(No Model.) 2 Sheets—Sheet 1.

M. WISEL.

FOLDING BED.

No. 534,539. Patented Feb. 19, 1895.

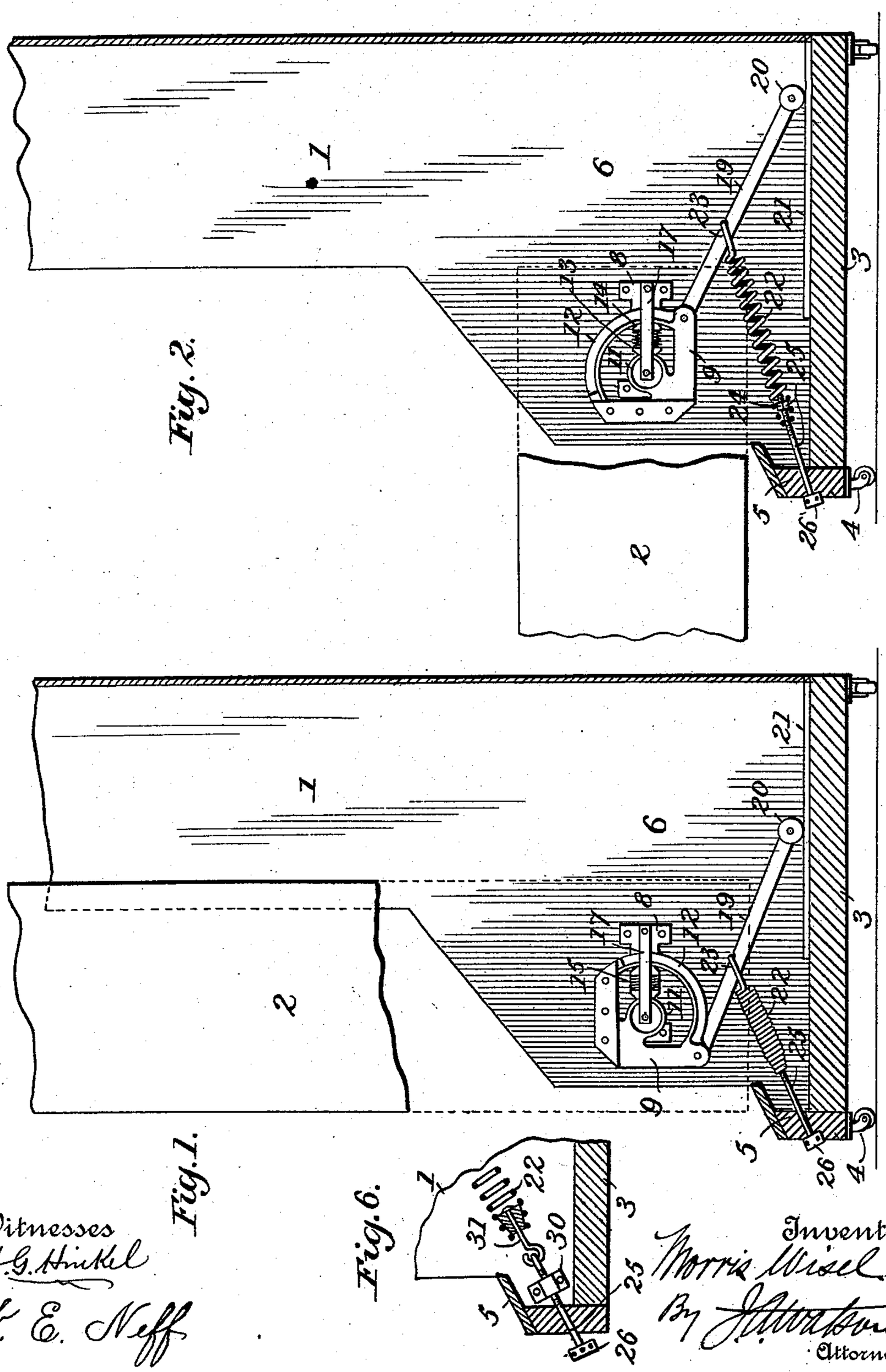

Fig. 2.

Fig. 1.

Fig. 6.

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

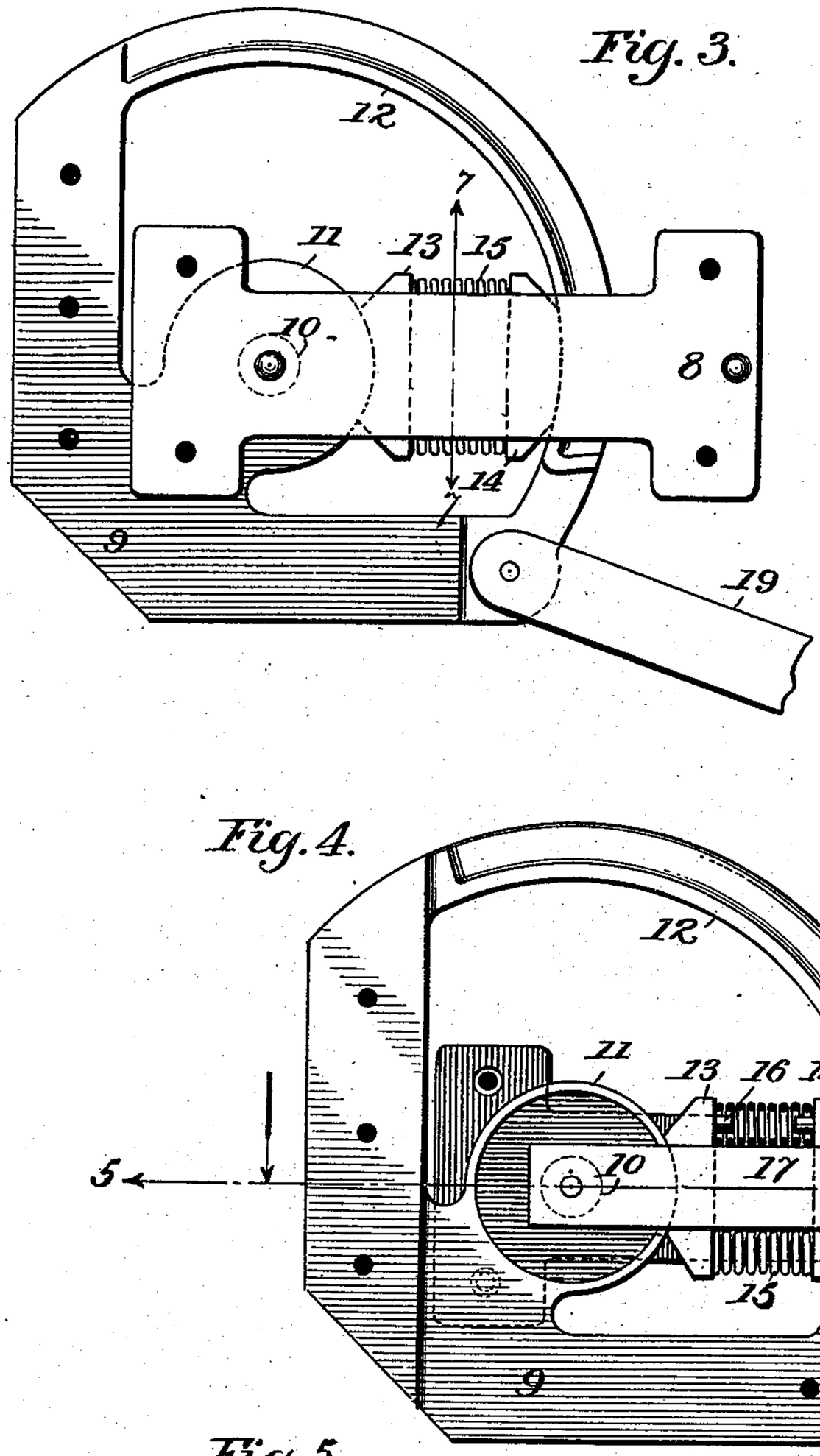
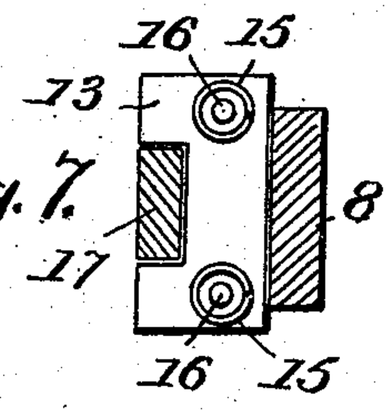


Fig. 7.



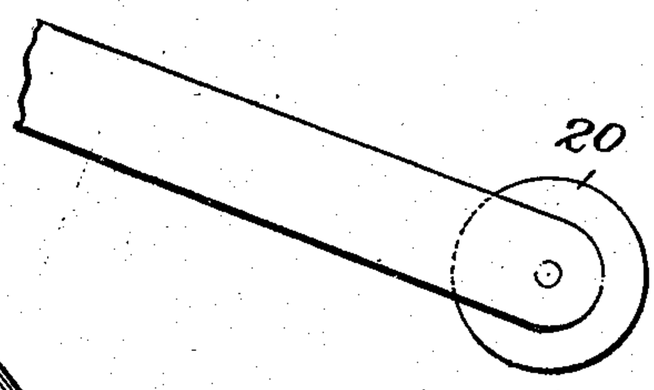
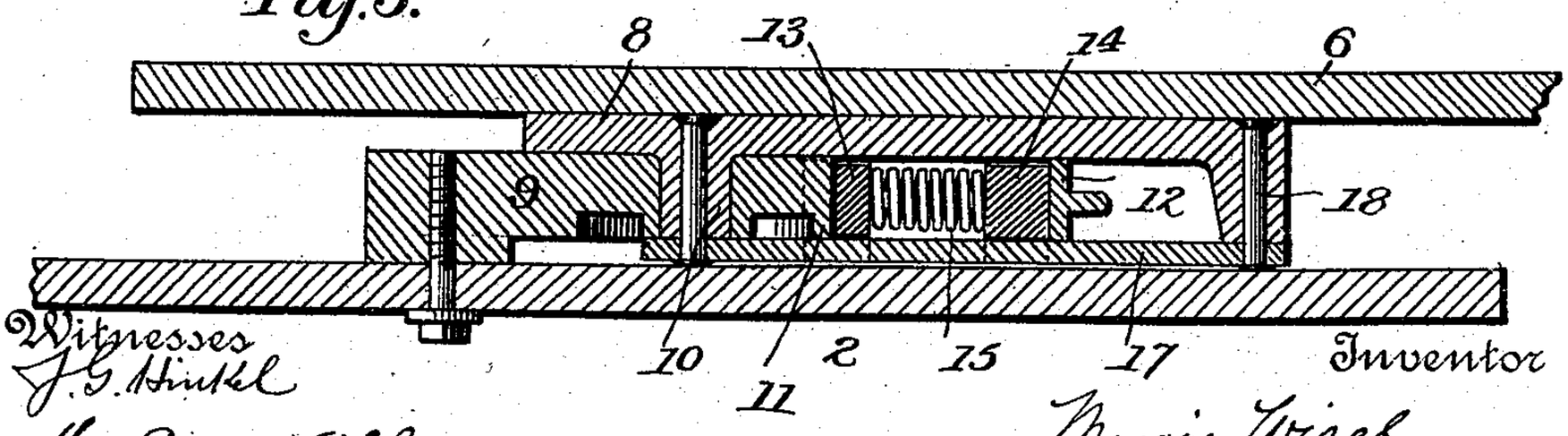


Fig. 4.

Fig. 5.



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UNITED STATES PATENT OFFICE.

MORRIS WISEL, OF NEW YORK, N. Y.

FOLDING BED.

SPECIFICATION forming part of Letters Patent No. 534,539, dated February 19, 1895.

Application filed September 28, 1894. Serial No. 524,385. (No model.)

To all whom it may concern:

Be it known that I, MORRIS WISEL, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Folding Beds, of which the following is a specification.

My invention relates to improvements in folding beds and more especially to the mechanism for counter-balancing the movable portion or bed proper and for governing the movements of said portion.

The various features of the invention will be hereinafter more fully described in connection with the accompanying drawings, in which—

Figure 1 is a vertical sectional view of a folding bed closed up, the farther side of the casing being shown in full lines, and the side board of the bed being broken away to disclose the connecting and operating mechanism. Fig. 2 is a similar view, the bed being lowered. Fig. 3 is an enlarged side view of the devices connecting the bed and casing. Fig. 4 is a similar view showing the opposite side. Fig. 5 is a section on the line 5—5 of Fig. 4. Fig. 6 is a detail view showing a modification, and Fig. 7 is a cross section on the line 7—7 of Fig. 3.

Referring to the drawings, 1 indicates the usual stationary frame or casing in which the bed is mounted, and 2 the bed proper, the side rails of the bed being pivotally connected to the sides of the casing in a manner to be presently described. The casing has a base 3 preferably supported upon the casters 4, and a front cross piece 5. To the inside of each of the side boards 6 of the casing is attached by screws or other suitable means a base piece 8, and a part 9 is rigidly attached to the outside of each of the side rails of the bed near the head. The parts 8 and 9 are pivotally connected at 10, and together they form the hinges upon which the bed turns.

The parts 9 which are attached to the bed proper are each provided with an inner frictional surface 11 and an outer frictional surface 12 facing each other and extending around said pivot something more than ninety degrees. The space between these surfaces gradually narrows, one or both of the surfaces being eccentric to accomplish this result. As shown the outer surface 12 is eccentric and the inner one concentric with the pivot. Upon these frictional surfaces a pair of shoes 13, 14 are arranged to travel, the shoe 13 having a concave face fitting upon the inner surface 11 and the shoe 14 having a convex face fitting upon the outer surface 12. These shoes are kept in contact with their respective frictional surfaces by suitable means. As shown, spiral springs 15 are interposed between the shoes at each end, said springs being retained in position by pintles 16 which are preferably cast integral with the shoes and which project into the springs. The shoes are retained in place laterally by being included between the base piece 8 upon one side and a guide bar 17 upon the other. The guide bar 17 is attached at its inner end to the pivot pin 10 and at the outer end it is connected at 18 to a boss or projection on the base piece 8. The shoes 13 and 14 each have transverse grooves or depressions in which the bar 17 fits and the bar thus prevents the shoes being carried around by the frictional surfaces. The shoes will thus be held stationary and be prevented from being carried around when the bed is raised or lowered.

If desired, the base piece may be omitted and the guide bar 17 connected at its outer end directly to the casing, but I prefer to use the base piece, as described above.

To one of the lower corners of the part 9 is pivotally attached a bar 19, the free end of which is provided with a roller or rollers 20 which are suitably guided by a rail or rails 21 upon the base 3 of the casing. A balance spring 22 has one end attached to the bar 19 preferably by a loop 23 which engages a notch at or near the middle of the bar. The opposite end of the spring is provided with a nut 24 or other suitably threaded socket into which an adjusting bolt 25 fits. The bolt passes through the front cross piece 5 and upon its outer end is a head 26 by means of which the bolt may be turned. As shown, the head is cylindrical and provided with small radial perforations thus adapting the bolt to be turned by inserting a nail or pin into said perforations.

In Fig. 6 I have shown a modification of the means for adjusting the tension of the balancing spring. In this view the inner end

of the bolt or screw passes through a threaded hole in a cleat 30 which is attached to the side board of the casing, and the extremity of the bolt is connected to the spring by a swiveled joint 31. The screw has an adjusting head 26 upon the outside of the casing similar to that above described.

In Fig. 1 the bed is shown in its folded or upright position. When it is drawn down, the part 9 revolves with the bed and forces the bar 19 rearward, thus distending the balancing spring 22. The tension on the spring gradually increases as the bed is lowered, and the parts are so arranged and proportioned that the spring will balance the bed in any position, the spring being readily adjusted to the proper tension by means of the bolt 25. The shoes 13, 14 playing upon their corresponding frictional surfaces retard or govern the movement of the bed in either direction thus preventing it from rising accidentally or from being moved violently either up or down, as might be the case when the load upon the bed is changed if the balancing spring were alone relied upon. It will be seen that as the bed is drawn down the shoes are forced toward each other by the eccentric friction surfaces and they are therefore gradually pressed harder upon said surfaces by the compression of the springs between them. As the bed approaches the horizontal position the shoes grip the friction surfaces with sufficient force to form a secure lock or safety appliance to prevent the bed from rising accidentally.

The various parts of the invention are cheap and simple in construction and at the same time they are strong and durable, and very effective in operation. The arrangement for adjusting the balancing springs enables me to quickly adjust the bed to suit any changes in the load, such as a change from winter to summer weights of bed clothing, a change of mattresses, &c.; and this change of adjustment may be made without removing any part of the frame or casing of the bed.

Having described my invention, what I claim is—

1. In a folding bed, the fixed casing having upright sides, and the base 3 provided with the rail or guide 21, in combination with the bed proper pivoted to the sides, the bar pivotally connected at one end to the bed and having its other end riding upon the guide or rail upon the casing, and the balancing spring connected at one end to the bar and at its other end to an adjusting screw or bolt, said bolt being engaged with the casing and being provided with adjusting means, substantially as described.

2. In a folding bed the fixed casing and the bed proper pivoted thereto, in combination with the guide bar attached to the casing, the part 9 fixed to the bed and provided with the friction surfaces 11, 12, facing each other, the shoes arranged between and adapted to said surfaces, said shoes being held stationary by engagement with the guide bar and means for pressing the shoes against the surfaces, substantially as described.

3. In a folding bed, the fixed casing provided with the base pieces and guide bars, in combination with the bed proper having parts 9 pivoted to the base pieces, said parts being provided with friction surfaces, facing each other, one of which is eccentric, shoes adapted to said surfaces, and springs interposed between the shoes, said shoes being located between the base pieces and guide bars and held stationary by engagement with one of said parts, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

MORRIS WISEL.

Witnesses:
J. A. WATSON,
W. CLARENCE DUVALL.