

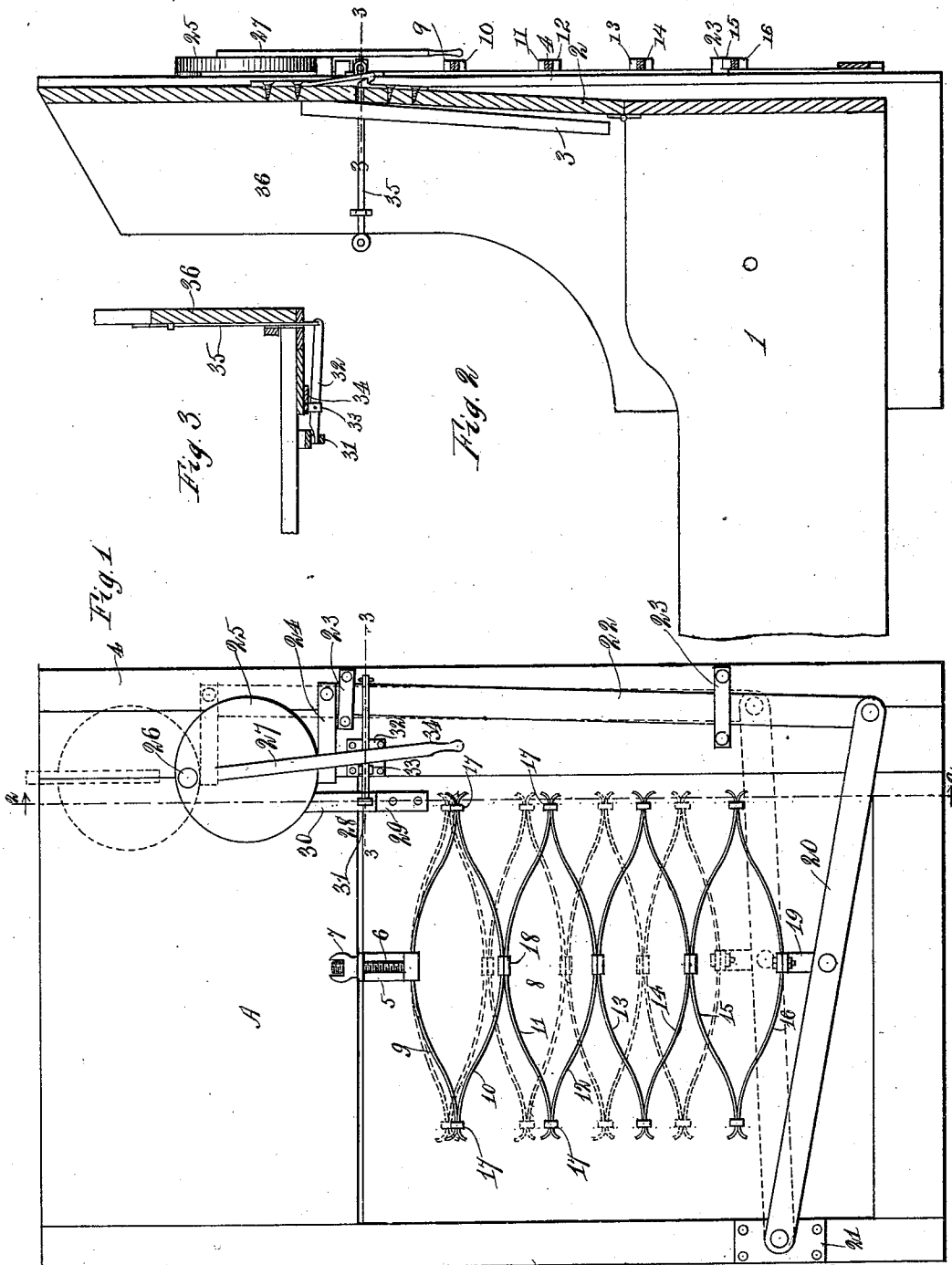
(No Model.)

2 Sheets—Sheet 1.

F. W. RATZEL.
FOLDING BED.

No. 550,933.

Patented Dec. 3, 1895.



Witnesses:
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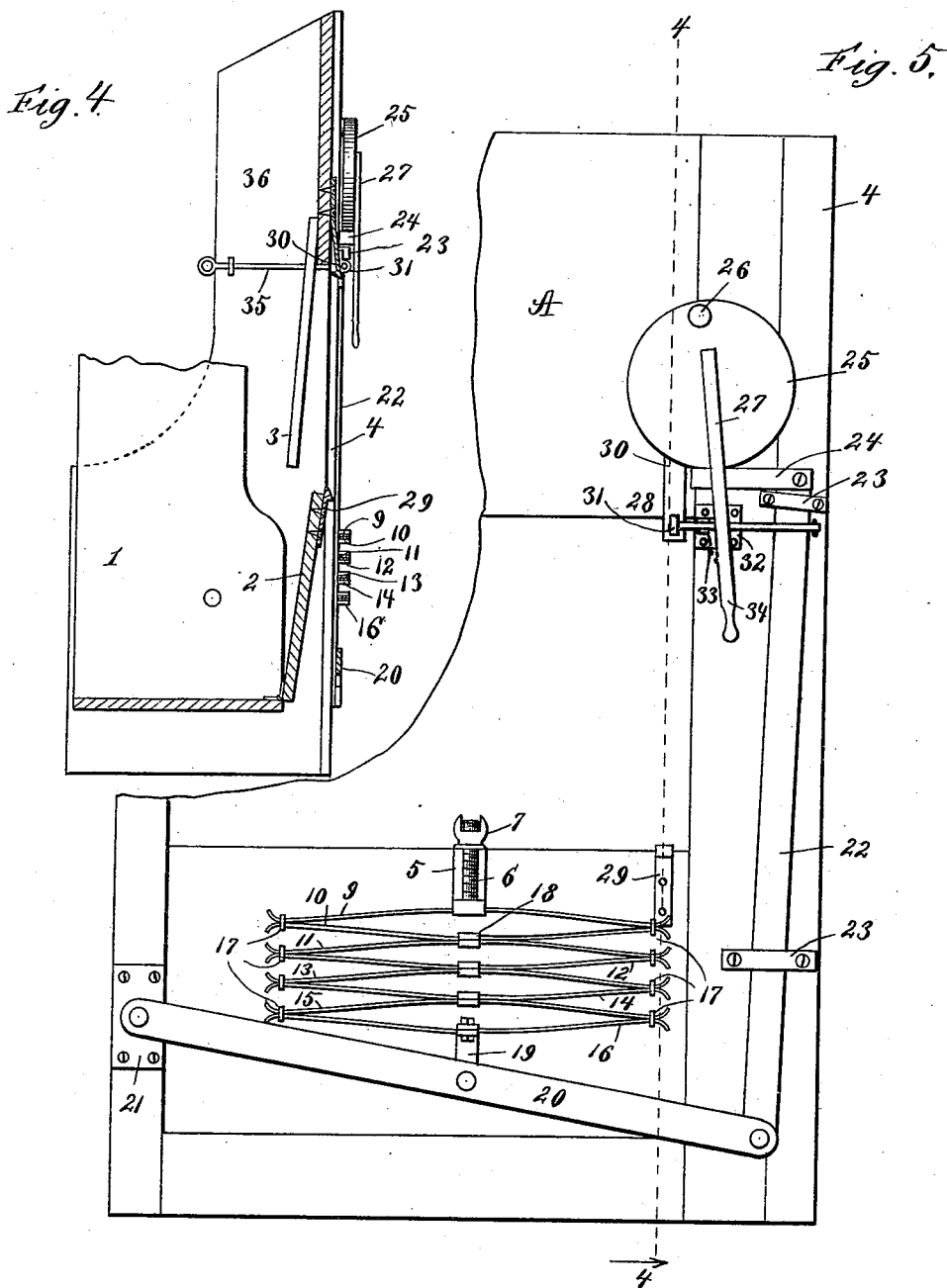
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2 Sheets—Sheet 2.

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FOLDING BED.

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Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERICK W. RATZEL, OF CHICAGO, ILLINOIS.

FOLDING BED.

SPECIFICATION forming part of Letters Patent No. 550,933, dated December 3, 1895.

Application filed April 22, 1895. Serial No. 546,805. (No model.)

To all whom it may concern:

Be it known that I, FREDERICK W. RATZEL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Folding Beds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction in a folding bed, the object being to provide a device of this description which will be perfectly safe in operation; and it consists in the features of construction and combinations of parts hereinafter fully described and specifically claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a rear end elevation of a bed constructed in accordance with my invention. Fig. 2 is a longitudinal section of same on the line 2 2 of Fig. 1. Fig. 3 is a fragmentary sectional view on the line 3 3 of Figs. 1 and 2. Fig. 4 is a longitudinal section of same when the bed is closed, taken on the line 4 4 of Fig. 5. Fig. 5 is a rear elevation of the same when the bed is closed.

Referring now to said drawings, A indicates the head portion of the folding bed, in which the bed proper 1 is pivoted. The said bed proper 1 is provided with the usual board 2, hinged to the head-piece of said bed proper and which runs in guides formed between the guide-strips 3 and the strips 4 on the head portion A. Secured to the upper portion of the said board 2 is a bracket 5, the tongue of which extends rearwardly and is provided with an opening through which a screw-threaded rod 6 passes from below and is engaged by a nut 7. Secured to the lower end of said rod 6 is the upper of a series of springs 8, which are operated somewhat after the manner of lazy-tongs levers, consisting of springs 9, 10, 11, 12, 13, 14, 15, and 16, which are secured together in the following manner: The said springs 10 and 11 are secured together at their ends by blocks 17, and the said spring 11 is secured at its middle portion to the spring 12 by a clamp 18. The said springs 12 and 13 are secured at their ends to each other, and the said spring 13 is secured at its middle portion to the spring 14, and so down

until the spring 16 is reached, which is secured at its middle portion to a clamp 19, pivoted to a rod 20. The said rod 20 is pivoted at one end to a plate 21, secured to the strip 4, and at its other end is pivotally secured to a rod 22, which extends upwardly through guide-pieces 23, secured to the bed, and carries an inwardly-extending projection 24 at its upper end. The said projection 24 engages a cam or eccentric 25, pivoted to the head portion A at 26, said cam being provided with a handle-bar or lever 27, by which it is turned. The said bed is further provided with a locking device 28 to lock the bed proper 1 in the position shown in Fig. 2. The said locking device 28 consists of a strip 29, of metal, secured to the board 2, said strip 29 being provided with a triangular head extending outwardly from the strip to form a catch which engages a similar catch at the end of a flat spring 30, secured to the head portion A of the bed. Said spring-catch 30 automatically engages the head of the strip 29 when the bed proper 1 is lowered, and to disengage same when it is desired to raise said bed proper I provide said spring 30 with an eye 31 on its rear face, into which the end of a lever 32 extends. Said lever 32 is pivoted between two outwardly-extending rods 33, secured to a plate 34 on the bed, and at its other end is pivoted to a rod 35, which extends through the strip 4 adjacent the side piece 36 and extends slightly beyond the forward edge of said side piece 36. Obviously by pulling on said rod 35 the spring 30 is pulled rearwardly and disengaged.

The operation of my device is as follows: When the bed is closed, the parts are in the positions shown in Figs. 4 and 5. When the bed proper 1 is let down, the springs 8 expand and take the place of the weights usually employed to counterbalance the bed proper. To prevent said springs from pulling the said bed proper up at an inopportune moment, the said locking device 28 is provided, which obviously increases the safety of the bed; but to make same absolutely safe I provide the means described for releasing the tension of the springs when the bed proper is down, consisting of the rods 20 and 22 and the cam or eccentric 25. By turning said eccentric to the position shown in dotted lines in Fig. 1 the said springs

contract and, together with said rods 20 and 22, take the position shown in dotted line in said Fig. 1. By means of said screw-threaded rod 6 and nut 7 the tension of said springs 5 can obviously be increased or diminished as required. Obviously when said springs are in the position indicated in dotted lines in Fig. 1 their tension is so diminished that they cannot counterbalance the foot end of the bed.

10 A bed constructed in accordance with my invention as above described will be cheap and durable and all accidents, which have heretofore happened where weights have been used, avoided. A bed so constructed will also be 15 very much lighter than beds provided with weights, thus saving freight and making it more convenient to handle.

I claim as my invention—

1. In a folding bed, the combination with 20 the head portion and bed proper, of a spring to counterbalance the head and foot ends of said bed proper, an adjustable connection between said spring and said head portion to adjust the tension of said spring with refer- 25 ence to the weight of the foot end of said bed proper so that it will counterbalance said foot end when said spring is expanded, a lever on said head portion of said bed to which the other end of said spring is secured, and means for raising and depressing said lever whereby 30 the tension of said spring is released when said bed is open to prevent the same from closing and reinstated when it is desired to close said bed, substantially as described.
- 35 2. In a folding bed, the combination with the head portion and bed proper, of a spring to counterbalance the head and foot ends of said bed proper, an adjustable connection between said spring and said head portion to 40 adjust the tension of said spring with reference to the weight of the foot end of said bed proper so that it will counterbalance said foot end when said spring is expanded, a lever on said head portion of said bed to which the 45 other end of said spring is secured, means for raising and depressing said lever whereby the tension of said spring is released when said

bed is open to prevent the same from closing and reinstated when it is desired to close said bed, and a locking device to lock said bed 50 proper at the lower limit of its movement, substantially as described.

3. In a folding bed the combination with the head portion and bed proper, of springs to counterbalance the head and foot ends of 55 the bed proper, said springs being secured at their lower ends to a rod 20 pivoted to the said head portion of the bed and means for raising and depressing said rod 20 whereby the tension of said springs is regulated, sub- 60 stantially as described.

4. In a folding bed the combination with the head portion and bed proper, of springs to counterbalance the head and foot ends of 65 the bed proper, said springs being secured at their lower ends to a rod 20 pivoted to the said head portion of the bed, and means for raising and depressing said rod 20 consisting of a cam or eccentric pivotally secured to said 70 bed and engaging the upper end of a rod 22 which is pivotally secured at its lower end to said rod 20, whereby the tension of said springs is increased or diminished, substan- 75 tially as described.

5. In a folding bed the combination with 75 the head portion and bed proper, of springs to counterbalance the head and foot ends of the bed proper, said springs being secured at their lower ends to a rod 20 pivoted to the said 80 head portion of the bed, means for raising and depressing said rod 20 consisting of a cam or eccentric pivotally secured to said bed and engaging the upper end of a rod 22 which is 85 pivotally secured at its lower end to said rod 20, whereby the tension of said springs is increased or diminished, and locking devices to lock said bed proper at the lower limit of its movement, substantially as described.

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

FREDERICK W. RATZEL.

Witnesses:

RUDOLPH W. LOTZ,
JOHN RATZEL.