CHARLES H. DOUGLAS.

Improvement in Lifting Apparatus.

No. 115,942. Patented June 13, 1871.

Fig. 1

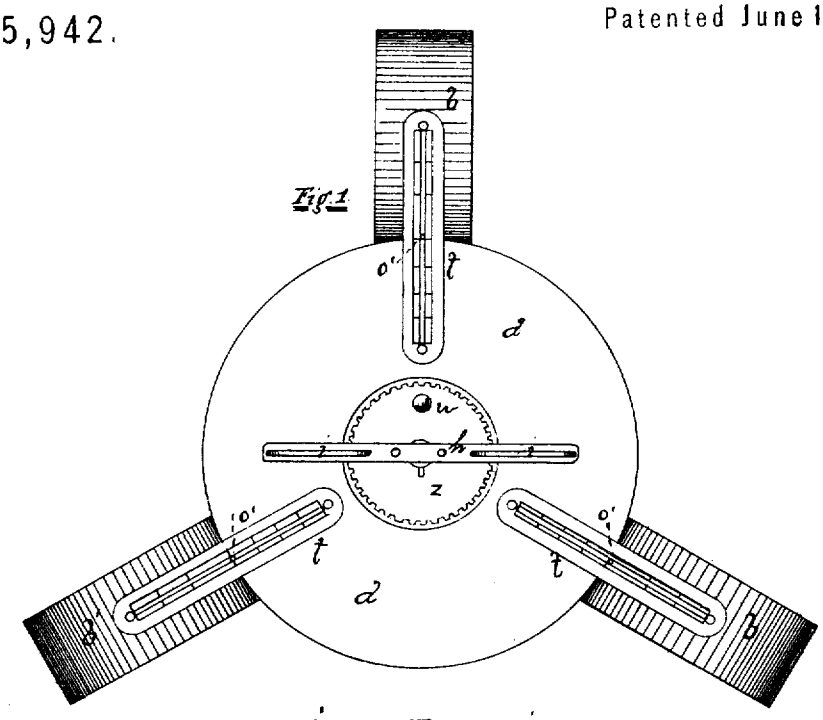


Fig. 2

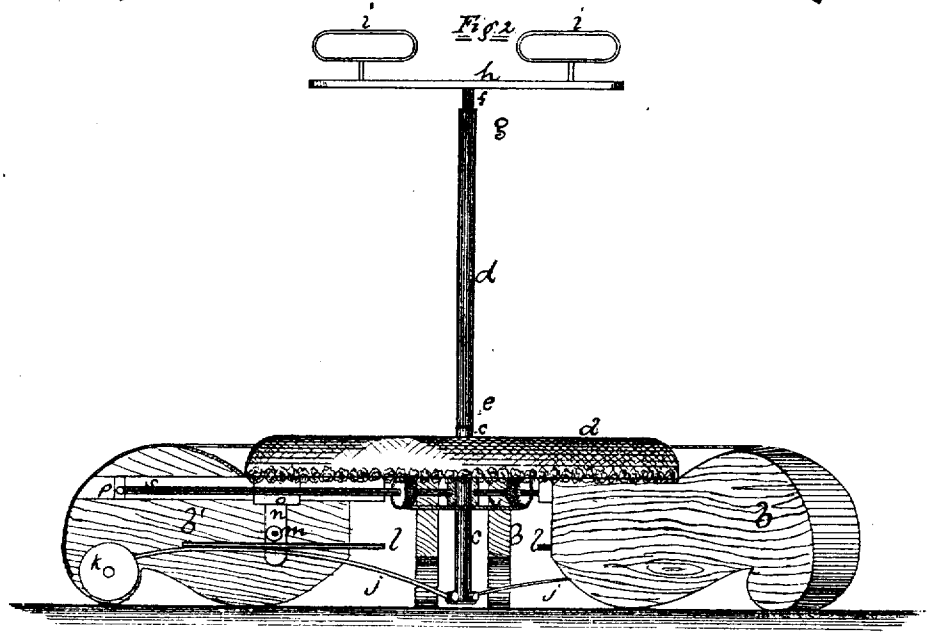
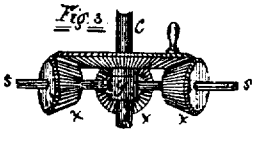


Fig. 3



Witnesses.

L. Hafelin

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Inventors

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UNITED STATES PATENT OFFICE.

CHARLES H. DOUGLAS, OF HARTFORD, CONNECTICUT, ASSIGNOR TO WILLIAM A. ENGLISH, OF SAME PLACE.

IMPROVEMENT IN LIFTING APPARATUS.

Specification forming part of Letters Patent No. 115,942, dated June 13, 1871.

I, CHARLES H. DOUGLAS, of Hartford, in the county of Hartford and State of Connecticut, have invented an Improved Lifting Apparatus, of which the following is a specification:

Nature and Objects of the Invention.

This invention is designed for the use of invalids for their treatment under the process or method commonly known as the "lifting-cure;" and consists mainly of a low table upon which the invalid stands, and with devices so arranged under and about it that the invalid can have the amount or weight he would lift indicated and determined beforehand.

Description of the Accompanying Drawing.

Figure 1 is a plan view of the complete apparatus. Fig. 2 is a side elevation of the same, with the side of one of the legs removed for the purpose of showing its interior construction. Fig. 3 is a detached view of the central and important part of the machinery for indicating and determining the weight to be lifted.

General Description.

The letter *a* indicates the wooden table upon which the lifter stands, supported on three legs, *b b b'*. Down through the center of the table runs the lifting-rod *c*, the upper end of which fits into the bottom of the hollow tube *d*, and fastens therein by means of the pin *e* driven through both rod and tube. Into the top tube slides the rod *f*, which, being about as long as the tube and pierced with numerous holes, can be adjusted in length to the stature of the lifter. The pin *g* serves the same purpose at the top of the tube as the pin *e* at the bottom. On the top of the rod *f* is fastened, in such fashion that it is free to swing around horizontally, the cross-bar *h*, to the ends of which are fastened the lifting-handles *i i*, which are also free to turn around. The lifter straddles the cross-bar when using the apparatus. The bottom or foot of the rod *c* is fastened by joints to the three springs corresponding to the three legs. Two of them, *j j*, are seen in Fig. 2. These springs run out, and are jointed to the axis of the pulley *k* at their further extremity. To the top of the springs are fastened the straight rods *l*, which merely touch up against the pulleys *m*, which are hung in forks *n*, which project down from nuts *o*, which run on the screw-rods *s*, which, at their outer ends, turn in bearings *p*, and at their inner ends turn in a cylindrical bearing, *y*, on the rod *c*, loose thereon, and held up in place by a small tripod of metal, through the center of which runs the rod *c*, and its three legs are fastened to the bottom of the table *a*, the legs running up to the same between the bevel-gear *x x x*. The bearing *y* is held down from the top by the bevel-gear *z*, which rests down upon it, and is itself held down by a pin running through the rod *c* just above it. On the upper surface of the bevel-gear *z*, which is loose upon the rod *c*, is a handle, *w*, whereby to turn it, and by turning it the bevel-gears *x x x*, and with them their respective screw-rods *s*, are turned, thus moving the nuts *o* out or in, as desired.

Now, when a person takes hold of the handles to lift, his strength will first be exerted on the springs *j*, and when these are pulled up against the rods *l* he will then commence to lift the weight of his own body. Now, it is plain that the nearer the nuts *o* are to the bearings *p* the less the force necessary to effect this, and vice versa, so that the weight to be lifted can be readily determined beforehand. On the top of one or more of the nuts *o* are pointers *o'*, moving in slots in the scales *t t t*, so graduated as to show at what point the pointers must rest in order that the lifter may lift but a certain specific weight.

Claims.

I claim as my invention—

1. The combination of the rod *c*, bevel-gear *z*, bevel-gears *x x x*, screw-rods *s s s*, and nuts *o o o*, the whole constructed, arranged, and operated substantially as and for the purpose set forth.

2. The combination of the rod *c*, springs *j j j*, rods *l l l*, pulleys *m m m*, forked nuts *o o o*, screw-rods *s s s*, gears *x x x*, and bevel-gear *z*, the whole constructed, arranged, and oper-

ated substantially as and for the purpose set forth.

3. The combination of the rod *c*, tube *d*, rod *f*, swiveled cross-bar and handles *h i i*, the springs *j j*, and pulleys *m m*, the whole constructed, arranged, and operated substantially as and for the purpose set forth.

4. The combination of all the parts specified in the preceding clauses with the table *a*, legs *b b b*, and scales *t t t*, the whole constructed, arranged, and operated substantially as and for the purpose set forth.

CHARLES H. DOUGLAS.

Witnesses:

WM. E. SIMONDS,

GEORGE G. SILL.