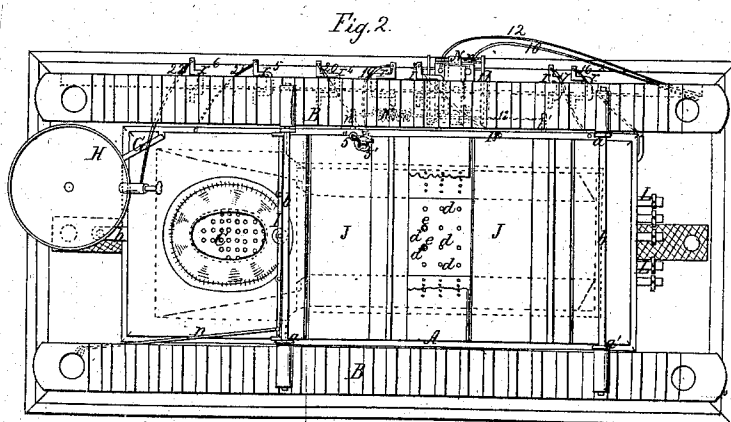
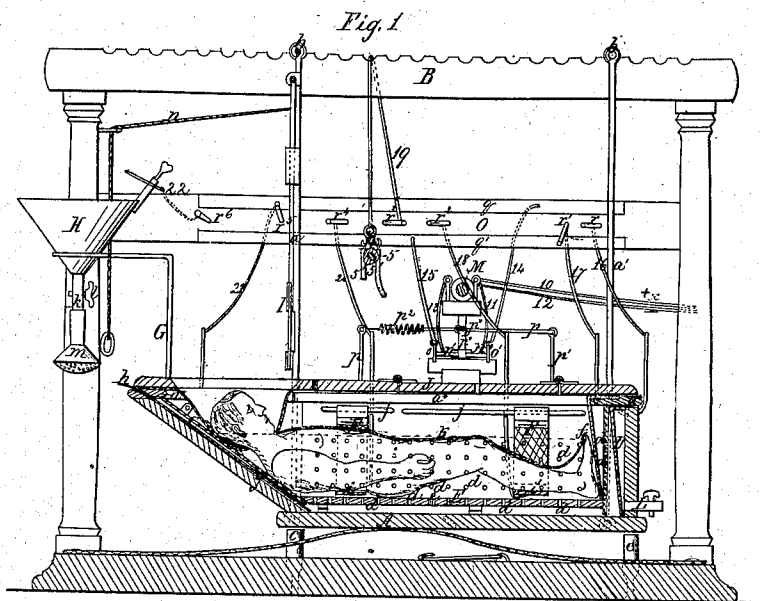


J. Young,
Electro-Magnetic Bathing Apparatus.

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Witnesses
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IMPROVEMENT IN ELECTRO-MAGNETIC BATHING APPARATUS.

Specification forming part of Letters Patent No. **32,332**, dated May 14, 1861.

To all whom it may concern:

Be it known that I, JAMES YOUNG, of New York, in the county of New York and State of New York, have invented a new and Improved Electro-Magnetic Bathing Apparatus; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a longitudinal vertical section of my invention. Fig. 2 is a plan or top view of the same.

Similar letters of reference in both figures indicate corresponding parts.

The tub *A* is suspended from rods *a a'*, which connect with rock-shafts *b*, the ends of which are insulated by surrounding them with glass or any other non-conductor of electricity. Said rock-shafts have their bearings on the upper notched surface of longitudinal timbers *B*, or they may be arranged in any other manner providing a good hold for the same and convenient for changing their position.

By changing the position of the rock-shafts the entire tub may be raised or lowered, or one end may be raised and the other lowered, as the convenience of the patient may require. If the tub is suspended from the rock-shaft *b* a swinging motion can be imparted to the same without impairing its insulation, and its oscillations are kept within certain limits by an elastic strap attached to its bottom; and if it is desired to have the tub stationary it may either be fastened by a hook or it may be lowered down on the posts *c*, which are made of glass or some other non-conductor, in order to preserve the insulation of the tub.

Rails *a** are attached to the top of the sides of the tub, extending and projecting over inside and outside—inside to prevent the water splashing over onto the operator or the floor; on the outside to form a hand-rail, useful to the patients' hands to help themselves to get into or out of the tub or sit upon the same to be dried off by themselves or by an attendant.

This top rail is a very essential part of my invention, since without it, in administering an electric bath, paralyzed patients are liable to make a wave and splash the water out on the floor and to make the feet of the operator damp, whereby a sort of connection between the operator and the heavy charge in the tub is created,

and consequently the operator will receive a very heavy, annoying shock, often laming both arms and causing them to be very weak for two or three weeks. Now, with the use of this top rail, at the end of a day's bathing of eighteen patients the floor is just as dry in the evening as it was in the morning.

The tub is provided with a metallic head-plate, *C*, and with a foot-plate, *D*, and a steam-jacket, *E*, may be placed into the interior of the tub, as clearly shown in Fig. 1 in the drawings. The sides of this steam-jacket are perforated with a number of small holes, *d*, to admit the steam or air, and those holes which pass through the wooden sides of the jacket may be protected by metallic eyes *e*, to prevent said holes becoming ragged and enlarged by the manipulations necessary to cleanse the tub. The foot-plate *f* of the steam-jacket *E* is also made of metal or of some other good conductor of electricity, and it is perforated with a number of small holes, the same as the head-plate *C* of the tub, and both the foot-plates of the steam-jacket and of the tub are inclined from the bottom up toward the head-plate, so as to conform to the position of the feet of the patient while influenced by electricity.

The metallic head-plate *C* of the tub is placed in an inclined position, as clearly shown in Fig. 1 in the drawings, and it terminates a little above the bottom of the tub, and it is elevated above the head of the tub, so as to leave a space, *g*, between it and the head of the tub. This steam-space communicates with the space between the steam-jacket and the tub, so that the steam or air surrounding the steam-jacket finds its way under the head-plate *C* and through the holes in the same to the head of the patient. A slide, *h*, which passes down behind the head-plate serves to cut off the communication between the space around the steam-jacket and the space behind the head-plate *C*, so that the head of the patient can be exposed to the direct action of the steam or air or protected from the same as may be deemed necessary. The legs and the hips or the back of the patient are in contact with metallic plates *i i'*, attached to straps *F*, which are adjustable in a longitudinal direction on side rails, *j*, in the interior of the steam-jacket *E*. Secured to the top edge of the tub, and near to its head, is the standard *G*, bent at right

angles and provided with a ring or socket to receive the funnel-shaped vessel H. This vessel terminates in a tube, *k*, which is provided with a stop-cock, *l*, and to the end of which a rose, *m*, of any desired form and construction may be attached. The object of this vessel is to treat in particular the eyes, ears, or other portions of the head of the patient with magnetized water, hot, cold, or tepid. The stand G is so arranged that the vessel H can be turned over the head of the patient or that it may be turned back out of the way when it is not needed.

A fan, I, attached to the rods *a*, and operated by means of a cord, *n*, passing through a loop that is secured to the wall, serves to cool the head of the patient, in case such cooling is found necessary.

The tub A is provided with a cover, J, made in several sections, and that section of the cover nearest to the head of the tub is provided with an aperture to admit the head of the patient. In cases where a water-bath is applied, the body of the patient is protected by a woolen blanket, K, covered with oil-cloth, for the purpose of preventing an escape of electricity and to keep comfortable every part of the patient's body. The water, steam, vapor, or hot air is admitted to the tub through one of the faucets L.

The connection of this bathing apparatus with the battery, and its operation, is as follows:

The positive pole of a battery connects by means of a wire, 10, with one end of the outer wire of an electro-magnet, M, and the other end of this wire connects through a wire, 11, with one arm, *n*, of the switch N. The negative pole of the battery connects by a wire, 12, with one end of the inner wire of the electro-magnet, and the other end of this inner wire connects by the wire 13, with the other arm, *n'*, of the switch N. The switch N operates between two plates, *o o'*, and it is operated by a cord, *p*, which is connected to two standards, *p'*, that are secured to the side of the tub A. This cord passes through two loops, *p**, on the top or end of a standard, *p''*, which rises from the switch, and a spring, *p²*, serves to keep the cord taut. If an oscillating motion is now imparted to the tub, the friction of the cord in the loops *p** causes the switch to partake of the motion of the tub, and the arms *n n'* are alternately brought in contact with the plates *o o'*. The plate *o'* connects through a wire, 14, with a metal strip, *g*, and the plate *o* connects in the same manner through a wire, 15, with a metal strip, *g'*. Both these strips are attached to a slat, O, of wood or other non-conducting material, which is attached to the wall or to any other convenient place on the side of the tub A. The slat O forms the bearings for the brakes *r, r', r², r³, r⁴, r⁵, and r⁶*, which serve to pass the current through the whole or through certain parts of the body of the patient. The brake *r* connects through the wire

16 with the foot-plate D of the tub A. The brake *r'* connects through the wire 17 with the foot-plate *f* of the steam-jacket E. The brake *r²* connects through the wire 18 with the plate *i*, which forms the support for the legs of the patient. The brake *r³* connects through the wire 19 with a ball, *s*, inclosed in a sponge, *s'*, or with a catheter, *s''*, or with other similar devices for rubbing or treating certain particular parts of the human body. The brake *r⁴* connects through the wire 20 with the plate *i*, which forms the support for the back or hips of the patient. The brake *r⁵* connects through the wire 21 with the head-plate C of the tub, and the brake *r⁶* connects through the wire 22 with the funnel-shaped vessel H.

It must be remarked that the sponge *s'* is wrapped round a copper ball, *s*, the object being to enable the operator to handle a much heavier charge of electricity without having his hands cramped than he can when the sponge is simply attached to the ends of the connecting-wire.

If the steam-jacket is used, and if it is desired to pass a current through the whole body of the patient, the brake *r⁵* is turned up on the strip *g*, and the brake *r'* is turned down on the strip *g'*, as shown in Fig. 1 in the drawings, and the switch N is turned so as to bring the arm *n* in contact with the plate *o'*, and the arm *n'* in contact with the plate *o*. The current will now pass through the wires 10 11 14, and through the strip *g* and wire 21 to the head-plate C, thence through the liquid contained in the tub and through the body of the patient to the foot-plate *f*, and through the wire 17, strip *g'*, wires 15, 13, and 12, back to the negative pole of the battery. If an oscillating motion is now imparted to the tub, the switch N is changed, and the arm *n'* comes in contact with the plate *o'*, and the arm *n* in contact with the plate *o*, and the current passes through the wires 10, 11, and 15 to the strip *g'*, thence through the wire 17 to the foot-plate *f*, and through the body of the patient to the head-plate C, and through the wire 21, strip *g*, and wires 14, 13, and 12 back to the battery. This change takes place for every oscillation of the tub, and alternate currents running in opposite directions are passed through the body of the patient. The effects of these opposing currents are such that the electric waves of the current annual those of the other in the center of the tub, and that no palpable effect is produced on those portions of the body which are situated in the center of the tub, and that the sensation increases toward either end. The tender parts of the body—such as the kidneys, the spleen, the liver, &c.—which are situated at or near the center of the tub, are not affected by the current, and yet certain desired effects are produced on the extremities of the body.

If it is desired to treat particularly some portions of the head—such as the eyes or ears—the funnel-shaped vessel H is brought into the current by turning the brake *r⁶* upon

the strip *q*, and turning off the brake *r*⁵. The contents of the vessel *H* are now directed on the afflicted parts by turning the faucet *l*, and the current passes through said contents, and the body of the patient to the foot-plate *f*, and through the wire 17, strip *q'*, wires 15, 13, and 12 back to the battery. In the same manner the hips, or those portions of the body which are situated at or near the center of the tub, or the legs may be treated particularly.

For treating the kidneys the current is passed through the metallic plate *i*, and this plate is moved up or down until it comes right under the afflicted part, and for treating the legs the current is passed through the plate *i'*, said plate being adjusted in a longitudinal direction, so as to come precisely under the afflicted parts.

In some cases it is desirable to rub certain portions of the body or to treat such parts which can only be reached by a catheter or by other similar instruments; and in order to produce the desired effect the brake *r*³ is turned on, so as to bring the wire 19 into the current. By these means provision is made to treat every part of the body separately or to pass a current through the entire body, and an ordinary current running in one direction may be used; or, by giving to the tub an oscillating motion, alternate currents running in opposite directions, with instantaneous changes from the positive to the negative pole, may be produced, according to the disease of the patient and according to the more or less powerful effect which it is desired to produce, and according to the nature of the helix, which may be such as to give a direct or a to-and-fro current.

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

1. The combination of a bath-tub with non-

conducting sides and bottom, with metallic conducting ends, each end attached the head to the positive and the foot to the negative pole of a helix, or vice versa, substantially as and for the purpose set forth.

2. The employment of insulated rock-shafts *b*, applied in combination with the supporting-rods *a a'*, and with the tub *A*, substantially as herein described, for the purpose of imparting to the tub an oscillating motion, while, at the same time, its insulation is preserved.

3. The arrangement of the adjustable metallic plates *i i'* in the steam-jacket *E*, in combination with the electro-magnet *M*, as described, for the purpose of supporting certain parts of the body, and of passing the current through certain portions of the body of the patient.

4. The combination of an electro-magnet, *M*, bathing-tub *A*, and metallic vessel *H* with a rose, *m*, constructed and operating as and for the purpose set forth.

5. Wrapping the sponge *s'* round a copper ball, *s*, as and for the purpose specified.

6. So combining the swinging tub *A*, switch *N*, and electro-magnet *M* that by the oscillating motions of the tub the current is changed.

7. The combination of the bathing-tub *A*, electro-magnet *M*, metal strips *q q'*, and brakes *r r' r² r³ r⁴ r⁵ r⁶*, constructed and operating substantially as and for the purpose herein set forth.

8. So arranging the top rail, *a**, on the sides of the tub that the same projects over inside and outside, in the manner and for the purpose described.

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Witnesses:

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