(No Model.)

T. T. WOODRUFF.

FOLDING BEDSTEAD.

No. 276,546. Patented Apr. 24, 1883.

Fig. 1

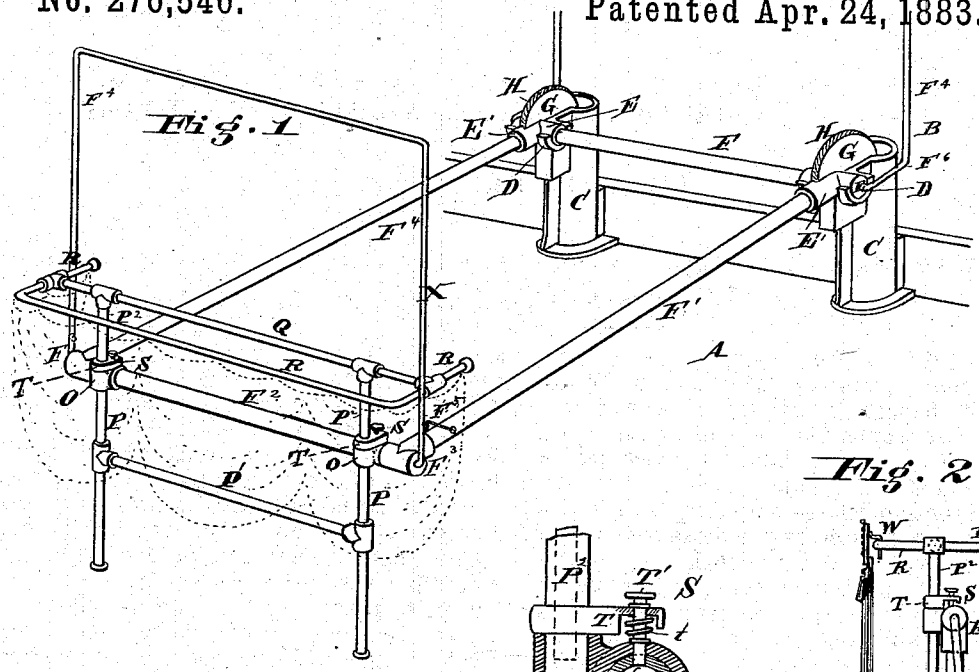


Fig. 2

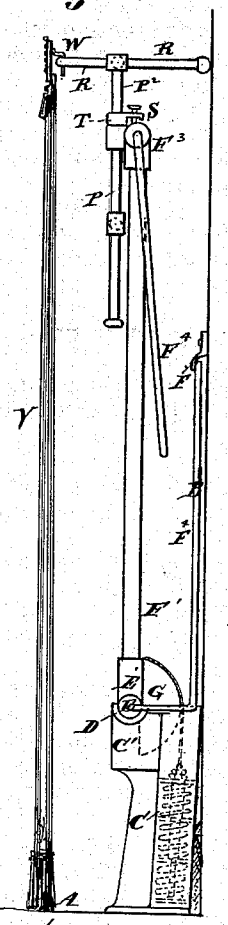


Fig. 4

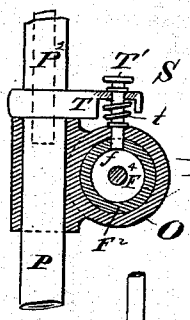
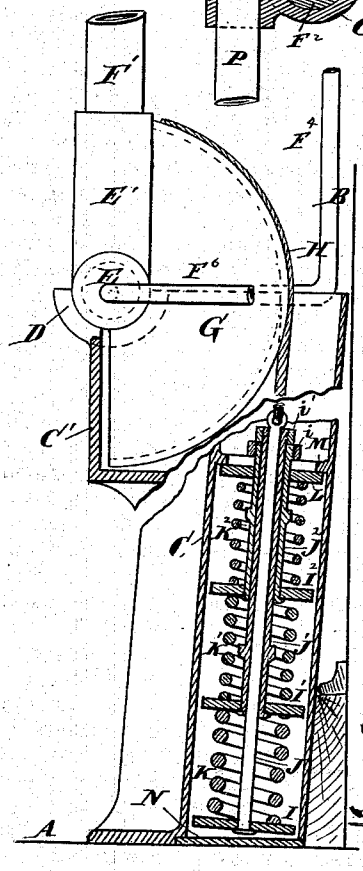


Fig. 3



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UNITED STATES PATENT OFFICE.

THEODORE T. WOODRUFF, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO ELIZA M. WOODRUFF AND ISIDOR I. GERSON, OF SAME PLACE.

FOLDING BEDSTEAD.

SPECIFICATION forming part of Letters Patent No. 276,546, dated April 24, 1883.

Application filed August 2, 1882. (No model.)

To all whom it may concern:

Be it known that I, THEODORE T. WOODRUFF, of the city and county of Philadelphia, State of Pennsylvania, have invented an Improvement in Folding Beds, of which the following is a specification.

My invention relates to folding beds in general, but more particularly to those constructed wholly of metal; and it consists in a light frame of iron, preferably tubular in construction, pivoted upon supports near the floor and close to the wall, and provided with balancing-springs, two or more in number, of different degrees in strength, said springs being adapted to exert themselves at such times as to overcome the difference in leverage due to the lifting of the bed from the horizontal position to a vertical position; further, in hinging the foot-frame to the main frame of the bed, and providing it at its upper end with a curtain-rail, and also means to lock said foot-frame in a position vertical to the main bed-frame, so that when the bed is in position to be occupied everything is rigid, but when being raised up against the wall the foot-frame swings around, always keeping in a vertical line and allowing the curtain to cover the entire bed; and, finally, in many details of construction, all of which are more fully set forth in the following specification, shown in the accompanying drawings, and referred to in the appended claims.

The object of this invention is the construction of a folding bed adapted to dwellings, state-rooms on ships, and state-room sleeping-cars, which shall be simple, durable, and cheap.

In the drawings, Figure 1 is a perspective view of a folding bed embodying in it my invention. Fig. 2 is a side elevation of same, when raised, with the curtain in section. Fig. 3 is a sectional elevation of my improved counterbalancing device. Fig. 4 is a detail sectional view of the device to lock the foot-frame in position.

X is the frame of the bed proper, and is made of tubular material, preferably wrought-iron. The head end is made with T-sockets E′, the parts E of which rest in bearings D, formed on casings C. These sockets also carry a segment of a wheel, G, to which one end of a wire cable, H, is secured, the other end of said wire cable being secured to the end of the rod J. Upon this rod, at the bottom, is a washer, I, and upon this washer is a spring, K. Encircling the rod J is a tube, J′, which also carries on its lower end a washer or disk, I′, which rests upon spring K, and supports above it another and less powerful spring, K′. Encircling the tube J′ is another tube, J^2, which carries at its lower end a disk, I^2, which rests upon the spring K′, and supports a still less powerful spring, K^2, which rests at its upper end against a disk, L, held in position by a rim or lugs, M, in the casing C, which encircles the mechanism just described. The tubes J′ and J^2 are respectively provided on their upper ends with nuts I′ and *i*, which prevent them falling down. The casing C is provided with a box or compartment, C′, opening into same, into which the segment G moves when the bed is raised. The bottom of said casing is provided with a removable cover, N, through which the springs and disks are inserted, and said casing is secured to the floor A, and also to the wall B or its wash-board.

The foot-frame is hinged to the bed-frame by sockets O, having holes through them at right angles. These sockets carry the rods P P^2, which form the foot-posts, and also the locking devices S, which consist of a casting, T, which is secured between the parts P and P^2 of the foot-posts, and carries on its end a locking-pin, T′, which enters a hole, *f*, in the bar F^2 of the bed-frame. The locking-pin T′ is at all times pressed down in locking position by spring *t*. Any other suitable locking device may be used, if desired. The posts P are braced together by a rod, P′, and the parts P^2 carry rigidly secured to them the bar or rod Q, which carries the curtain-rail R, as shown in Fig. 1. Upon this curtain-rail the curtain V is hung by means of hooks W or other convenient means.

I prefer to construct my bed-frame of tubes and sockets, in which the side rails, F′, are secured together at the foot by foot-rail F^2 and corner T-pieces or sockets, F^3, and are joined together at the head by the head-rail F and sockets or T-pieces E′, which carry the segments G. Upon the frame just described I stretch a woven-wire or other mattress.

The operation would be as follows: The bed

being in the position shown in Fig. 2, and it being desired to lower the same, the curtain V may be removed or raised by suitable means above the bottom of the foot-posts P. The bed-frame is then lowered, and in its descent the spring K^2 is first put under compression, and as the leverage becomes greater the more powerful spring K′ is put under compression, and when this is compressed, the leverage still becoming greater, the still more powerful spring K is put under compression, thus providing a counter-balance of varying power to overcome the varying leverage due to the bed-frame swinging from the vertical to the horizontal position, and the gradual change of the center of gravity from above the pivot E to greatly one side thereof. As the bed-frame is lowered the foot-posts P always retain their vertical position, and when the foot of the bed is resting on the floor it is as shown in Fig. 1. In this position the locking devices S secure the foot-posts from turning with respect to the bed-frame. The casing C is arranged to sit upon the floor A and close against the wall B, as shown. It is evident that an increased number of counterbalancing-springs may be used, and the more there are of them the more perfect will be the counter-balance.

In some parts of the country and during certain seasons of the year it is necessary to provide my bed with a mosquito-net or canopy-support, which I construct as follows: At the head and foot of the bed-frame I hinge rectangular frames F^4, the lower or bottom bars of which pass through and are journaled in the head-rail F and foot-rail F^2, as shown. The frame F^4 at the foot is provided with any suitable locking mechanism, F^5, by which it may be secured in a vertical position when the bed is down. The frame F^4 at the head of the bed is curved, as at F^6, so as to bring it against the wall, where it may be secured by a catch, F^7. If desired, this head-frame may be dispensed with and the net be secured to the wall. The mosquito-net is hung over frames F^4 when in use. When the bed is to be closed up against the wall, as shown in Fig. 2, the frame F^4 at the foot of the bed is turned down.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bed-frame made with journals at one end, adapted to work in bearings arranged in the casings C of the bed, in combination with a series of graduated coiled springs located inside of the said casings, said springs being graduated in their strength, and arranged with respect to each other as a counter-balance to the said bed-frame, substantially as and for the purpose specified.

2. A bed-frame made with journals at one end, and adapted to work in bearings arranged in supports, in combination with automatic mechanism to counterbalance said frame when being raised or lowered, a foot-frame hinged to said bed-frame at the other end, mechanism to lock said foot-frame in position upon said bed-frame, a curtain-rail hinged to said foot-frame, and a curtain adapted to be hung on said curtain-rail, substantially as and for the purpose specified.

3. In a folding bed, the combination of the bed-frame F F' F^2, provided at one end with segments G, cords H, rod J, tubes J' and J^2, disks I, I', I^2, and L, lugs M, and springs K, K', and K^2, and casings C, provided with bearings D, substantially as and for the purpose specified.

4. A folding bed provided with two hinged mosquito-net-supporting frames, one hinged at the end rails of the bed-frame at the head of the bed, and held vertically by a suitable device attached to the head-board, the other hinged at the end of the end rails at the foot of the bed, and held in a vertical position by a suitable device attached to either the bed-frame or said latter support, all operating in the manner and for the purpose set forth.

In testimony of which invention I hereunto set my hand.

THEODORE T. WOODRUFF.

Witnesses:
R. A. CAVIN,
R. S. CHILD, Jr.