(No Model.)

2 Sheets—Sheet 1.

L. W. WELCH.

FOLDING BED OR BEDSTEAD.

No. 397,766. Patented Feb. 12, 1889.

Fig. 1.

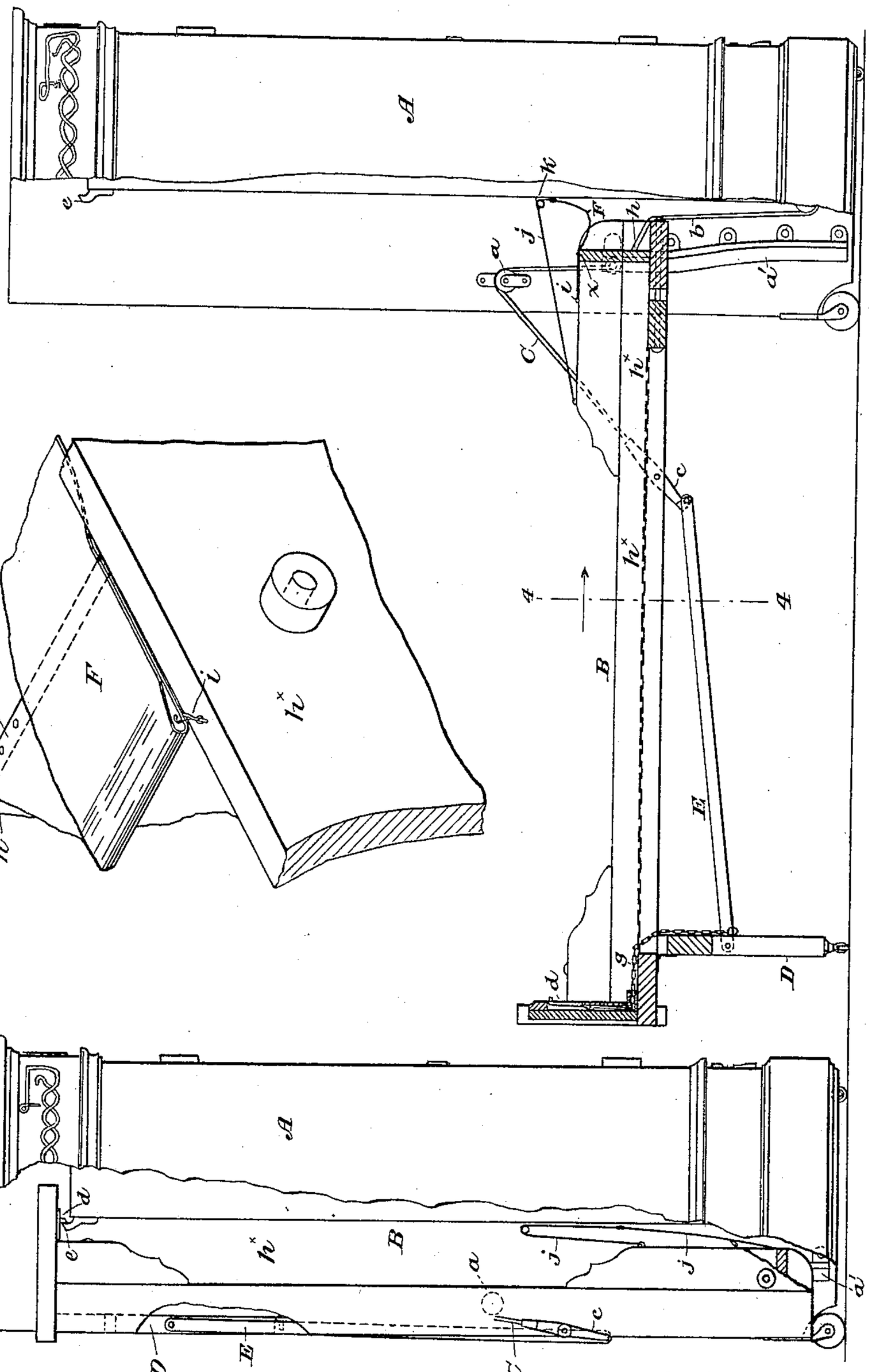

Fig. 7.

Fig. 2.

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(No Model.)

2 Sheets—Sheet 2.

L. W. WELCH.

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Fig. 3.

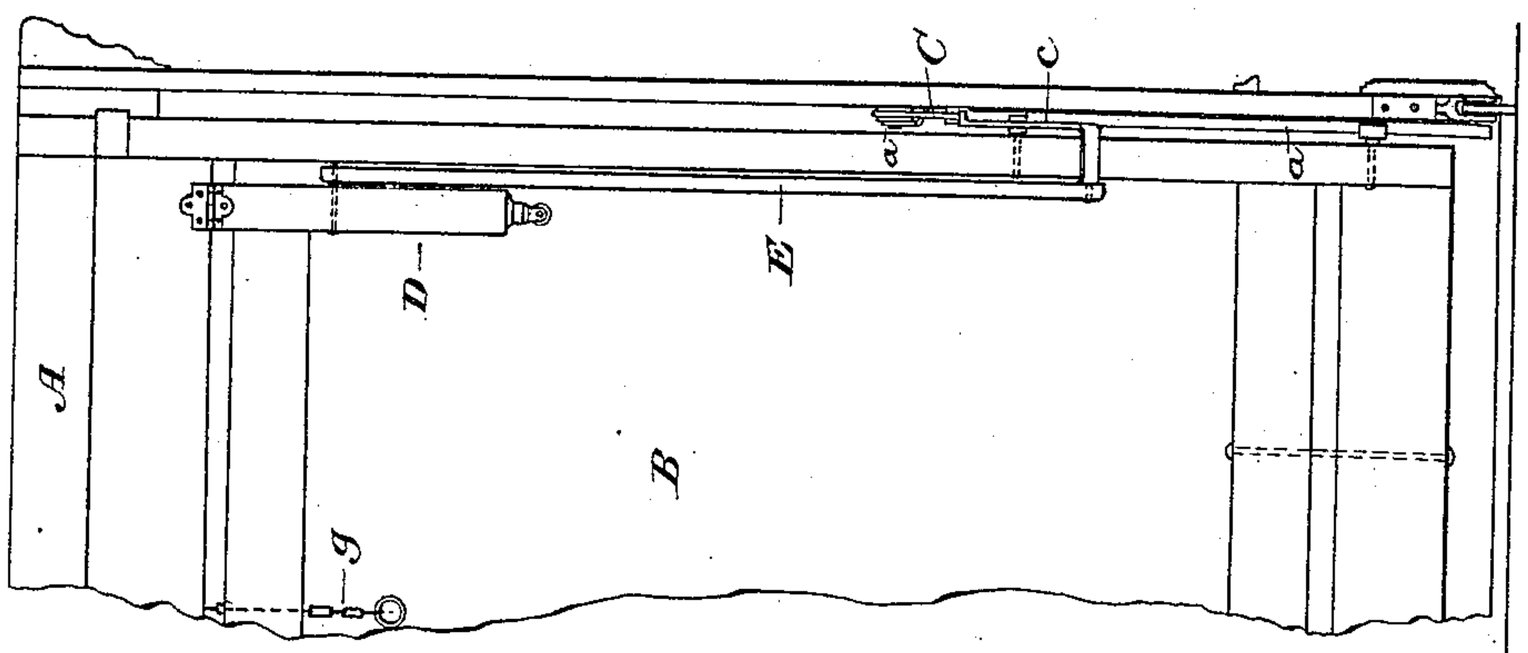


Fig. 5.

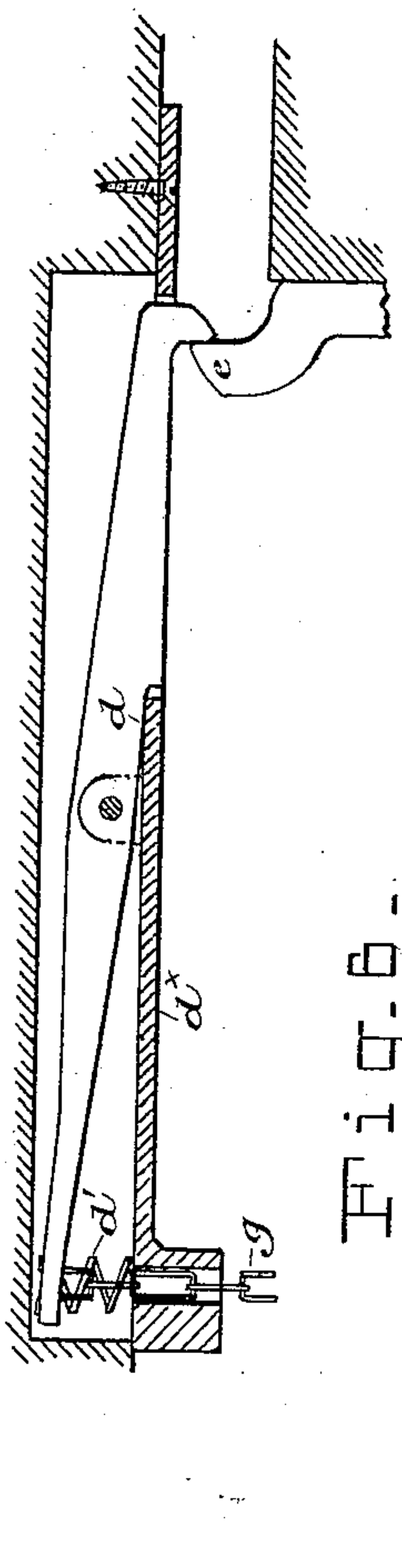
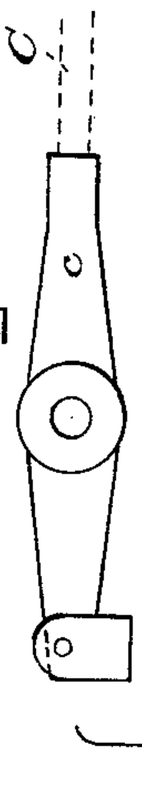


Fig. 6.



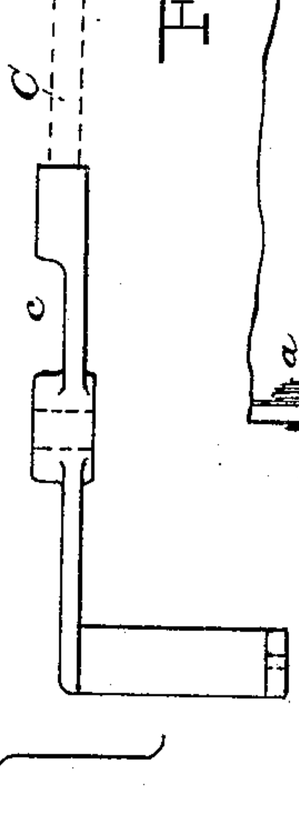
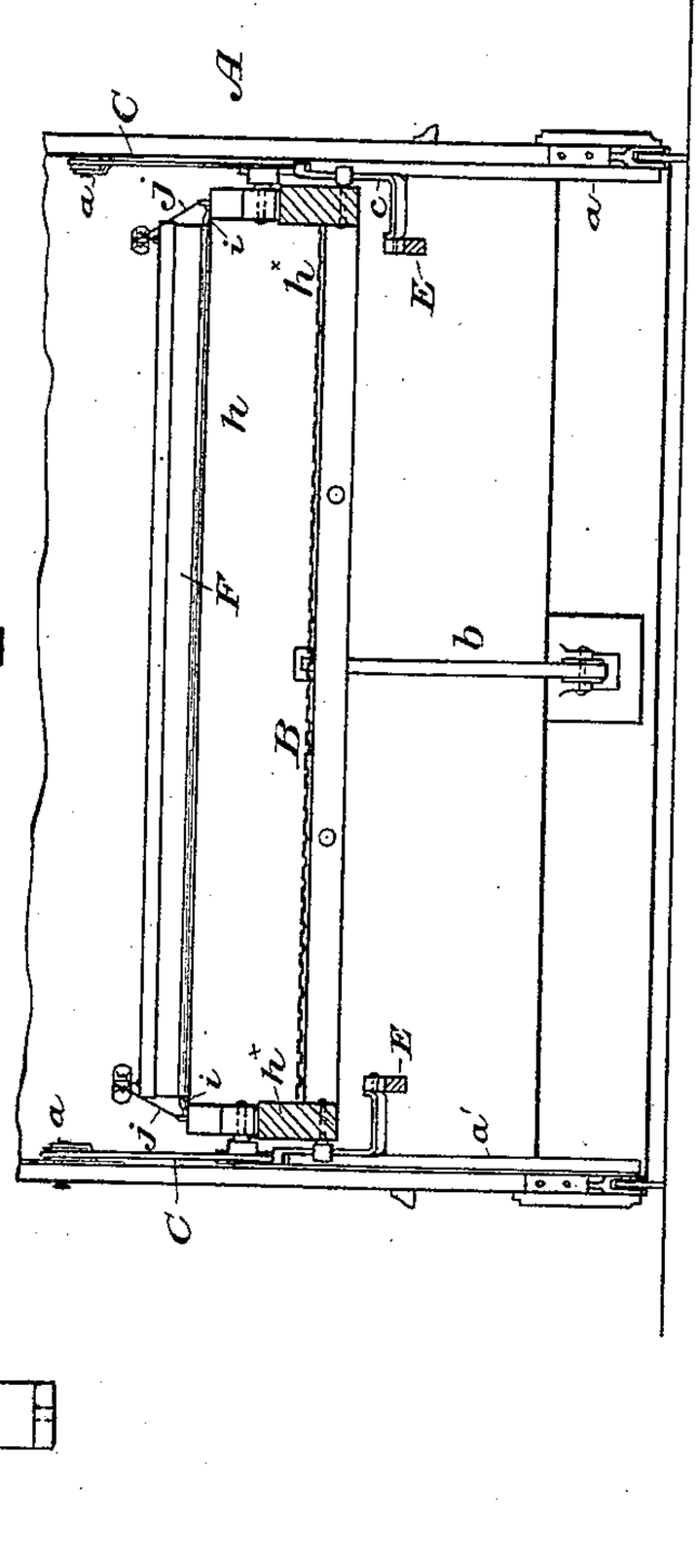


Fig. 4.



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UNITED STATES PATENT OFFICE.

LYMAN W. WELCH, OF SPARTA, MICHIGAN.

FOLDING BED OR BEDSTEAD.

SPECIFICATION forming part of Letters Patent No. 397,766, dated February 12, 1889.

Application filed February 21, 1888. Serial No. 264,799. (No model.)

To all whom it may concern:

Be it known that I, LYMAN W. WELCH, a citizen of the United States, and a resident of Sparta, in the county of Kent and State of Michigan, have invented certain Improvements in Folding Beds or Bedsteads, of which the following is a specification.

My invention relates to improvements in folding or turn-up beds, and especially to the class of beds or bedsteads illustrated in my Letters Patent, No. 364,875, dated June 14, 1887, to which reference may be had for a fuller explanation of the features not herein minutely described.

The object of my present invention is, in part, to provide the foot of the bed with automatically-operating legs—that is to say, with legs which automatically fold in when the bed is turned up, and which automatically turn out into position to serve as supports when the bed is pulled down.

Another object of my invention is to provide the bed with an improved pillow apron or guard, which will prevent the pillow from becoming wedged between the end of the bed proper and the standard.

Folding beds have been provided with devices for accomplishing all of these objects; but my invention consists in the special constructions hereinafter set forth.

My invention will be fully described hereinafter, and its novel features carefully defined in the claims.

In the drawings, which serve to illustrate my invention, Figure 1 is a vertical longitudinal section of a bed embodying my improvements, the bed proper being shown as turned down in position for use. The standard is represented as partly in side elevation in this view. Fig. 2 is a side elevation showing the bed turned up or folded up. The standard is partly broken away in this view. Fig. 3 is a rear view of one-half of the bed as it appears when closed up. Fig. 4 is a rear view of the lower part of the bed as it appears when turned down for use. This view is designed to illustrate the pillow apron or guard. Fig. 5 is an enlarged detail view illustrating the spring-latch and its catch. Fig. 6 is an enlarged view of the lever-crank *c* in side elevation and plan detached. Fig. 7 is a fragmentary view illustrating the attachment of the pillow apron or guard.

My improvements are herein shown as applied to a bed constructed in other respects like that illustrated in my former patent, wherein a spring is employed to balance the bed proper, in lieu of a weight, and the head of the bed proper is supported by chains at its sides, the bights of which play over sheaves on the standard.

A represents the standard of the bed, which is mounted on casters in the usual way, and B represents the bed proper, which turns down to the position seen in Fig. 1 when the bed is in use. The bed B is supported at its head by chains or other flexible connectors C, one at each side, which play over sheaves *a* on the standard. On the standard are metal tracks or ways *a'*, on which roll the rollers on the sides of the bed proper, B.

D are the folding legs at the foot of the bed B, which support the same at that end when turned down. The bed B is counterbalanced by a spring under the standard, which is connected with the bed by a chain or other connector, *b*.

So far as above described the bed is constructed the same in substance as that described in my former patent, hereinbefore mentioned.

I will now describe my improved device for automatically operating the legs D at the foot of the bed. On the side of the bed-rail is pivotally mounted a lever-like crank, *c*, (seen detached in Fig. 6,) to one end of which is attached the end of the chain or connector C, and to the other end is attached a link or bar, E, which is coupled at its other end to one of the connected legs, D. The other end of chain C is attached to the bed proper, B. There will be or may be a crank, *c*, and bar E on each side of the bed proper, B, in order that both of the connected legs may be acted on simultaneously; but the arrangement will be the same as that described in any case.

The operation of this device will be understood by noting the two positions of the parts as represented in Figs. 1 and 2. When the bed is lowered to the position seen in Fig. 1, the chain C holds the legs D, through the medium of crank *c* and bar E, in a position to

support the bed; but when the bed B is turned up the crank swings on its pivot and folds the legs in. In reality the swinging of the legs is only relative. They always stand substantially in the same position with respect to the floor. When the bed B is turned down, the movement of the parts is reversed, and the same instrumentalities cause the legs to swing out to the position seen in Fig. 1. The strain of the chain C keeps the crank-lever constantly aligned with that portion of the chain to which it is attached in all positions of the bed proper. This imparts the proper amount of movement to the lever to cause it to hold the legs in their position perpendicular to the floor while the bed proper is being raised and lowered. I am aware that it is not new to provide a folding bed with automatic devices whereby the legs are operated by the movement of the bed; but these are constructed differently from that herein described, and are not adapted to a bed suspended in the manner described herein. When the bed is turned up, a spring-latch, *d*, on the foot of bed B wipes over and engages a catch, *e*, on the standard and locks the two parts of the structure together. When it is desired to pull the bed B down, the latch *d* is released by means of a chain, *g*, or a cord of any kind, provided with a ring at its free end whereby it may be grasped. For a better understanding of the construction of this spring-latch *d*, reference may be had to the enlarged detail view, Fig. 5, wherein *d* is the latch, pivoted in a plate, $d^{\times}$, secured to the foot-board of bed B, and *d'* is a spring between the tail of the latch and the plate $d^{\times}$. The chain *g* is connected to the tail of the latch and passes out through an aperture in said plate. By pulling on the chain the latch is lifted or drawn back, and thus disengaged from the catch *e*. This of course is done just before the bed is pulled down, and in effecting it the operator grasps the ring on chain *g* and pulls outward and downward, thus first disengaging the latch and then pulling down the bed. This latch is simple in construction, and its peculiar construction, together with the manner in which it is mounted in the foot-board with the line of the pull downward when the bed is folded, facilitates the releasing of the latch when the bed is to be pulled down.

F is the pillow apron or guard, made from some suitable flexible fabric, as ticking, for example. One end of the fabric is securely fastened by tacks or otherwise to the end rail, *h*, of the bed proper, B, as seen at *x*. It is then drawn forward and attached to the two side rails, $h^{\times}$, by rings or hooks *i*. (Best seen in Fig. 7.) The other end of the apron is provided, by preference, with a stiffening-strip, and is secured to two cords, *j j*, which pass over two pulleys or sheaves, *k k*, mounted on the standard A, and thence forward, where they are secured to the side rails, $h^{\times}$ $h^{\times}$, respectively. The result of this construction is that when the bed proper is turned up, as in Fig. 2, the apron F will be drawn substantially straight, although it is not necessary that it shall be under any tension. It is interposed between the pillows and bedding at the head of the bed and the standard, and prevents said pillows and bedding from getting wedged between the head of bed B and the standard when the bed is pulled down. When the bed is down, as in Fig. 1, the doubling of the apron between the hooks *i* and the attaching-point *x* takes up the slack and leaves the apron nearly or quite taut between said hooks *i* and the sheaves *k*. The cords *j* play over the sheaves *k*. As my bed is lowered at the head when it is turned up, and does not simply turn on a pivotal axis, as in most beds of its class, this peculiar arrangement of the pillow-apron is necessary in order to take up the slack and prevent sagging.

Having thus described my invention, I claim—

1. The combination, with the standard and bed proper, of the crank-lever *c*, pivotally mounted at its middle to the face of the bed-rail, the suspending chain or connector C, secured at one end to the bed proper and at the other end to one end of the said crank-lever, the legs D, hinged to the bed proper, and the rod E, connecting the other end of said crank-lever with the legs D, said parts being respectively arranged as shown, whereby said crank-lever is held at all times aligned with that portion of the connector to which it is attached.

2. The combination, with the standard and bed proper, of the pillow-apron, secured at one end to the bed proper, and provided with cords *j* or the like, which pass over sheaves on the standard and are attached at their other ends to the bed, substantially as set forth.

3. The combination, with the standard provided with sheaves *a* and *k*, of the bed proper, B, suspended from the sheaves *a* by chains or the like, of the apron E, secured to the bed proper at *x*, and also by hooks *i*, and provided with cords *j*, which pass over the sheaves *k* and are secured to the bed proper at their ends, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

LYMAN W. WELCH.

Witnesses:
WESLEY W. HYDE,
J. E. EARLE.