L. H. BLEND.

Passive-Motion Walking-Machine.

No. 219,439. Patented Sept. 9, 1879.

Fig. 1.

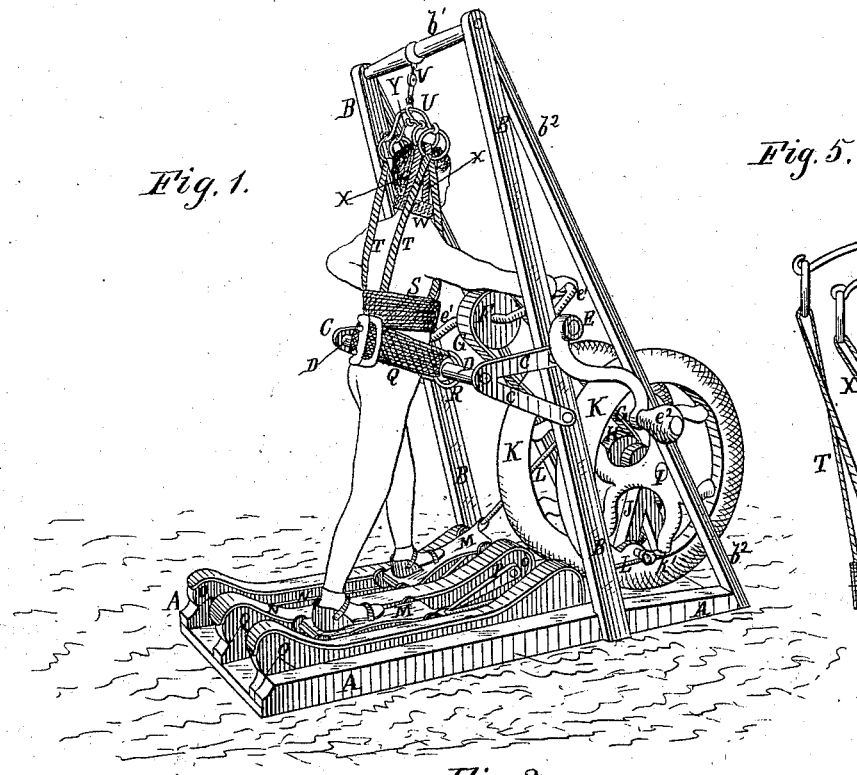


Fig. 5.

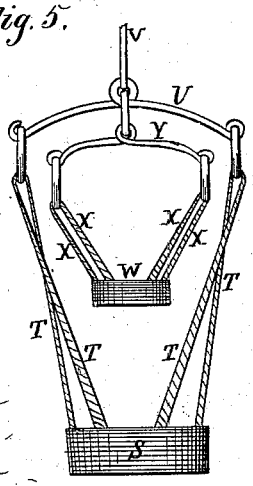


Fig. 2.

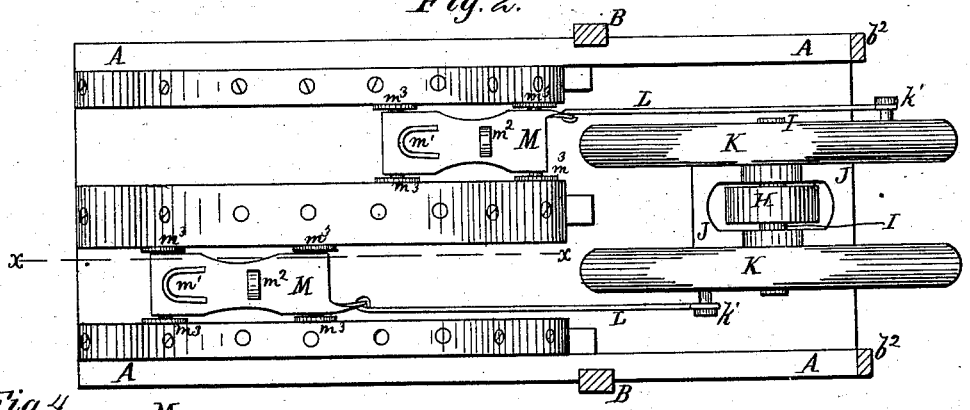


Fig. 4.

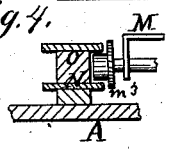
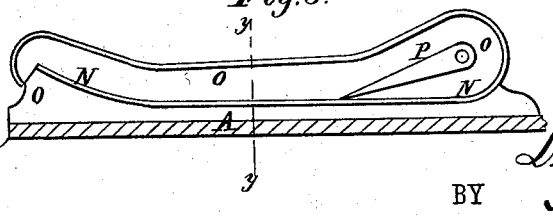


Fig. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LYMAN H. BLEND, OF ONEONTA, NEW YORK.

IMPROVEMENT IN PASSIVE-MOTION WALKING-MACHINES.

Specification forming part of Letters Patent No. **219,439**, dated September 9, 1879; application filed February 20, 1879.

To all whom it may concern:

Be it known that I, LYMAN HORACE BLEND, of Oneonta, in the county of Otsego and State of New York, have invented a new and useful Improvement in Passive-Motion Walking-Machines, of which the following is a specification.

Figure 1 is a perspective view of my improved machine, illustrating its use. Fig. 2 is a top view of the same, the upright frame-work being removed. Fig. 3 is a detail view of one of the tracks, being a vertical section through the line *x x*, Fig. 2. Fig. 4 is a detail cross-section taken through the line *y y*, Fig. 3. Fig. 5 is a detail view of the suspension device detached.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved machine for use in the treatment of paralysis in its various forms, curvature of the spine, and their kindred diseases, by producing a passive motion of the feet and legs similar to the natural step in walking, and by the partial suspension of the body from the waist or head.

The invention consists in the combination of the adjustable brackets and round, the crank-shaft, the pulleys and band, the crank fly-wheels, the connecting-bars, the cars, and the tracks formed of the plates, the bars, and the switch-bars, with each other and with the frame-work of the machine; in the combination of the hip-strap and its rings with the adjustable round and brackets; in the combination of the waist-strap or corset, the suspension-straps, the yoke, and the rope or tackle with the top bar of the frame, with which the walking device is connected.

A represents the base-frame or platform of the machine, to the side bars of which are attached the lower ends of two posts, B. The posts B incline a little to the rearward, are connected at their upper ends by a round or bar, b^1, and are strengthened in position by braces b^2.

To the posts B are attached brackets C, which have a round or roller, D, attached or pivoted to their outer ends for the patient to lean against. The brackets C and the posts B have each a number of holes formed through them to receive the fastening bolts or screws, so that the position of the brackets C and the round or roller D may be adjusted as the height of the patient may require.

To bearings attached to the posts B is pivoted a shaft, E, upon which are formed two cranks, e^1, for the patient to take hold of and rotate the said shaft.

To one end of the shaft E is attached a third crank, e^2, to allow an attendant to rotate the shaft E when the patient is unable to do it himself.

To the shaft E is attached a pulley, F, around which is passed an endless band, G. The band G also passes around a pulley, H, attached to a shaft, I, which revolves in bearings attached to the supports J. The supports J are attached to the base-frame or platform A.

To the shaft I are attached two fly-wheels, K, which have crank-pins k' attached to them to receive the ends of the connecting-rods L. The other ends of the connecting-rods L are pivoted to the forward ends of two small cars, M, upon which rest the patient's feet, and to which the said feet are secured by heel-plates m^1 and straps m^2.

To the cars M are pivoted wheels m^3, which roll along a track formed by attaching a plate, N, to bars O, attached to the base-frame or platform A. The rear ends of the plates N are curved upward to give the patient's feet a natural rise as the cars M move back.

To the forward ends of the bars O are pivoted the upper ends of inclined or switch bars P, the lower ends of which rest upon the plates N, so that as the cars M move forward their forward wheels may pass up the switches P, pass down around their upper ends, and pass back along the plates N, the switches P swinging upward to allow the said wheels to pass.

By this construction the natural upward movement is given to the feet as the cars move forward.

Q is a strap, which is passed through or attached to rings R, placed upon the round or roller D, and is buckled around the hips or seat of the patient to partially support him while using the machine.

S is a strap or corset, which is buckled around the waist of the patient, and to which are attached straps T, which pass up in front and rear of the patient's shoulders, and are connected with rings or eyes at the ends of a bar or yoke, U. The bar or yoke U is suspended at its center from the center of the cross-bar or round b^2 by a rope or tackle, V.

W is a strap or headstall, which is buckled around the neck of the patient, and to which are attached straps X. The straps X pass up in front and rear of the patient's ears, and are connected with rings attached to the ends of a yoke, Y, which is suspended at its center from the center of the yoke U, or from the rope or tackle V.

This construction allows the patient to be partially suspended by the waist or head, or by both, while being treated.

I prefer to use a tackle for connecting the yokes U Y with the round or cross-bar, so that it may also be used to assist in raising the patient into place.

I am aware that it is not broadly new to suspend a person from a fixed point by straps or corsets while motion is given to the feet.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the adjustable brackets and round C D, the crank-shaft E, the pulleys and band F H G, the crank fly-wheels K, the connecting-bars L, the cars M, and the tracks formed of the plates N, the bars O, and the switch-bars P, with each other and with the frame-work A B, substantially as herein shown and described.

2. The combination of the hip-strap Q and its rings R with the adjustable round and brackets D C, substantially as herein shown and described.

3. The combination, with round and brackets D C and hip-strap R, of the waist-strap or corset S, the suspension-straps T, the yoke U, and the rope or tackle V, with the top bar of the frame B, with which the walking device is connected, substantially as herein shown and described.

LYMAN HORACE BLEND.

Witnesses:

SEYMOUR SCOTT,

FRED. MCMINN.