

944,624.

J. T. LUNN.  
INVALID'S MATTRESS.  
APPLICATION FILED AUG. 26, 1909.

Patented Dec. 28, 1909.

4 SHEETS—SHEET 1.

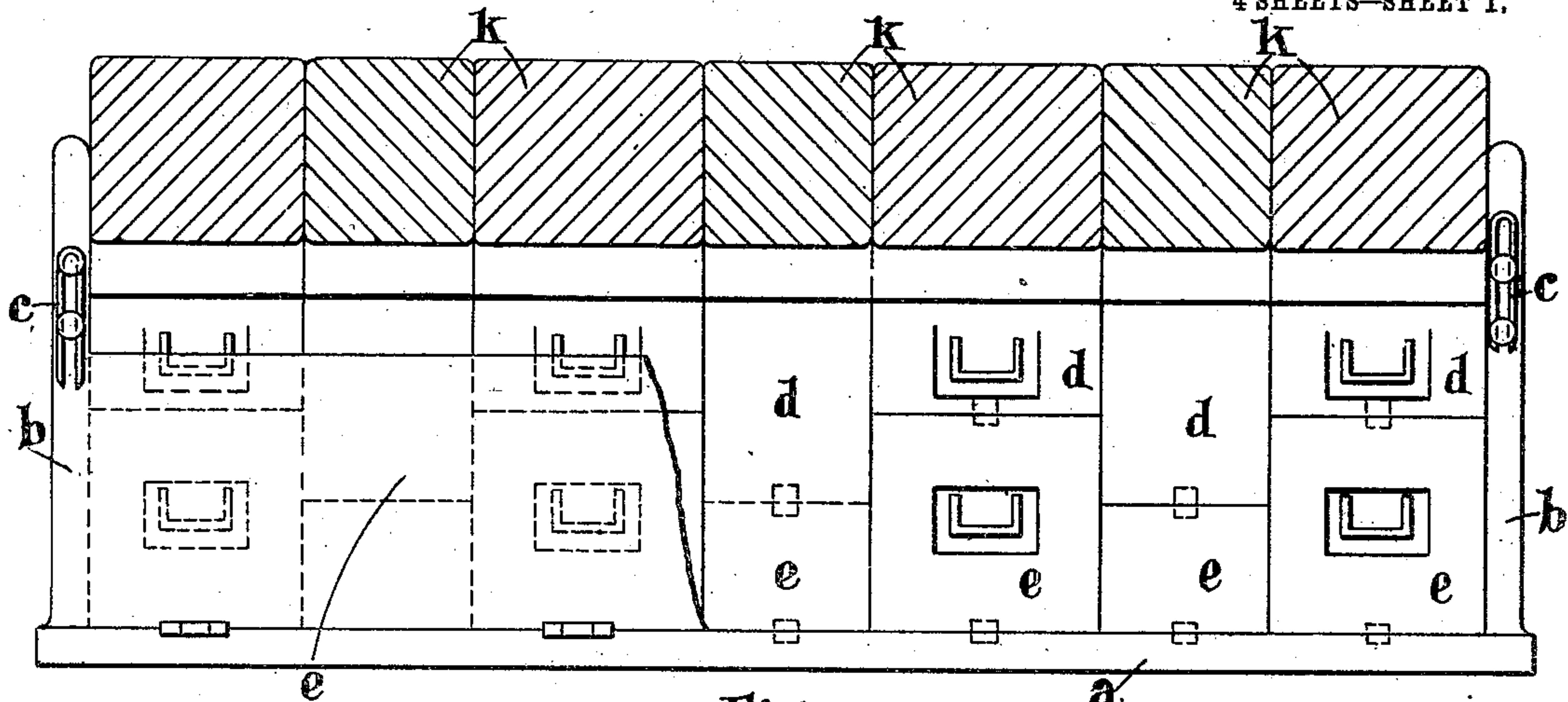


Fig. 1.

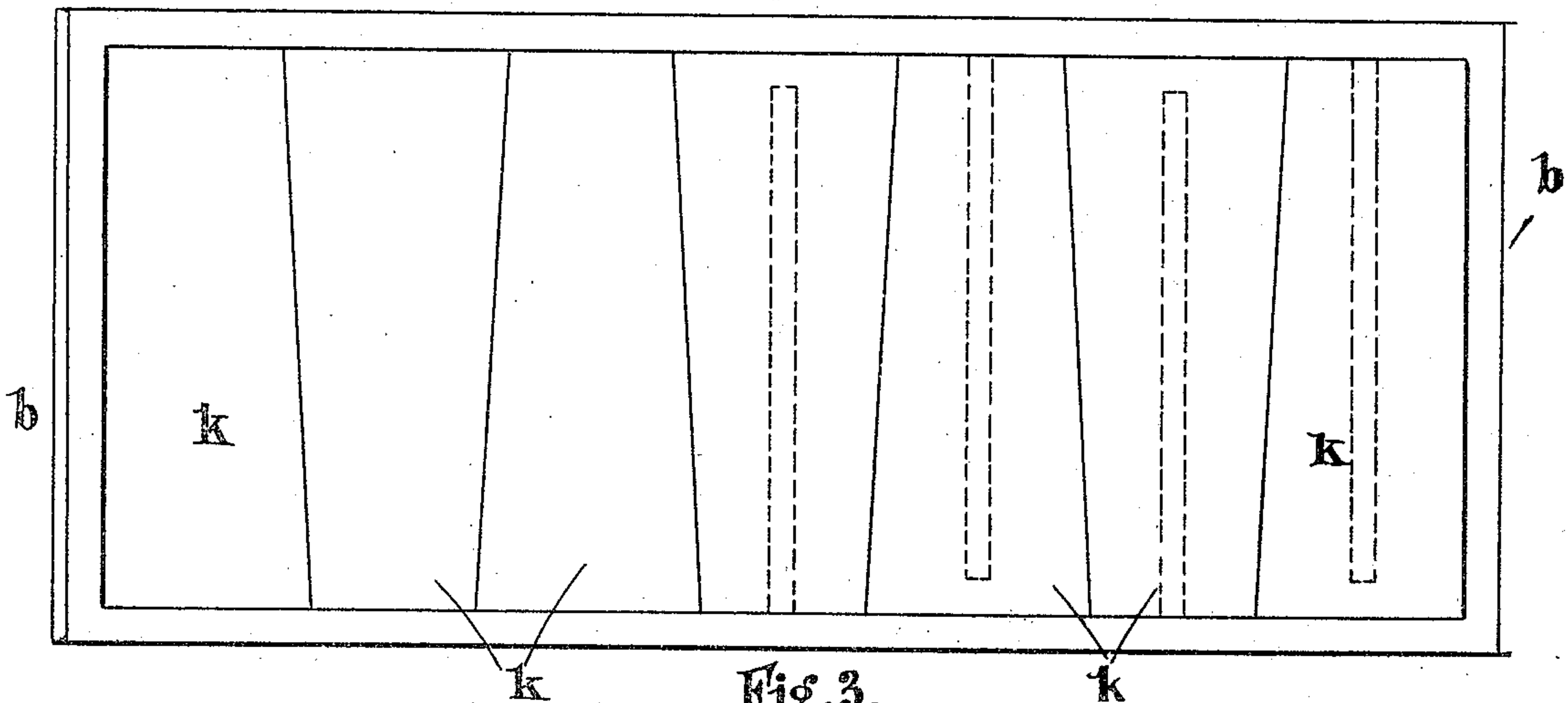
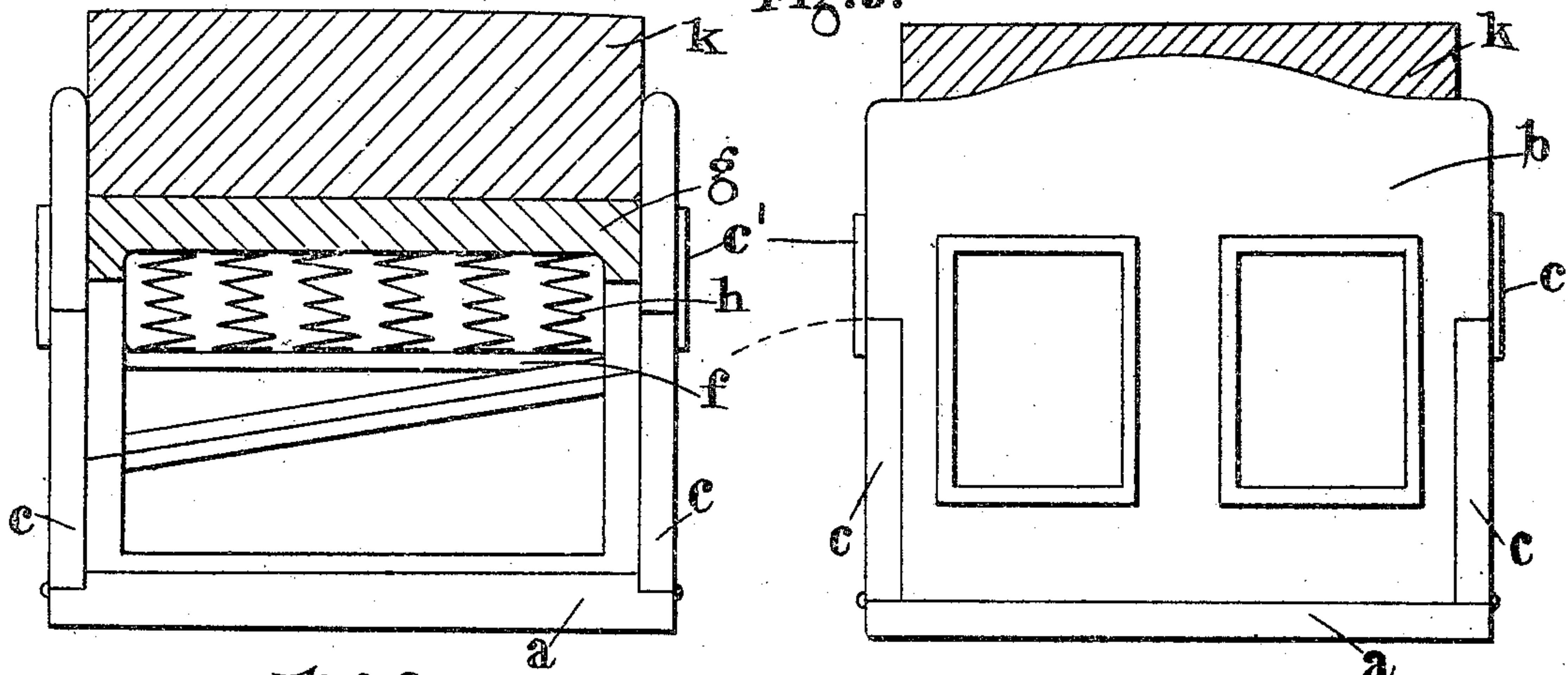


Fig. 3.



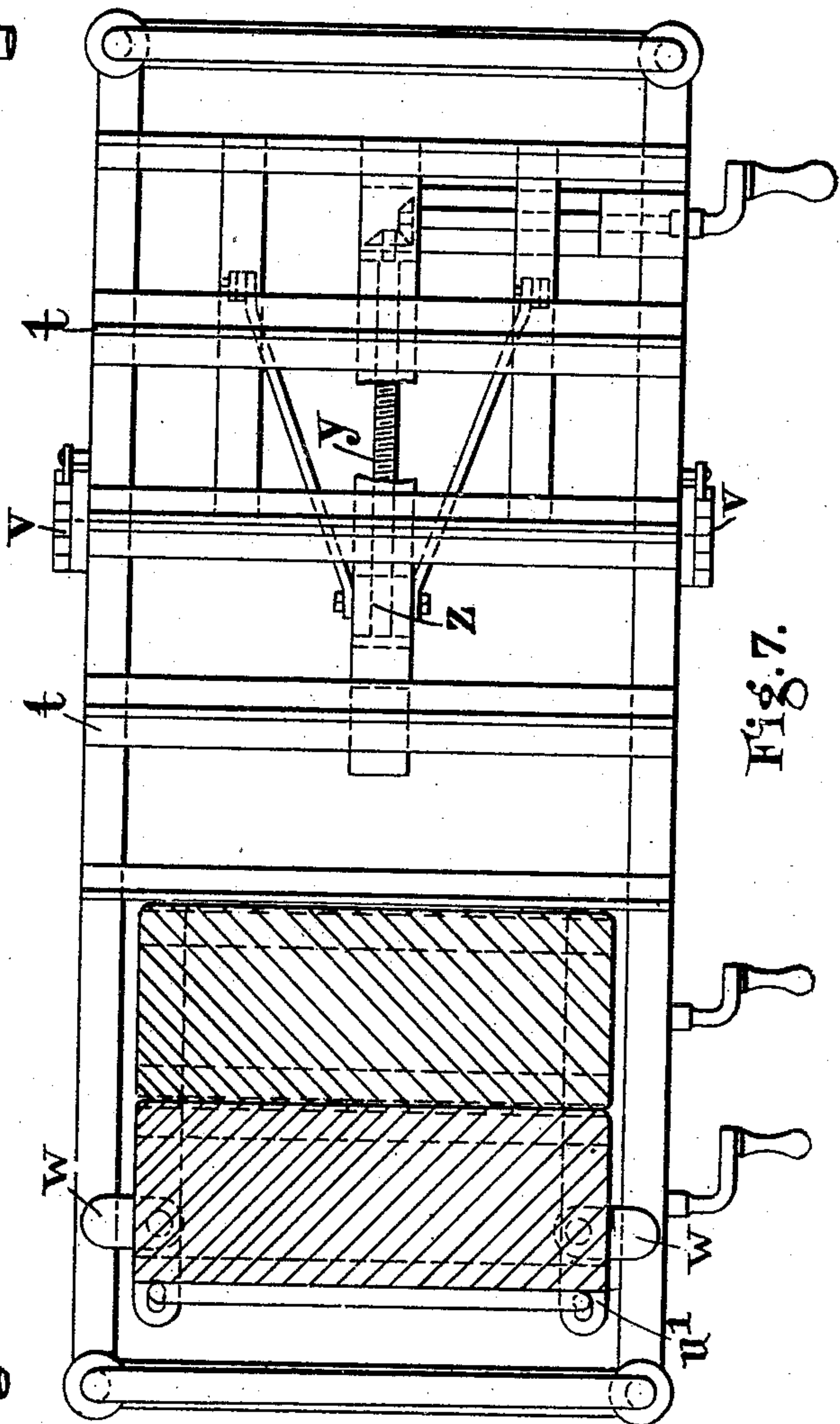
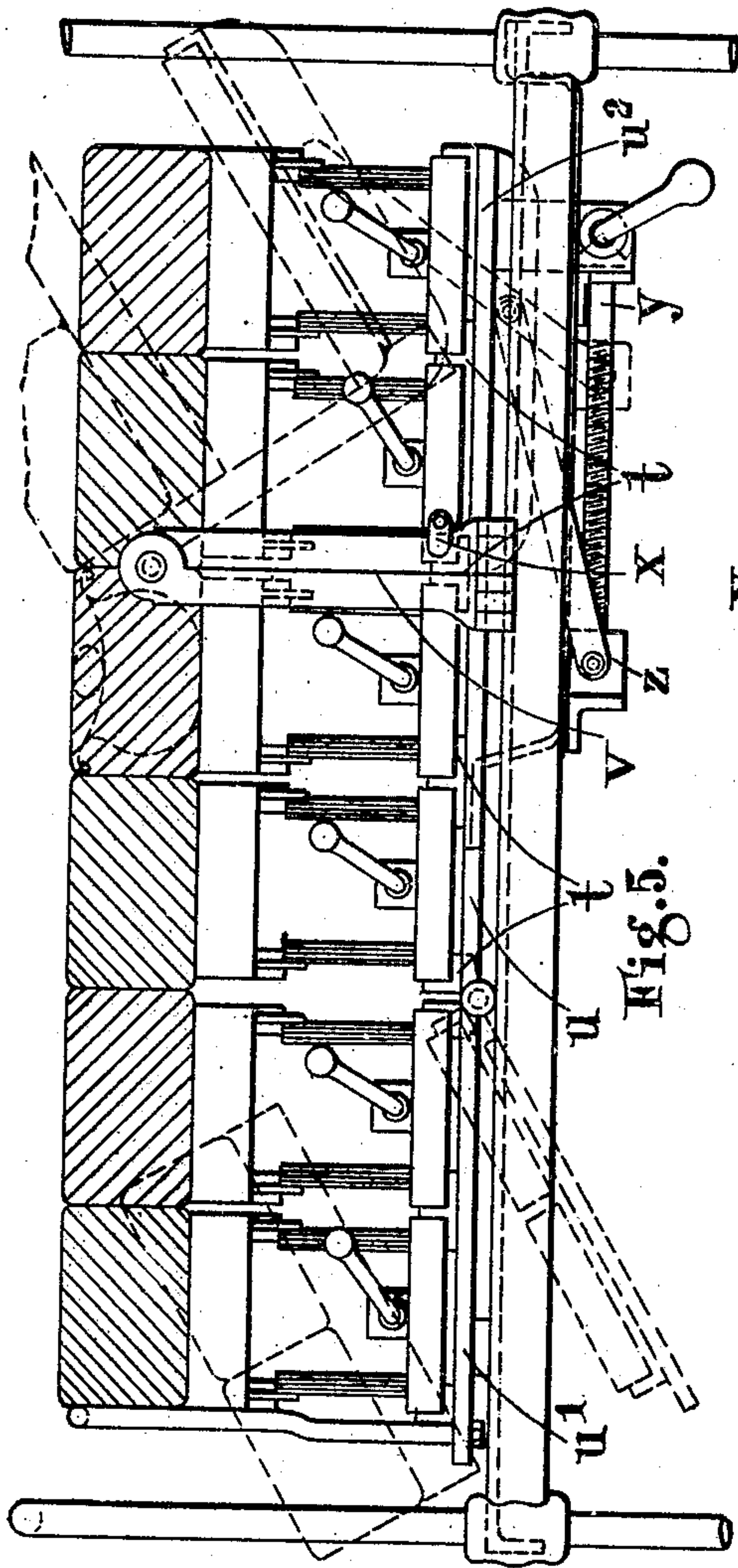
WITNESSES Fig. 2.  
W. P. BURKE  
John A. Ricval.

Fig. 4. INVENTOR  
Joseph Sigwell Lunn  
BY M. Haller, ATTORNEY

944,624.

J. T. LUNN.  
INVALID'S MATTRESS.  
APPLICATION FILED AUG. 26, 1909.

Patented Dec. 28, 1909.  
4 SHEETS—SHEET 2.



WITNESSES

W. P. Burris  
John A. Percival

INVENTOR

Joseph Sigwell Lunn  
BY *W. H. Dallas* ATTORNEY



944,624.

J. T. LUNN.  
INVALID'S MATTRESS.  
APPLICATION FILED AUG. 26, 1909.

Patented Dec. 28, 1909.

4 SHEETS—SHEET 3.

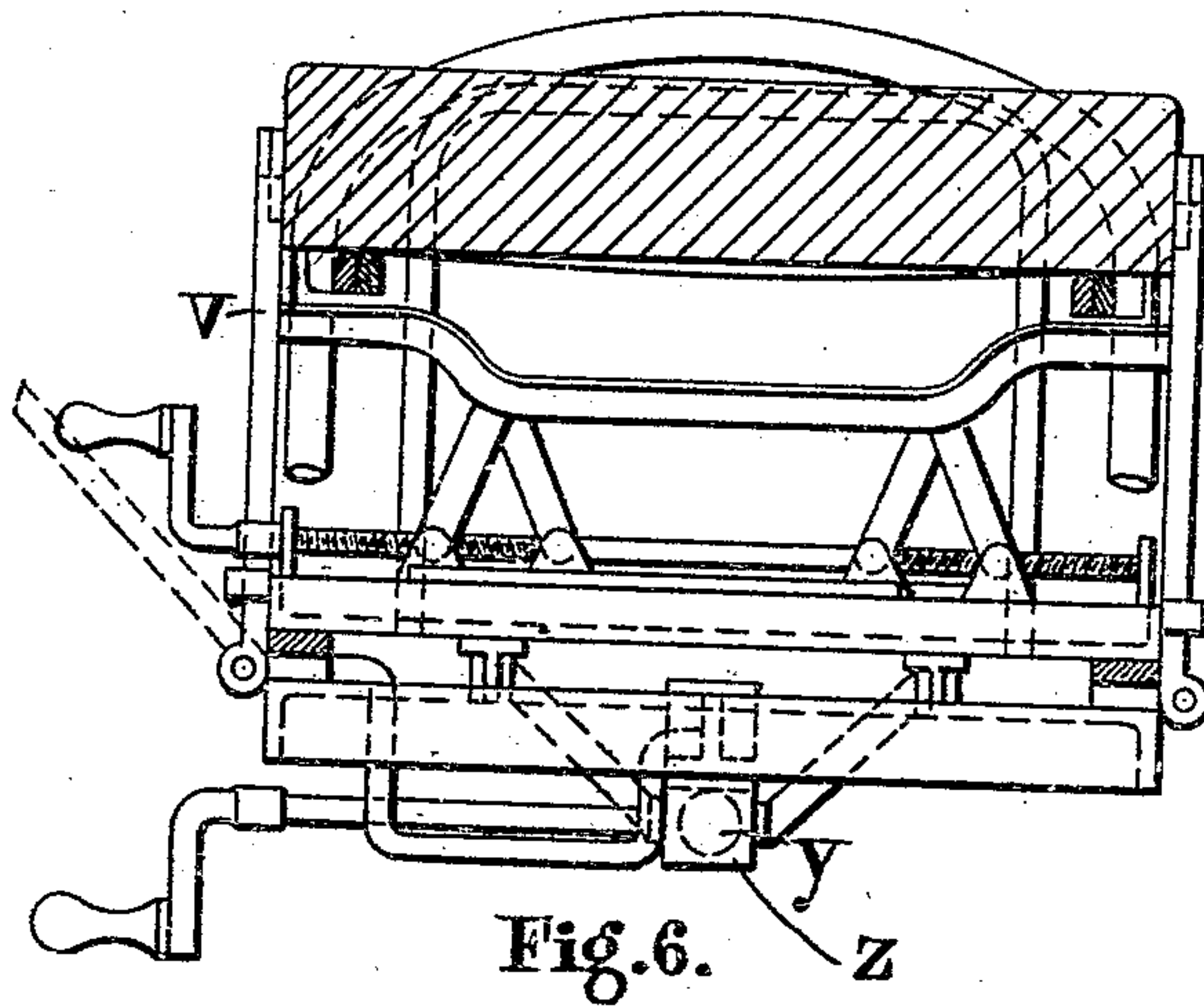
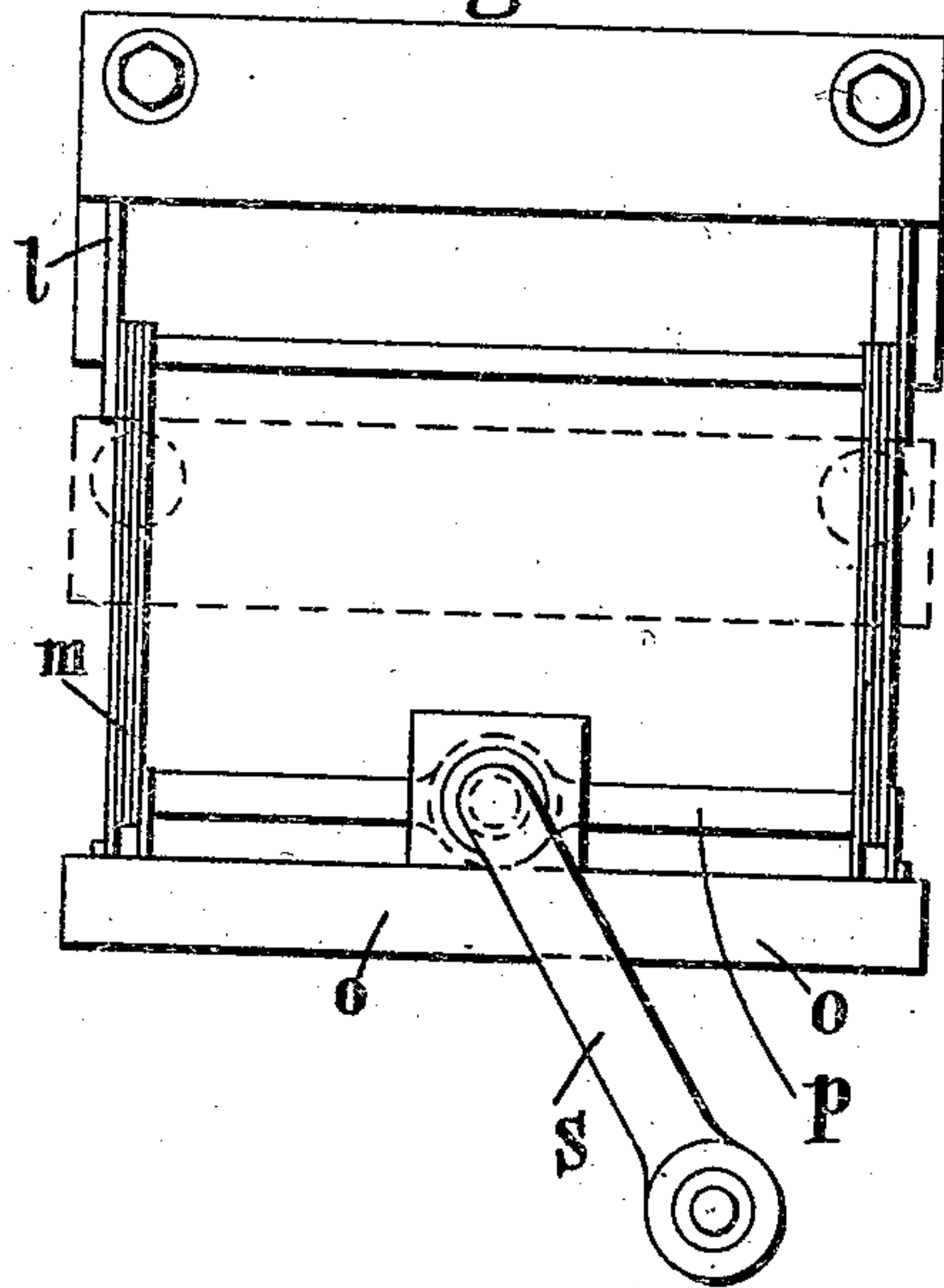


Fig. 9.



WITNESSES

W. P. Burke  
John A. Percival

INVENTOR

Joseph Sigwell Lunn  
BY *McNally Mith*  
ATTY.

944,624.

J. T. LUNN.  
INVALID'S MATTRESS,  
APPLICATION FILED AUG. 26, 1909.

Patented Dec. 28, 1909.  
4 SHEETS—SHEET 4.

Fig. 8.

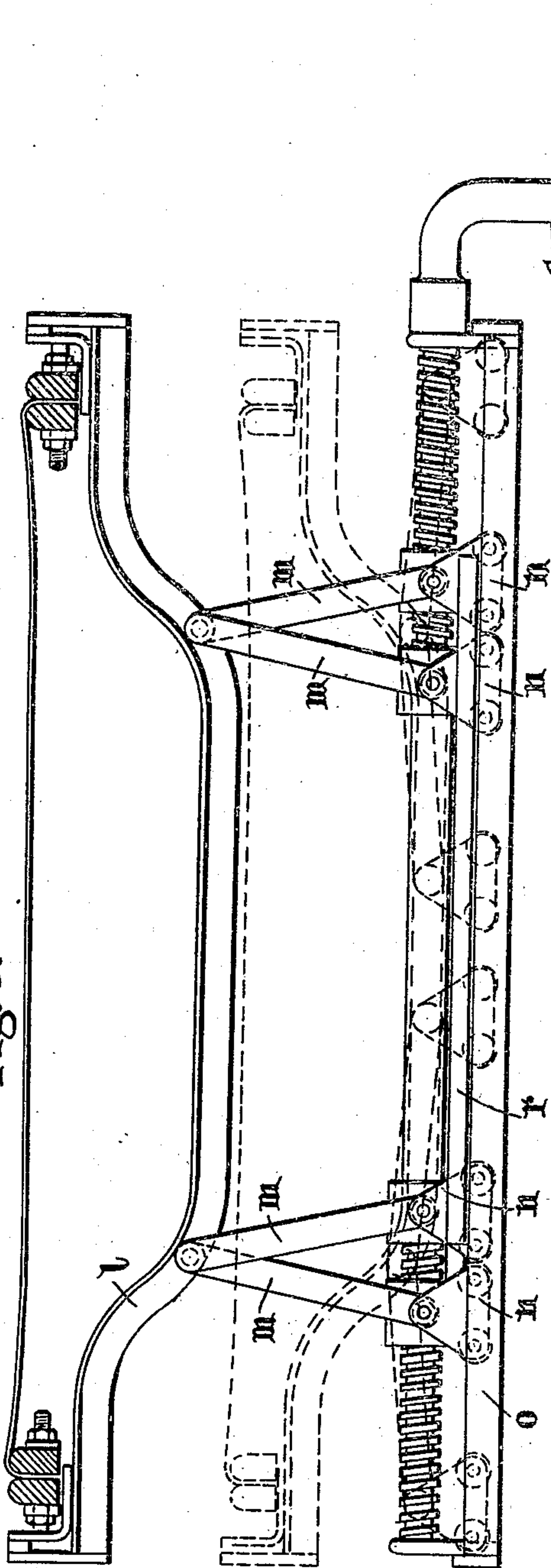
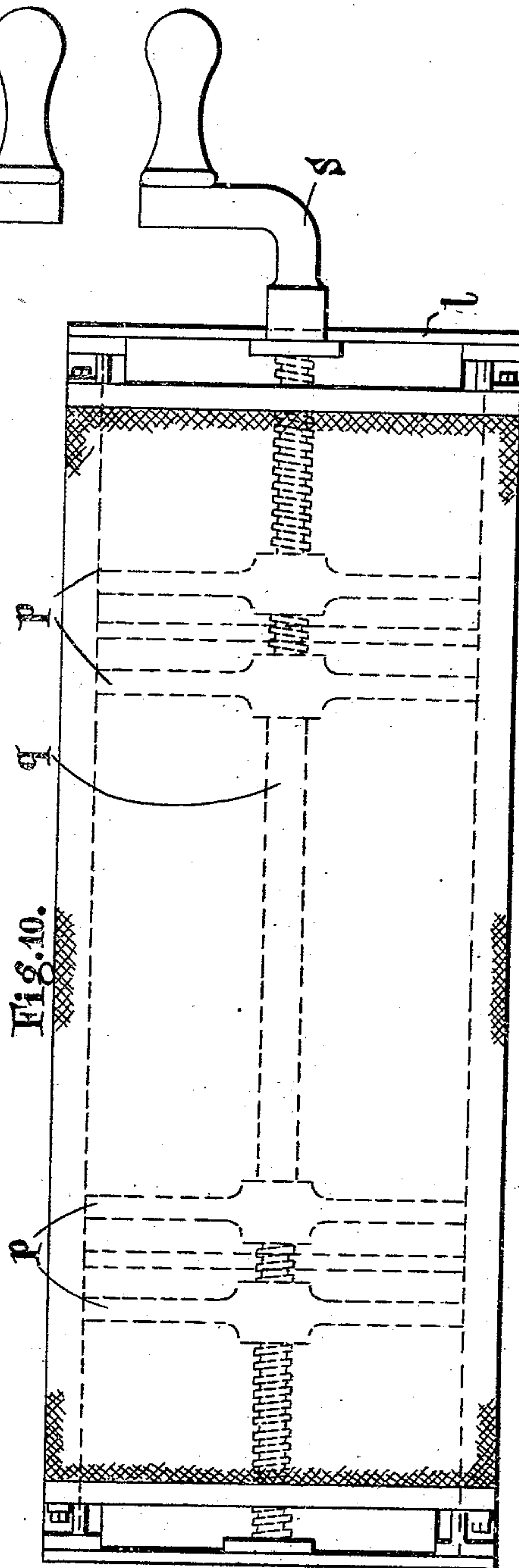


Fig. 10.



WITNESSES

W. P. Burke  
John A. Percival

INVENTOR

Joseph Sigwell Lunn  
By *W. M. M. White*

ATTY.



# UNITED STATES PATENT OFFICE.

JOSEPH TIGWELL LUNN, OF SOUTHAMPTON, ENGLAND.

## INVALID'S MATTRESS.

944,624.

Specification of Letters Patent.

Patented Dec. 28, 1909.

Application filed August 26, 1909. Serial No. 514,792.

*To all whom it may concern:*

Be it known that I, JOSEPH TIGWELL LUNN, a subject of the King of Great Britain, residing at 127 Millbank street, Southampton, in the county of Hants, England, have invented new and useful Improvements in Invalids' Mattresses, of which the following is a specification.

My invention embraces an invalid's mattress constructed of a number of sections any one of which may be independently manipulated so as to leave a space beneath that part of the patient requiring attention. Such mattress I construct of a flat bottom part of wood or other material adapted to fit on to an ordinary bedstead or provided with legs to take the place thereof. This bottom part is provided with upright ends of suitable height between which are arranged a number of transverse box-sections some or all of which are removable and each is provided with a separate padded overlay. Each of such box-sections is slightly wedge shaped in plan, the top and bottom of each being parallel, and they are arranged with their ends alternately first on one side and the next on the other side of the mattress, the two end sections being wedge shaped on one side only as the other has to fit flush with the upright ends. This wedge like shape of the box-sections is adopted in order to facilitate the withdrawal of any particular section without friction or disturbing the invalid more than is absolutely necessary. Each of these removable box-sections is made in two box-shaped parts adapted to slide one on the other transversely of the mattress. The lower of each of these parts is formed with an inclined top so that the depth of such part increases from one side of the mattress to the other while the bottom of the upper part of the same section is similarly inclined. Each of such upper parts is fitted with a horizontal false bottom between which and a padded fabric or cloth covering to the box-section are arranged a suitable number of ordinary wire coil springs or any other form of spring as may be preferred by the user. With such an arrangement it will be seen that any portion of the mattress may be easily removed so that the necessary attention may be given to the invalid, the bedclothes changed or the bed made, and in addition operations performed, wounds dressed or other surgical treatment applied to any portion of the body of the

user with a minimum of disturbance. To effect this the under portion of the box-section required to be removed is drawn out by the aid of a suitable handle fixed to the wider end of such part so allowing the upper portion to drop and this in its turn also withdrawn. The overlay may then be withdrawn and the required change or other operation effected without disturbing the patient.

Suitable guides are provided on the bottom part of the mattress to engage with others on the bottom of each of the box-sections so that each of these latter will keep its proper relative position, while side flaps may be hinged to the bottom at each side of the mattress so that they may be turned up and suitably secured and will then retain all the sections in proper position.

Instead of making the sections of wedge-shaped removable parts as above described, they may, when preferred, be made of a vertically collapsible frame, preferably comprising a top part, padded and fitted with springs in the usual manner, a bottom part, capable of being fitted on to or forming part of the bedstead, and connecting parts by the aid of which the top part may be raised or lowered at will. In a simple form such connecting parts comprise end pieces hinged at their upper ends to the top of the frame and having their lower ends resting on the lower part of the frame in suitable guideways. Along these guideways said lower ends of the end pieces may be caused to travel, each in an opposite direction, by a screw mounted on the frame bottom and cut with a right handed screw thread at one end and with a left handed screw thread at the opposite end. The two end pieces may thus be operated to cause their lower ends to approach or recede from one another so as to lower or raise the frame top. When preferred, however, the connecting parts between the frame top and bottom may comprise a suitably formed air bag, telescopic uprights, articulated levers, or other like means for raising and lowering the top as required.

Mattresses constructed either of wedge-shaped box-sections or collapsible sections as above described are preferably provided with an overlay formed in sections to correspond with the sections of said mattress, and the latter sections where collapsible may be either made removable, in which case they may be tapered at their sides to facilitate



removal, or they may be all formed on a frame either separate from or constituting the bedstead bottom.

Separate sheets, blankets, waterproofs or other coverings may be employed with each part of the overlay when desired.

My invention will be better understood and more readily carried into practical effect by reference to the accompanying drawings by the aid of which I will now describe applications thereof.

Of these drawings, Figure 1. is a side elevation of a mattress with wedge-shaped removable sections and Fig. 2. is a sectional end elevation through one of the box-sections, Fig. 3. is a plan and Fig. 4. is an end elevation thereof respectively. Fig. 5. is a side elevation of a mattress with collapsible sections and Fig. 6, is an end elevation and Fig. 7 a plan (showing some of the sections removed) thereof respectively, while Fig. 8 is a side elevation, Fig. 9. an end elevation and Fig. 10. a plan of one of the sections detached.

As illustrated by Figs. 1. 2. 3. and 4. the mattress is constructed with a bottom part *a* adapted to fit on to an ordinary bedstead and provided with upright ends *b* and hinged side flaps *c* fitted with fastenings *c*<sup>1</sup> of any suitable type. On to this bottom fit a number of transverse box-sections of wedge shape in plan, and each formed of an upper part *d* and a lower part *e*: the former having the underside inclined and the latter its top correspondingly inclined as shown in Fig. 2. so that by the aid of suitable handles on the ends of the parts the lower one may be first removed so that the upper one will drop down and may in its turn be removed.

The upper part *d* of each section is formed with a horizontal false bottom *f* (Fig. 2.) between which and the top covering *g* are arranged wire springs *h*, while on the top of this part fits an overlay *k* of corresponding size and shape.

Suitable tongue and groove or like guides are provided on the underside of the upper parts *d* and the tops and bottoms of the lower parts *e* so that the parts will retain their proper relative positions after the removal of one or more of them.

In the alternative method of construction shown by Figs. 5 to 10. the sections are each made collapsible and removable and comprise (Figs. 8. 9. and 10.) a top of woven wire, cloth or the like stretched on a frame *l* in a similar manner to an ordinary wire spring mattress. This frame *l* has hinged to it in four pairs legs *m* to the lower ends of which are pivoted plates *n* having journaled therein the spindles supporting rollers adapted to run on a bottom frame *o*. The corresponding legs on the opposite sides of the frame are connected by cross bars *p* hav-

ing central bosses through which passes a rod *q* mounted in the bottom frame *o*. This rod is cut with a right handed screw thread at one end and with a left handed screw thread at the opposite end and the central bosses of the two outside cross bars *p* are correspondingly threaded, while the bosses of the two inside cross bars are bored with holes of a diameter sufficiently large to allow of their sliding on the unthreaded portion of the rod *q*. The outside leg of one pair is connected by a side rod *r* to the inside leg of the other pair on the same side of the frame and vice versa so that each two legs so connected can only move in the same direction and those of each pair will consequently be caused to approach and recede when the rod *q* is rotated in one or the other direction by the aid of a suitable handle *s* and the frame *l* so raised or lowered as shown in full and dotted lines Figs. 8. and 9.

When preferred single rollers may be provided on the lower end of each leg instead of two as shown.

A number of collapsible sections so constructed, and provided with corresponding overlays, are arranged, as shown by Figs. 5. 6. and 7, transversely on an ordinary bedstead. In this position they are supported on transverse bars *t* on which they can slide to permit of their withdrawal when collapsed, and these transverse bars are in their turn supported on a frame carried by the bedstead. This frame is divided into a central portion *u* and two end portions *u*<sup>1</sup> and *u*<sup>2</sup>, that end portion *u*<sup>1</sup> at the foot of the bedstead being hinged directly to the central portion *u*, so that it may be lowered, and both it and the sections carried by it made of such size that they will pass between the sides and end of the bedstead, while the opposite end portion *u*<sup>2</sup> is hinged through uprights *v* to the central portion *u* so that it may be raised. The portion *u*<sup>1</sup> is normally supported at its free end by lugs *w*, resting on the bedstead side rails, but which may be turned inward out of engagement so as to allow the portion *u*<sup>1</sup> to swing downward by its own weight into the position shown by dotted lines, when the gap created in the upper surface of the mattress may be filled by a suitably shaped cushion or otherwise as found convenient.

The two parts of each of the uprights *v* are hinged together at their upper ends and at their lower ends are hinged respectively to the central portion *u* and end portion *u*<sup>2</sup> of the supporting frame so that they may be turned outward to permit of either of the collapsible sections which they normally overlap being removed. Such uprights are, however, normally held in the upright position shown by buttons *x* on one of the sections.



The raising of the portion  $u^2$  of the supporting frame and the collapsible sections on it as shown in dotted lines is effected by the aid of a screw threaded shaft  $y$  journaled in a suitable supporting frame and geared by bevel gearing to a transverse shaft fitted with a handle at its outer end by means of which the whole may be operated. This shaft  $y$  carries a block  $z$  connected by inclined connecting rods to the underside of the portion  $u^2$  of the supporting frame and the movement of which block along the shaft effects the raising or lowering of said portion  $u^2$  of the supporting frame.

Where preferred the collapsible sections may be used on an ordinary bedstead independently of any means for raising or lowering the end ones as above described and in this case the transverse supporting bars would rest directly on the side rails of the bedstead.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. An invalid's mattress comprising a plu-

rality of sections forming the complete mattress, each section having an upper and lower portion movable in relation to each other.

2. An invalid's mattress comprising a plurality of sections, each comprising a lower part and an upper part, a screw threaded rod carried by the lower part, and legs pivoted to the upper part and engaging with the screw threads of said rod.

3. An invalid's mattress comprising a plurality of sections, each having an upper and lower part, a screw threaded rod carried by the lower part, pairs of legs pivoted to the upper part, carriages secured to the bottom of the legs and engaging with the lower part, arms connecting the opposite carriages together, and nuts carried by said arms and engaging with the screw threads of the rod.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOSEPH TIGWELL LUNN.

Witnesses:

CHAS. SMITH,  
H. D. JAMESON.