

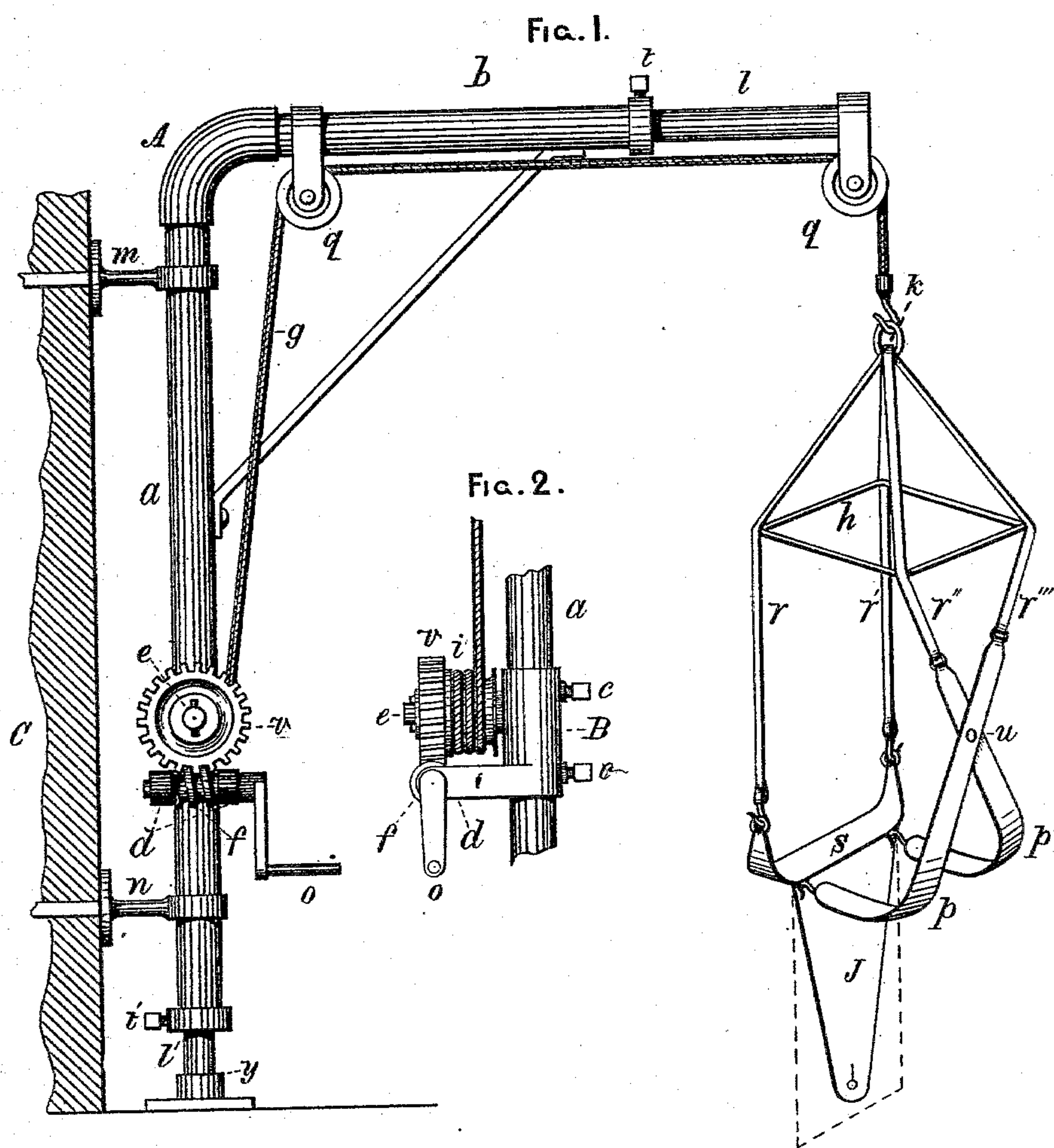
(No Model.)

H. D. STELLE & L. M. CUTTING.

INVALID LIFTER.

No. 274,527.

Patented Mar. 27, 1883.



WITNESSES.

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# UNITED STATES PATENT OFFICE.

HERBERT D. STELLE AND LEONARD M. CUTTING, OF JERSEYVILLE, ILL.

## INVALID-LIFTER.

SPECIFICATION forming part of Letters Patent No. 274,527, dated March 27, 1883.

Application filed February 14, 1883. (No model.)

*To all whom it may concern:*

Be it known that we, HERBERT D. STELLE and LEONARD M. CUTTING, of Jerseyville, in the county of Jersey and State of Illinois, have invented a new and Improved Invalid-Lifter; and we do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

Our invention relates to an improvement in invalid-lifters, our object being to provide an inexpensive, safe, and easily operated lifting mechanism, whereby an invalid may be comfortably and easily lifted from bed to chair, chair to bed, or in and out of a carriage.

A further object of our invention is to provide a combination of lifting-bands, upon which the invalid may be so suspended while being lifted that his weight shall be distributed over as large a supporting-area as possible, so that no undue pressure shall be exerted on any part of his body, and that shall also be provided with means for easy adjustment about him while in a lying or sitting position.

A still further object of our invention is to provide a lifting and supporting gear that shall readily and without inconvenience or discomfort to the invalid admit of the removal and readjustment of the clothing, and also possess the necessary features of convenience for night use.

With these ends in view our invention consists in certain details of construction fully set forth in the following specification and claims.

In the drawings, Figure 1 is a side elevation of the device, including a perspective view of the combination of bands, straps, &c., by which the invalid is supported while being lifted from one place to another. Fig. 2 is a front view of the hand-gear of the crane and the parts connected directly therewith.

Fig. 1 represents a light crane, preferably made of gas-pipe, and consisting essentially of two sections, *a* and *b*, secured together at right angles to each other by an elbow, *A*, the vertical section *a* being secured by eye-bolts *m* and *n* to the wall *C* of the room in which the lifter is used in such manner as to allow the jib *b* to swing round freely in a horizontal plane.

In order to adapt the crane part of the device to large and small rooms and to give more or less sweep to the jib, the latter is provided with an extension-tube, *l*, adapted to slide within it, and secured in position by a set-screw, *t*, a similar extension-tube, *l'*, being adapted to slide within the vertical tubular post *a*, in which it is also secured by a set-screw, *t'*, the lower extremity resting in a step, *y*, in which it is adapted to turn freely.

Upon a stud, *e*, is journaled a worm-wheel, *v*, adapted to engage with a worm, *f*, which revolves in bearings *d* and is actuated by an ordinary hand-crank, *o*. Secured to the wheel *v*, and adapted to revolve with it, is a drum, *i*, upon which is wound the lifting-cord *g*, the latter passing over sheaves *q q*, depending, as shown, from the jib of the crane. By reference to Fig. 2 it will be seen that the worm-wheel *v*, worm *f*, drum *i*, and hand-crank *o* are all supported by a single bracket, *B*, which is adapted to vertical adjustment upon the crane-post *a*, and is secured in position by set-screws *c c*. The object of this combination of parts with a single movable bracket is to provide means whereby the whole of the actuating mechanism shall be contained within the smallest possible space, and be also easily adjusted to the convenience of the operator, as well as to such changes as may be made in the height of the crane-post by the outsliding or indrawing of the adjustable tube *l'*. A worm-wheel gear is by preference employed, for the reason that it takes up but little room and obviates the necessity for a pawl and ratchet-wheel, the friction upon the worm being sufficient to overcome the reaction of the weight.

The lifting and supporting gear consists of a rectangular frame, *h*, provided with straps or cords *r r' r'' r'''*, each one being secured at a convenient part of its length to an angle of the frame *h*, as shown in the drawings, and so connected by a horizontal band, *S*, and crossed bands *p p'*, as to form a seat for the invalid, the upper ends of the straps *r r'*, &c., being brought together at *k* and united by a ring which engages with a hook at the end of the rope *g*.

By the foregoing details it will be seen that the horizontal part of the broad band *S*, in combination with the lower or horizontal parts



of the bands  $p p'$ , is adapted to sustain the weight of the invalid, while the vertical or crossed parts give support to the back. In order to provide a larger seat area, the inner edge of the band S is furnished with a broad triangular flap, J, which, when not in use, is allowed to hang down in the position shown in the drawings. To bring it into use so as to form a seat of much larger area than is afforded by the bands  $p p'$ , it is turned up so as to lie close to the latter, and is secured in that position by a button,  $u$ , at their intersection. It is in some cases preferable to employ a rectangular flap, as shown in broken lines in the drawings, so as to form, when turned up, a broader support for the shoulders. In the latter case its upper edge is secured to the straps  $r'' r'''$  by hooks or buckles.

The operation of this lifting appliance is as follows: The invalid being in a sitting or reclining position, the band S is detached from the straps  $r r'$  and also from the bands  $p p'$  and passed under the thighs, the frame  $h$  is then brought into such position that the crossed bands  $p p'$ , depending therefrom, may be brought behind the shoulders, the lower ends passed under the body and connected by means of hooks or their equivalents with the band S, which is in turn hooked up to the straps or cords  $r r'$ . A few turns of the crank and the invalid is suspended in a sitting position. To make the seat more comfortable, the flap J is then turned up and secured, as already described. Matters being thus, the invalid may be easily swung round to any place within reach of the crane and lowered into a chair, the lifting-bands being removed by a process the reverse of that employed for their adjustment.

When the flap J is turned down the conven-

ience afforded by the peculiar combination of bands with which it is connected is obvious, not only for night use, but for the facility it presents for the removal and readjustment of the clothing.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In an invalid-lifter, the combination, with a tubular crane, of the extension-tubes  $l l'$ , the former adapted to slide within the jib  $b$  and the latter within the post  $a$ , substantially as and for the purpose herein set forth.

2. In an invalid-lifter, the combination, with a crane-post,  $a$ , provided with an extension tube,  $l'$ , of the adjustable bracket B, winding-drum  $i$ , worm-wheel  $v$ , and worm  $f$ , all of said parts being constructed and united substantially in the manner and for the purpose herein set forth.

3. In an invalid-lifter, the combination of the rectangular frame  $h$ , straps or cords  $r r' r'' r'''$ , horizontal supporting-band S, and crossed bands  $p p'$ , all these parts being connected together and adapted to each other substantially as and for the purpose herein set forth.

4. In an invalid-lifter, the combination, with the supporting-band S and crossed bands  $p p'$ , of the flap J, substantially as and for the purpose herein set forth.

In testimony that we claim the foregoing we have hereunto set our hands this 9th day of February, 1883.

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LEONARD M. CUTTING.

Witnesses:

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