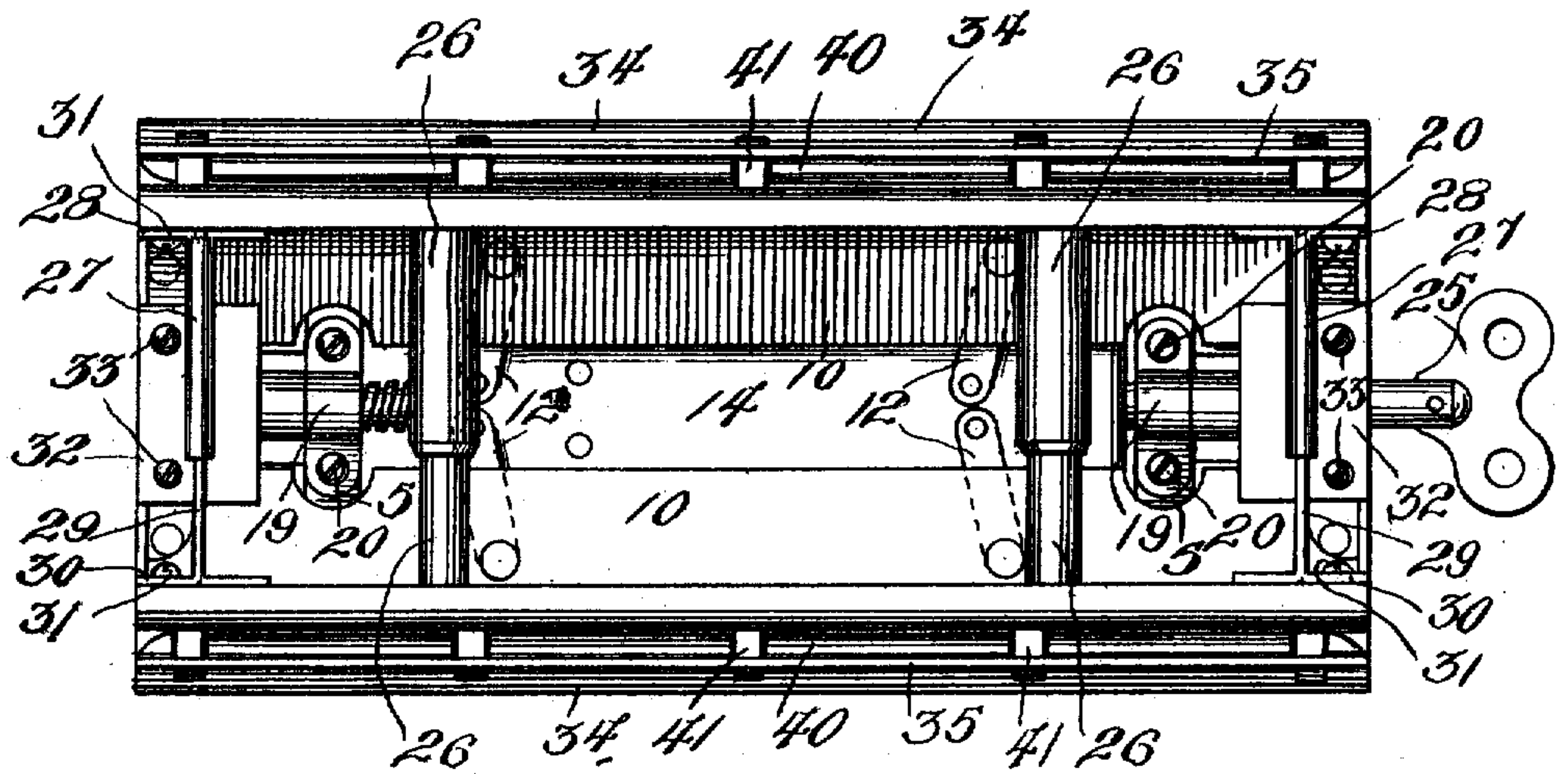


Fig. 7.

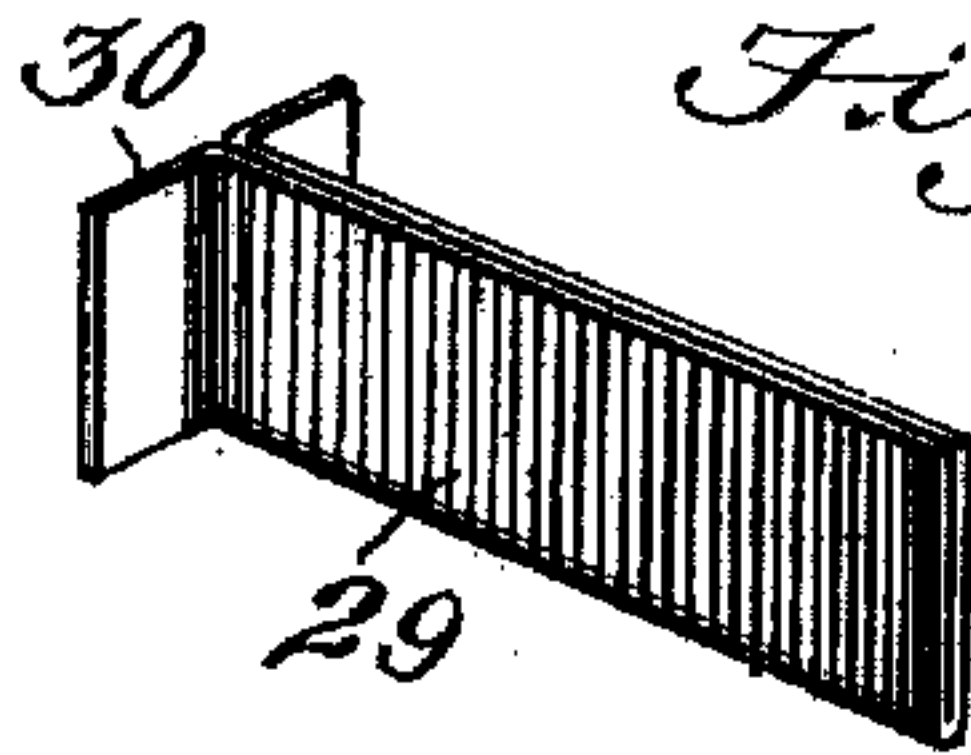


Fig. 8.

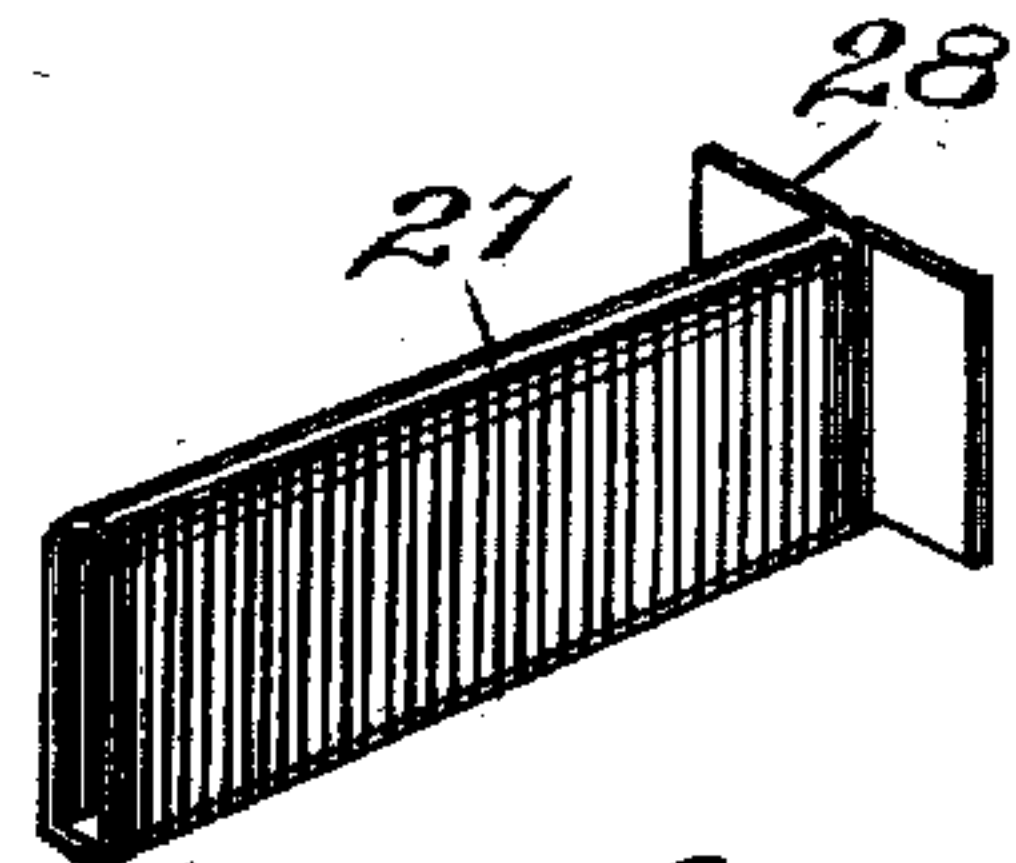
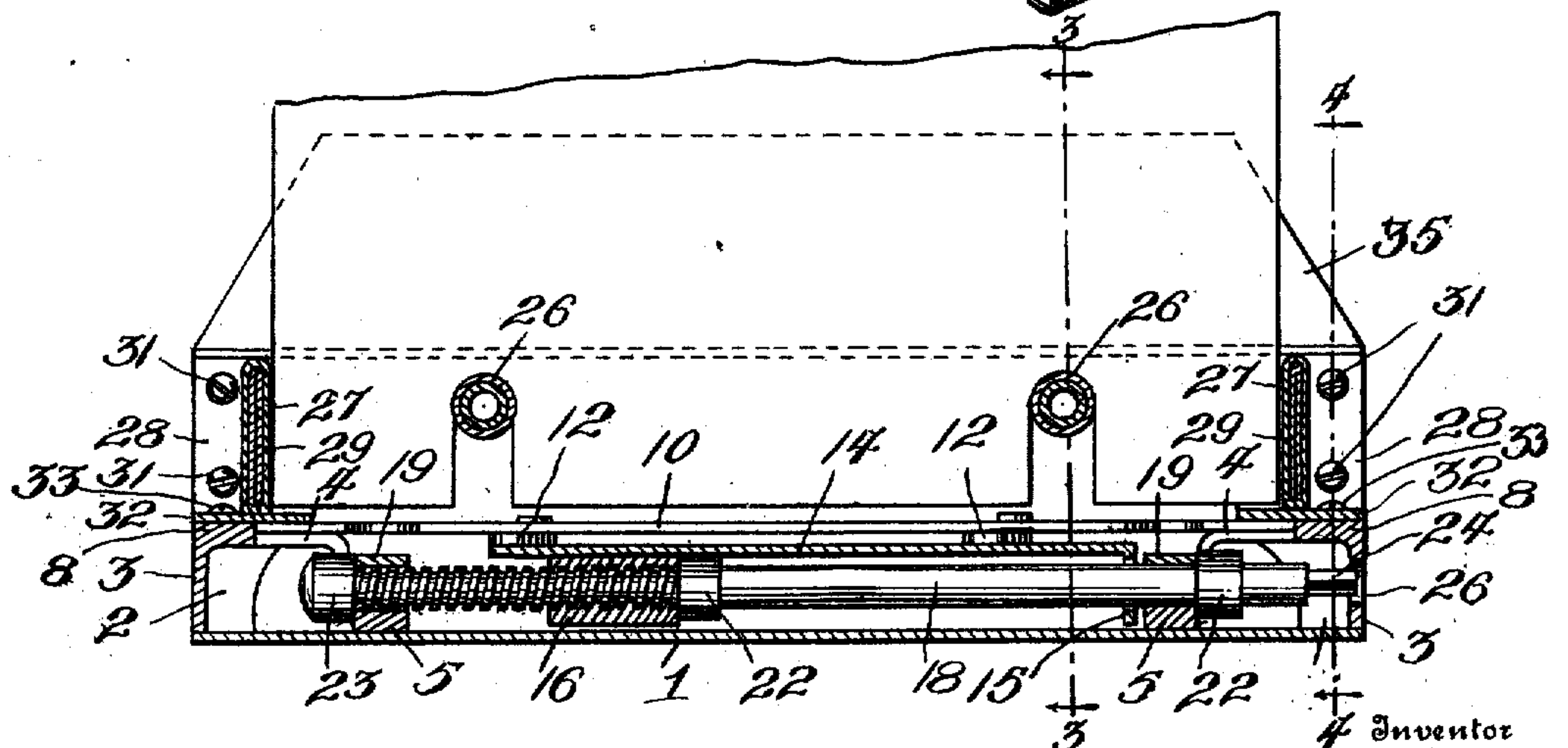


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

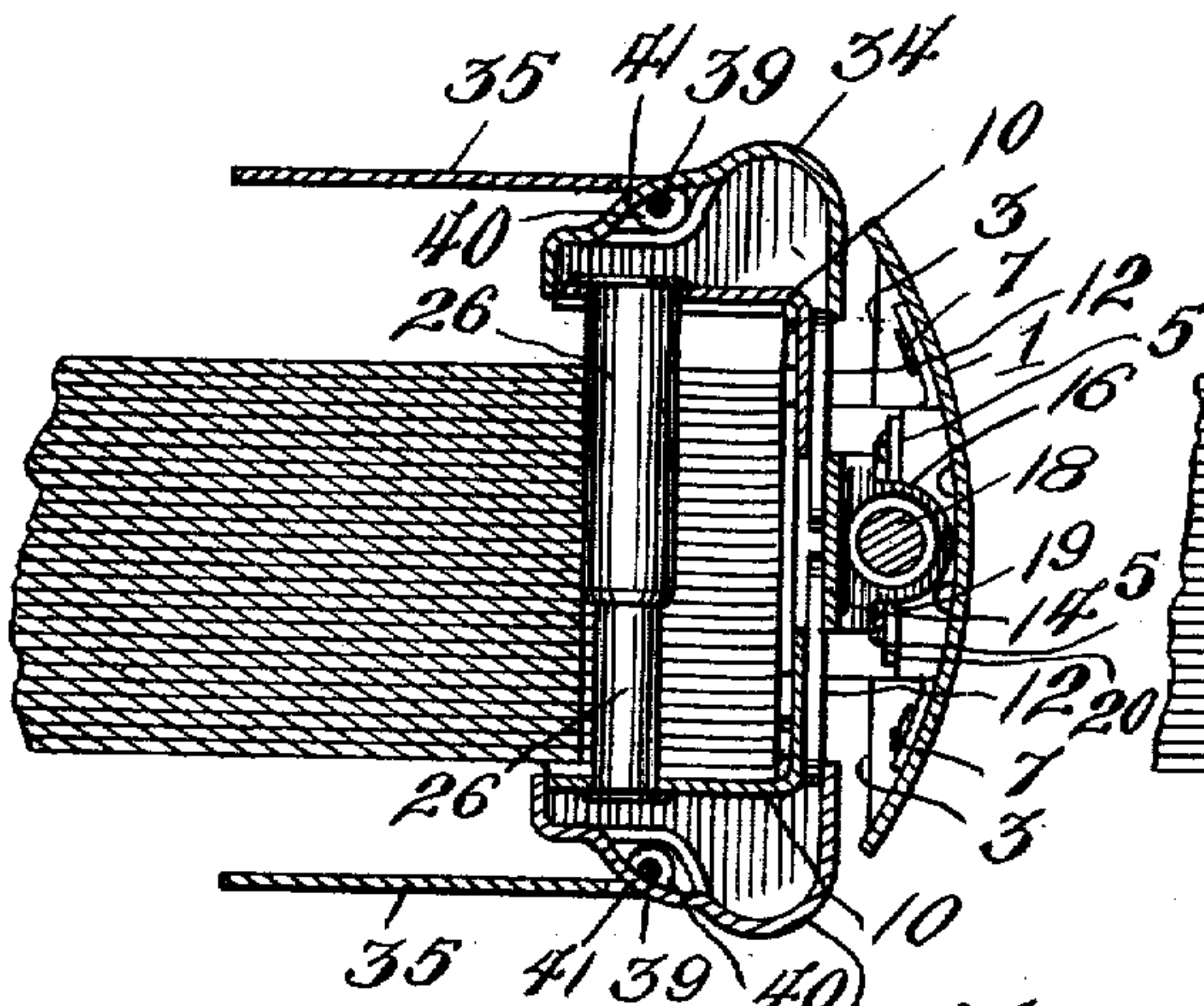


Fig. 4.

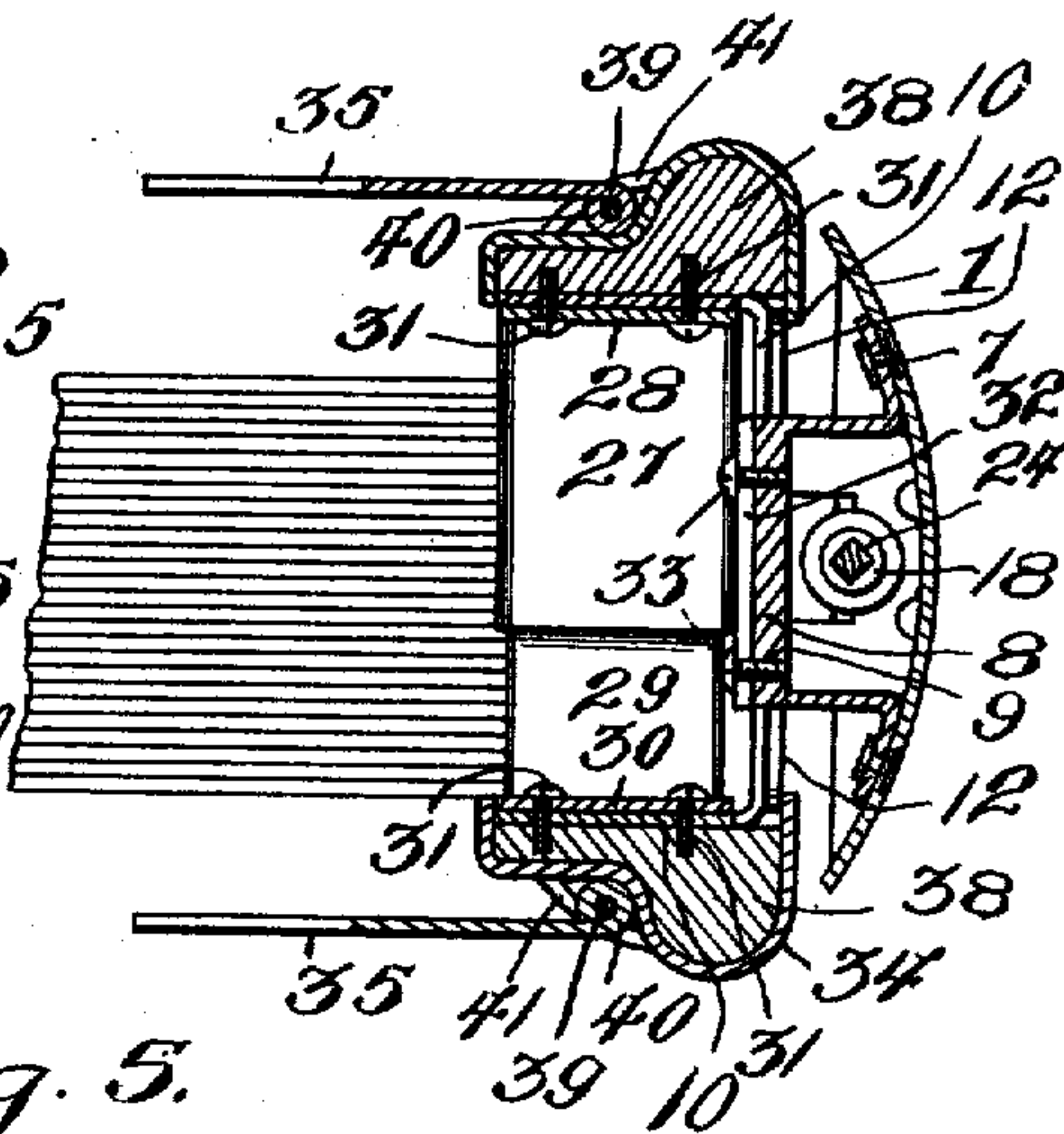


Fig. 5.

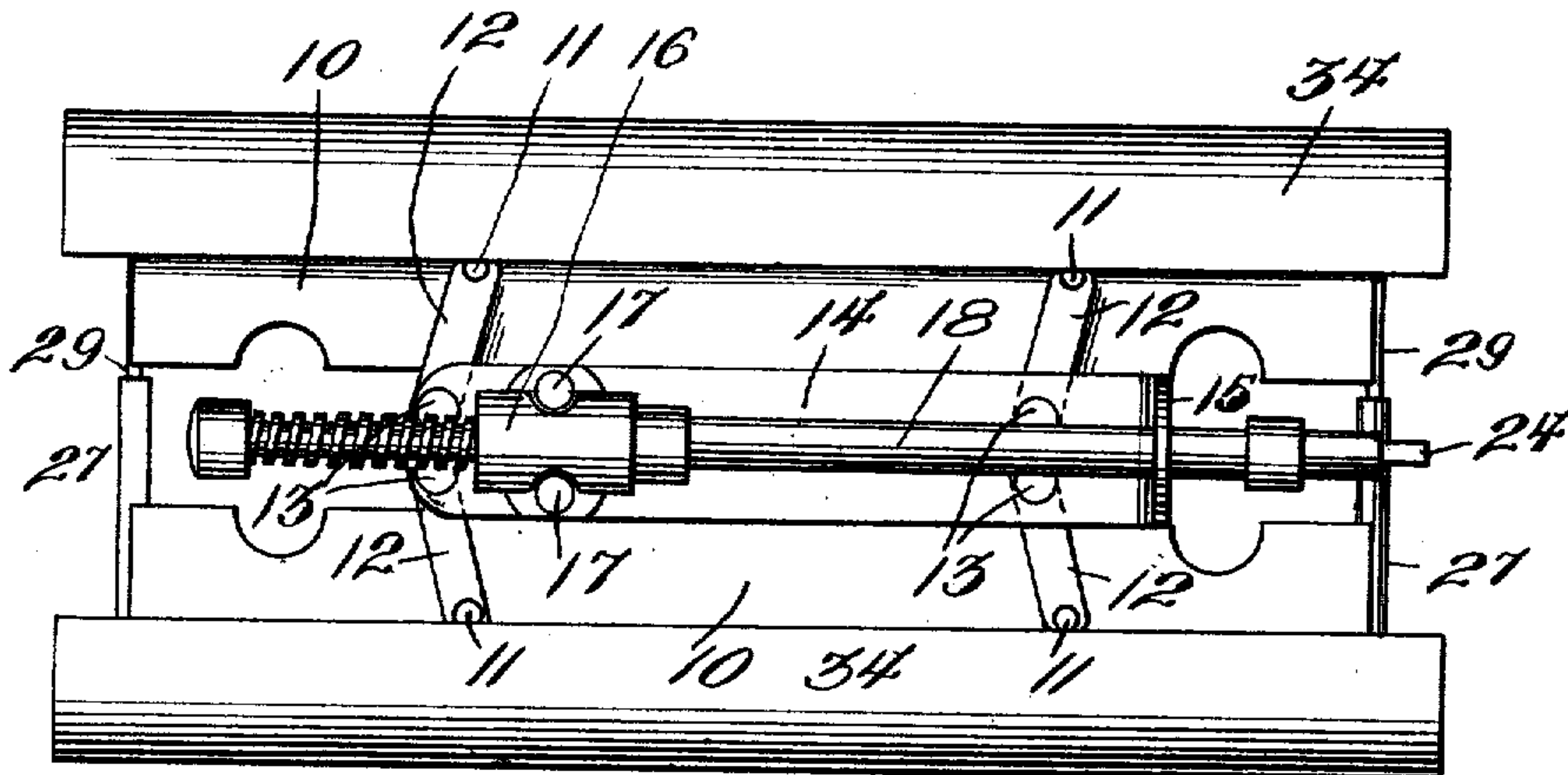
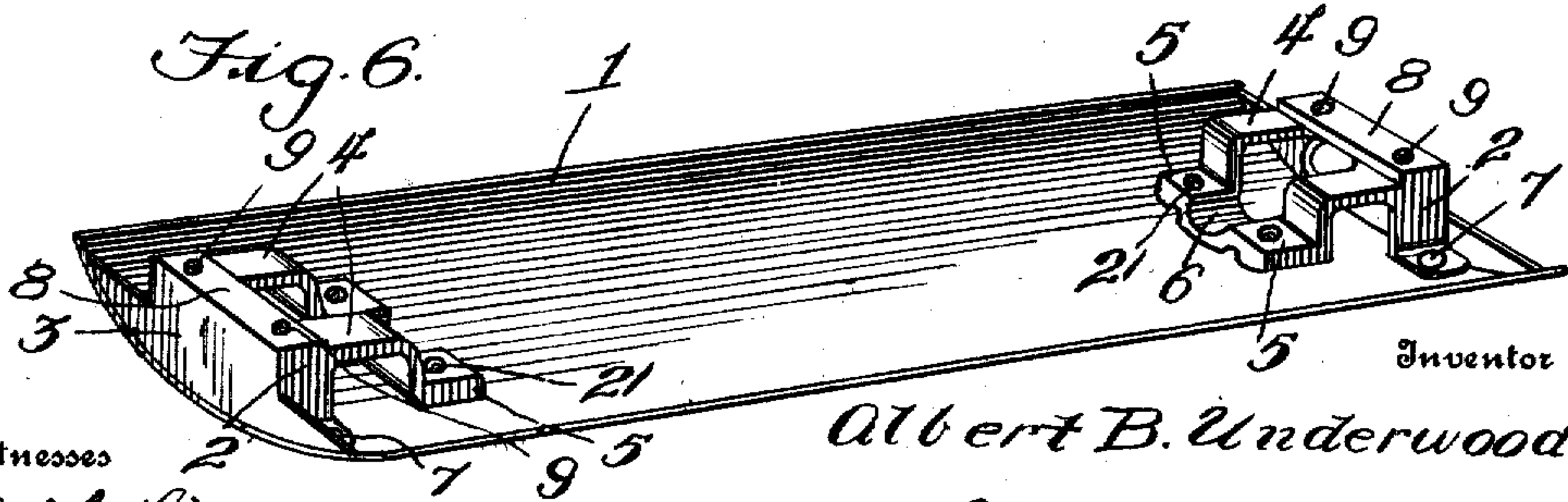


Fig. 6.



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UNITED STATES PATENT OFFICE.

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LOOSE-LEAF BINDER.

No. 913,073.

Specification of Letters Patent.

Patented Feb. 23, 1909.

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To all whom it may concern:

Be it known that I, ALBERT B. UNDERWOOD, a subject of the King of Great Britain, residing at Covington, in the county of Kenton and State of Kentucky, have invented new and useful Improvements in Loose-Leaf Binders, of which the following is a specification.

This invention relates to loose leaf binders, and one of the principal objects of the same is to provide improved means for mounting the screw shaft which moves the side clamps of the binder toward and from each other.

Another object is to simplify the construction and increase the general efficiency of the telescopic guides and other details of the binder.

Still another object of the invention is to provide improved means for mounting the traveling plate and traveling nut on the screw shaft, whereby the movements of the clamp portions of the binder will operate quickly and smoothly.

These and other objects may be attained by means of the construction illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a loose leaf binder made in accordance with my invention, the covers of the binder being removed. Fig. 2 is a central longitudinal section of the same, showing one of the loose leaves in place. Fig. 3 is a transverse sectional view on the line 3—3 of Fig. 2, looking in the direction indicated by the arrow. Fig. 4 is a sectional view on the line 4—4 of Fig. 2. Fig. 5 is an underside view of the binder with the back removed. Fig. 6 is a perspective view of the curved back and the cast metal bearings and keepers for the screw shaft. Fig. 7 is a perspective view of one member of one of the telescopic guides. Fig. 8 is a similar view of the other member of said guides.

Referring to the drawings for a more specific description of my invention, the numeral 1 designates the curved back of the binder, preferably made from a single piece of sheet metal of the required gage, and 2 are the cast metal bearings and keepers for the screw shaft, said cast metal bearings comprising the end portions 3, which conform substantially to the curvature of the back 1. Projecting legs 4 spaced apart are provided with feet 5 which are connected together by a curved bearing 6 for the screw shaft. These castings are secured to the ends

of the curved back 1 by means of suitable rivets 7, and each casting is provided with a plain smooth top 8 provided with screw holes 9 for a purpose which will presently appear.

The movable side clamp plates 10 are substantially of right angular form in cross section, and pivotally connected to each of said plates at 11 is a link 12, two of said links being connected to each plate 10, and the inner ends of said links being pivotally connected at 13 to a traveler plate 14. The traveler plate 14 has a downwardly bent end 15 forming a guide for the screw shaft, said guide having an aperture therein through which said shaft projects. The traveler nut 16 is secured by means of rivets 17 to the traveler plate 14, said nut being interiorly screw threaded and engaged by the screw shaft for moving said plate and links longitudinally to thus move the side clamping plates 10 toward and from each other.

The screw shaft 18 is mounted in the bearings 6 near the opposite ends of said shaft, and keeper plates 19 are secured on top of said shaft by means of screws 20 which pass through the keeper plates 19 and into the screw holes 21 in the feet 5. The shaft 18 is provided with stop collars 22 and a stop cap 23 which prevent the longitudinal movement of said screw shaft and insures the movement of the traveler plate 14 and the traveler nut 16. On one end the screw shaft 18 is provided with a squared portion 24 fitted by a key 25 designed to be passed through a key-hole 26 formed in any of the castings 2. By turning the key 25 the shaft 18 is rotated in either direction to move the traveler plate 14 and traveler nut 16 and thus actuate the links 12 to move the clamping plates 10 toward and from each other, as will be understood.

The telescopic posts 26 are secured to the clamping plates, and one member of said posts slides within the other in the usual manner.

The telescopic guides at the ends of the binder each comprises two members, the socket member being formed of a single piece of sheet metal bent up to form a substantially rectangular socket member 27 having feet 28 bent outwardly therefrom at one end, and a sliding member 29 formed from a single piece of sheet metal bent double and provided with feet 30. The feet

28 and 30 are secured by means of screws 31 to the outer ends of the clamping plates 10, as shown more particularly in Figs. 1 and 2. Secured to the top of the smooth portion 8 of the castings 2 are metal plates 32 secured in place by means of screws 33.

The side plates 34 to which cover supports 35 are hinged are formed of sheet metal and are hollow, and said side plates are secured to the clamp plates 10 in any suitable manner. The hollow side plates 34 have filler blocks 38 therein, and the screws 37 pass through the plates 36, the clamping plates 10 and into the filling blocks, thus providing a very secure and strong construction. The cover supports 35 are hinged to a long pin 39 which extends through a series of bearings 40 formed at intervals upon the cover supports. Cut from the body of the side plates 34 are a series of keepers 41, and the bearings 39 are disposed between the keepers 41, thus hinging the cover supports 35 to the side plates by simple, yet strong and durable means.

The operation of my invention will be readily understood from the foregoing. By means of the key 25 the clamping plates are moved toward and from each other, the traveler plate and traveler nut moving the links 12, as will be understood.

Having thus described the invention, what is claimed as new, is:—

1. In a loose leaf binder, a curved back, cast metal bearings secured to said back at

the ends thereof, said bearings each having a curved seat formed therein, in combination with a screw shaft seated in said bearings, keeper plates engaged with the bearings, stop collars carried by the shaft and located outwardly of the bearings and the keepers, a traveler plate engaged with the shaft, and links pivoted to the plate and to the side clamps of the binder.

2. In a loose leaf binder, the combination with a curved back, and bearings secured to said back at the ends thereof, of a screw shaft mounted at its ends in the bearings, a traveler plate having a down-turned end portion slidably mounted on said shaft, a nut carried by the plate and engaged with the shaft, and links pivoted to said plate and to the side clamps of the binder.

3. In a loose leaf binder, the combination of a curved back, cast metal bearings secured to said back at the ends thereof, said bearings each having a curved seat, a screw shaft seated in said bearings and provided with stop collars, a traveler plate having a downturned end forming a guide for said screw shaft, a traveler nut secured to said plate, and links pivoted to said plate and to the side clamps of the binder.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT B. UNDERWOOD.

Witnesses:

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