

June 7, 1955

P. S. FREESE

2,709,818

TABLE OR THE LIKE FOR USE ON A BED

Filed Jan. 4, 1952

3 Sheets-Sheet 1

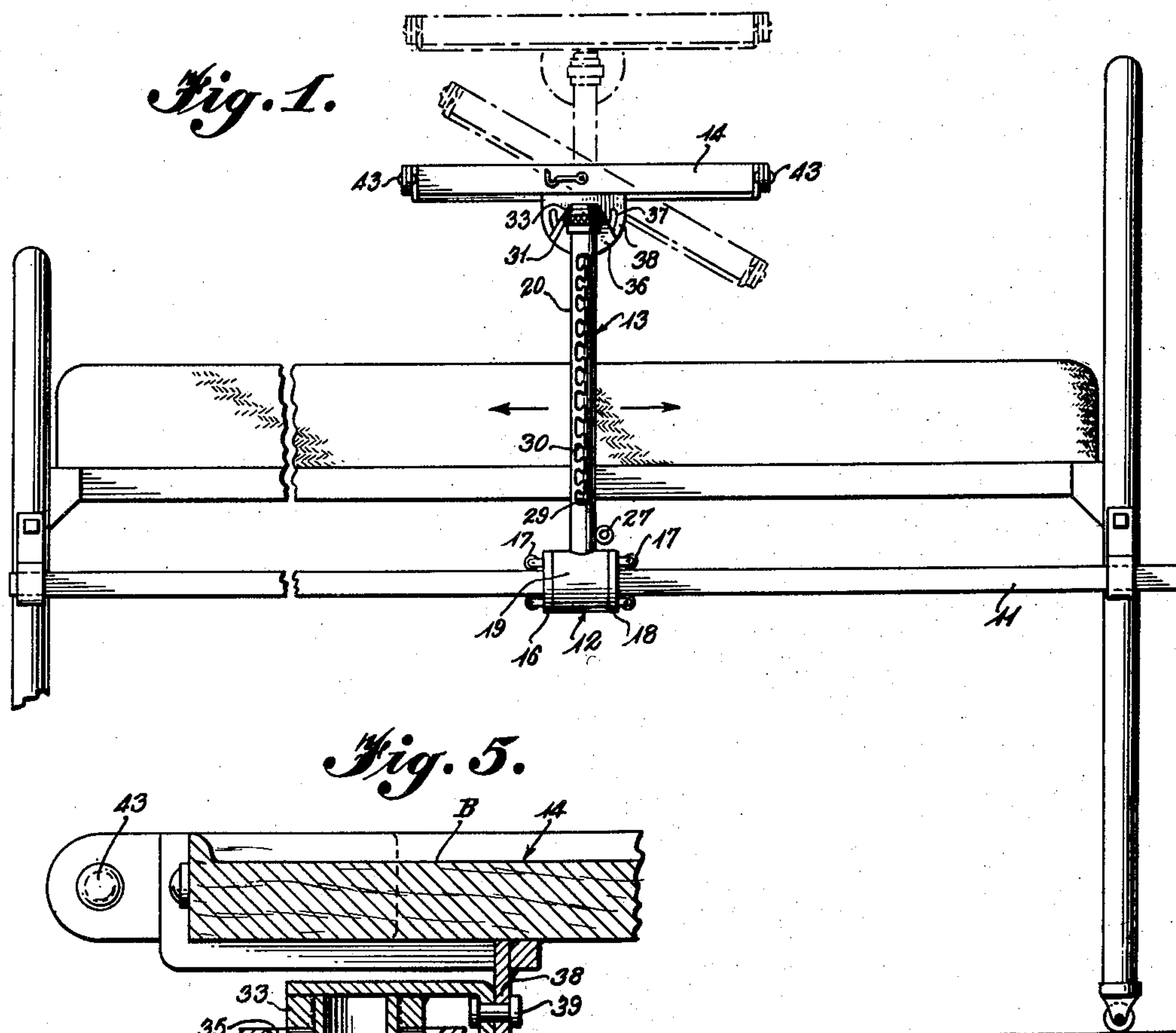
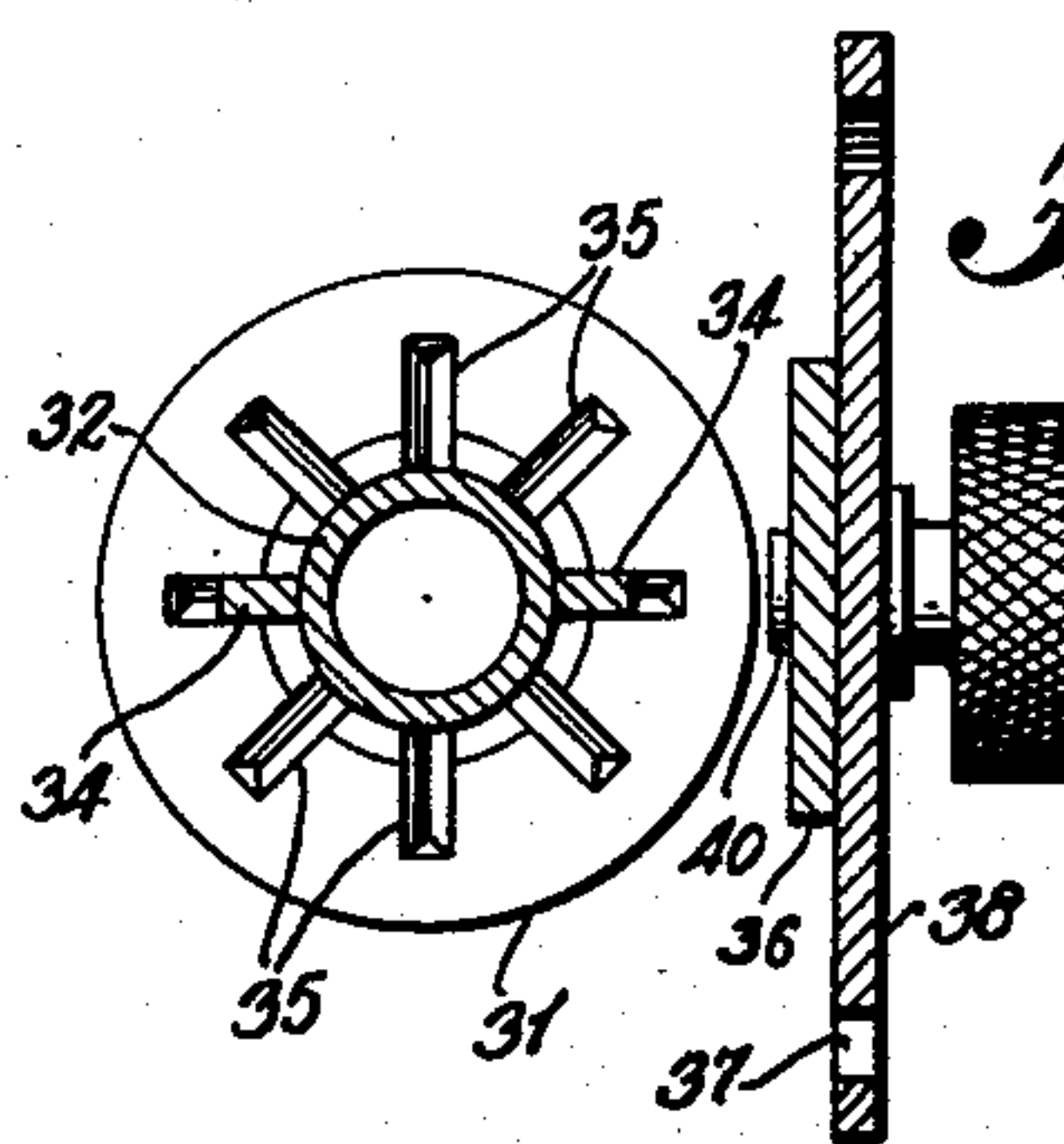
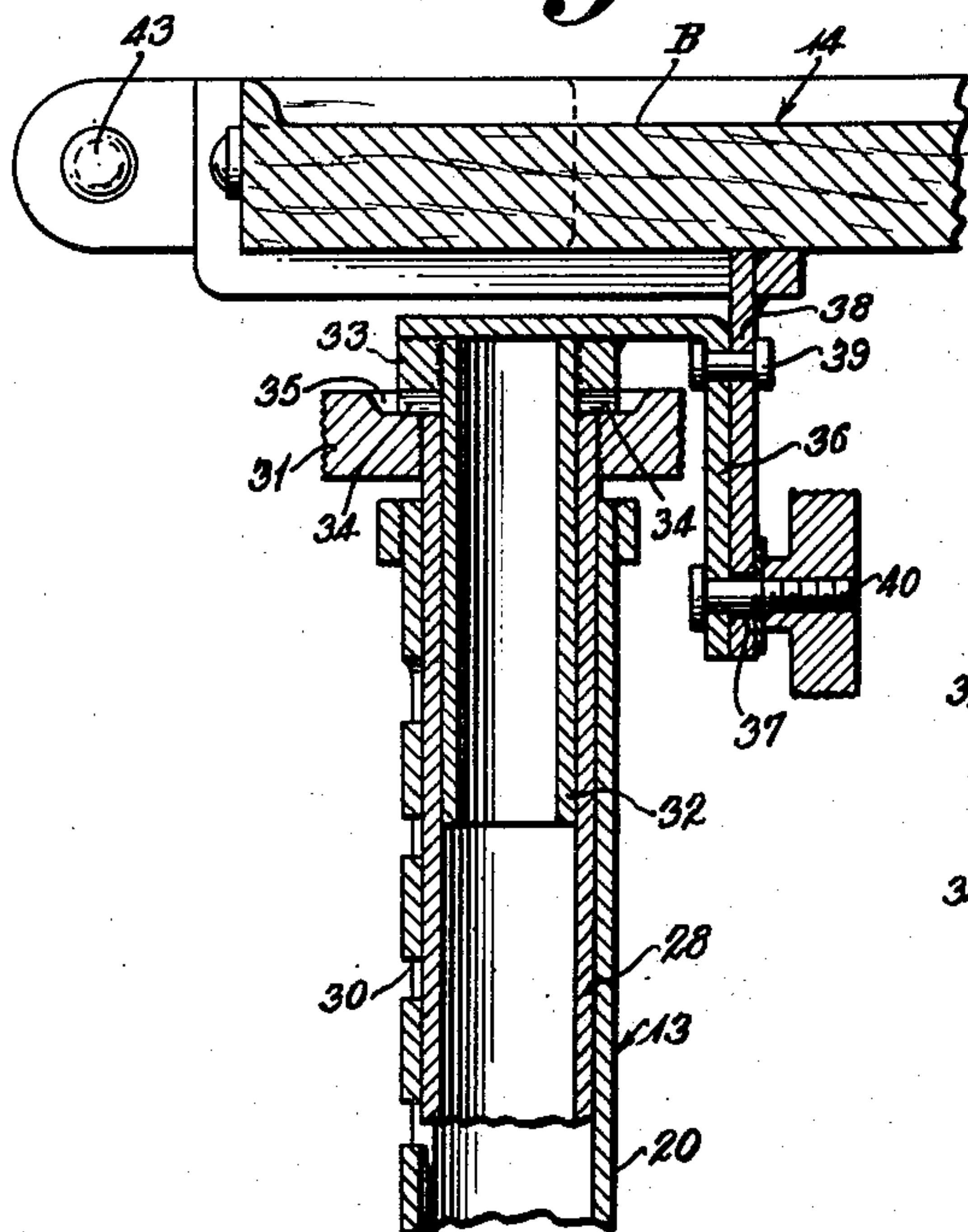


Fig. 5.



INVENTOR

Paul S. Freese

BY *Stevens, Davis, Miller and Mosher*
ATTORNEYS

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3 Sheets-Sheet 2

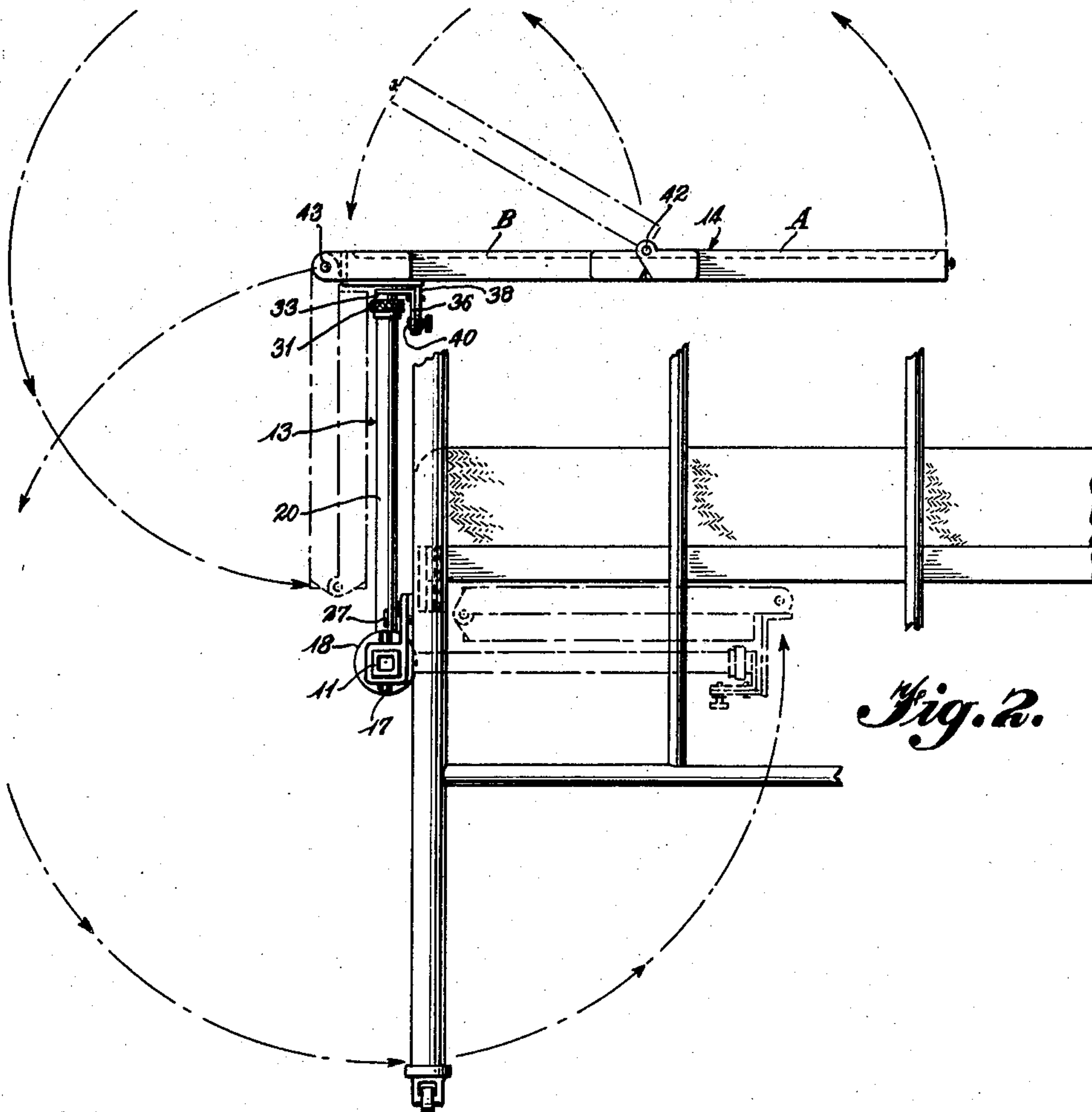


Fig. 2.

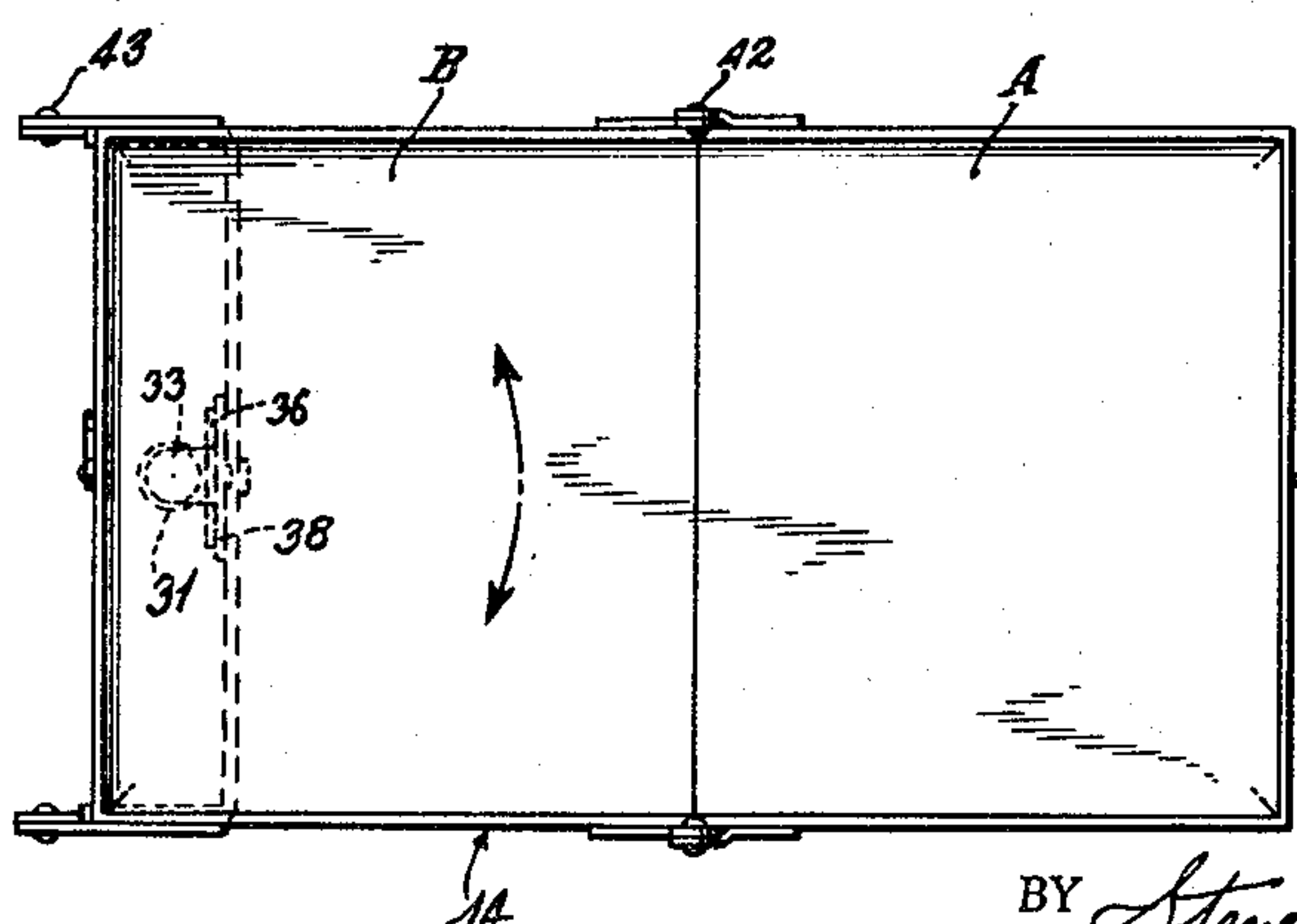


Fig. 3.

INVENTOR

Paul S. Freese

BY *Stevens, Davis, Miller and Mosher*

ATTORNEYS

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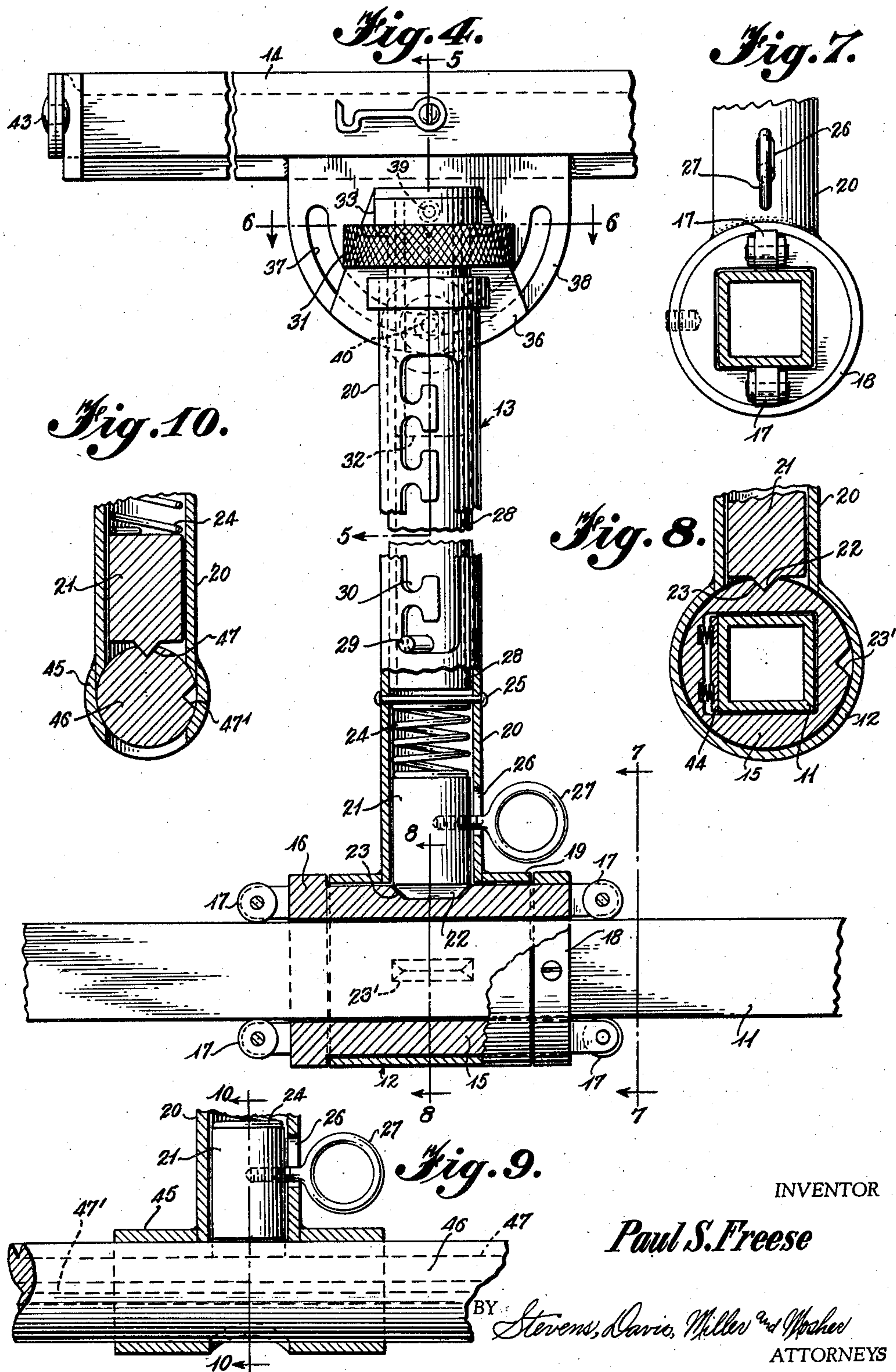
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3 Sheets-Sheet 3



INVENTOR

Paul S. Freese

BY *Stevens, Davis, Miller and Mosher*
ATTORNEYS

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TABLE OR THE LIKE FOR USE ON A BED

Paul S. Freese, Marietta, Ohio

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7 Claims. (Cl. 5—332)

This invention relates to tables or the like which are adapted to be mounted upon a bed for use by sick or injured persons. While the device of this invention may be used with any bed, the invention is more especially concerned with a table particularly usable with hospital beds of the type adapted to support the patient in a variety of positions. This type of bed is usually provided with side rails broken intermediate their ends and pivoted together so that the head end of the bed may be adjusted to some new angle for the patient's convenience or comfort.

Aside from the fact that this invention provides a table especially suitable for use on this type of bed, the invention is primarily concerned with a table affording the greatest ease and simplicity in its use by the patient. Ease and simplicity of use are extremely important factors in a device of this character as people who are confined to a bed are frequently incapable of much activity, as a result of which they require much greater attention or else their needs suffer.

Another important factor is disposition of the table when the patient needs the attention of one or more attendants. It is desirable that the table and its supporting means be easily and quickly movable out of the way so as to save the time and effort of attendants in detaching the table and disposing of it.

In the past, many tables have been devised for use by the sick and injured. However, I have observed no table which is satisfactory for its purpose when all of the really desirable characteristics of such a table are considered. I have found that in general all of them have several adjusting nuts, in most instances difficult for the patient to reach, and difficult to make secure so that the table is certain to remain in adjusted position. Additionally, prior known tables are required to be fixed to and removed from the bed by hospital attendants, and once fixed in position, the patient cannot conveniently move it toward or from himself nor can he easily dispose of it.

I have discovered that the foregoing difficulties substantially can be obviated by providing a table as hereinafter described and to that end the invention is directed.

Briefly, the invention contemplates a table supported in such a manner as to be easily slid along a bed rail or other member especially provided so that the patient may, with ease simply grasp the supporting standard of the table and slide it to a point intermediate the bed ends, after which the table is easily unfolded in front of him. The height of the table may be readily and surely adjusted by simply lifting and slightly turning the table into one of a series of notches. Means is provided for automatically holding the table in proper position between the ends which at the same time steadies the table and maintains it against rotary or rocking movement about the rail.

Appended hereto are drawings illustrating the invention wherein,

Figure 1 is a view in side elevation of the table mounted upon a bed;

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Figure 2 is a view in rear elevation illustrating positions which the device may assume relative to the patient and bed;

Figure 3 is a top plan view of the table surface;

Figure 4 is a fragmentary view partly in section illustrating details of the carriage unit, locking elements and certain position adjusting features;

Figure 5 is a fragmentary sectional view taken on the line 5—5 of Figure 4 of the table surface, the supporting standard and certain adjusting features;

Figure 6 is a horizontal sectional view taken on the line 6—6 of Figure 4;

Figure 7 is a fragmentary sectional view of the standard and carriage unit taken on the line 7—7 of Figure 4;

Figure 8 is also a fragmentary sectional view of the standard and carriage unit but taken on the line 8—8 of Figure 4;

Figure 9 is a fragmentary sectional view of a portion of a modified form of the invention; and Figure 10 is a sectional view taken on the line 10—10 of Figure 9.

Referring to Figure 1 of the drawings, numeral 11 designates an element in the form of a rod, bar, rail or the like hereinafter referred to as a rod, which may run the full length of the bed or not as desired. Numeral 12 denotes a portion of the table proper, namely, a carriage unit which, as will more fully appear, is freely slidable upon the rod 11. Extending vertically from the carriage unit is a standard denoted by numeral 13, upon which is mounted the table or tray 14.

Figures 4 and 7 illustrate in detail the preferred embodiment of the invention, particularly in regard to the carriage unit.

As can be seen, the carriage is composed of a number of elements. Numeral 15 denotes a generally cylindrically-shaped member fitting upon the rail 11 and for this purpose is hollowed completely through its central portion. The rod, as will be understood, is preferably rectangular and the hollowed portion of the carriage unit is similarly rectangular, though not necessarily so, in cross section. One end of the carriage unit is provided with a flanged portion denoted by numeral 16 which extends circumferentially sufficiently about the carriage unit to afford an abutting surface for cooperation with a portion of the standard to be described presently. Numeral 17 denotes rollers, of which there are two pairs, affixed in any suitable fashion to the cylindrical portion of the carriage. As can be seen, rollers 17 ride upon the upper and lower surfaces of the rod 11 and are adjusted preferably to tightly grip, or firmly frictionally engage, the rod so as to prevent relative motion between the rod and the carriage unit. While the size of the rollers is not necessarily critical, it will be understood that a wide roller, that is to say, one presenting a surface substantially equal to that of the top and bottom sides of the rod 11, will substantially reduce the tendency of the carriage to rotate about the rod and thereby maintain the standard and table in a more stable fashion.

Numeral 18 denotes a sleeve which fits over the end of the carriage unit opposite the flanged end and, as can be seen, is simply a retaining member for the purpose of maintaining the standard of the table in proper position on the carriage.

Referring now specifically to the table mounting structure, numeral 19 denotes a hollow cylindrical sleeve encircling the cylindrical portion of the carriage unit. As can be seen, sleeve 19 abuts against flange 16 and is retained in position by the sleeve 18 as has just been indicated.

Extending vertically from sleeve 19 is a tubular standard 20. Standard 20 houses various elements of the table-holding and manipulating structure. Located at the lower end of the standard is a generally cylindrically-

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shaped plug denoted by numeral 21. As can be seen in Figures 4 and 8, plug 21 is provided with a triangularly-shaped ridge denoted by numeral 22 which extends into a kerf or hollowed-out portion of the carriage unit. It will be noted that there are two similar kerfs in the carriage unit which are designated by numerals 23 and 23'. When the standard is in the position shown in Figures 4 and 8, ridge 22 seats in kerf 23, thereby retaining the standard in its proper vertical position. When ridge 22 is seated in kerf 23', the standard and table are in a position of storage underneath the bed. This latter position is illustrated in Figure 2 of the drawings.

Ridge 22 is retained firmly seated in the kerfs by the action of a spring denoted by numeral 24, which, in turn, is retained by a pin denoted by numeral 25 that passes transversely through standard 20. Extending through the wall of the standard in slot 26 is a ring denoted by numeral 27, the purpose of which ring is to facilitate disengaging ridge 22 from seated position in the kerfs of the carriage unit. Thus, when it is desired for some reason to store the table underneath the bed, it is only necessary to lift ring 27 in order to permit the entire standard and sleeve to rotate to a point where kerf 23' is engaged by the ridge.

Slidably interfitting within standard 20 is a tube designated by numeral 28. This structure can be seen most clearly in Figures 4 and 5. As may be readily observed, tube 28 is the tube upon which the table and its manipulatory apparatus is more directly supported. The function of tube 28 is to provide a means of raising and lowering the table to various positions of convenient elevation. For this purpose tube 28 is provided with a laterally extending pin denoted by numeral 29 which normally seats in slots 30 provided in the wall of standard 20. A number of slots are provided so that a variety of elevations is afforded. The particular means by which the table may be raised or lowered as here described is very desirable as this arrangement dispenses with the necessity for having the patient manipulate bolts or screws when it is desired to raise or lower the table, as is the case with many prior known devices. In order to raise the table of this invention, it is necessary only that the patient grasp knurled knob 31, which is fixed to the upper end of tube 28, and lift and slightly turn tube 28 and slide it upwardly or downwardly as desired to a point where the pin may be received within another notch. The table is consequently surely held and the ease with which this manipulation may be carried out is quite an important aspect of the device to the patient. It should be appreciated that the pin and notch lock affords, in addition to the advantage of facility, the advantage of certainty of locking. It has been found that tables which utilize a wing-bolt and similar type lock must be set very tightly or otherwise the table may suddenly slide downwardly from an adjusted position and cause whatever happens to be on the table at the time to be displaced or spilled. The table as here supported is surely locked in adjusted position.

Another tube denoted by numeral 32 is housed within tube 28, the purpose of which is to maintain the table in proper relation to the standard. To this end, tube 32 is of sufficient length to afford good engagement with the walls of tube 28.

Tube 32 is provided adjacent its upper end, with a pair of laterally extending lugs denoted by numeral 33 which have their lower surface beveled to a triangular configuration to constitute a wedge-like element denoted by numeral 34.

Referring again to knob 31, and as can be seen in Figures 5 and 6, there is provided therein a series of slots denoted by numeral 35, the purpose of which is for cooperation with element 34 whereby the table may be adjusted to a variety of positions as indicated by Figure 3 of the drawings. Element 34 simply seats in notches 35 and forms a gravity lock.

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Affixed to the upper end of tube 32 is a bracket denoted by numeral 36, which bracket in various detail is illustrated in Figures 4 and 5. Bracket 36 cooperates with arm 38 in which arm is an arcuate slot 37. By means of slot 37 the angle of the table may be adjusted to a variety of horizontal positions. As will be noted, arm 38 is freely pivoted to bracket 36 as at numeral 39 and is maintained in position by the pin and nut arrangement denoted generally by numeral 40, the pin extending through the arcuate slot 37 and through a hole 41 provided in bracket 36. A more complete understanding of this arrangement may be had by reference to Figure 6.

Table surface 14 is in two sections as shown in Figures 2 and 3, the sections being hinged together at numeral 42 for relative movement. For convenience in describing, the two sections are designated A and B. Section B of the table surface is pivotally mounted upon the arm 38 as indicated at numeral 43. Figure 2 indicates several positions of the table surface when it is folded for movement to a position of under-bed storage. In accomplishing this, the patient, when he no longer has need for the table, folds section A to a horizontal position upon section B. The two sections are then pivoted counter-clockwise upon pivot point 43, 270° to the position shown in dotted lines in Figure 2, this position being a vertical position relative to the standard 13, in which position the table may remain, unless it is desired to completely remove it from any position which might obstruct necessary activities of hospital attendants. If it is desired to rotate the entire table to the under-bed position, it is only necessary to lift the ring 27, as previously indicated, at which time the entire assembly may be rotated as indicated in Figure 2.

It is believed that the operation of the device will be readily understood from the foregoing description. However, it is desired to point out some of the very distinct advantages accomplished by its various features. One of the most noteworthy achievements is that which is provided by the carriage mounting. Assuming the patient to have need of a table and that the table is in the position normally contemplated as most desired (that position being with the carriage pushed as far toward the head of the bed as possible), the patient need only grasp some part of the table, for example, the standard, and move the carriage along the supporting rod to a point intermediate the ends of the bed. If the table has been folded to the vertical dotted line position as above described, it is necessary that the table be unfolded, and this is accomplished by performing the reverse acts of the folding operation as previously described. The table is then ready for use, assuming it to be at the proper height. It will be appreciated that this simple expedient of mounting the table for free sliding movement permits the patient, certainly all patients except those who are seriously handicapped, to provide himself with a table and dispose of it at will without the need for calling hospital attendants. This is a great convenience for the patient, as well as a decided assistance to the attendants.

The arrangement affords advantages for attendants including nurses and doctors, as well as advantages for the patient. The table is at all times ready for use in any position alongside of the bed without the need for going through a routine of mounting and fixing in a particular position. As indicated previously, the table top proper may be rotated to a variety of positions in the horizontal plane and may in fact double as a bedside table simply by rotating the table top to a position extending outwardly from the bed. Other advantages of the structure already have been indicated.

It is not contemplated that the carriage unit 13 will so closely fit the supporting rail 11 as to interfere with the free movement of the carriage along the rod or rail

since there must be some small play between these parts. This being the case, it may be desirable to provide the device with a means for securely fixing the carriage relative to the supporting rod so that it will in no event move from a given position unless desired. This may be accomplished by a positive acting lock of the set screw type if desired. However, such has not been found necessary or desirable in actual use, and in fact, is not considered advantageous from the patient's standpoint in that such locking means is inconvenient to the patient and difficult for him to manipulate. Figure 8 of the drawings illustrates a form of braking mechanism which has been found unusually successful in maintaining the carriage in a given position and which requires no attention of the patient. As can be seen, the braking mechanism comprises a flat shoe denoted by numeral 44 which runs the full length of the carriage unit and may be fastened therein in any suitable manner such as by mounting it upon pins for limited movement. In order to insure that the shoe will bear firmly against the rod 11, a spring or springs is provided between the outside surface of the shoe and the carriage unit. Once the carriage and the table are in position, the brake shoe performs still another function to the advantage of the overall structure, and that is the function of assisting in maintaining the standard and table in a rigid manner, for unless the various elements including the rollers, the rod and the hollow interior of the carriage unit are carefully milled, inevitably there will be a certain amount of relative motion therebetween, which motion is amplified considerably when transmitted through the relatively long standard to the plane of the table. This being the case, a small amount of motion of the carriage relative to the supporting rod will permit movement in the plane of the table surface through a substantial arc. Depending upon the quality of machine work, the desirability of the brake shoe to perform in this capacity becomes more or less pronounced. The brake shoe also compensates for wear of the parts. As a practical matter, the brake shoe is considered a desirable element of the invention since it assures reasonably sure positioning of the carriage longitudinally on the rail and a good degree of steadiness in the structure while avoiding the possible need for providing the device with a positive locking arrangement, the avoidance of this latter to the great advantage of the patient being one of the prime purposes of the invention.

It seems needless to point out, as it will no doubt have been observed in reading the foregoing description, that the patient is not required to make a single adjustment which requires a loosening or tightening of elements, except when the angle of the table is altered in which case the nut at numeral 40 is within easy reach. Also, means for moving the table to a great variety of positions is provided above the level of the bed which permits positioning with a minimum of effort and utmost convenience.

Referring now to Figures 9 and 10, there is shown a modified form of the invention. In these figures an alternative means for mounting the standard and table for movement along the rod or rail is illustrated. Instead of mounting the sleeve which is attached to the standard on a carriage unit as previously described, the sleeve is reduced in size and slides directly upon a modified type of rod. The sleeve of the alternative form is denoted by numeral 45 and the rod which, as will be observed, is circular in cross section, is denoted by numeral 46. A triangular slot is provided at two points in the surface of the rod as indicated at numerals 47 and 47', a slot 47 running along the top of the rod and slot 47' running along the inside of the rod, 270° away in a counter-clockwise direction. The standard is maintained in its two positions by the cylindrical plug in the same manner as previously described. In this form, the device is simply slid along the rod without the assist-

ance of the rollers that are contemplated in the preferred embodiment. This modification has the advantage of lower production costs and, if carefully machined, can be manipulated quite readily. It need not be provided with a brake shoe, as the walls of the sleeve itself afford a sufficient resistance to longitudinal movement, especially when the table surface is in actual use by the patient, because at such time forces are being transmitted from the table top to the sleeve which are resolved in various directions relative to the supporting rod, which forces exert a biasing action and tend to prevent any slippage.

It will be understood that the device as described herein may be mounted upon an ordinary bed rail provided the rail is of proper configuration to accommodate the carriage elements. However, in use with the type of hospital bed which has provision for raising and lowering the patient, difficulty arises in that the motion of the carriage unit is restricted to points above or below the point at which the bed rails are pivoted together. Another difficulty arises in that if the carriage is mounted on the head section of the bed rail the standard must at times necessarily extend at an angle from the vertical. This to some extent can be corrected by the horizontal adjusting arrangement which permits rotating the table into various planes. On the other hand, the roller carriage must be more firmly braked to assure that the carriage will remain in a given position. All in all, the benefits of the device herein are not fully achieved under such circumstances and in fact the invention is concerned with overcoming the disadvantages which arise when an attempt is made to use a bed-attached table on the modern adjustable type hospital bed. The invention thus contemplates the provision of a second rail or rod wherever it is needed which permits the use of a table to the fullest extent in the most convenient fashion on any type of bed.

It is contemplated that various modifications to the invention as described may be made without departing from the spirit thereof, and with this in mind, I do not desire that my invention be restricted except as it may be by the claims appended hereto.

What is claimed is:

1. A table or the like for mounting on a bed comprising a rod extending lengthwise of the bed, a sleeve on said rod supported upon rod-contacting rollers and being normally and freely movable longitudinally thereon; a standard connected at one of its ends to said sleeve and a work-surface mounted upon the standard at its other end.

2. A table as in claim 1 including means to lock said sleeve against rotation about said rod.

3. A table or the like for mounting on a bed comprising a rod, said rod having a flat upper and lower surface; a carriage unit on said rod and being normally freely movable longitudinally on said rod, said unit comprising a generally cylindrically shaped member having a hollow portion throughout its length, a pair of rollers extending from the top and bottom sides of said member normally in contact with the flat surfaces of said rod; a sleeve on said carriage unit mounted for rotary movement thereabouts and means for releasably locking said sleeve against said rotary movement; a standard attached at its lower end to said sleeve and a work-surface mounted upon the opposite end of said standard.

4. A table as in claim 3 wherein said standard takes the form of a hollow tube having a series of communicating slots therein, and a second tube upon which said work-surface is mounted slidably interfitting with the first said tube with means thereon for engaging said slots whereby said second tube may be held in any one of a variety of positions relative to said hollow tube.

5. A table as in claim 4 wherein the work-surface is pivotally mounted upon said supporting standard for movement from a horizontal to a vertical plane.

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6. A table as in claim 3 wherein the work-surface is pivotally mounted upon said supporting standard for movement from a horizontal to a vertical plane.

7. A table or the like for mounting on a bed comprising a rod extending lengthwise of the bed, a slot in said rod extending lengthwise thereof, a sleeve normally freely slidable along the rod, longitudinally slidable means cooperating with said slot to lock the sleeve against rotation about the rod, a standard connected to the sleeve at one end, a work-surface connected to the standard at the other end.

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