

(No Model.)

E. R. RAND & H. N. WAYNE.
INVALID BED BOTTOM.

No. 595,734.

Patented Dec. 21, 1897.

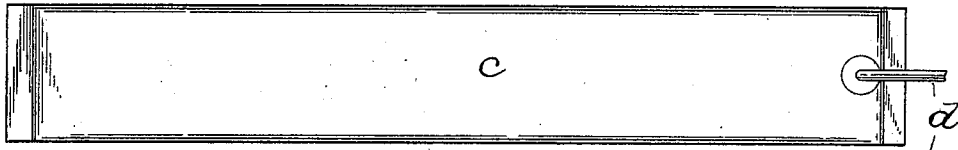


FIG. 1.



FIG. 2.



FIG. 3.

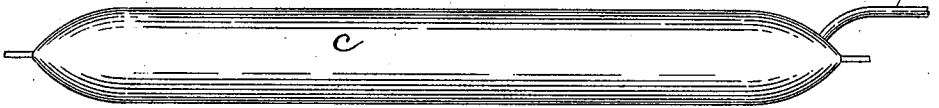


FIG. 4.

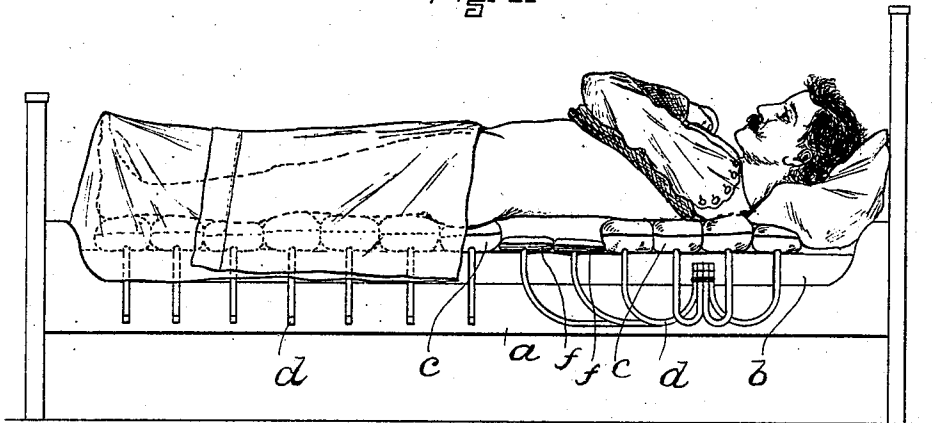


FIG. 5.

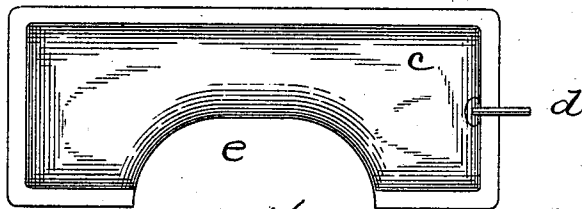


FIG. 6.

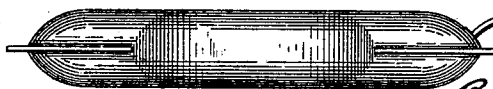


FIG. 7.

WITNESSES.

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EDWIN R. RAND AND HERBERT N. WAYNE, OF WABAN, MASSACHUSETTS.

INVALID-BED BOTTOM.

SPECIFICATION forming part of Letters Patent No. 595,734, dated December 21, 1897.

Application filed April 2, 1896. Serial No. 585,968. (No model.)

To all whom it may concern:

Be it known that we, EDWIN R. RAND and HERBERT N. WAYNE, of Waban, in the county of Middlesex and State of Massachusetts, have
5 invented certain new and useful Improvements in Invalid-Bed Bottoms, of which the following is a description sufficiently full, clear, and exact to enable those skilled in the art to which it appertains or with which it is
10 most nearly connected to make and use the same.

This invention has relation generally to bed-bottoms designed for use by invalids or wounded persons or persons obliged from any
15 cause to lie down or recline while under medical or surgical treatment, and the improvements have reference particularly to that class of invalid-bed bottoms upon which the patient is required to lie without changing
20 his or her position, or at any rate not to change position through any of the patient's own muscular exertion.

It is the object of the invention to provide such improvements in invalid-bed bottoms as
25 will enable a part or parts or sections of the same to be so manipulated or operated as to relieve the patient of weariness and discomforts resulting from lying continuously in one position, not only without requiring the patient to make any muscular or other exertion
30 or even go so far as to exercise the faculties of the will to gain relief from weariness, but also without liability of disturbing the bed or bedclothing to a degree that will detrimentally or disagreeably affect the senses of
35 the most nervous or oversensitive patient, and also to facilitate the work of physicians and surgeons who may have patients under treatment, which patients are required to be
40 placed and kept continuously in a single reclining position and who cannot bear the least appreciable jar to the bed or disturbance of the bedclothing without pain or harm.

The invention consists of improvements
45 having reference to the foregoing ends, all as will be hereinafter described in detail, and pointed out with particularity in the appended claims.

Reference is to be had to the annexed drawings, and to the letters marked thereon, forming a part of this specification, the same let-

ters designating the same parts or features, as the case may be, wherever they occur.

Of the drawings, Figure 1 is a plan view of one form of a section of the improved bed-
55 bottom in deflated condition. Fig. 2 is a side or edge view of what is shown in Fig. 1. Fig. 3 is a plan view of the section represented in Fig. 1, but showing it as inflated. Fig. 4 is a side or edge view of what is shown in Fig.
60 3. Fig. 5 is a side view of the improved invalid-bed bottom, representing a patient as resting thereon in order to the better show the mode of using the improvements. Fig. 6
65 is a plan view, and Fig. 7 an edge or side view, of a modified form of an independent section entering into the invention.

In the drawings, *a* designates a bedstead, which may be of usual form or of any other
70 suitable to subserve the purposes of a support for the improvements.

b is a mattress or similar base, which it may or may not be desirable to employ. Pillows, foot-rests, or other accessories of a bed
75 may also be used in conjunction with the invention, if wished for or if required by the patient's condition.

c designates a series of air-tight or inflatable sections or tubes of any desired form in cross-section, which sections are adapted to
80 be placed side by side and form substantially the immediate support for the patient's body, it being understood that a sheet or blanket or the like, if need be, may be spread over the sections and intervene between the patient's
85 body and the said inflatable sections, and it being further understood that a single inflatable section may be employed in lieu of the series herein shown. Experience has demonstrated that the said independent section
90 or sections may be in most cases best employed by disposing them across the bed from side to side, as is shown in the drawings. The said sections *c*, as before stated, are substantially air-tight, and may be made of an
95 independent inner air-tube of pure rubber and covered with a jacket or sheath of flannel or woolen cloth coated with rubber and backed or reinforced with a sheet of rubber-frictioned sheeting vulcanized together, so as
100 to avoid shrinkage from any cause. By this manner of construction, which will be clearly

understood by those skilled in the art without further description or illustration, the outer covering may be removed and washed when required.

- 5 Each section *c* is essentially provided at one end, or at any other suitable point, with a communicating flexible tube *d*, equipped with a nipple and valve similar to that with which the usual pneumatic tire of a velocipede is
10 provided, so that the tube or section *c* can be inflated with air through the said tube, as is shown in Figs. 3 and 4, or be deflated by allowing the air to escape from the tubes or sections, as is shown in Figs. 1 and 2.
- 15 The cushion, section, or sections *c*, as shown in the drawings, are arranged side by side across the mattress *b* of the bed, and the tubes *d*, for convenience sake, extend from one side of the bed-bottom so made up. The said tubes
20 *d* may be made of such length that they may be grouped at or near the head of the bed, so that, if possible, the patient can himself or herself inflate or deflate particular sections or cushions to suit circumstances or convenience. At the right in Fig. 5 it is clearly
25 shown how this may be done.

- The form of the cushions, so long as they are provided with the tubes *d*, constructed as set forth, may be varied in the make-up of
30 different bed-bottoms or in the same bed-bottom to suit circumstances. For example, in cases of accouchement or where it may be desirable to employ a bed-pan a half-round space *e* may be left in the side of each of two
35 sections, so that when the two are brought together a round, or substantially round, space or opening may be left in the bed-bottom, forming a construction in which the hips of the patient may rest upon the sides of the
40 space thus formed, leaving entire freedom in the said space for operation upon the patient.

- In use the independent cushions or sections *c* will be arranged side by side, as shown, to form a complete bed-bottom or so much of
45 the entire bottom as it may be necessary to construct in accordance with the invention, and the said cushions or sections will be inflated or deflated through the extended tubes *d* to a degree to suit circumstances, or, after
50 the patient has become convalescent, the sections or cushions may be removed as required until only one shall be in use where support or pressure is still required, which will probably be found useful in supporting the small
55 of the back after the other parts of the body have regained substantially wonted strength.

- In case it should be desired to gain access to the surface of a patient's body in contact with the bed-bottom, certain sections or cushions may have the air exhausted therefrom,
60 so as to be entirely deflated, as shown at *ff* in Fig. 5, in which instance the physician or attendant can gain access to the surface of parts so as to treat bed-sores, bathe the body,
65 or do other necessary or desirable things.

As has hereinbefore been intimated, the cushions or sections *d* (which extend to a con-

siderable extent beyond the bed proper) and their equipments are essential to our present improvements, since they enable the cushions
70 or sections *c* to be inflated or deflated without appreciably jarring the bed or disturbing the bedclothing, a thing that cannot with certainty be done in cases where the inflating and deflating means are connected directly
75 with the sections. The tubes *d* may, for instance, be connected with the ends of the sections and extend up between said ends and the side rail and beneath the bed-coverings, and the operation of inflating and deflating
80 the sections may be effected without in the least degree affecting the patient in a harmful way or in an annoying manner. If the inflating means were attached immediately
85 to the cushions or sections *c*, as has been proposed heretofore, it would not be feasible to employ them in the ends of the said sections where the latter are used in beds having high side rails, and, moreover, they could not be
90 employed at any point in the sections without rendering it necessary to materially disturb the bedclothing and undertaking the liability of jarring the bed in order to secure
95 inflation and deflation. Again, as before stated, through the medium of the individual sections and the individual inflating-tubes extending therefrom, some patients may be put in control of the bed-bottom so as to themselves regulate it to suit their pleasure without distressing muscular exertion, a thing
100 that cannot be accomplished where the inflating means are connected directly with the cushions.

Having thus explained the nature of the invention and described a way of constructing
105 and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, it is declared that what is claimed is—

1. An invalid-bed bottom composed of individual air-inflatable cushions or sections, *c*,
110 extended across the bed from side to side, each of the said cushions or sections being provided with a small flexible inflating and deflating tube, *d*, extending from each section
115 to an appreciable distance beyond the bed proper, substantially as and for the purpose set forth.

2. An invalid-bed bottom composed of individual air-inflatable cushions or sections, *c*,
120 extended across the bed from side to side, each of the said cushions or sections being provided with a small flexible inflating and deflating tube, *d*, connected with its ends, and extending from each section to an appreciable
125 distance beyond the bed proper, substantially as and for the purpose set forth.

3. An invalid-bed bottom composed of individual air-inflatable cushions or sections, *c*,
130 extended across the bed from side to side, each of said cushions being provided with inflating and deflating means, as described, and certain of said cushions having half-round spaces or indentations in their meeting or op-

posing sides and at opposing points, whereby,
when the two sections are brought or laid to-
gether, a substantially round opening in the
bed-bottom will be formed, all as and for the
5 purposes set forth.

In testimony whereof we have signed our
names to this specification, in the presence of

two subscribing witnesses, this 28th day of
March, A. D. 1896.

EDWIN R. RAND.

HERBERT N. WAYNE.

Witnesses:

ARTHUR W. CROSSLEY,

PERCY C. HOWE.