A. MacDONALD.

INVALID BEDSTEAD.

APPLICATION FILED FEB. 19, 1910.

969,174.

Patented Sept. 6, 1910.

3 SHEETS—SHEET 1.

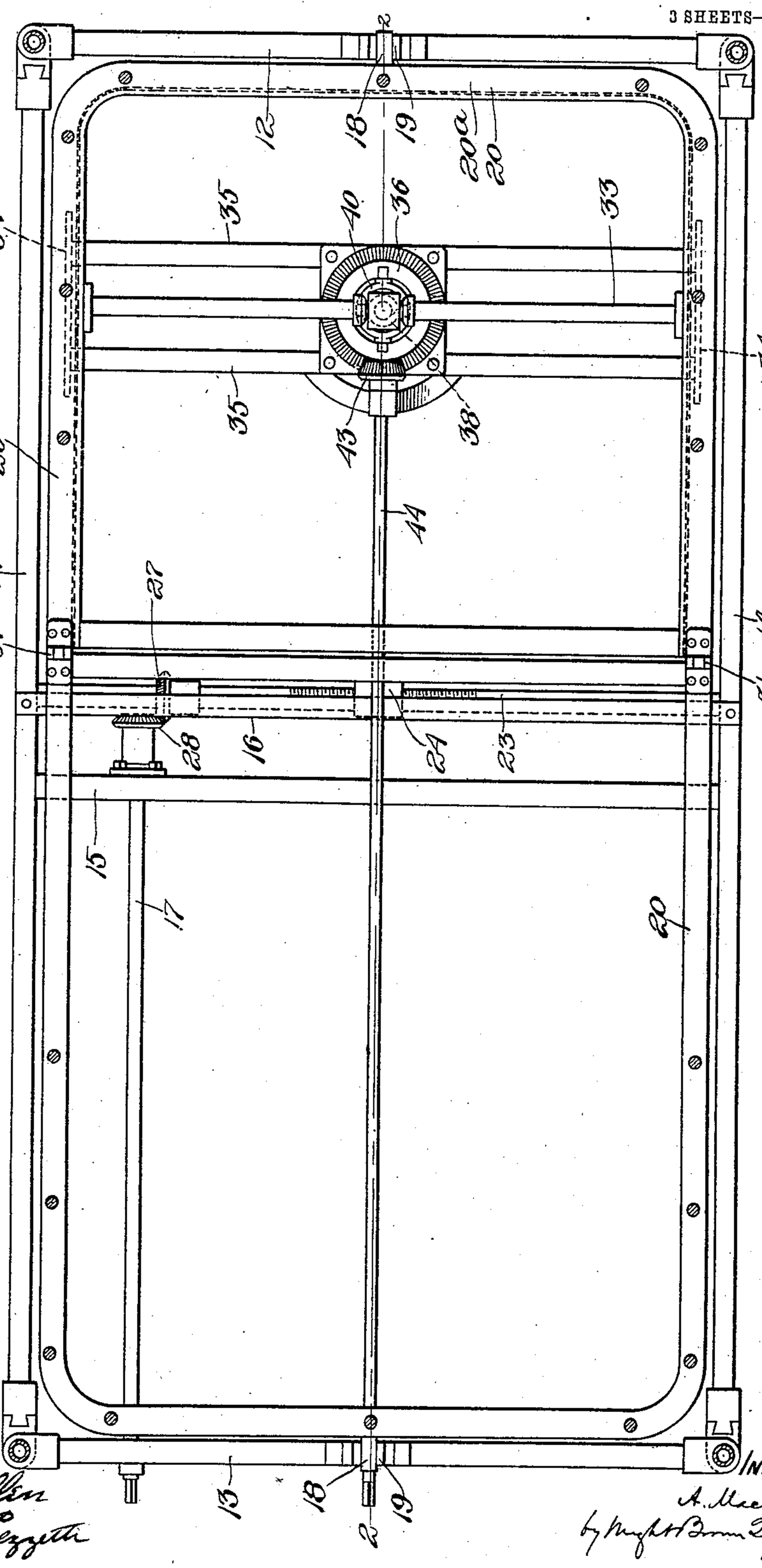

Fig. 1.

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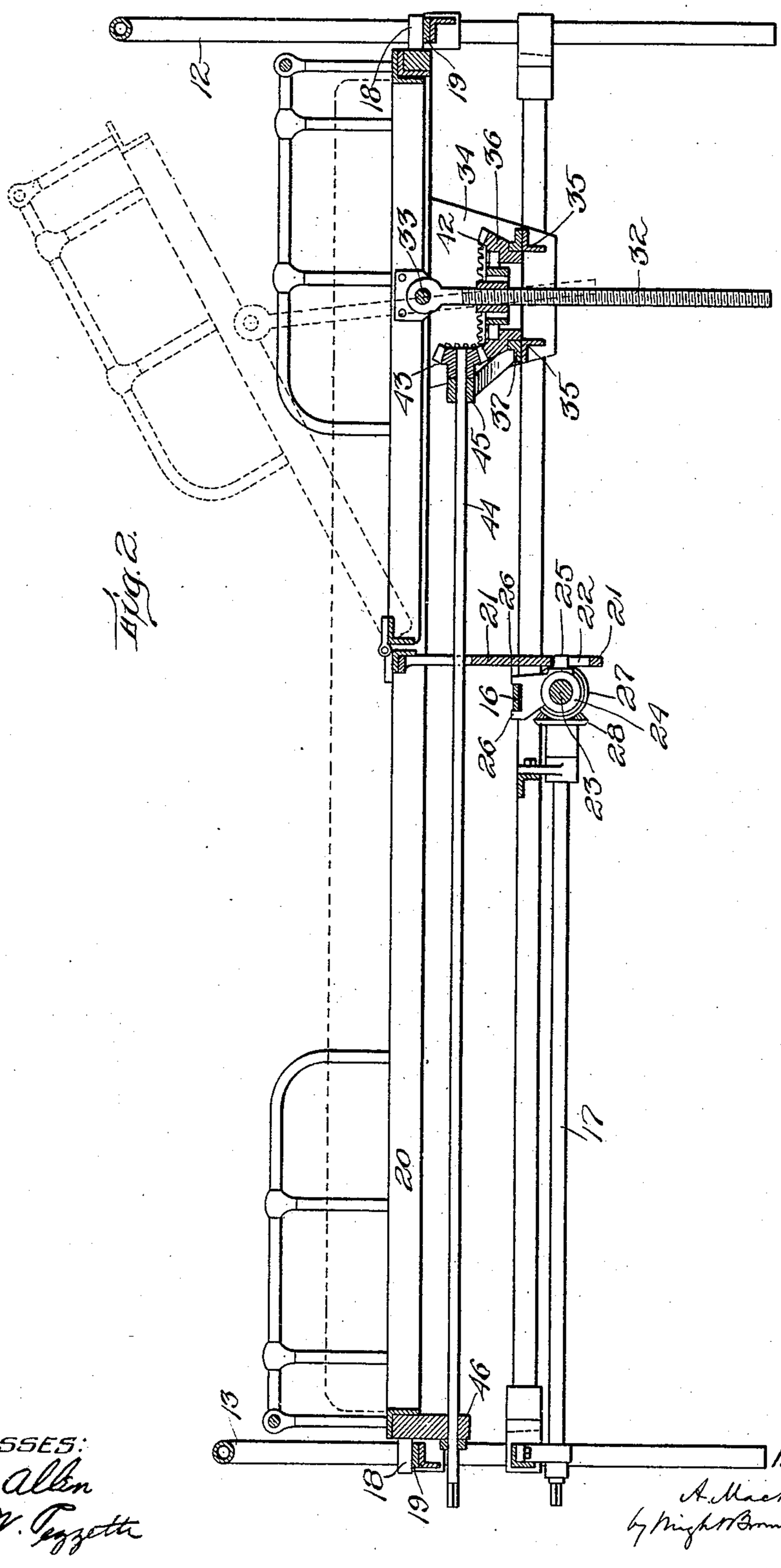

Fig. 2.

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3 SHEETS—SHEET 3.

Fig. 4.

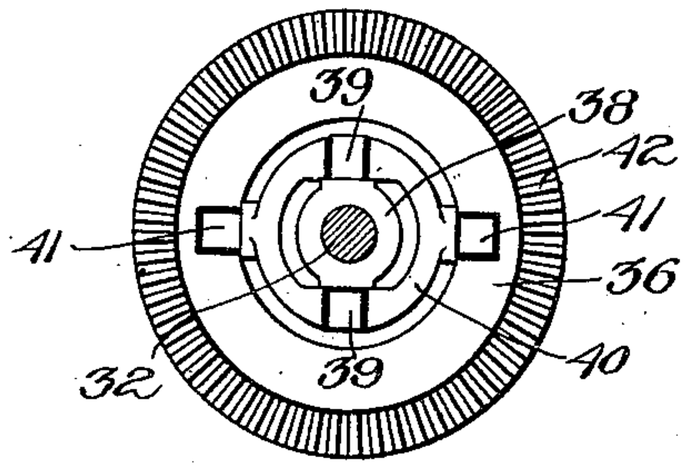
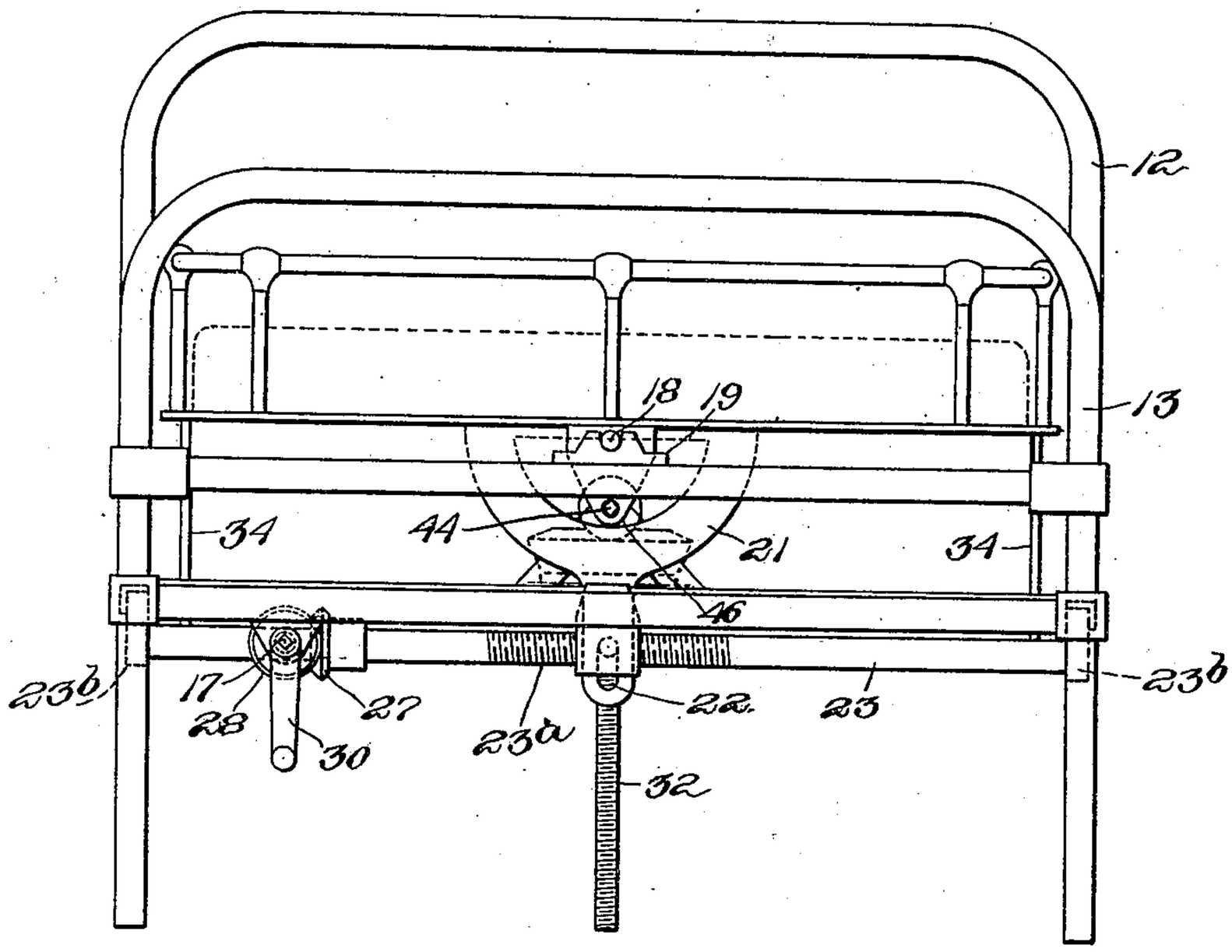


Fig. 3.



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UNITED STATES PATENT OFFICE.

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INVALID-BEDSTEAD.

969,174. Specification of Letters Patent. Patented Sept. 6, 1910.

Application filed February 19, 1910. Serial No. 544,815.

To all whom it may concern:

Be it known that I, ANGUS MACDONALD, of Melrose, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Invalid-Bedsteads, of which the following is a specification.

This invention relates to an adjustable bedstead, the bed or mattress-supporting frame of which is adapted to be tipped transversely to raise one longitudinal edge and depress the other, the head portion of the bed frame being hinged and adapted to swing relatively to the body portion of the frame to enable the body of the occupant of the bed to be inclined at any desired angle.

The invention has for its object to provide a bedstead capable of the above mentioned adjustments, which shall be of simple, strong and durable construction, and adapted to be conveniently operated.

The invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a top plan view of a bedstead embodying my invention, portions of the upper works being removed. Fig. 2 represents a longitudinal section on line 2—2 of Fig. 1. Fig. 3 represents an end elevation of a bedstead; and Fig. 4 represents a top plan view of the nut and its holder hereinafter referred to, said figure showing in section the screw threaded brace engaged with the nut.

The same reference characters indicate the same parts in all the figures.

The main frame of my improved bedstead includes a head member 12, a foot member 13, and longitudinal side members 14 connecting the head and foot members, these parts being constructed and connected in any suitable way. The side members 14 are here shown as connected by transverse bars 15 and 16, the former supporting one of the bearings of the shaft 17, hereinafter described. The cross bar 16 constitutes a guide member which prevents rotation of the nut hereinafter referred to.

The mattress or other support for the occupant of the bed is carried by a bed frame which is pivotally connected with the main frame, and is adapted to be tipped transversely to raise either of its longitudinal edges, and correspondingly depress the opposite edge. The end portions of the bed frame are here shown as provided with trunnions 18 which are mounted to turn in bearings 19 on the end members of the main frame.

In the drawings I have omitted from the representation of the bed frame the means for supporting the mattress, the frame being shown in Figs. 1 and 2 without mattress supporting means for the sake of clearness of illustration. The said bed frame, which is designated by the reference numeral 20, is preferably made of angle-iron, the trunnions 18 being rigidly attached to its end portions. To the central portion of the bed frame is rigidly attached a downwardly projecting arm 21 provided with a slot 22 in its lower portion.

23 represents a transverse shaft which is journaled in bearings 23^b (Fig. 3) on the main frame, and has a screw threaded portion 23^a.

24 represents a nut which is engaged with the screw thread of the shaft 23, and has a stud 25 which projects into the slot 22 in the arm 21. Rotation of the shaft 23 causes the nut to move lengthwise of the shaft, the sliding connection between the nut and the arm 21 afforded by the stud 25 and slot 22 causing a movement of the nut to impart a tipping movement to the bed frame. To prevent rotation of the nut with the shaft, I provide the nut with suitable guiding means here shown as ears 26 formed on an extension of the nut, and engaging a portion of the cross bar 16, the latter being preferably a length of angle-iron, and constituting a complemental guide member.

27 represents a bevel gear affixed to the shaft 23, said gear meshing with a bevel gear 28 affixed to the operating shaft 17. The shaft 17 extends to one end of the main frame, preferably the foot end, and may be rotated by means of a crank 30 detachably applied to the squared outer end of said shaft.

It will be seen that the described mechanism for tipping the bed frame is of such nature that it positively secures the bed frame at any position to which it may be tipped, and that the extension of the operating shaft 17 to the end of the main frame enables the tipping operation to be conducted from one end of the bedstead.

The bed frame 20 is provided with a hinged head section 20^a, which is connected with the main portion of the bed frame by

hinges 31, the head section being therefore capable of a swinging adjustment so that it may be inclined relatively to the body portion of the bed frame, as shown by dotted lines in Fig. 2.

32 represents a screw threaded brace which is hinged or pivoted at 33 to the head section 20^a, and extends downwardly therefrom. To the main portion of the bed frame is attached a transverse support which is located under the hinged head section, and as here shown, is composed of vertical ears or hangers 34 attached to the main portion of the bed frame, and transverse bars 35 extending from each hanger 34 to the other.

36 represents a nut holder which is externally of circular form, and is fitted to rotate on a circular track or seat 37 affixed to the cross bars 35.

38 represents a nut which is engaged with the screw threaded brace 32, and has a universal joint connection with the nut holder 36, the preferred construction of said connection being as follows:—

39, 39 represent trunnions projecting from opposite sides of the nut 38, adapted to rock in bearings formed in a ring 40 which occupies the center of the nut holder 36, the latter being annular. The ring 40 has trunnions 41, 41, adapted to turn in bearings formed for their reception in the nut holder 36. The trunnions 39 are arranged at right angles with the trunnions 41, the whole constituting a gimbal joint which permits a universal tipping movement of the nut relatively to the nut holder. The said universal joint connection also constitutes a coupling between the nut and the nut holder which insures the rotation of the nut with the holder.

The nut holder is provided with gear teeth 42 constituting a bevel gear meshing with a bevel gear 43 affixed to an operating shaft 44 which is journaled in a bearing 45 affixed to one of the cross bars 35, and in another bearing 46 formed on or affixed to the main portion 20 of the bed frame, the shaft 44 extending through the foot end of the main frame and being located in close proximity to the shaft 17, so that the same crank 30 may be used conveniently for operating both shafts.

The mechanism for imparting a swinging adjustment to the head section of the bed frame is adapted to positively secure said head section in any position to which it may be adjusted.

I claim:

1. An adjustable bedstead comprising a main frame, a bed frame pivoted to the main frame and adapted to be transversely tipped, said bed frame having a rigidly attached downwardly projecting arm at its central portion, a screw threaded shaft journaled in bearings on the main frame and extending crosswise of the latter, an operating shaft also journaled in bearings on the main frame and extending lengthwise of the latter to one of its ends, gearing connecting said shafts, a nut engaging the thread of the transverse shaft and having a sliding engagement with the said arm, and complemental guide members affixed respectively to the nut and the main frame, whereby the nut while permitted to move on the transverse shaft is prevented from rotating therewith.

2. An adjustable bedstead comprising a main frame, a bed frame composed of a body portion, and a head section hinged to the body portion and adapted to be inclined relatively thereto, a screw threaded brace pivoted to the head section, a nut engaged with the thread of said brace, and a nut holder rotatively engaged with the body portion of the bed frame and coupled to the nut, said holder and nut having provisions for permitting the nut to tip relatively to the said body portion and head section.

3. An adjustable bedstead comprising a main frame, a sectional bed frame adapted to be transversely tipped relatively to the main frame, and composed of a body portion and a head section hinged to the body portion, a screw threaded brace pivoted to the head section, a nut holder rotatively supported by the body portion, a nut having a universal joint connection with said holder, and engaged with the brace, and means for rotating the holder.

4. An adjustable bedstead comprising a main frame, a sectional bed frame adapted to be transversely tipped relatively to the main frame, and composed of a body portion and a head section hinged to the body portion, a screw threaded brace pivoted to the head section, a nut holder rotatively supported by the body portion, and formed as a gear wheel, a nut having a universal joint connection with said holder and engaged with the brace, and an operating shaft journaled in bearings on the body portion and geared to the nut holder.

5. An adjustable bedstead comprising a main frame, a sectional bed frame adapted to be transversely tipped relatively to the main frame and composed of a body portion and a head section hinged to the body portion, the said body portion having a rigidly attached, downwardly projecting arm, means supported by the main frame for moving said arm to transversely tip the bed frame, said means including an operating shaft journaled in bearings on the main frame and extending to one end of the latter, a screw threaded brace pivoted to the head section, and means supported by the body portion of the bed frame for moving said brace to impart a swinging adjustment to the head section, said means including a nut

holder rotatively mounted on the said body portion, a nut having a universal joint connection with the said holder and engaged with said brace, and an operating shaft journaled in bearings on the body portion, and extending to one end of the main frame, said shaft being geared to the nut holder.

6. An adjustable bedstead comprising a main frame, a bed frame composed of a body portion and a hinged head section, said body portion having a transverse support located below the head section, connections between the body portion and the main frame whereby the bed frame as a whole is permitted to tip laterally, mechanism carried by the said main frame and body portion for tipping the bed frame laterally, a screw threaded brace pivoted to the head section, a nut holder rotatively mounted on said transverse support and formed as a gear, an operating shaft journaled in bearings on the said body portion and transverse support, and geared to the nut holder, and a nut having a universal joint connection with said holder and engaged with said brace.

In testimony whereof I have affixed my signature, in presence of two witnesses.

ANGUS MacDONALD.

Witnesses:
C. F. BROWN,
P. W. PEZZETTI.