2 Sheets—Sheet 1.

# S. T. SANDS.

## Apparatus for Lifting and Carrying Invalids.

**No. 209,519.** **Patented Oct. 29, 1878.**

Fig. 1.

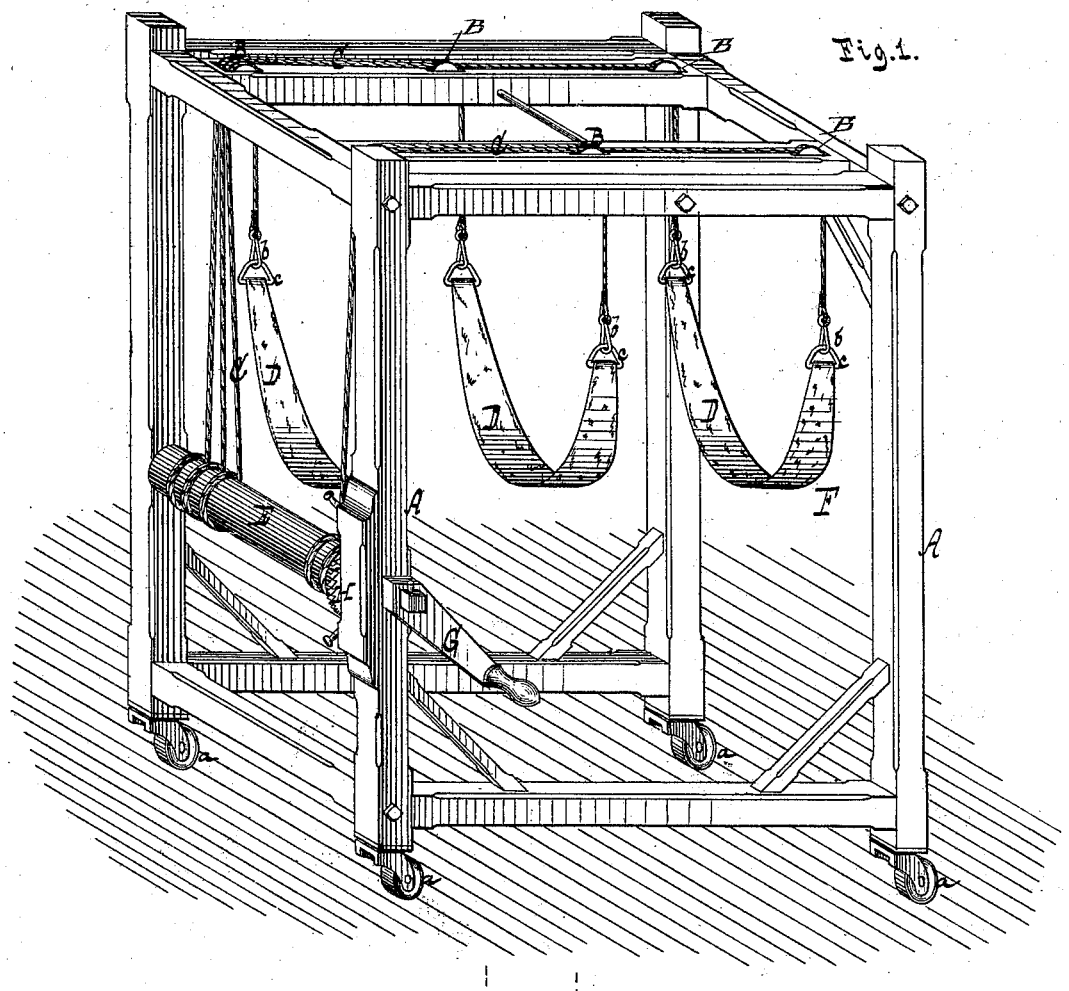
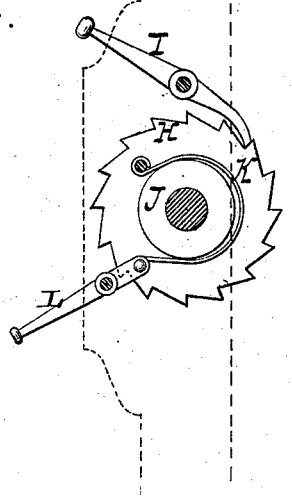



Fig. 4.

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2 Sheets—Sheet 2.

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## Apparatus for Lifting and Carrying Invalids.

No. 209,519. Patented Oct. 29, 1878.

Fig. 2.

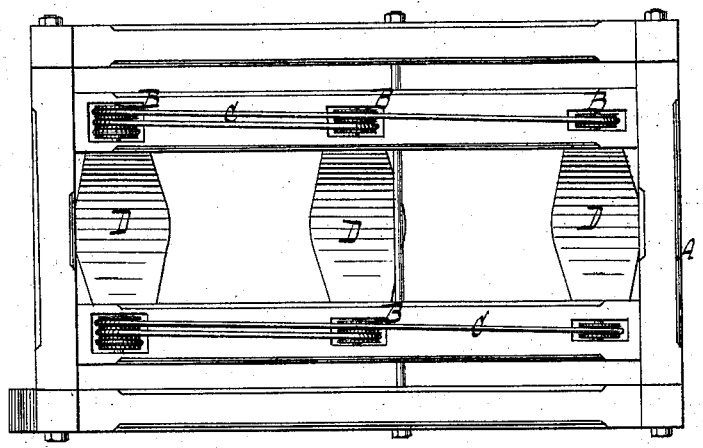
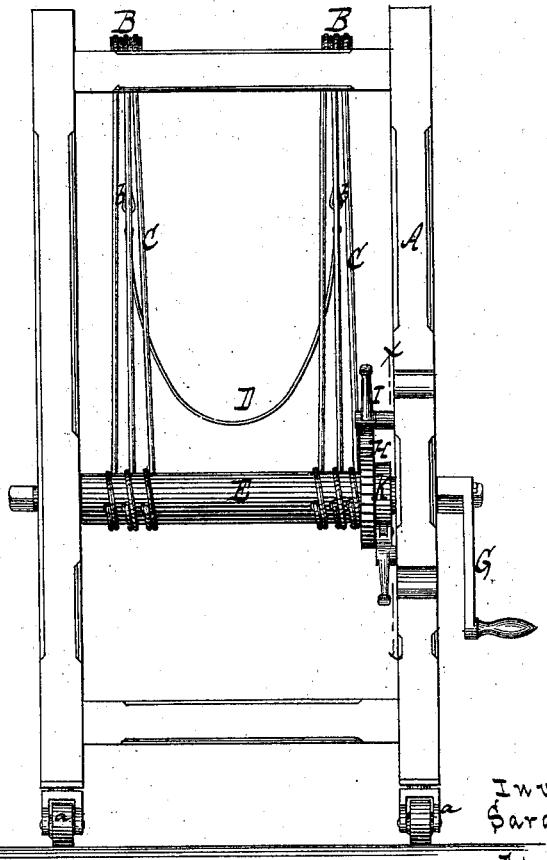



Fig. 3.

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# UNITED STATES PATENT OFFICE.

SARAH T. SANDS, OF NEW YORK, N. Y.

## IMPROVEMENT IN APPARATUS FOR LIFTING AND CARRYING INVALIDS.

Specification forming part of Letters Patent No. **209,519**, dated October 29, 1878; application filed October 10, 1878.

*To all whom it may concern:*

Be it known that I, SARAH T. SANDS, of the city, county, and State of New York, have invented a new and Improved Apparatus for Lifting and Carrying Invalids, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a perspective view of my apparatus. Fig. 2 is a plan or top view thereof. Fig. 3 is a front view of the same. Fig. 4 is a cross-section in the line *x x*, Fig. 3, showing the detent and brake of the windlass.

Similar letters indicate corresponding parts.

Prior to this invention a frame has been made to traverse rails arranged near the ceiling of a room, and with the same has been combined a windlass, the cords of which pass over pulleys in said frame, and thence to pulleys in the frame below, from which latter are suspended straps, which are connected by hooks to bands, which latter are capable of being placed beneath the invalid, who may thus be raised to the height required, and by means of the traversing frame transferred in a rectilinear path from the bed. My invention is an improvement upon such, as I employ, in connection with certain parts hereinafter to be specified, a wheel-supported frame, which can be placed over the bed of the invalid, and when all parts are adjusted and the invalid suspended said frame can be moved to any part of the room, due to the fact that it is supported on wheels.

The object of my invention is to produce an apparatus capable of lifting and conveying an invalid from one bed or place to another without inconvenience or injury to the patient and without strain on the part of the nurse.

It consists in the combination of the following instrumentalities, namely: a movable frame having an opening whereby it is adapted to be brought over a bedstead, a series of pulleys mounted in said frame, ropes or chains passing over said pulleys, and supporting bands or straps capable of being attached to said ropes or chains in such a manner that, if the movable frame is brought over the bed containing an invalid, and the supporting bands or straps are placed under or around the invalid's body and then attached to the ropes or chains, and the ropes or chains are then pulled up, the invalid is lifted from the bed, when he or she can be conveyed to any desired spot by a proper movement of the frame. With the parts enumerated is combined a windlass which is common to the entire series of ropes or chains, so that the several ropes or chains, and with them the supporting bands or straps, are raised and lowered simultaneously.

In the drawing, the letter A designates the frame of my apparatus. B B are the pulleys; C C, the ropes or chains; D D, the supporting bands or straps, and E the windlass.

I mount the frame A on casters *a*, so that it can be moved from place to place, and make the same of such size and shape that it is capable of being brought over a bedstead of ordinary dimensions, so as to partially inclose the latter.

The letter F designates an opening formed in the frame A to permit of moving the frame over a bedstead, this opening being of suitable size to admit a bedstead within the sides of the frame.

I prefer to construct the frame A so that it can be taken apart and packed in a small space, in order to facilitate the transportation of my apparatus. In the example shown the frame A is made of rectangular form and with four uprights; but the same is susceptible of various modifications, one of which is to leave off one of the uprights adjacent to the opening F, thus enlarging this opening.

The pulleys B are mounted in the upper part of the movable frame A, and their number corresponds to the number of ropes or chains used, the pulleys being arranged in rectilinear positions, as shown in Fig. 2, and each successive pair thereof having one, two, and three grooves to receive the ropes or chains.

Each of the ropes or chains C is fastened to the windlass E at one end, whence the ropes or chains are conducted over the pulleys B, and are allowed to hang or depend therefrom—that is to say, one pair of the ropes or chains is allowed to hang down from the first pair of pulleys next to the windlass, the second pair of ropes or chains is conducted over said first pair of pulleys and is al-

lowed to depend from the second pair of pulleys, and so on.

The supporting bands or straps D are made of canvas or other suitable material and of suitable width, and are each attached to one pair of the ropes or chains C, the supporting-straps being three in number, and serving respectively to support the head and shoulders, the feet, and the trunk of the patient. In some cases the number of the supporting-straps D is increased, or only two straps are used, according to the stature or condition of the patient.

For the purpose of attaching the supporting bands or straps D to the ropes or chains C, I fasten to the free end of each of the ropes or chains a clasp, *b*, and provide the supporting bands or straps with loops *c*, to engage with such clasps, so that the parts can be readily detached from each other; but various other devices can be substituted for the clasps and loops.

The windlass E has the usual winch G for turning the same, and I also combine therewith a ratchet-wheel, H, and lever-pawl I, (see Fig. 4,) to hold the same in position, and a brake consisting of a disk, J, and a strap, K, the latter being arranged on the periphery of the disk and being connected to a lever, L, whereby its contact with the disk is regulated.

When my apparatus is to be used for lifting and conveying an invalid from one bed to another, the frame A is moved over the bedstead, and the supporting bands or straps D are detached from the ropes or chains C. The supporting straps or bands D are then drawn under or around the patient and reattached to the ropes or chains C, when the windlass E is turned so as to wind up the ropes or chains, whereby the invalid is lifted from the bed. The frame A, with the invalid suspended therefrom, is then moved away from the bedstead, when the bed may be aired and made up, and if the invalid is to be deposited on a second bed during this time the frame is simply moved to and over the second bedstead, and the ropes or chains are loosened so as to lower the patient.

By connecting all the ropes or chains C to a common windlass, they are severally raised and lowered at one and the same time, and hence the patient is kept in a perfectly natural or level position while he is in the apparatus.

It will be seen that by the apparatus herein described an invalid can be lifted and conveyed from place to place without danger of inconveniencing or injuring the patient, as when lifted and carried about in the arms, while the nurse moreover is relieved from the strain to which she is subjected in moving the invalid in the old way.

The windlass may, if desired, be turned by other means—as, for instance, by means of bevel-gearing—and in that case the bevel-gear on the windlass may be arranged to slide thereon, so as to be put in and out of gear with the stationary gear-wheel.

What I claim as new, and desire to secure by Letters Patent, is—

1. In an apparatus for lifting and carrying invalids, the combination of a wheel-supported frame, having an opening whereby it is adapted to be brought over a bedstead, a series of pulleys mounted in said frame, a series of ropes or chains passing over said pulleys, and supporting bands or straps capable of being attached to said ropes or chains, all constructed and adapted to operate substantially as described.

2. In an apparatus for lifting and carrying invalids, the combination of a wheel-supported frame, having an opening whereby it is adapted to be brought over a bedstead, a series of pulleys mounted in said frame, a series of ropes or chains passing over said pulleys, bands or straps capable of being attached to the ropes or chains, and a windlass common to the several ropes or chains, all constructed and adapted to operate substantially as described.

In testimony that I claim the foregoing I hereunto set my hand and seal this 28th day of September, 1878.

SARAH T. SANDS. [L. S.]

Witnesses:
GEO. W. HITCHCOCK,
J. VAN SANTVOORD.