(No Model.) 3 Sheets—Sheet 1.

A. J. GOODWIN.

INVALID BEDSTEAD.

No. 603,632. Patented May 10, 1898.

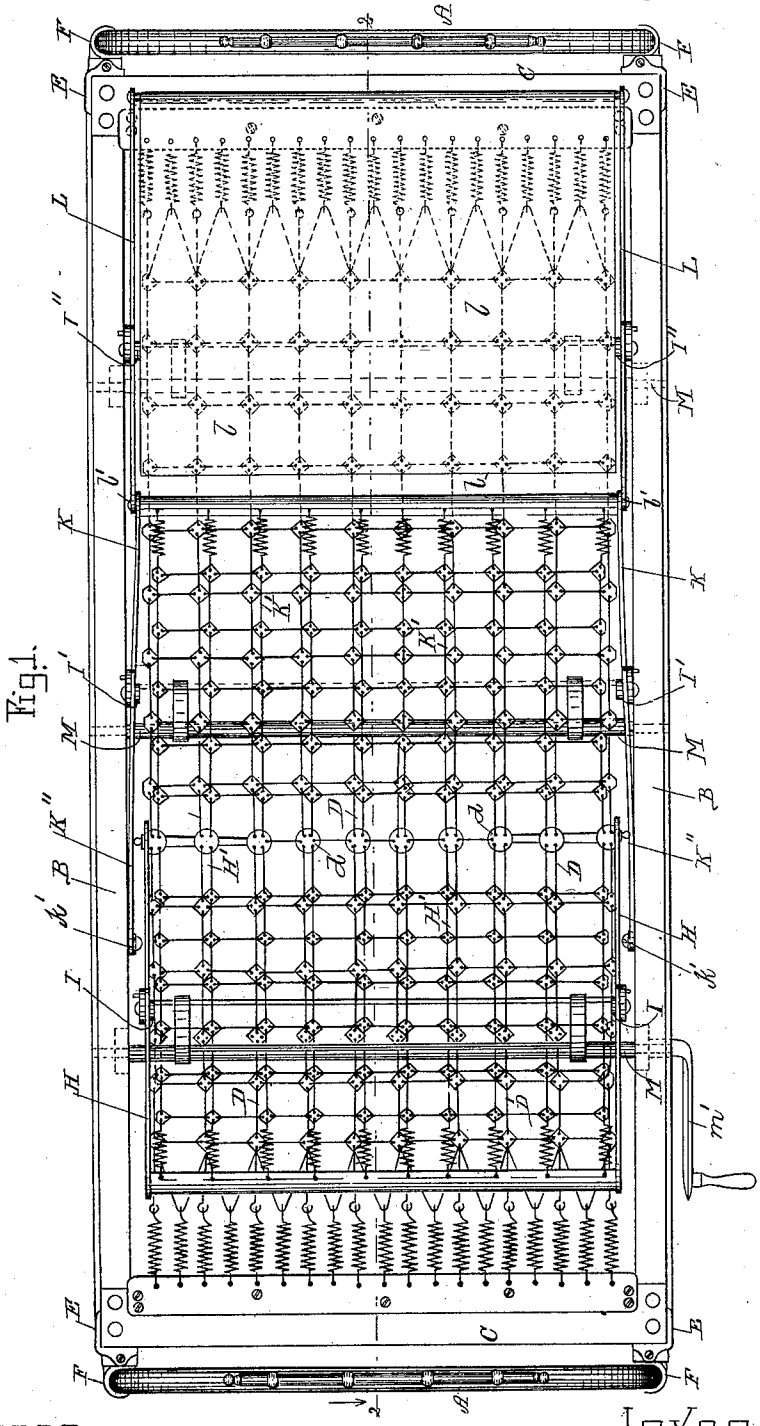


Fig. 1.

Witnesses.

Laurentz N. Möller.

Charles A Harris

Inventor.

Asahel J. Goodwin

by Albert Andrews

his atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 2.

A. J. GOODWIN.

INVALID BEDSTEAD.

No. 603,632. Patented May 10, 1898.

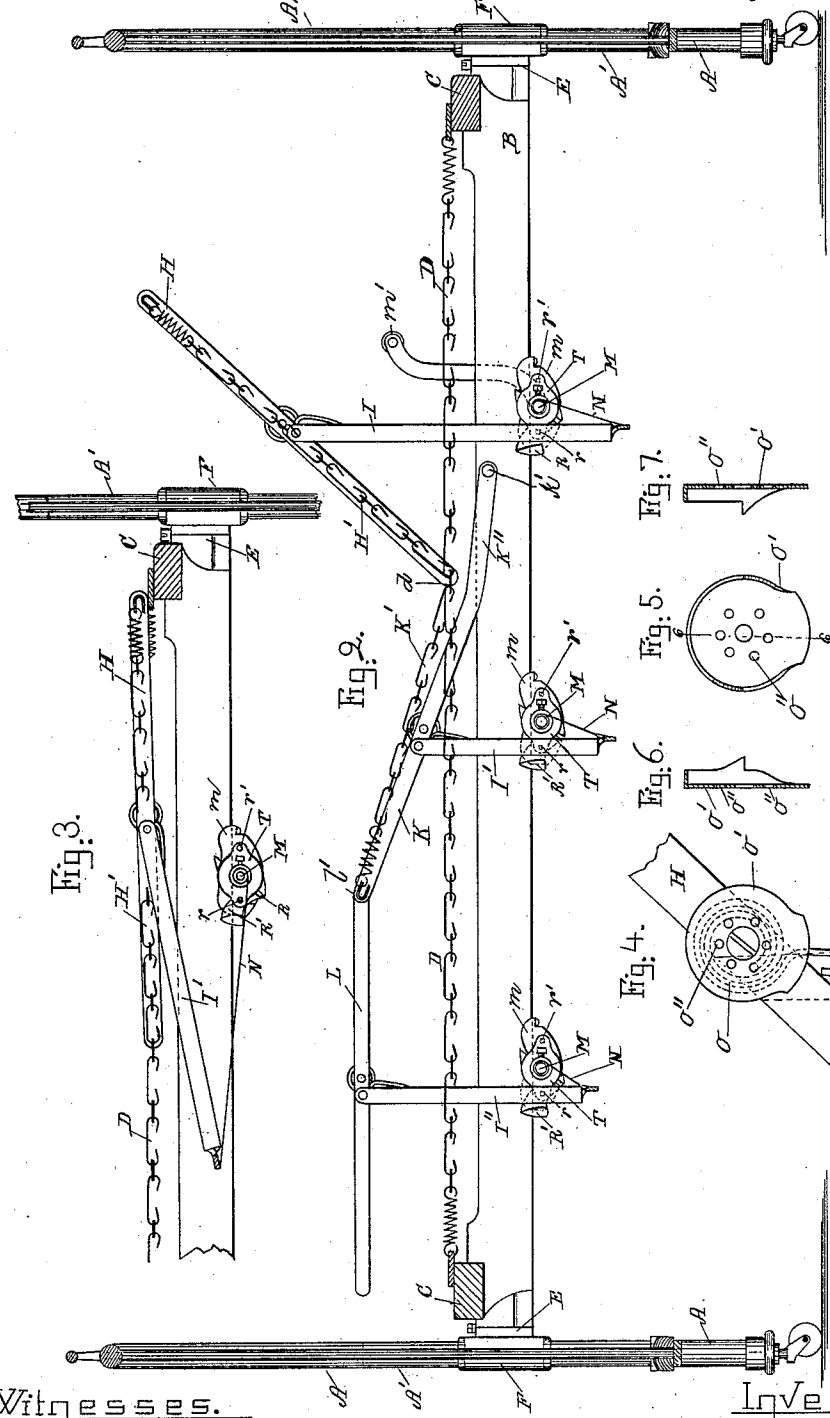


Fig. 3.

Fig. 9.

Fig. 7.

Fig. 5.

Fig. 6.

Fig. 4.

Witnesses.

Lauritz N. Möller

Charles A. Harris

Inventor

Asahel J. Goodwin

by Albert Andrews

his atty.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

(No Model.) 3 Sheets—Sheet 3.

A. J. GOODWIN.

INVALID BEDSTEAD.

No. 603,632. Patented May 10, 1898.

Fig. 14.

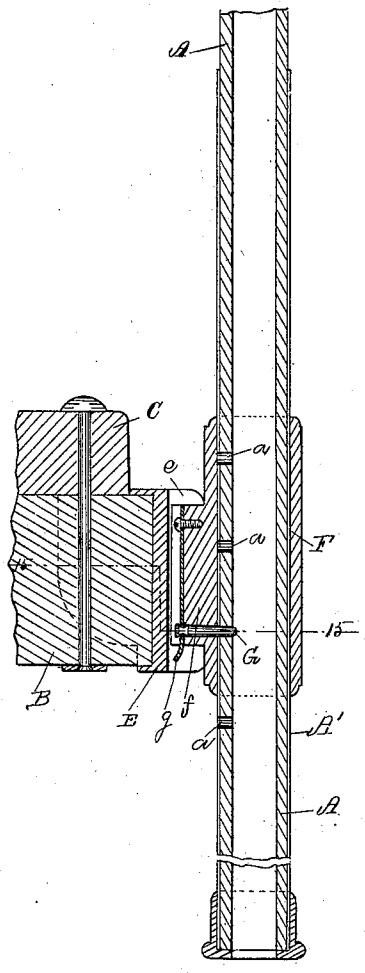


Fig. 15.

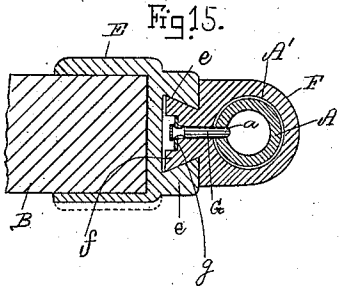


Fig. 8.

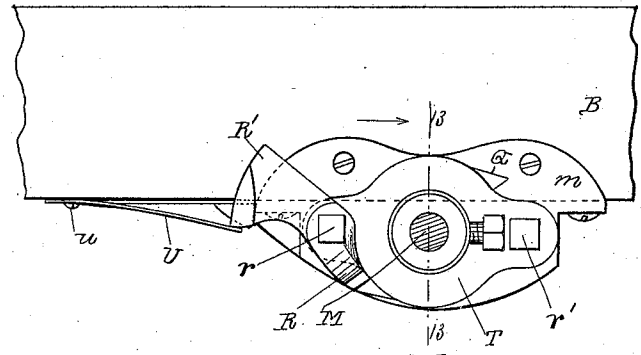


Fig. 9.

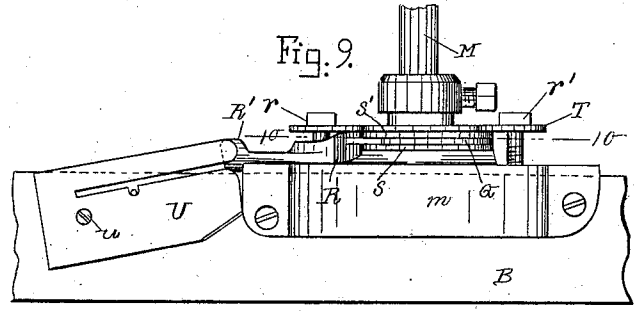


Fig. 10.

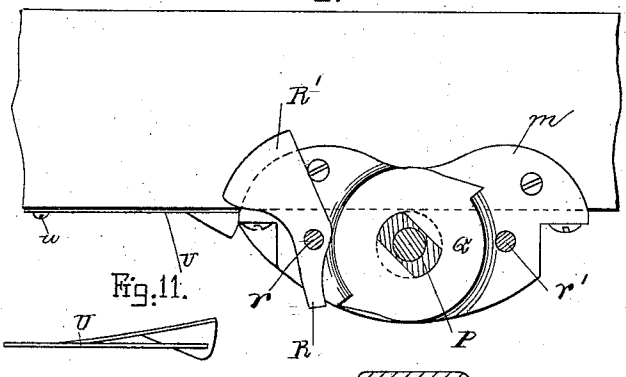


Fig. 11.

Fig. 12.

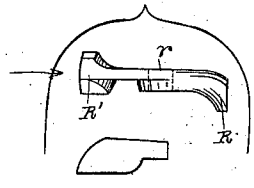
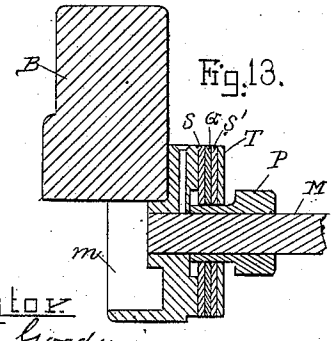


Fig. 13.



Witnesses.

Laurits N. Möller

Charles. A Harris

Inventor.

Asahel J. Goodwin

by Allan Andrew his atty

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

ASAHEL J. GOODWIN, OF BROOKLINE, MASSACHUSETTS.

INVALID-BEDSTEAD.

SPECIFICATION forming part of Letters Patent No. 603,632, dated May 10, 1898.

Application filed February 15, 1894. Renewed October 11, 1897. Serial No. 654,877. (No model.)

To all whom it may concern:

Be it known that I, ASAHEL J. GOODWIN, a citizen of the United States, and a resident of Brookline, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Invalid-Bedsteads, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in invalid-bedsteads; and it consists in mechanism for adjusting and securing in any desired position the back, leg, and foot supports or either one of such relative to the webbing or wire mattress; and it also consists in mechanism for adjusting and securing the bed-frame in any desired position to the bed-posts, as will hereinafter be more fully shown and described, reference being had to the accompanying drawings, wherein—

Figure 1 represents a top plan view of the bedstead, showing the back, leg, and foot supports partly raised. Fig. 2 represents a longitudinal section on the line 2 2, shown in Fig. 1. Fig. 3 represents a partial longitudinal section of the head portion of the bedstead, showing the back-support lowered. Fig. 4 represents a detail side elevation of the back-support and its lifting-link, showing the spring for automatically bringing the link to a horizontal, or nearly so, position below the mattress after the back-support has been lowered. Fig. 5 represents a detail interior view of the cap for covering the spring shown in Fig. 4. Figs. 6 and 7 represent vertical sections as seen from opposite sides of the line 6 6 in Fig. 5. Fig. 8 represents a detail side elevation of the mechanism for adjusting and fastening the back, leg, and foot supports. Fig. 9 represents a bottom plan view of Fig. 8. Fig. 10 represents a section on the line 10 10 in Fig. 9, showing the pawl raised from engagement with the ratchet-wheel for lowering the supports. Fig. 11 represents a detail side view of the pawl-spring. Fig. 12 represents top and rear views of the pawl. Fig. 13 represents a section on the line 13 13 in Fig. 8. Fig. 14 represents a detail vertical section of one of the bed-posts and an adjustable bed-frame-fastening device. Fig. 15 represents a cross-section on the line 15 15 shown in Fig. 14.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

In the drawings, A A A A represent the bed-posts, preferably made of tubular metal.

B B are the side rails, and C C the end rails, to which is secured the wire mattress D, as is usual in devices of this kind.

To the ends of the side rails B B are secured the metal sockets E E, having tapering dovetailed grooves *e e*, Figs. 14 and 15, adapted to receive the tapering dovetailed projection *f* on the sliding adjustable non-divided sleeve F, that surrounds the tubular bed-post A, as shown in said Figs. 14 and 15.

The bed-posts A are preferably made of tubular wrought-iron, which is liable to be somewhat rough and uneven, and for the purpose of presenting a smooth and even exterior to such bed-posts I surround each one with a drawn thin metal casing A′, preferably made of brass, around which the non-divided socket F is made to fit sufficiently close so as to admit of its being vertically adjustable on said casing. By having said casing smooth and of an even size throughout its length I am enabled to make use of a non-divided socket F, which is a great improvement on former constructions in which the socket had to be divided or slitted at its inner portion to prevent its being clamped around the irregular or varying iron-pipe bed-post. Through the said casing A′ and pipe A, I make a series of perforations *a a a*, adapted to receive a spring-pressed adjustable locking-pin G, going through a perforation in the inner portion of the sleeve F and secured to a spring *g*, attached in one end to said sleeve F, as fully shown in Figs. 14 and 15.

In adjusting the positions of the side rails on the posts A A it is only necessary to disconnect their sockets E from the sleeves F, after which the locking-pins *g* may be drawn out of the bed-post perforations and adjusted up or down on said posts, as may be desired, and locked in such adjusted positions by the spring-pressed pins G, after which the side-rail sockets E are placed in position on the dovetailed projections *f* on the non-divided sleeves F, as fully represented in Figs. 14 and 15.

In connection with the mattress D, I use adjustable back, leg, and foot supports for the

purpose of adjusting the position of the invalid or person occupying the bed to suit requirements according to circumstances, and I have for this purpose in Figs. 1, 2, and 3 shown such devices as consisting of an adjustable back-support frame H, pivoted to lifting-bars I, an adjustable leg-support frame K, pivoted to lifting-bars I′, and an adjustable foot-support frame L, pivoted to lifting-bars I″.

The supporting-frames H and K are provided with the respective, preferably wire, mattresses H′ and K′, which are connected at *d* to the main wire mattresses D, as shown in Figs. 1 and 2.

The frames K and L are pivoted together at *l*′, and the frame L is provided preferably with a canvas mattress *l*, as shown.

The leg-supporting frame K is provided with extensions K″, (projecting toward the head of the bed,) which are pivoted at *k*′ to the inside of the side rails B B, as shown in Figs. 1 and 2.

The mechanism for raising and lowering the respective back, leg, and foot supports is constructed as follows: It consists of a shaft M, journaled in bearings *m*, secured to the side rails B, and adapted to be turned by means of a crank *m*′ or other convenient device. To said shaft is secured a strap or web or its equivalent N, the lower end of which is attached to the respective lifting-bars I I′ I″, as shown in Figs 1, 2, and 3. It will thus be seen that said lifting-bars and their supporting-frames may be raised and lowered as circumstances may require simply by turning the shafts M to the right or left, as the case may be.

In devices of this kind it is very desirable to cause the lifting-bars to be automatically swung out of the way into a horizontal, or nearly so, position when their supporting-frames and mattresses are moved into horizontal positions, as represented in Fig. 3, so as not to project below the side rails of the bedstead, and for this purpose I secure in a suitable manner to each of said supporting-frames H I K, at or near the place where they are pivoted to their lifting-bars I I′ I″, a preferably coiled spring O, the lower end of which is loosely connected in a suitable manner to the lifting-bars, and it will thus be seen that said spring causes the lifting-bars to be automatically swung out of the way to the position shown in Fig. 3 as soon as the said supporting-frames reach their horizontal positions during the release of the tension on the straps or webbings N. In practice I prefer to conceal and protect said springs O by means of a cap O′, secured to the supporting-frame and preferably provided with a series of perforations O″ O″ O″, into either one of which one end of the spring O may be inserted for the purpose of adjusting and regulating the strength of said spring according to the weight of the lifting-bar and its connections.

In connection with each shaft *m* I use a locking device for the purpose of holding either of the back, leg, or foot supports in the desired adjusted position, and said locking device consists of an adjustable sleeve P, secured to the shaft M and having a square or elongated inner portion *p*, on which is slipped a ratchet-wheel Q, with which the pawl R, pivoted at *r*, is adapted to engage. Said pawl has a weighted end R′, which serves to hold the pawl in engagement with the ratchet-wheel when the latter is used as a locking means; but it is often desirable in bedstead-adjusting devices to use friction as a means for holding the adjusting-shaft in position, and for this purpose I arrange on the sleeve *p*, on the opposite sides of the ratchet-wheel Q, a pair of friction-washers S S′, and outside of the latter is arranged an adjustable cap-plate T, provided with adjustable clamping-screws *r r*′, screwed into the bearing *m*, and by means of such screws the ratchet-wheel is clamped between the friction-washers S S′ with proper frictional resistance, so as to hold the shaft M and its connections in any desired position after being adjusted. When such friction holding device is used, the service of the pawl R is dispensed with, and it is held swung out of working position, as shown in Figs. 9 and 10, by the influence of a spring-plate U, pivoted at *u* to the under side of the side rail B and adapted to be swung below the preferably inclined or curved rear end of the weighted pawl extension R′, as shown in said Figs. 9 and 10, whenever it is desired to hold the said pawl out of engagement with the ratchet-wheel Q. It will thus be seen that the locking device for securing the shaft M in its adjusted position may be a pawl-and-ratchet one or a frictional one according to the wishes of the operator. This is a very desirable feature, as when, for instance, the movable supports have to be frequently adjusted it is more convenient to use the friction locking device by which the axle M may be turned in either direction in raising and lowering the supports and without holding a pawl disengaged from its ratchet when lowering the supports. When, however, the positive pawl locking device is desired, it can be so used simply by swinging the spring U out of the reach of the weighted end of the pawl, as described.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent and claim—

1. In a bedstead a tubular metal bed-post and a metal casing surrounding said bed-post combined with an adjustable non-divided sleeve fitting around said casing and means for adjustably securing said sleeve to the bed-post and bed-frame substantially as and for the purpose set forth.

2. In a bedstead having an adjustable back, leg or foot support and a lifting-frame pivoted to said support combined with a spring for automatically causing the said lifting-frame to be folded beneath the bed when the support is fully lowered substantially as and for the purpose set forth.

3. In a bedstead an adjustable back leg or foot support and a lifting-frame pivoted to said support combined with an adjusting-shaft connected to the lifting-frame a ratchet secured to said shaft and pivoted pawl engaging said ratchet and an adjustable friction device arranged on said shaft and adapted to be used as a locking device independently of the pawl-and-ratchet locking device substantially as and for the purpose set forth.

4. In a bedstead a main mattress combined with a leg or seat supporting adjustable mattress pivoted or connected to the former and a leg or seat supporting frame attached in one end to said adjustable mattress and pivoted at its other end to the side rails of the bed-frame substantially as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 31st day of January, A. D. 1894.

ASAHEL J. GOODWIN.

Witnesses:
ALBAN ANDRÉN,
WILLIAM W. LUMMUS.