

Sept. 16, 1947.

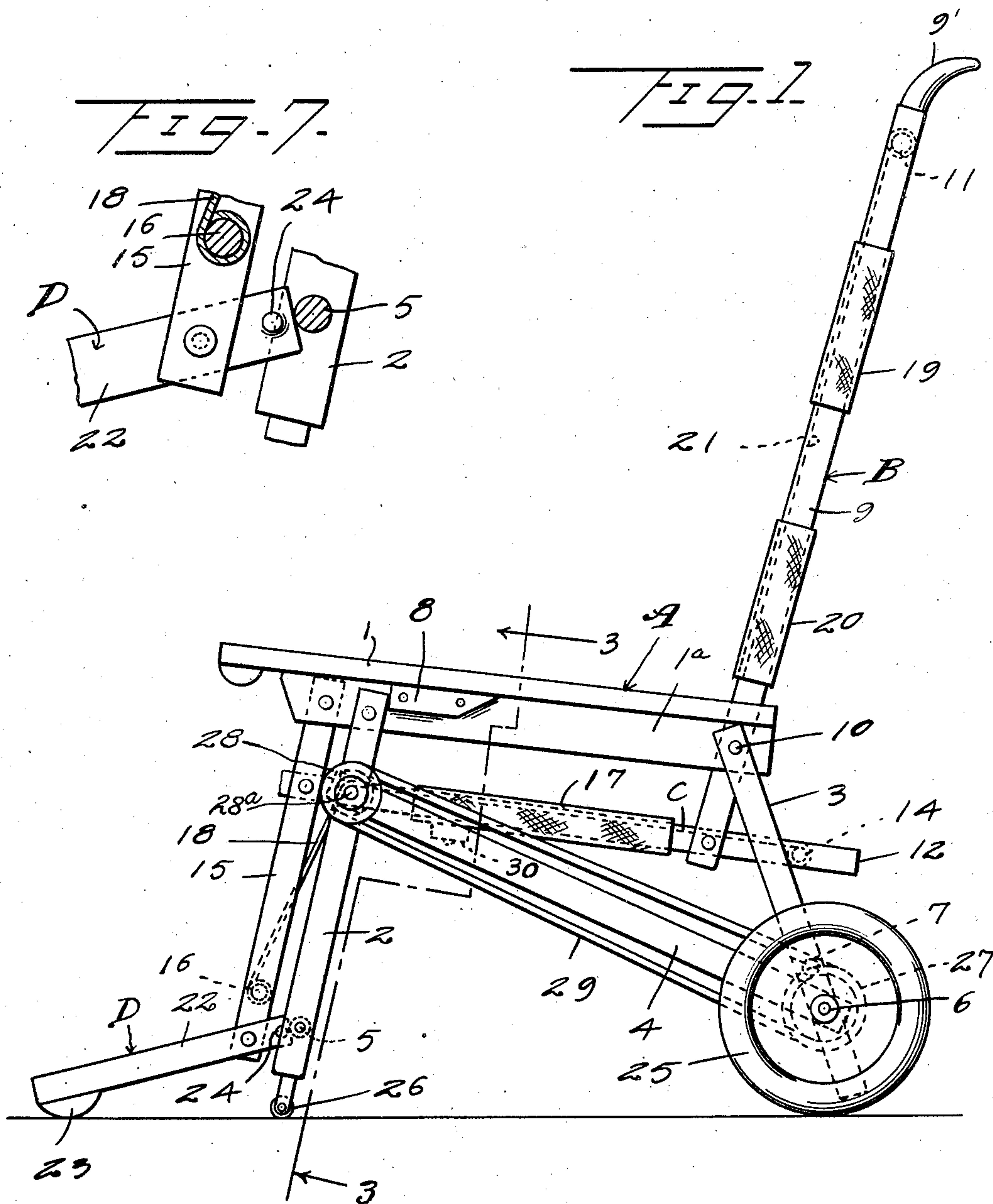
T. HEATON

2,427,405

FOLDING RECLINING CHAIR

Filed July 13, 1946

4 Sheets-Sheet 1



Inventor

Tom Heaton

By

Kimmel & Crowell

Attorneys

Sept. 16, 1947.

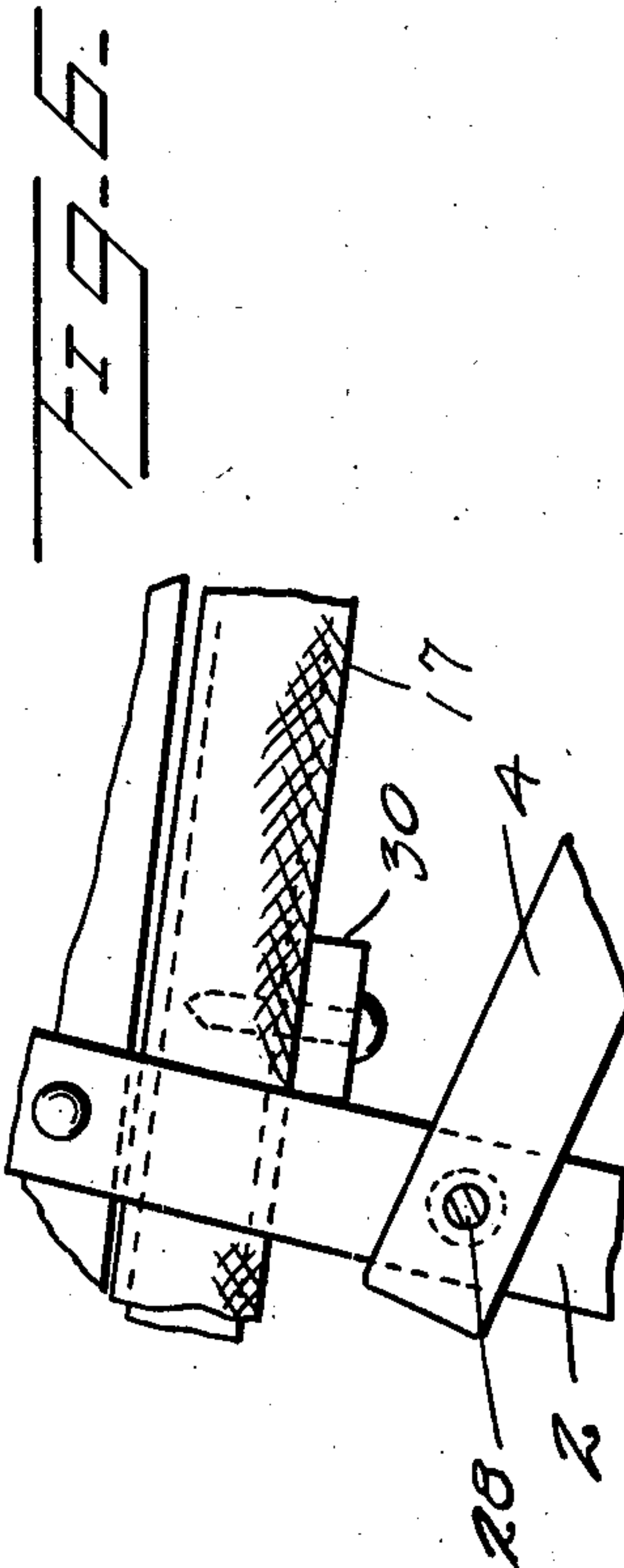
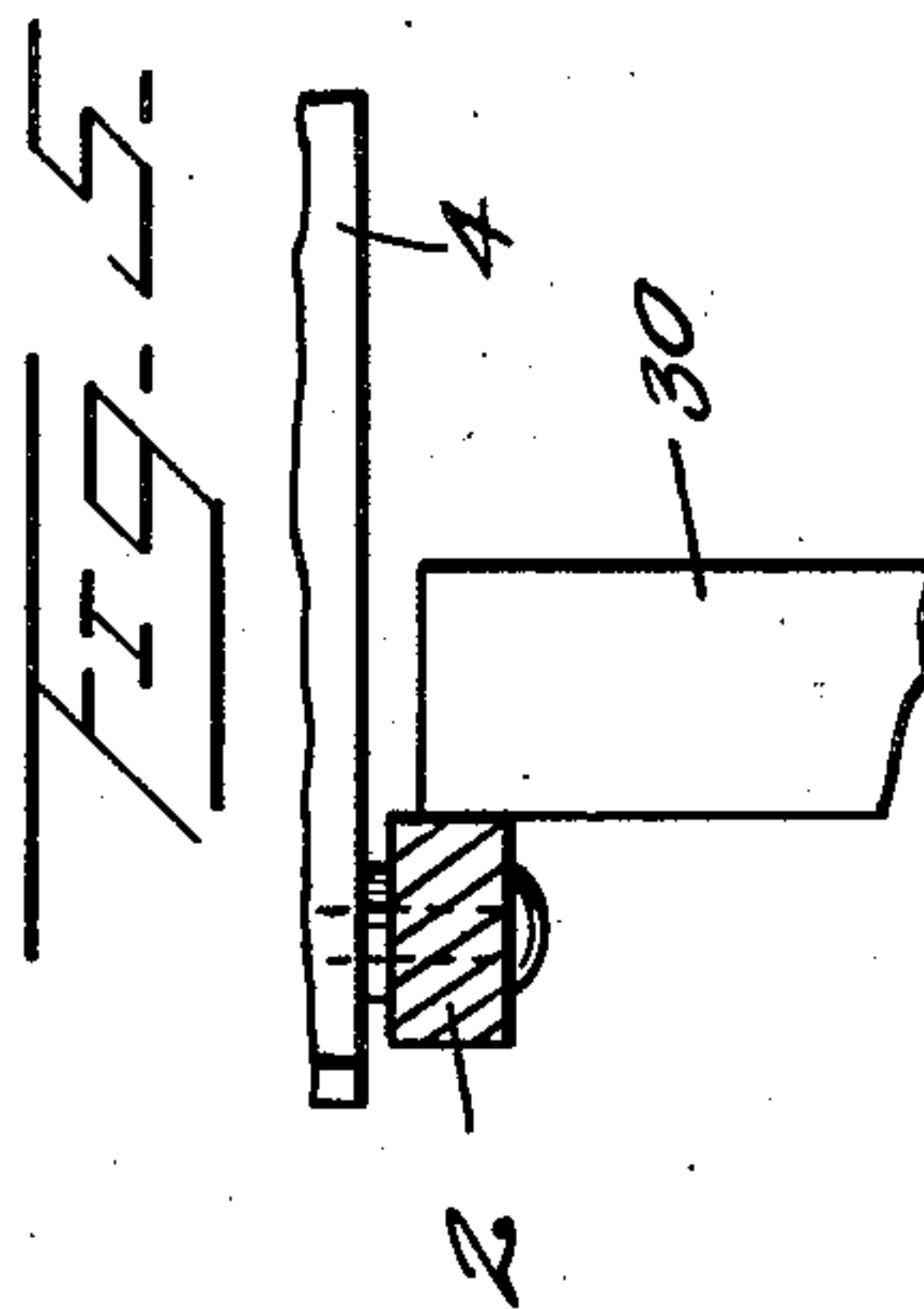
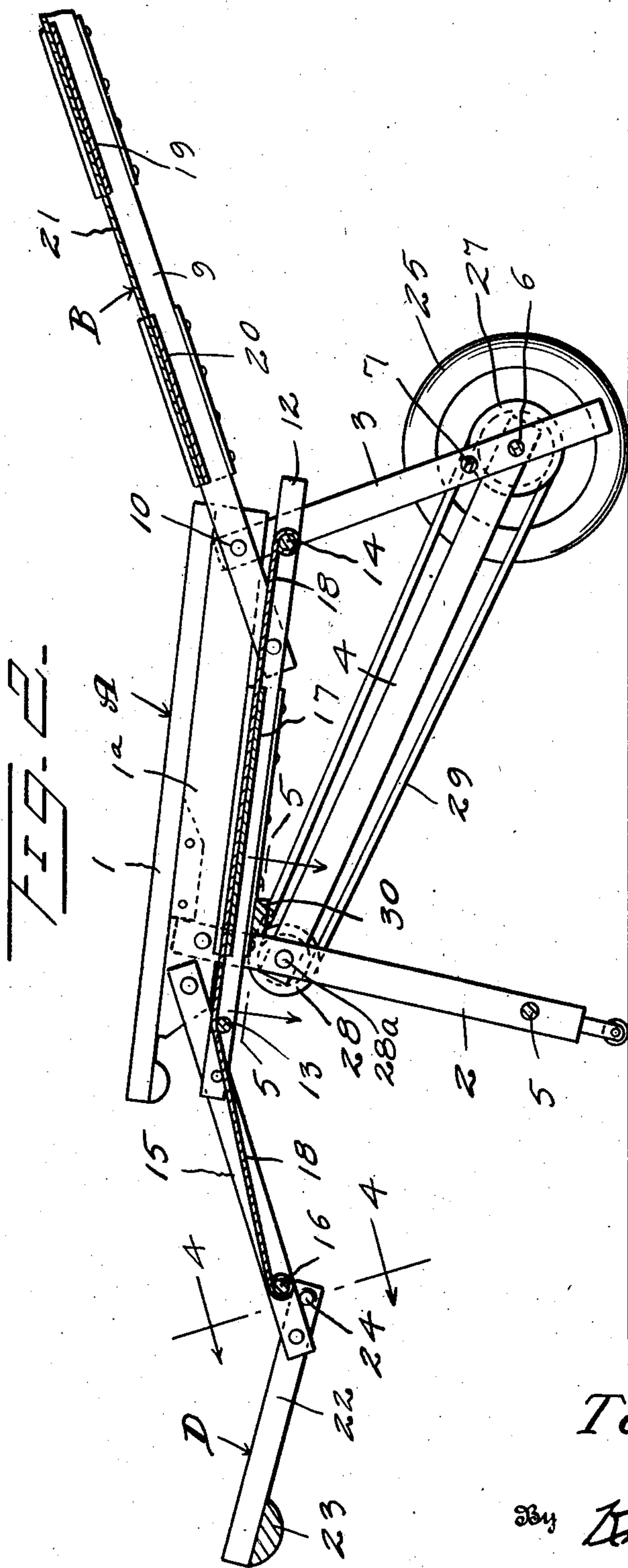
T. HEATON

2,427,405

FOLDING RECLINING CHAIR

Filed July 13, 1946

4 Sheets-Sheet 2



Inventor

Tom Heaton

By

Kimmel & Crowell

Attorney S

Sept. 16, 1947.

T. HEATON

2,427,405

FOLDING RECLINING CHAIR

Filed July 13, 1946

4 Sheets-Sheet 3

FIG. 3.

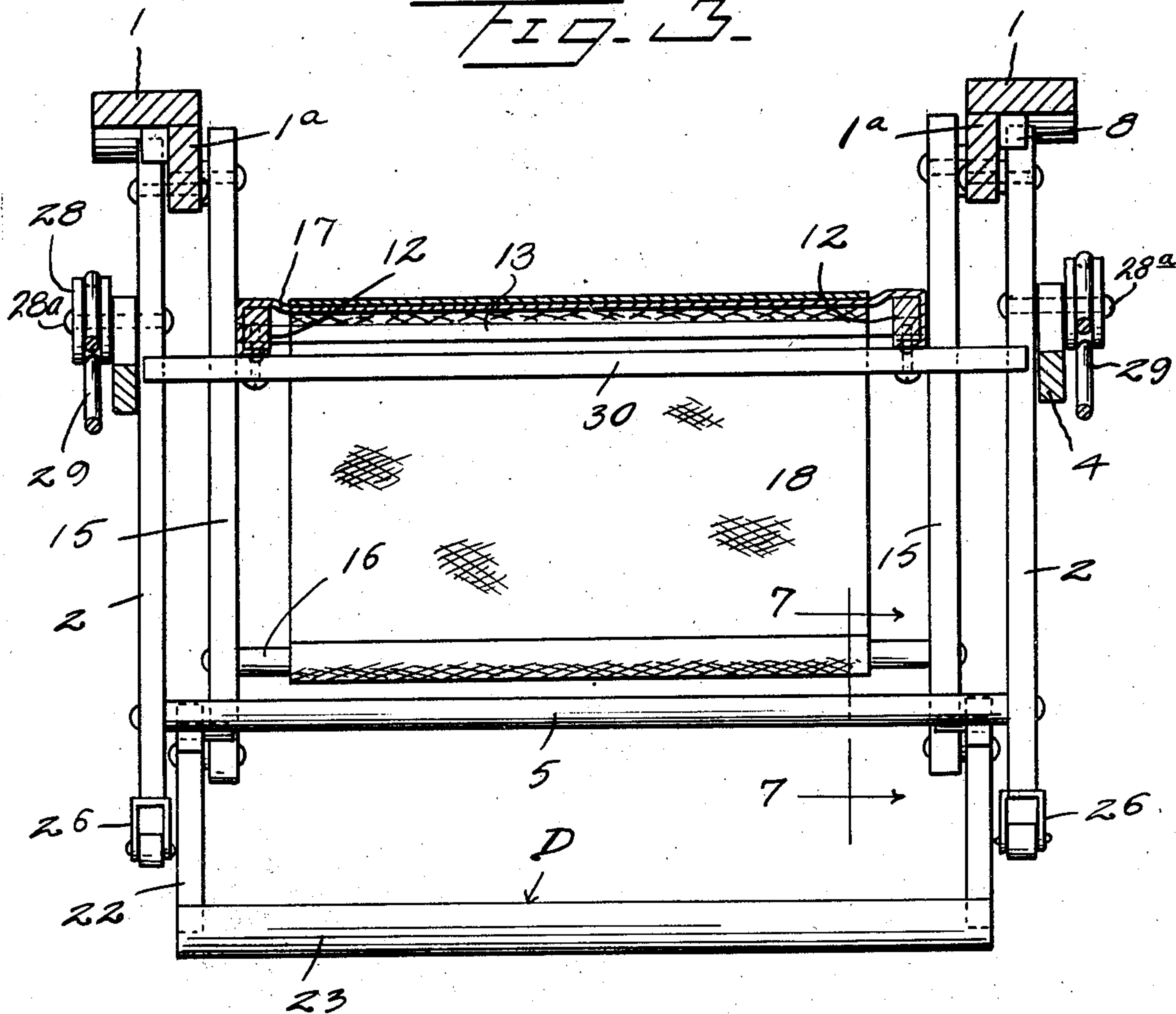
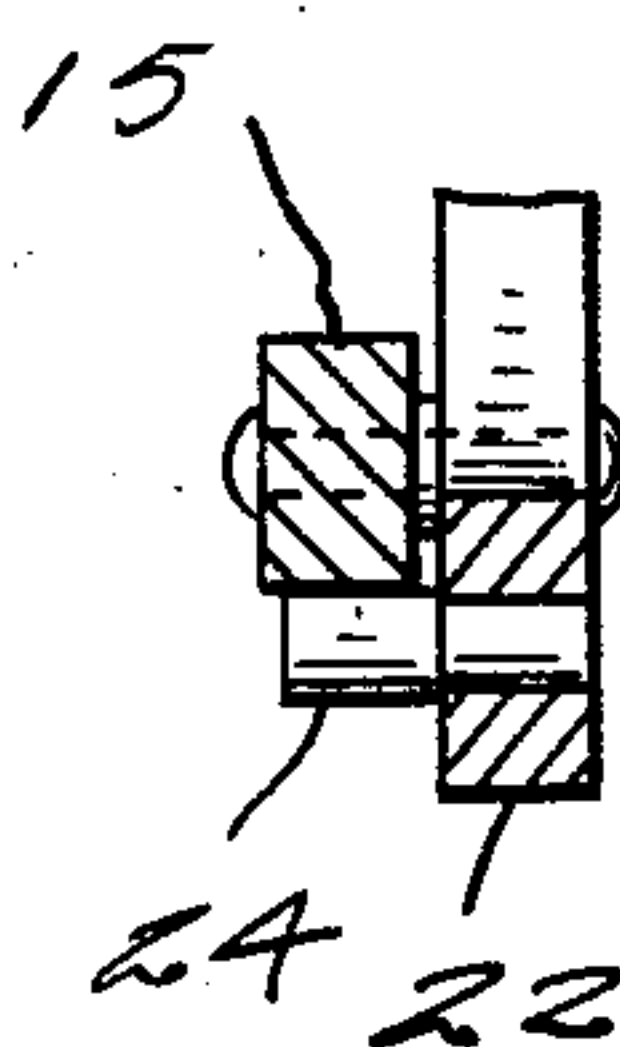


FIG. 4.



Inventor .

Tom Heaton

By Kimmel & Crowell

Attorneys

Sept. 16, 1947.

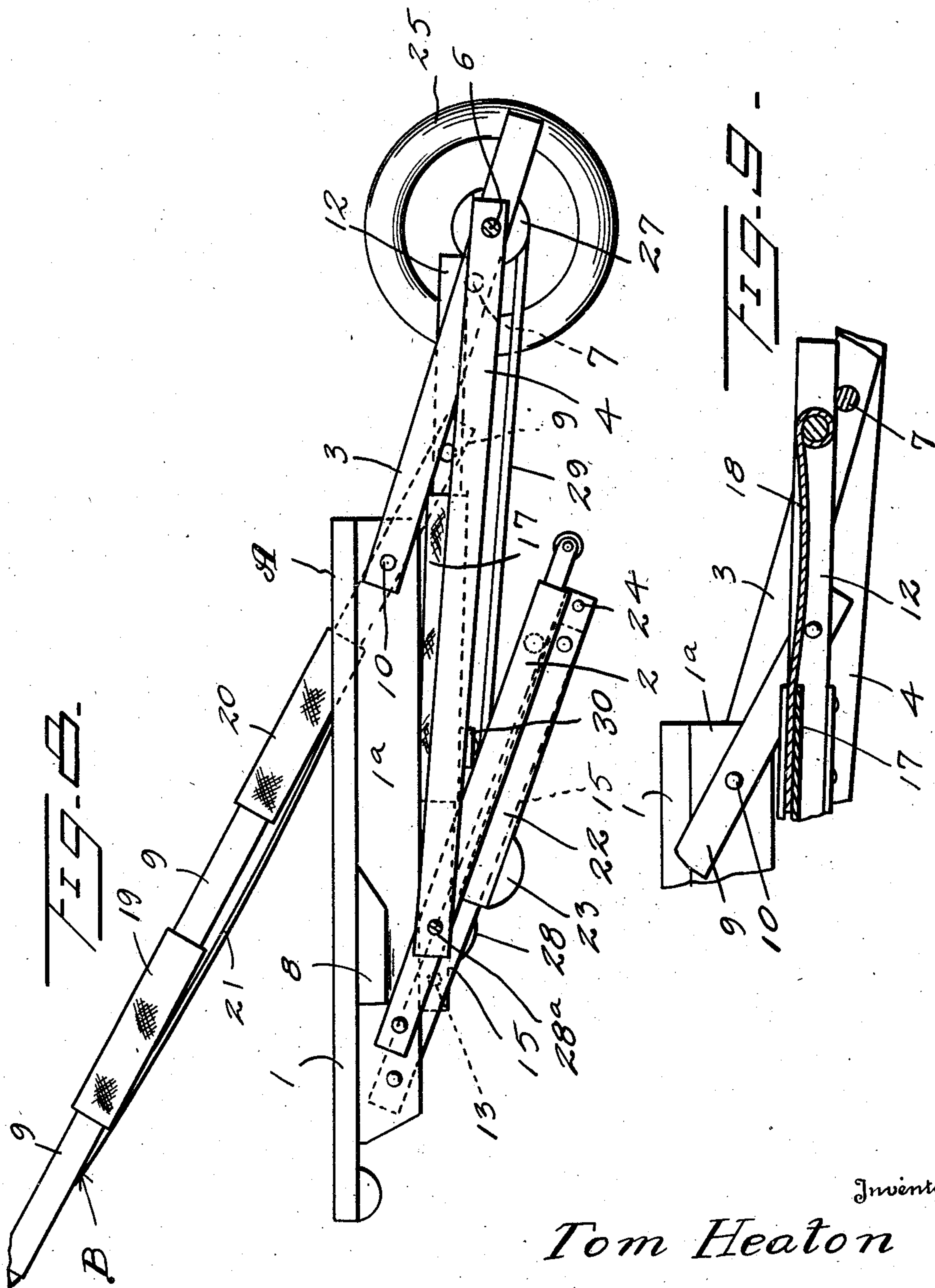
T. HEATON

2,427,405

FOLDING RECLINING CHAIR

Filed July 13, 1946

4 Sheets-Sheet 4



Inventor

Tom Heaton

By Kimmel & Crowell

Attorneys

UNITED STATES PATENT OFFICE

2,427,405

FOLDING RECLINING CHAIR

Tom Heaton, Toronto, Ontario, Canada

Application July 13, 1946, Serial No. 683,393

In Canada April 28, 1945

3 Claims. (Cl. 155—106)

1

This invention has for its object the provision of a chair of the folding type which will support a person either in a sitting position or in a reclining or sleeping position, and particularly to devise a chair of this type in which the user may shift from the one position to the other while remaining upon the chair.

A further object is to devise a chair of this type which is comparatively inexpensive and easy to assemble, which is light in weight, and yet sufficiently strong for all ordinary purposes.

A further object is to devise a chair which may be opened from the folded to the sitting or reclining position and vice versa with a minimum amount of manipulation and effort.

A still further object is to devise a chair which may be shifted about from place to place by the user or other person while the user is on the chair.

I attain my object by means of the construction hereinafter described and illustrated in the accompanying drawings in which:

Fig. 1 is a detailed side elevation of a chair constructed according to an embodiment of this invention;

Fig. 2 is a longitudinal section taken vertically through the chair, showing the chair in full reclining position;

Fig. 3 is a sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a fragmentary sectional view taken on the line 4—4 of Fig. 2;

Fig. 5 is a fragmentary sectional view taken on the line 5—5 of Fig. 2;

Fig. 6 is a fragmentary side elevation partly in section of the forward portion of the chair;

Fig. 7 is a fragmentary sectional view taken on the line 7—7 of Fig. 3;

Figure 8 is a detail side elevation, partly broken away, of the chair in folded position,

Figure 9 is a fragmentary longitudinal section of the rear portion of the chair in folded position.

In the drawings like numerals of reference indicate corresponding parts in the different figures.

The chair is provided with two side frames, each comprising an arm rest 1 secured to a top bar 1a having a front leg 2 pivoted adjacent its front end and a rearwardly and downwardly inclined rear leg 3 has its upper forward end pivotally connected with the top bar 1a. A link 4 having one end pivotally connected with the rear leg and its other end pivotally connected with the front leg 2 provides for unitary swinging of the front and rear legs together. A stop 8 is pro-

2

vided at each side to limit the forward movement of the front leg 2.

A cross bar 5 extends between the front legs of the two side frames, while a cross bar 7 extends between the two rear legs, and a cross bar 6 between the two links 4 and through the rear legs 3.

With the arrangement described the legs of the chair may be moved in unison to open or folded position as described.

Positioned between the side frames is the back frame B which comprises side members 9 pivoted at 10 to the top bars 1a adjacent the rear thereof. The upper ends of the side members 9 are connected by a cross bar 11. Pivotally supported from the lower ends of the side members is the rear end of the seat frame C, which comprises side members 12, the forward cross bar 13 and the rear cross bar 14.

The forward end of this seat frame is pivotally connected intermediate the ends of links 15, the upper ends of which links are pivoted adjacent the forward ends of the top bars 1a of the side frames A. The lower ends of these links 15 are connected by a cross bar 16 and the links 15 are spaced apart a distance less than the distance of the front legs 2 so that the lower portions of these links will strike the cross bar 5 when the chair is being collapsed in order that the links 2 and 3 will move in unison with links 15 to collapsed position.

To complete the seat a strip of webbing 17 extends transversely between the side members 12, while a second or longitudinal strip of webbing 18 extends from the rear cross bar 14 over the transverse webbing 17, over the front cross bar 13, and has its other or forward end connected with the cross bar 16.

To complete the back, two vertically spaced strips of webbing 19 and 20 extend transversely between the side members 9 of the back frame B, while a second strip of webbing 21 extends longitudinally of the back frame, its upper end being connected to the cross bar 11 and its lower end fixed to the lower transverse strip 20.

Pivotally mounted on the lower ends of the links 15 is a foot rest D, which comprises side members 22 and a cross member 23. The side members are provided with stops 24 which engage the rear of the links 15 to limit rocking of the foot rest when the chair is in reclining position.

Secured to the under side of the side members 12 of the seat frame behind the legs 2 is a transverse leg extending and safety bar 30, which bar

3

projects laterally of the side members 12 far enough to engage the rear surface of said legs.

To fold the chair, it is simply necessary to hold the upper part of the back frame with one hand and lift the forward end of one side frame with the other hand, and all the parts, with the exception of the foot rest, automatically move to the folded position. The foot rest may be moved into folded position by a secondary operation.

To open the chair, the upper end of the back frame is held with one hand and the arm rest 1 gripped with the other hand, and by pulling the latter away from the back the parts of the chair will automatically move to the extended position. In this case the foot rest requires a secondary operation to move it to position for use.

My improved chair may also be used by convalescents, and in this case it is desirable that the chair may be moved from place to place without the patient getting off. The lower cross-bar 6 is therefore preferably formed as an axle and has ground wheels 25 thereon, while casters 26 are mounted on the lower ends of the front legs 2. To enable an attendant to move the chair with the patient thereon, the side members 9 of the back frame are provided with extensions 9¹, which may be used as handle grips.

To enable the patient to move the chair from place to place while sitting or lying thereon, I provide the following means. On the extended ends of cross bar 6 ground wheels 25 are rotatably mounted and a grooved pulley 27 is fixed relative to each ground wheel 25. An endless belt 29 is trained over pulley 27, and over a second grooved pulley 28 rotatably mounted on the pivot between the legs 2 and links 4. By operating the belt 29 or pulley 28, the ground wheels may be rotated to move the chair as desired.

An important feature of the present invention is the ease with which the chair may be opened and folded. This is largely due to the interconnection of the parts and particularly the relationship between the front legs 2 and their connecting cross bar 5 and the extension of the links 15 below the front end of the seat, which extensions are adapted to engage and be engaged by cross bar 5. It will thus be seen that as the legs 2 are swung downwardly and forwardly from a collapsed to an extended position cross bar 5 will strike links 15 and swing the latter to extended position. Legs 2 are at this time engaged by the extended ends of bar 30 as the seat frame swings downwardly and forwardly so that the connected front and rear legs will move to extended position at the same time that the back is swung upwardly and rearwardly. The legs are moved to completely extended position by rocking the back downwardly to sleeping position as shown in Figure 2. In the event the front legs are not moved to completely extended position as shown in Figure 1, but are disposed in downwardly and rearwardly inclined position, the legs are held against collapsing by engagement with the ends of safety bar 30. While this latter position is not the proper extended position of the legs, nevertheless the chair will function as such with the legs only partly extended.

It will also be noted that the fabric of the seat frame and fabric of the back are unconnected, and that the seat frame with its fabric, extends considerably to the rear of the pivotal connection with the back frame side members. This is also important in providing a comfortable chair.

Having regard to the foregoing disclosures, the

4

patent of which this specification forms part confers, subject to the conditions prescribed in the Patent Act, 1935, the exclusive right, privilege and liberty of making, constructing, using and vending to others to be used, the invention as defined in claims submitted by the patentee as follows.

I claim:

1. A folding chair comprising a pair of horizontal arm rest members, a pair of legs pivotally connected at their upper ends with each arm rest member, a link pivotally connected at the opposite ends thereof to said legs and holding said legs in downwardly divergent relation when the chair is extended, cross bars connecting opposite legs together, a back frame comprising a pair of side bars and a pair of cross bars, means pivotally securing said side bars upwardly from the lower ends thereof to said arm rest members, a pair of foot rest supporting links pivotally secured at their upper ends to said arm rest members forwardly of the front legs and disposed inwardly of said front legs, said latter links extending below the cross bar connecting the front legs together, a foot rest pivotally carried by said latter links, a seat frame pivotally secured to the inside of the lower ends of said side bars and said foot rest supporting links, and a leg engaging bar fixed to said seat frame and engaging laterally therefrom and engageable with the rear sides of the front legs to thereby swing said front legs downwardly from a collapsed to an extended position when said seat frame is swung downwardly and forwardly by upward rocking of said back frame.

2. A folding chair comprising a pair of horizontal arm rest members, a pair of legs pivotally connected at their upper ends with each arm rest member, a link pivotally connected at the opposite ends thereof to said legs and holding said legs in downwardly divergent relation when the chair is extended, cross bars connecting opposite legs together, a back frame comprising a pair of side bars and a pair of cross bars, means pivotally securing said side bars upwardly from the lower ends thereof to said arm rest members, a pair of foot rest supporting links pivotally secured at their upper ends to said arm rest members forwardly of the front legs, said latter links extending below the cross bar connecting the front legs together and spaced apart a distance less than the space between said front legs, a foot rest pivotally carried by said latter links, a seat frame pivotally secured to the inside of the lower ends of said side bars and said foot rest supporting links, a leg engaging bar fixed to said seat frame and extending laterally therefrom and engageable with the rear sides of the front legs to thereby swing said front legs downwardly and forwardly from a collapsed to an extended position when said seat frame is swung downwardly and forwardly by upward rocking of said back frame, and a stop member carried by each arm rest member engageable by the upper ends of the front legs for limiting the swinging of said front legs to an extended position.

3. A folding chair comprising a pair of horizontal arm rest members, a pair of legs pivotally connected at their upper ends with each arm rest member, a link pivotally connected at the opposite ends thereof to said legs and holding said legs in downwardly divergent relation when the chair is extended, cross bars connecting opposite legs together, a back frame comprising

5

a pair of side bars and a pair of cross bars, means pivotally securing said side bars upwardly from the lower ends thereof to said arm rest members, a pair of foot rest supporting links pivotally secured at their upper ends to said arm rest members and forwardly of the front legs and disposed inwardly of said front legs, said latter links extending below the cross bar connecting the front legs together, whereby upon upward and rearward movement of said supporting links to collapsed position the latter named links will strike the cross bar between said front legs to thereby also swing the legs upwardly and rearwardly to collapsed position, a foot rest pivotally carried by said latter links, a seat frame pivotally secured to the lower ends of said side bars and to said foot rest supporting links below the upper ends of the latter, a leg engaging bar fixed to said seat frame and extending laterally therefrom and engageable with the rear sides of the front legs to thereby swing said front legs downwardly from a collapsed to an extended position when said seat frame is swung downwardly and

6

forwardly by upward rocking of said back frame, said foot rest supporting links upon upward and rearward swinging thereof to collapsed position engaging the cross bar of said front legs whereby the front and rear legs will be swung upwardly and rearwardly to collapsed position with and by movement of said foot rest supporting links to collapsed position.

TOM HEATON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,020,207	Platter	Nov. 5, 1935
2,275,908	Kelly	Mar. 10, 1942

FOREIGN PATENTS

Number	Country	Date
604,276	France	Jan. 22, 1926