

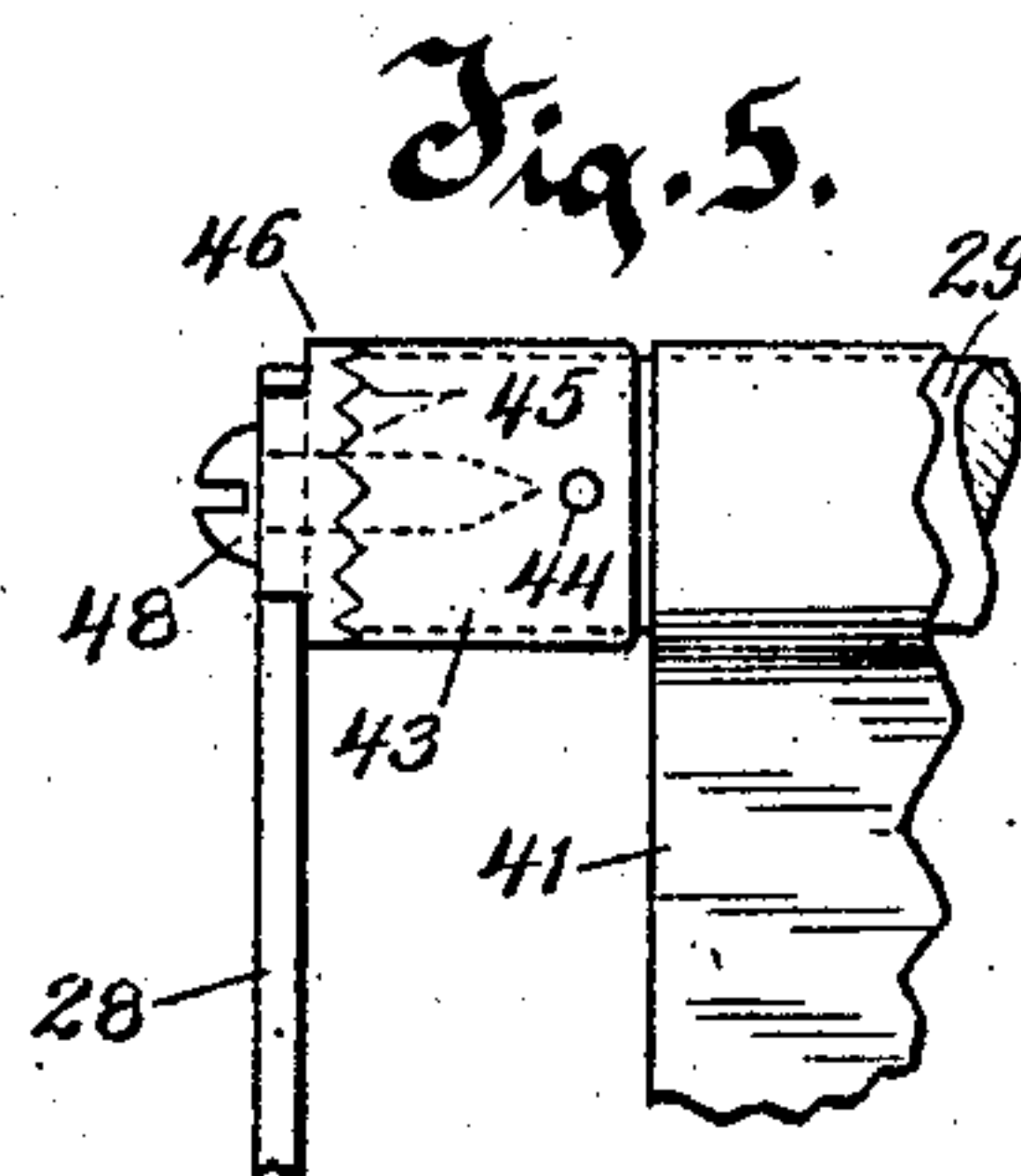
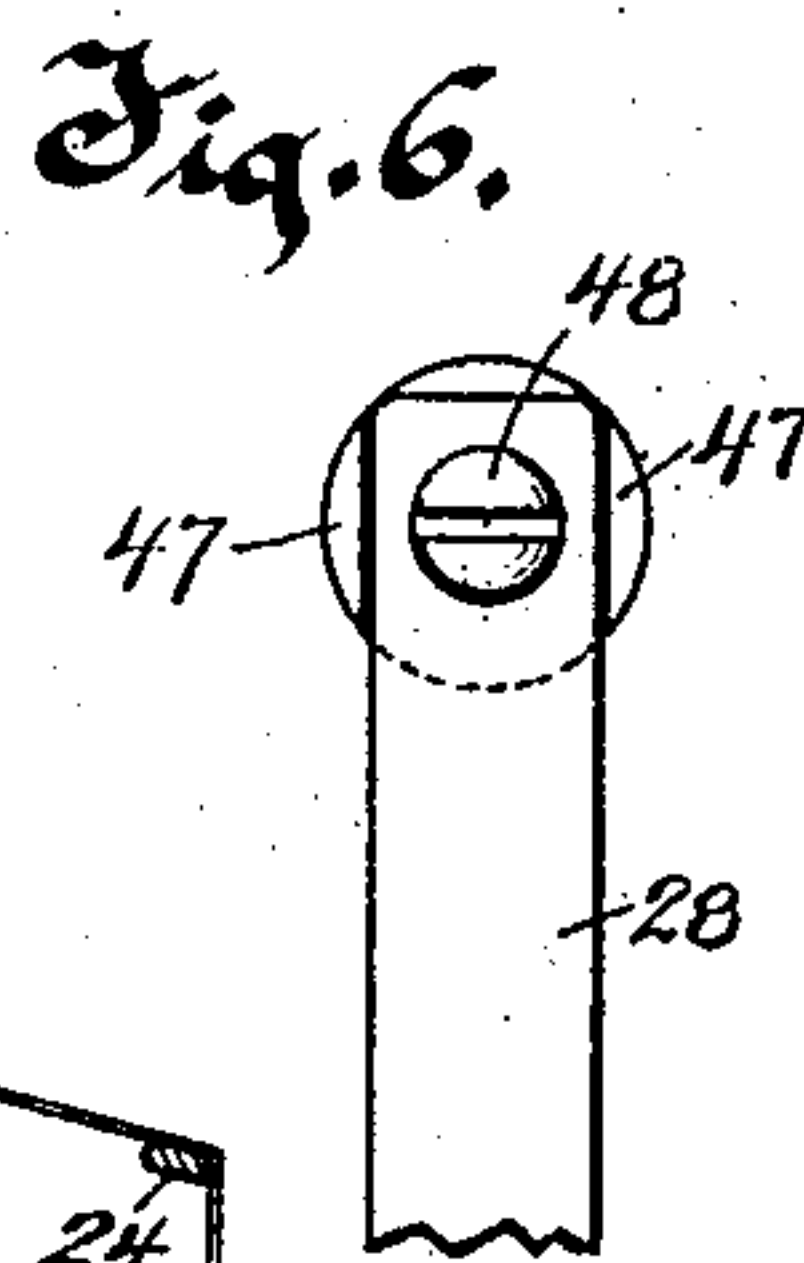
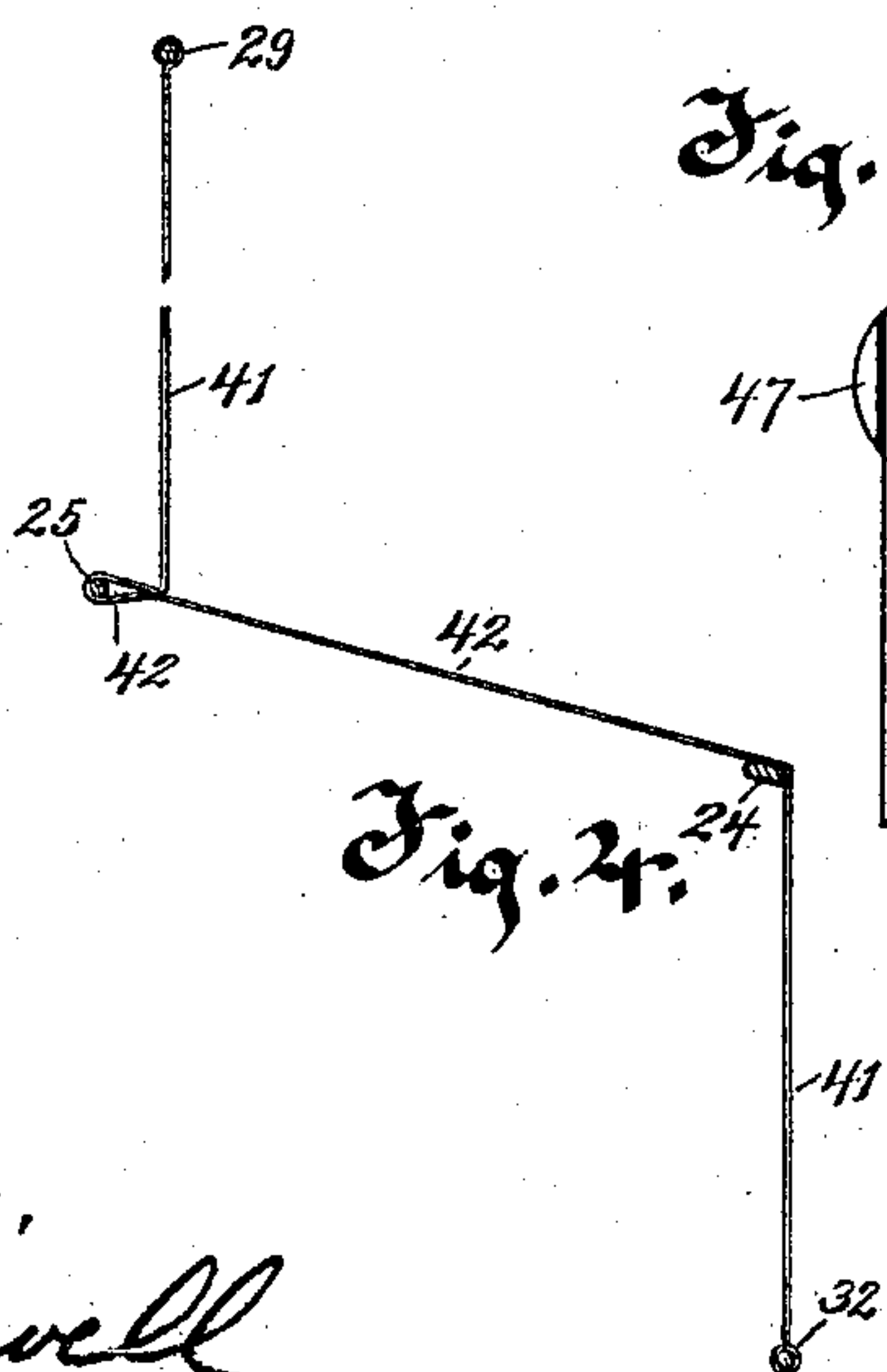
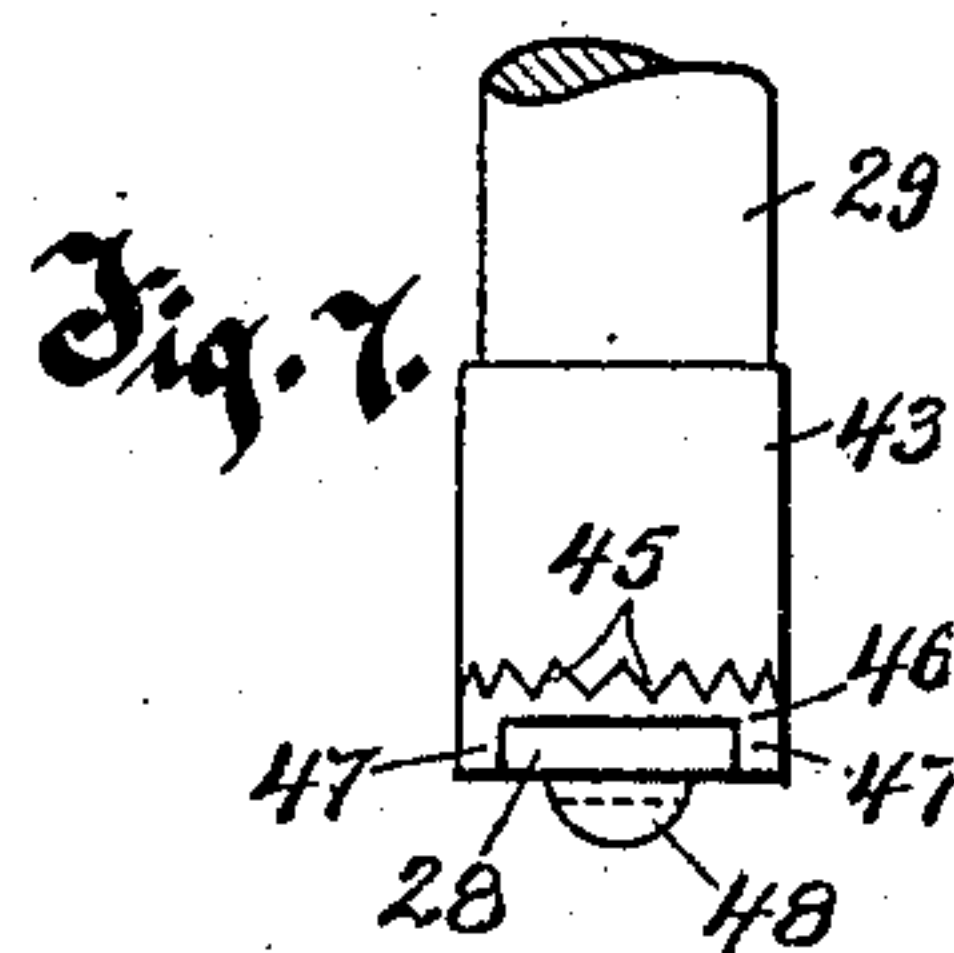
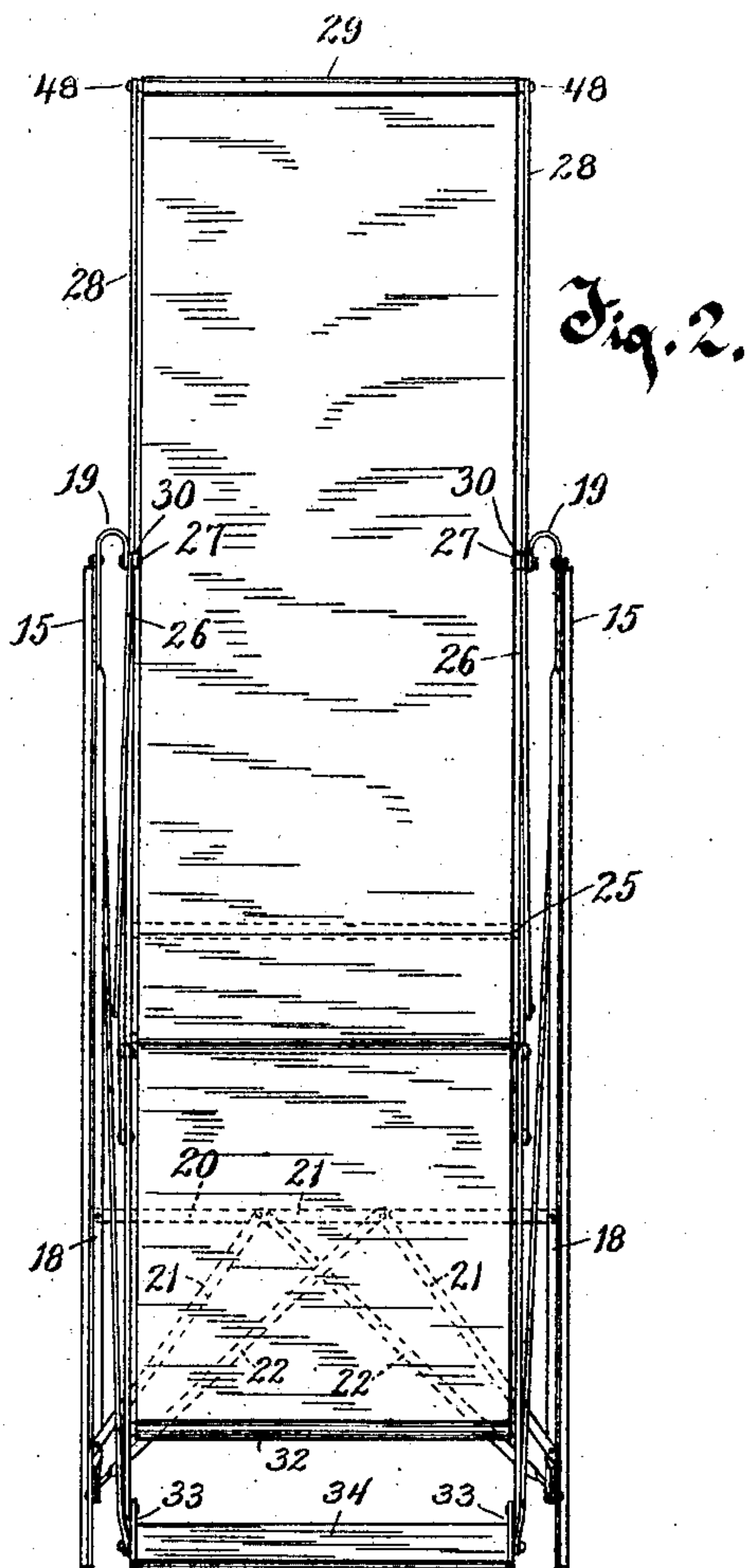
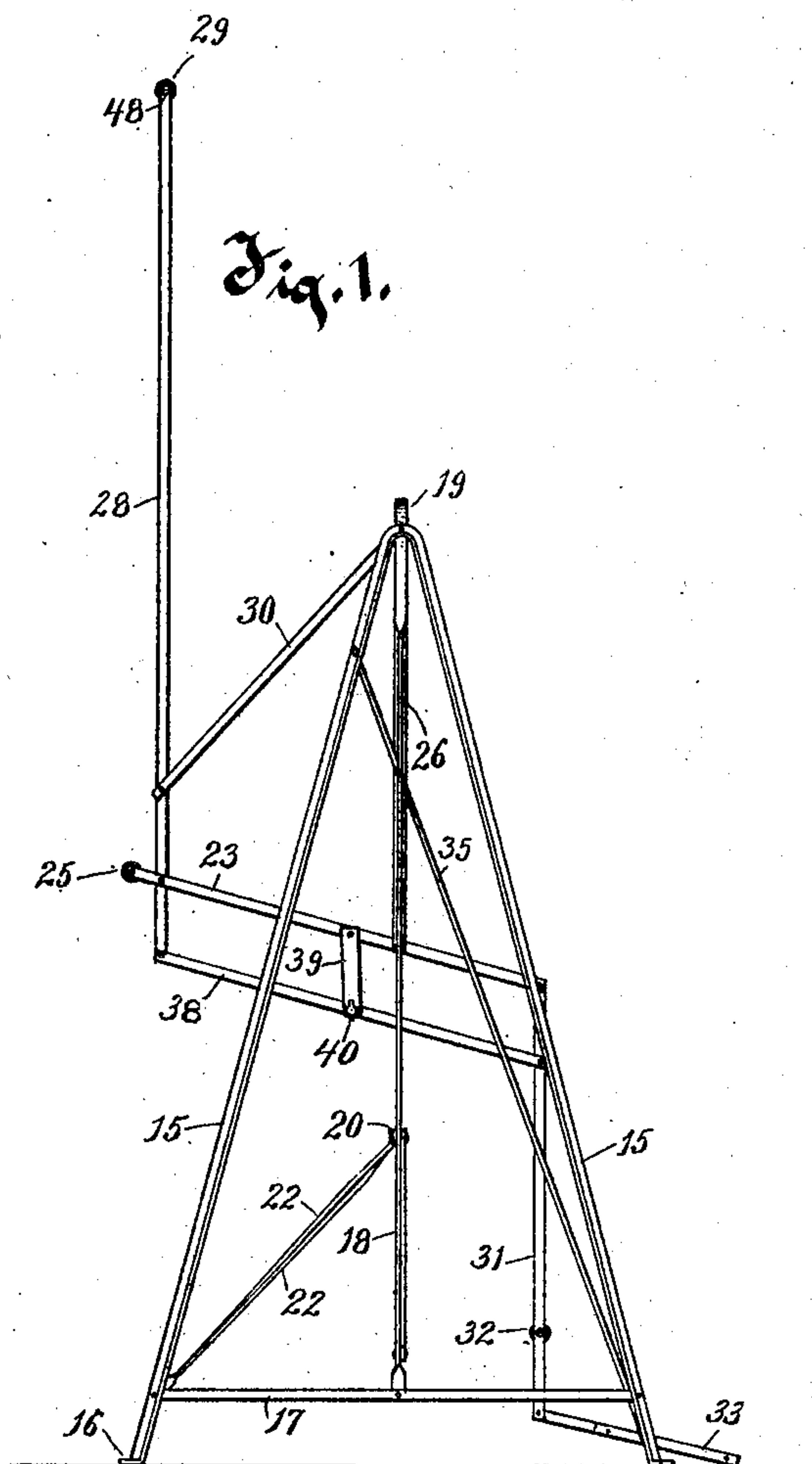
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PATENTED AUG. 1, 1905.

I. Z. MERRIAM.  
SWINGING RECLINING CHAIR.

APPLICATION FILED APR. 4, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

Fig. 3.

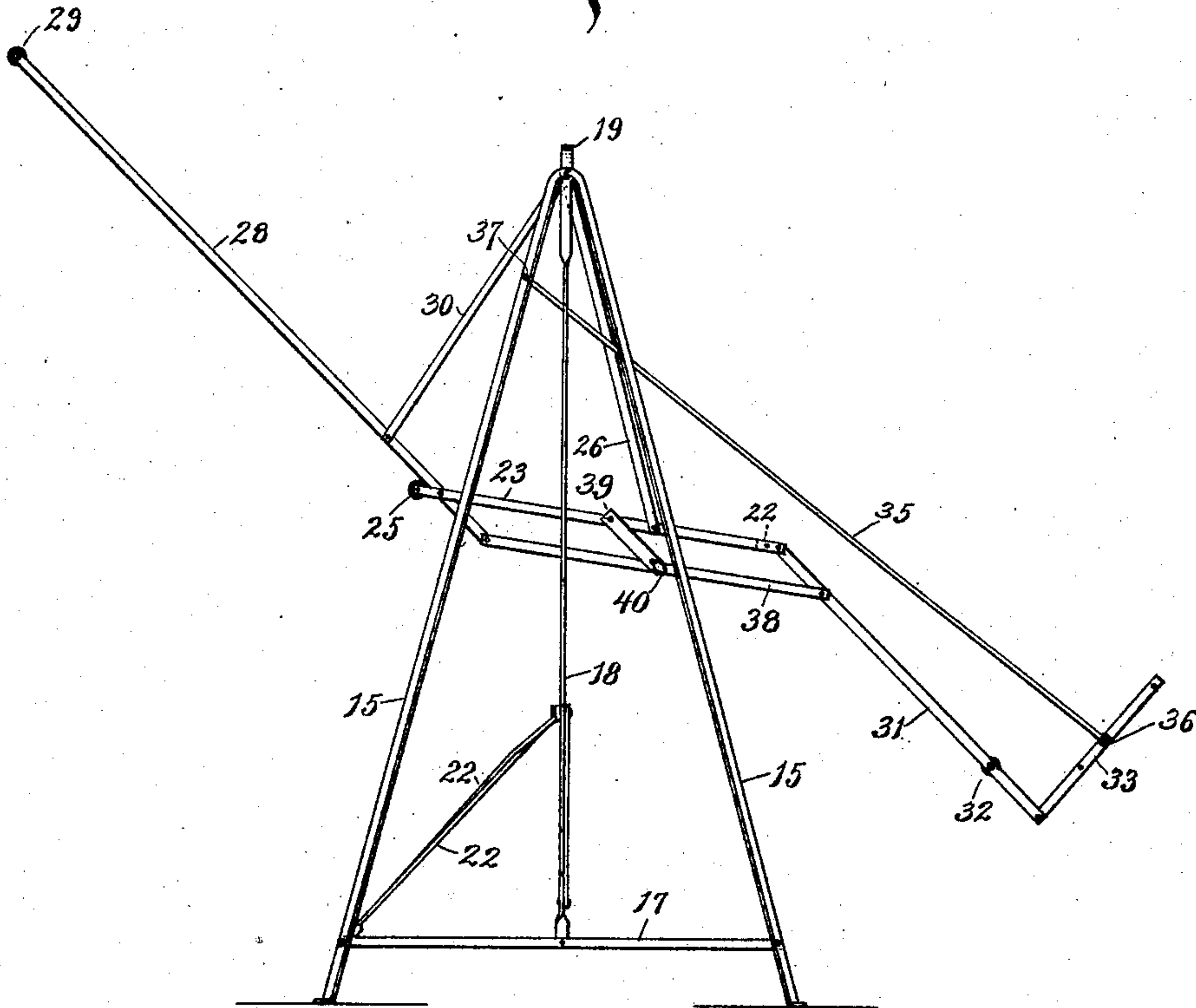


Fig. 10.

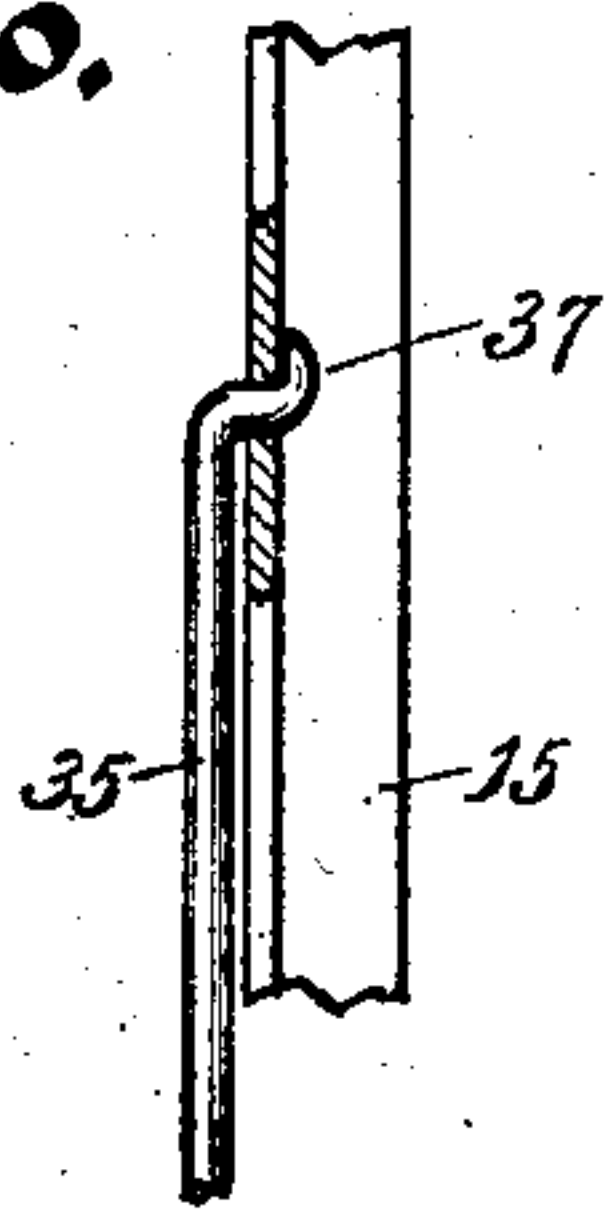


Fig. 9.

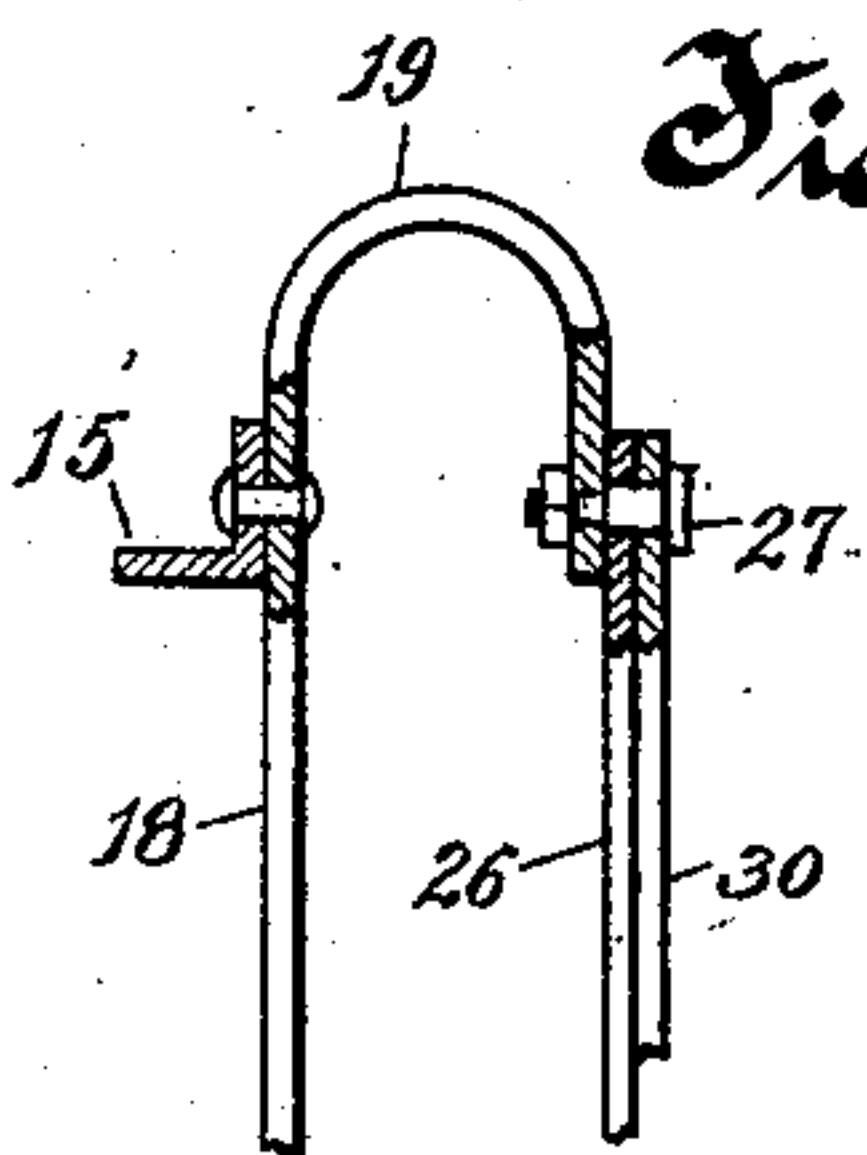
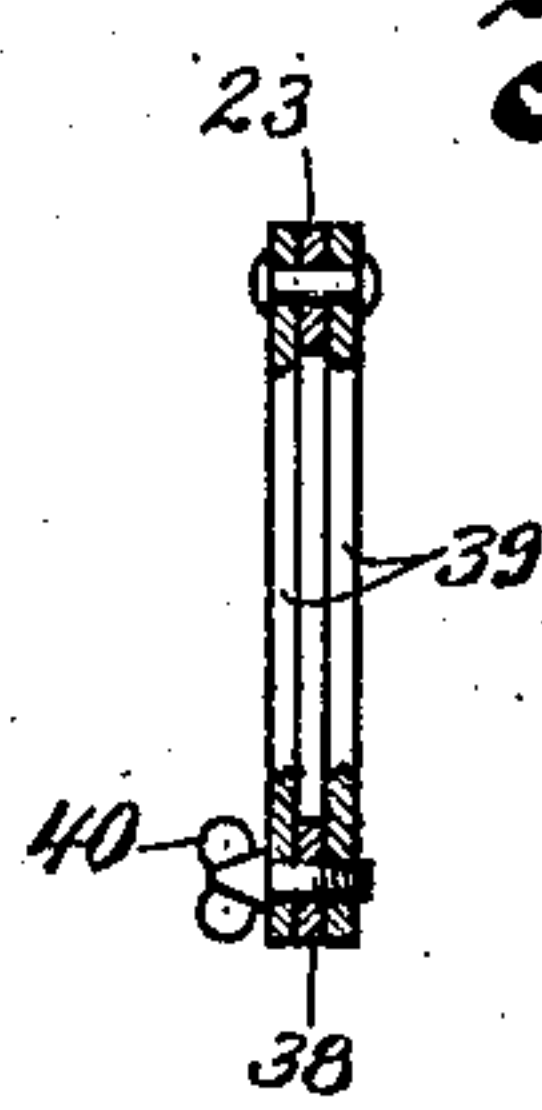


Fig. 8.



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# UNITED STATES PATENT OFFICE.

IRAM Z. MERRIAM, OF WHITEWATER, WISCONSIN.

## SWINGING RECLINING-CHAIR.

No. 795,922.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed April 4, 1904. Serial No. 201,392

*To all whom it may concern:*

Be it known that I, IRAM Z. MERRIAM, residing in Whitewater, in the county of Walworth and State of Wisconsin, have invented new and useful Improvements in Swinging Reclining-Chairs, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention relates to certain new and useful improvements in swinging reclining-chairs, and has for its object to provide an adjustable swinging reclining-chair with means for giving it motion.

Another object of this invention is to provide a reclining-chair of this nature with a foot-rest adapted to rest upon the floor when the chair is unoccupied.

A further object of this invention is to improve upon details of construction and operation of reclining-chairs.

With the above and other objects in view the invention consists in the devices and parts and their equivalents, as hereinafter set forth.

Referring to the accompanying drawings, in which like characters of reference indicate the same parts in the several views, Figure 1 is a side elevation of an adjustable reclining-chair embodying this invention, shown in its upright position. Fig. 2 is a front elevation thereof in the same position. Fig. 3 is a side elevation of the device in its inclined position. Fig. 4 is a diagram of the webbing and its supports. Fig. 5 is an enlarged detail view of the webbing adjustment. Fig. 6 is an end elevation thereof. Fig. 7 is a plan view of the same. Fig. 8 is a sectional elevation of the binding-link. Fig. 9 is a sectional elevation of the pivot portion of the standard, and Fig. 10 is a sectional elevation of the connecting-rod hook connection with the standard.

In the adjustable swinging reclining-chair illustrated in the accompanying drawings as exemplifying my invention side standards are provided between which the chair proper is pivotally supported, and these standards comprise inverted-V-shaped frames 15, preferably of angle-iron, with their ends turned outwardly to form feet 16 and the two ends of each frame being connected together to prevent their spreading by rods 17. A rod 18 joins the middle portion of the rod 17 with the apex or upper bend of the side frame 15, and its upper end extends above the side frame and is arched inwardly at 19, so that its extremity stands between the two side frames at

about the level of the lower edge of the upper bend of the side frame. The vertical rod 18 is twisted near its upper and lower ends, so that its intermediate portion stands in a plane at right angles to the plane of the side frame 15, and at such intermediate portion the two vertical rods 18 are connected by a cross-rod 20, to which a U-shaped brace-rod 21 is secured at its middle portion, the ends of said brace-rod 21 extending downwardly at an incline and connecting with the two vertical rods 18 near their lower ends. Tie-rods 22 connect the rear lower ends of the side frames 15, where the rods 17 join them, with the cross-rod 20 at the point of connection therewith of the arm of the brace-rod 21 which connects with the other side frame, so that the two tie-rods 22 cross each other, as clearly shown in Fig. 2.

The two standards rigidly connected together as above described form the base or support for the swinging reclining-chair, which is suspended therefrom by being pivoted to the arched ends 19 of the vertical rods 18.

The chair proper is formed of a seat-frame, with a back frame and a front frame pivoted thereto, the front frame carrying a hinged foot-rest, all to be hereinafter more particularly described.

The seat-frame comprises side rods 23, which are connected together at their front ends by means of a front bar 24 and at their rear ends by means of a back bar 25, and a link 26 is pivoted to each side rod 23 slightly in advance of its middle portion, said links at their upper ends being pivotally mounted upon pivot-bolts 27, secured in the overhanging ends of the arches 19 of the vertical rods 18.

The back frame comprises the side rods 28, which are pivoted a short distance above their lower ends to the side rods 23 of the seat-frame a slight distance in front of the back bar 25 of said seat-frame, and these rods 28 are connected at their upper ends by an adjustable roller 29, to be later more particularly described with reference to the adjustment of the webbing. At a slight distance above the pivots connecting the side rods 28 of the back frame with the side rods 23 of the seat-frame are pivoted to said side rods 28 links 30, which are also pivoted to the pivot-bolts 27, so that by the two links 26 and 30 the seat and back frames are freely suspended from the pivot-bolts 27 to be capable of swinging thereon.



The front frame of the chair proper comprises side rods 31, pivoted to the front ends of the side rods 23 of the seat-frame, and which are connected together at a short distance above their lower ends by means of an adjustable roller 32, similar to roller 29, to be later described in detail, and at their extreme ends they have pivoted thereto the side rods 33 of a foot-rest 34.

The foot-rest 34 is connected with the standards of the support for the chair by connecting-rods 35, pivoted at their lower ends to the side rods 33 of the foot-rest 34 by a bolt connection 36. At their upper ends they are pivotally connected to the rear members of the side frames 15 of the standards by having their ends bent in reverse right angles to form an S-shaped hook 37 with a pointed end, which can only be inserted in a perforation through the inner flange of the rear member of frame 15 when the connecting-rod 35 is at approximately right angles to the plane of the side frame 15, but which may freely swing in said perforations in a plane approximately parallel with the plane of the side frame when the connecting-rod is in its proper position, linking together the foot-rest and the rear member of the side frame of the standard.

Beneath the seat-frame are rods 38, pivotally connected at their rear ends to the lower ends of the side rods 28 of the back frame and at their front ends to the side rods 31 of the front frame at such a distance from the side bar 23 of the seat-frame as to be parallel therewith, the bars 23 and 38 forming the opposite longitudinal sides of a parallelogram and the rods 28 and 31 forming the opposite ends thereof. By this parallelogram arrangement the back frame and the front frame are kept parallel, so that as the back frame swings downwardly the front frame swings upwardly, and vice versa.

A clamp-link 39 connects the rods 23 and 38 at their intermediate portions and is arranged to be slightly out of parallelism with the ends of the parallelogram formed by the rods 28 and 31. Each link 39 is formed of two rods, holding between them the rod 23, to which they are pivoted at their upper ends, and the rod 38, to which they are pivoted at their lower ends by means of a thumb-screw 40, which freely passes through one of the rods of link 39 and through the rod 38 and is threaded in the other of the rods of link 39, so that when tightened it tightly clamps the link members to the rod 38 with a strong frictional engagement, and thereby holds the chair-seat in any adjustment. Further, by reason of being out of parallelism with the ends of the parallelogram above referred to the said link 39 prevents the collapsing of the parallelogram beyond a certain point because of its increasing tendency to bind as the parallelogram collapses, which is irrespective of the clamping action of the thumb-screw 40.

Sufficient play in the pivotal connections of the parallelogram and of the link 39 is afforded to enable the chair proper to swing through the desired degree of adjustment, as represented by the positions shown in Figs. 1 and 3; but such play is taken up by the discordant link 39 when the chair reaches the position shown in Fig. 3, and the gradually-increasing binding of the link prevents the parts swinging further in their adjustment than is shown in Fig. 3. It is clear that the roller 25 could be relied upon to terminate the degree of adjustment of the chair parts; but I prefer to employ a link such as described as a means for gradually braking the movement of the chair parts during adjustment, in lieu thereof or in addition thereto.

A webbing 41 is rigidly attached to the roller 29 at the upper end of the back frame and extends down said back frame and is folded upon itself and stitched at the fold to form a loop 42 to surround the rod 25 at the rear extension of the seat-frame, and then the webbing 41 continues forwardly along the seat-frame over the bar 24 at the front end thereof and down the front frame to the roller 32, to which it is also securely attached. The rollers 29 and 32 are provided with means for giving tension to the webbing, so that the webbing may be stretched tightly over the several frames, as above mentioned, and constitute a firm support for the occupant of the chair, and by reason of the loop 42 being made considerably larger than necessary for containing the rod 25 and a greater tension being given to the webbing by roller 32 than by roller 29 the junction of the webbing for the back frame with the webbing for the seat-frame is made considerably in advance of the rod 25, so that said rod is not encountered by the occupant of the chair.

The rollers 29 and 32 being identical in construction and operation it will be sufficient to describe but one. This consists of a bar, preferably round in cross-section, having at its ends metal ferrules 43, which are prevented from turning on the rod by pins 44, passing diametrically through the ferrules and through the rod. The ferrules 43 have their outer faces indented to form annular series of teeth 45, which are adapted to intermesh with the corresponding series of teeth formed on end plates 46, which have projecting flanges 47, adapted to receive between them the rods 28, and a screw 48 secures the rods 28 and the end plates 46 to the ferrules 43. By this means the roller 29 may be turned to tighten the webbing 41, while the screw 48 is loose to release the teeth of plates 46 with the teeth of the ferrules 43, so that the webbing 41 may be tightened, and when sufficient tension is given thereto the roller 29 is locked against turning by tightening the screws 48, so that the teeth of the plates 46 and ferrules 43 again intermesh.



The length of the connecting-rods 35 is such that when the chair is in its upright position, as shown in Fig. 1, the foot-rest 34 rests its front edge upon the floor, so that a person may step upon it on entering the chair without danger of the foot-rest swinging, as would be the case if it did not rest upon the floor.

A person occupying the chair is at liberty to adjust the position of the chair to suit his convenience and comfort by loosening the thumb-bolts 40 and forcing the back frame to assume the position desired, and then on again tightening the thumb-bolts 40 the chair is clamped in its adjusted position.

As the chair moves from its upright to its inclined position the foot-rest 34 is swung upwardly with the front frame and owing to the connecting-rods 35 connecting it to the side frames of the standards it keeps its approximate relative position with the front frame and is always accessible as a means for swinging the chair upon the pivot-bolts 27 by the occupant pressing upon the foot-rest with his feet, so that in all positions of the chair except the upright position it is free to be set in motion by the manipulation of the foot-rest.

The principal object of the present invention is to provide a swinging reclining-chair with means for actuating it in any of its adjusted positions. To accomplish this end, I have so combined with a swinging reclining-chair a foot-rest of such particular construction and with such particular arrangement with and connections to the reclining-chair that it may always be in a suitable position to be pressed upon by the foot of the occupant of the chair, with a resulting swinging motion of the chair whatever the position or adjustment of the chair may be.

It is obvious that the position of the occupant of the chair depends upon the reclining adjustment of the chair, and that a single position of the foot-rest with relation to the chair proper would not, therefore, be most adaptable for the purpose of propelling the chair in all of the several positions of the chair; but that it is necessary that the foot-rest should be made to automatically change its normal position with relation to the chair proper as the incline of the chair is changed. This is accomplished by connecting the swinging foot-rest by means of the connecting-rods 35 to the stationary support at such a point that as the adjustment of the chair approaches the horizontal the angle between the foot-rest and the front frame diminishes. This is apparent from a comparison of Figs. 1 and 3, the foot-rest in the former being at an obtuse angle to the front frame in an upright position of the chair, and the foot-rest in the latter being at an acute angle to the front frame in the reclining position of the chair.

When the chair is upright, as shown in Fig. 1, and a person sits thereon, the weight of the occupant causes the seat to swing slightly

forward of the position shown owing to the change in position of the center of gravity and assume about a horizontal position. If the connecting-rods 35 had the same pivotal axis as the chair, the position of the foot-rest with relation to the frame would remain the same; but said pivotal axis being much lower the foot-rest is changed in position to approximately right angles to the front frame, which is estimated to be the most effective position for its operation by the feet in this partial reclining position of the body. When, however, the full reclining position of the chair is made, as shown in Fig. 3, and the seat is swung farther front, due to the weight of the occupant, the angle of the foot-rest with relation to the front frame is more acute, for now the operator instead of throwing part of his weight on the foot-rest, as before, can only wedge his feet between the foot-rest and the front frame to give the desired swinging movements to the chair.

The different parts of the chair may be constructed of wood or other desirable material without departing from the spirit of my invention.

What I claim as my invention is—

1. An adjustable swinging reclining-chair, a support from which the chair is suspended, and a movable foot-rest for the chair having connection with the support whereby the chair may be set in motion while at its different adjustments by the operation of the foot-rest, said foot-rest being caused to change its position with relation to the chair proper by the adjustment of the chair.

2. An adjustable swinging reclining-chair, a support from which the chair is suspended, a foot-rest pivoted to the chair, and a connecting-rod pivoted to the foot-rest and to the support by which the chair may be swung on its support while at its different adjustments by operating the foot-rest, the foot-rest being caused to change its position by the adjustment of the chair.

3. An adjustable swinging reclining-chair, a support from which the chair is suspended, a foot-rest pivotally connected to the reclining-chair, and a connecting-rod having a hooked end of an S shape engaged in an opening in the support to form a pivotal connection between the connecting-rod and the support, the other end of said connecting-rod being pivoted to the foot-rest whereby the chair may be swung while in its various adjustments by the manipulation of the foot-rest.

4. An adjustable swinging reclining-chair, having a support from which the chair is suspended, a foot-rest pivoted to the chair, and means connecting the foot-rest with the support adapted to hold the foot-rest in such a position that it bears upon the floor in the upright position of the chair when the chair is unoccupied.

5. An adjustable swinging reclining-chair,



having a support from which the chair is suspended, a foot-rest pivoted to the chair and adapted when the chair is in its upright position to rest upon the floor, and a connecting-rod having pivotal connections with the foot-rest and the support whereby the chair may be swung by manipulating the foot-rest when the chair is in any position.

6. An adjustable swinging reclining-chair, having a support from which the chair is suspended, a foot-rest pivoted to the chair, and means connecting the foot-rest with the support by which the adjustment of the chair will produce a change in position of the foot-rest with relation to the chair so that the foot-rest is available for swinging the chair in any adjustment of the chair.

7. An adjustable swinging reclining-chair,

having a support from which the chair is suspended, a foot-rest pivoted to the chair, and means connecting the foot-rest with the support by which the chair may be swung by operating the foot-rest, said means causing the foot-rest to change its position with the adjustment of the chair whereby the foot-rest is available for swinging the chair in any adjustment of the chair, the normal position of the foot-rest when the chair is unoccupied being such that it rests upon the floor.

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

IRAM Z. MERRIAM.

Witnesses:

I. U. WHEELER,

G. W. STUART.