

(No Model.)

2 Sheets—Sheet 1.

D. C. OTIS.

TURN-UP BED.

No. 347,009.

Patented Aug. 10, 1886.

Fig. 1.

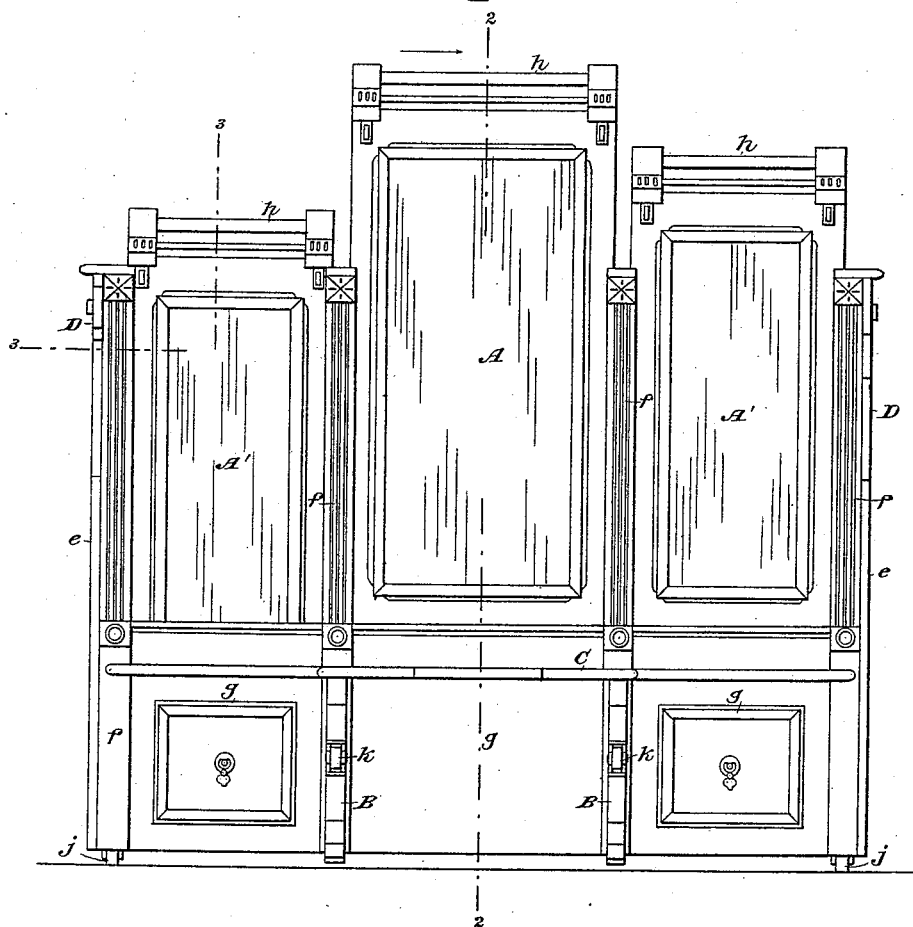
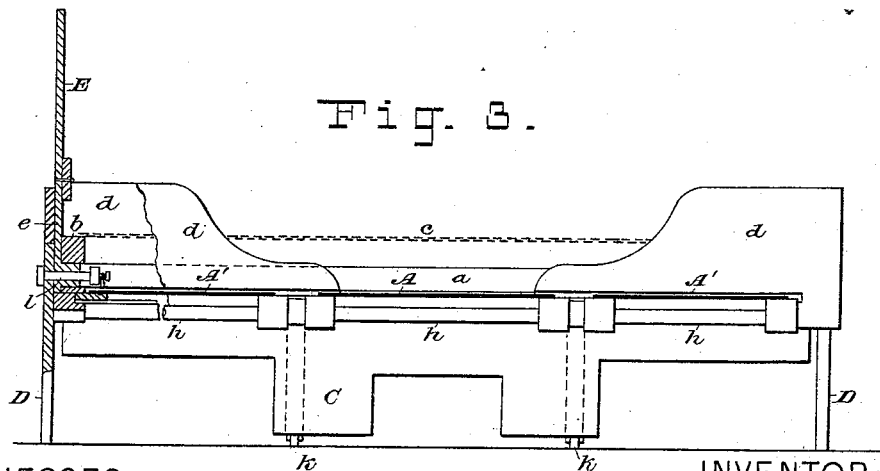


Fig. 3.



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2 Sheets—Sheet 2.

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Fig. 2.

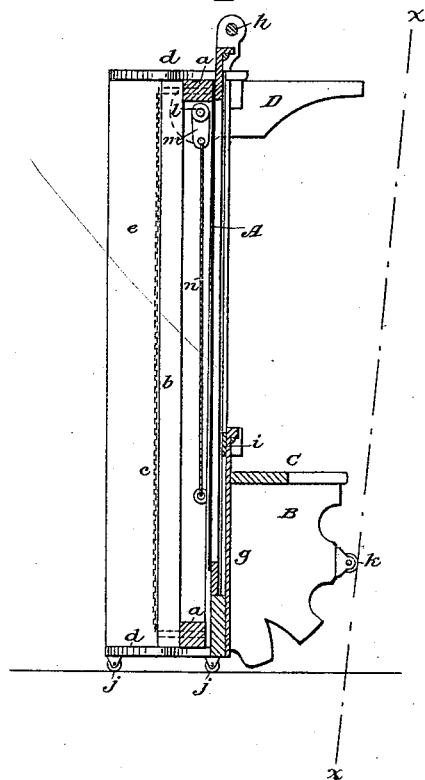


Fig. 4.

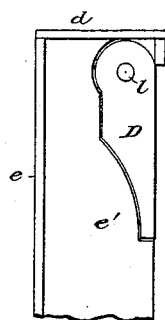


Fig. 5.

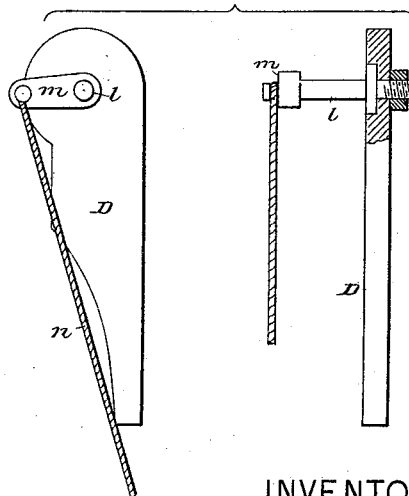
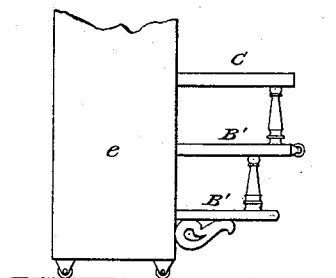


Fig. 6.



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UNITED STATES PATENT OFFICE.

DANIEL C. OTIS, OF NEW YORK, N. Y.

TURN-UP BED.

SPECIFICATION forming part of Letters Patent No. 347,009, dated August 10, 1886.

Application filed November 6, 1884. Serial No. 147,274. (No model.)

To all whom it may concern:

Be it known that I, DANIEL C. OTIS, a citizen of the United States, and a resident of the city, county, and State of New York, have
5 invented certain Improvements in Turn-Up Beds, of which the following is a specification.

My invention relates to that class of beds which are capable of being turned up against the wall when not in use, and turned down
10 for use. These go by various names, as "folding beds," "turn-up beds," "wardrobe-beds," "revolving beds," &c. The object in all is to get the bed out of the way, as far as possible, when not in use, and to so construct it that
15 when not in use as a bed it will serve as a presentable article of furniture for the adornment of the room.

The objects of my invention are:

First. Lightness, no balance-weight being
20 used where the bed turns down sidewise, and only very little weight where it turns down endwise.

Second. Cheapness, coupled with strength and lightness. To effect this, I utilize the
25 strong frame of the spring-mattress or bed-bottom as the base-frame for the frame of the bed, and omit a large portion of the usual boxing. I also effect a great economy in cost and weight by dispensing entirely with any
30 "standard," so called, the whole bed turning down.

Third. Convenience of handling, my bed being easily wheeled around on two rollers when partly turned down.

35 Fourth. Perfect ventilation, the avoidance of the boxing or high rails at the sides of the bed, rendered feasible by the utilization of the spring bed-bottom frame, enabling the air to circulate freely below the bedding.

40 The novel features of my improved bed will be fully set forth hereinafter, and defined in the claims.

In the drawings, which serve to illustrate my invention, Figure 1 is a front elevation of the bed as constructed to turn down sidewise.
45 Fig. 2 is a transverse mid-section, taken on line 2 2 in Fig. 1. Fig. 3 is an elevation of the bed when turned down for use, the view showing the side which forms the top when turned up. The left-hand end is in section on line 3 3 in
50 Fig. 1. Fig. 4 is an elevation of the upper part of one end of the bed, showing a leg when

folded in. Fig. 5 is an enlarged detail view designed to illustrate the means employed for automatically throwing out a leg by lowering
55 a mirror. This view shows no part of the bed-frame, the latter being omitted in order to avoid obscuring the view. Fig. 6 illustrates a modification, which will be hereinafter described.

Where a bed is constructed to turn down sidewise, as in the figures of the drawings, it does not stand high enough when turned up to produce the desired effect as to appearance. To increase its height I provide the bed with
60 a mirror or mirrors, which may be raised when the bed is turned up and lowered out of the way when the bed is to be turned down. These form in the main the bottom of the bed, and they may of course be panels instead of
70 mirrors.

In order to avoid the expense and weight of a standard, and also in order to avoid weights and permit the bed to be wheeled around to any part of the room, I construct the bed to
75 turn down on projecting brackets, which are provided with rollers, and which serve, when the bed is erect, to form a support for a toilet stand or shelf, or a desk; and when the bed is turned down these serve as legs or supports
80 for one side of the bed, the other side being supported on legs which fold in, as will be described.

As a base-frame for my bed I employ, by preference, what is known to the trade as a
85 "woven-wire mattress" or spring bed-bottom. This comprises, Figs. 2 and 3, a frame composed of two stout side bars, *a a*, two stout end bars, *b b*, and a woven-wire fabric, *c*, which is stretched over the frame, as shown. To the
90 frame of this spring-bottom are secured the short side rails, *d d*, which may be of thin boards, the head and foot rails *e e*, also of thin boards, the stiles or standards *f f* on the bottom of the bed, and the thin bottom board, *g*.
95 The side rails, *d*, are made short, so as to leave an open space at the middle for the purpose, first, of allowing a free circulation of air under the bedding; second, for the purpose of lightening the bed; and, third, for the purpose of
100 avoiding the inconveniences arising from a high side rail.

A A' A' are mirrors, arranged to slide up and down in keepers in the stiles *f f*. These

mirrors are, by preference, provided with bars *h*, mounted in brackets on their tops, to provide handles for raising and lowering them.

To support the mirrors when raised, I make the keeper-grooves in which they play a little wider than the thickness of that portion of the mirror-frame which slides therein and provide stops *i*, (in Fig. 2,) on which the mirror-frame rests when raised and its bottom drawn forward. This is a common device—in use on street-cars, for example—and I make no claim to it specifically. Any ordinary stop device may be used.

In Fig. 1 the central mirror, *A*, and the right-hand, *A'*, are shown as raised, and the left-hand mirror, *A'*, is lowered.

I do not limit myself in any way to the extent of movement of the mirrors nor to the number used.

The side mirrors might be omitted and fixed panels substituted, or these mirrors might be fixed.

The bed is provided with casters *j*, to support it when turned up.

B B are brackets fixed to the bottom of the bed, as shown, and provided with rollers or casters *k k* on their edges. When the bed is pulled over in lowering it for use, it turns on these brackets, coming eventually to rest at that side on the rollers *k k*.

In Fig. 2 I have drawn a line, *xx*, which represents the floor in its relation to the bed when the latter is turned down nearly to the floor. By turning the drawings until this line *xx* is horizontal the position of the bed will be clearly understood. While in this position the bed may be readily wheeled about to any part of the room on rollers *k k*. The brackets *B B* form supports for a toilet-table, *C*, and this table may be used to support a desk, or for any other purpose of a kindred nature. These brackets *B B* may be placed at any point on the bottom of the bed—as, for example, near the ends or at the ends, instead of as shown; and they might be attached to the frame of the central mirror, *A*, if desired, so as to be raised and lowered with it. I have shown them attached as permanent fixtures; but they might be removably attached to the bed, if desired—as by dowels, for example. When the bed is turned down, as in Fig. 3, its front edge is supported on legs *D D*, which are arranged to fold in out of the way, as in Fig. 4, when the bed is turned up. I arrange these legs to be thrown out automatically by the lowering of the side mirrors, *A'*, as I will now describe. The leg is fixed to a shaft or rod, *l*, (see Figs. 2 and 3 and detached illustrative view, Fig. 5,) which is rotatively mounted in the bed. To the inner end of this shaft *l* is secured a crank or crank-arm, *m*, and this crank is connected by a cord, wire, or chain, *n*, to the mirror *A'*. The crank *m* being arranged to stand nearly at right angles to the leg, the lowering of the mirror draws on the connector *n* and rotates the shaft, thus throwing out the leg. As shown, each leg acts independently,

and each is operated by one of the mirrors *A'*; but it is obvious that the two shafts might be one rod, and thus one mirror might be made to operate both legs simultaneously. Indeed, where only the central mirror, *A*, is arranged to move up and down this construction would be preferred.

E in Fig. 2 represents a hinged head-board, arranged to fold down; and there might also be a foot-board similarly constructed. These form no part of my present invention. I have shown no bedding; but I will say that I usually employ straps and buckles to hold the bedding down. Where the bed turns down endwise the construction is the same, except that I usually employ a little weight to counterbalance the bed. This is not necessary in the construction shown. I may or may not employ the sliding mirrors in the bed arranged to turn up endwise.

In Fig. 6 I have shown a modification of the brackets *B B*. In this construction the brackets proper are replaced by a series of horizontal shelves, *B' B'*, on the edges of which the bed turns. In this construction the brackets, connected together by the shelves, might be made removable from the bed, so as to be taken off in the day-time. They could then serve as a step-ladder by inverting them. If the brackets should be considered objectionable as to appearance, they can be made removable in any case, as I have before stated, being set in place when the bed is turned down.

For appearance sake, I have arranged the legs *D*, when folded in, to fit into corresponding recesses cut in plates *e'*, planted on the end rails of the bed; but this is not essential.

I am aware that it is not new, broadly, to construct a bed to turn down as a whole, and which is unprovided with any standard or non-movable part, and therefore I do not claim this.

I am also aware that in turn-up beds which have a standard the folding legs which support the foot of the bed have been so constructed as to automatically assume their proper positions when the bed is turned down or up. Therefore I do not claim this feature. The folding legs of my bed are not moved or operated by the turning down of the bed.

Having thus described my invention, I claim—

1. The combination of the spring bed-bottom, which is secured to and serves to stiffen the bed-frame, comprising the stout side bars, *a a*, the stout end bars, *b b*, and the wire *c*, strained over said bars, and the head and foot rails, *e e*, and the side rails formed each of the two short pieces *d d*, which do not meet, whereby a free passage is left for the circulation of air under the spring, which is raised above the side bars, *a*, substantially as set forth.

2. The combination, with the fixed portion of the bed-bottom, provided with an aperture to receive a mirror, and with guides for the mirror to slide in, of the mirror, which forms the movable portion of said bed-bottom,

mounted to slide up and down in said guides, the lower portion of said mirror being masked behind a part of said fixed portion of the bottom, substantially as set forth.

5 3. A turn-up bed provided with a bottom board, *g*, and a mirror, *A*, mounted in keeper-grooves and provided with stops, substantially as described, whereby said mirror may be slid down behind the board *g* when the bed is to be
10 turned down, and raised up and supported on stops when the bed is to be turned up, substantially as set forth.

4. In a turn-up bed wherein no standard is employed, and wherein the entire bed turns
15 down and up, the said bed provided with the brackets *B*, to form fulcrum-points in turning it down, and to form support for its head when down, and said brackets provided with rollers *k*, whereby the bed may be wheeled around,
20 substantially as set forth.

5. In a turn-up bed provided with a sliding mirror or mirrors, the combination, with the said sliding mirror, of a folding leg, *D*, and

means, substantially as described, whereby the lowering of the mirror throws out the leg, 25 as and for the purposes set forth.

6. A turn-up bed the bottom whereof is formed of the bottom board, *g*, and the three mirrors *A A' A'*, the said mirrors mounted in keeper-guides, whereby they may be slid down 30 behind said bottom board, and provided with stops, whereby they may be supported when elevated, as set forth.

7. In a turn-up bed, the combination, with the bed-frame, of the leg *D*, its shaft *l*, the crank 35 *m* on said shaft, the connector *n*, and the sliding mirror, to which said connector is attached, all arranged to operate substantially as and for the purposes set forth.

In witness whereof I have hereunto signed 40 my name in the presence of two subscribing witnesses.

DANIEL C. OTIS.

Witnesses:

HENRY CONNETT,
GEO. BAINTON.