Improvements in electric galvanic belts.

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COMPLETE SPECIFICATION.

(Communicated from abroad by Samuel. J. Spalding, of Canton, in the County of Stark and State of Ohio, United States of American Physician.)

"Improvements in Electric Galvanic Belts"

I, HENRY HARRIS LAKE, of the Firm of Haseltine, Lake & Co., Patent Agents, 45 Southampton Buildings, in the County of Middlesex, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The present invention has relation to electric-galvanic belts designed and calculated for man and beasts, and it consists in the different parts and combination of parts hereinafter described.

In the accompanying drawings,

Figure 1 is a view showing a portion of the belt casing, and illustrating a number of cells properly connected together to form a battery.

Fig. 2 is a view showing the belt properly attached to a horse and illustrating a number of electrodes applied to different parts of the horse and connected to the belt.

Fig. 3 is a detached view of one of the electrode plates.

Fig. 4 is a detached view of the staple for connecting the electrode proper to the belt casing or to an electrode bandage.

Fig. 5 is a detached view of an electrode bandage, showing the electrode properly connected thereto.

Fig. 6 is a detached view of the electrode bandage, showing the connecting hook and the wire connected thereto.

Fig. 7 is a longitudinal section of the electrode bandage showing the electrode cover to protect the parts coming in direct contact with the electrode.

Fig. 8 is a detached sectional view of the electrode, showing the portion of the attaching staple before it is bent.

Fig. 9 is a view showing the face side of one of the electrodes.

Fig. 10 is a detached view of the cell frame.

Fig. 11 is a detached view of the cell thimble.

Fig. 12 is a detached view of the pin for connecting the plates of the cell together.

Fig. 13 is a longitudinal section of the cells, showing three cells properly hinged together.

Fig. 14 is a detached view of one of the cell hinges.

Fig. 15 is a detached view of the cell plates.

Fig. 16 is a detached view of one of the pads.

Fig. 17 is a perspective view of a belt, showing its different parts properly assembled.

Fig. 18 is a view showing the belt proper placed for use as applied to a human being.

Fig. 19 is a view showing the belt properly attached with spinal, ankle and knee attachment.

Fig. 20 is a view showing a portion of the spinal webb, also showing an adjustable electrode connected thereto and illustrating a conductor wire properly connected to said electrode, and

Fig. 21 is a detached view of the twisted plug.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

1 represents the casing or cover, which is constructed of a size to carry out the objects of the invention, and may be and preferably is constructed in the ordinary manner regard being had to the proper attachment and adjustment of the different parts of the belts, said cover being folded so as to properly enclose the cells and their different attachments.

The belt or cover 1 may be provided with any desired number of electrodes, which are constructed substantially as hereinafter described; but to carry out the objects of my invention it is not necessary to provide the cover 1 with any electrodes inasmuch as they may be attached to separate bandages or attachments and properly connected to the batteries by means of suitable wires as hereinafter described.

For the purpose of attaching the belt 1 together with its different parts to a horse or other animal, straps such as B may be provided, which straps have suitable electrodes arranged at any desired point or points thereby providing a means for locating electrodes upon different parts of the body.

When it is desired to attach electrodes to the legs or arms, bandages such as 2 are provided, which bandages are provided with suitable straps such as 3 and 4, said straps being connected together by means of buckles or their equivalents.

For the purpose of providing an electrode that will have the proper amount of ventilation, the face of the electrode is formed convexo-concave and perforated substantially as shown in the drawing.

For causing the electrode to be active when placed upon a dry surface the felt 5 is placed between the convexo-concave plate 6 and the attaching or connecting plate 7 as illustrated in Fig. 7, and said felt moistened preferably with water.

It will be understood that by providing the convexo-concave plate 6 and perforating the same, I am enabled to provide proper ventilation and thereby prevent the electrode from blistering or burning the parts coming in contact with said electrode.

When it is desired to more securely protect the body from injury by a strong current, the plate 6 may be covered with felt such as 8.

For the purpose of insulating the cell-plates 9 and 10 the thimbles 11 are provided, which thimbles are preferably formed of hard rubber or other insulating material.

The thimbles 11 are provided with collars 12, which collars are for the purpose of over-lapping a portion of one of the cell plates.

The said thimbles 11 are passed through one or both of the cell plates and connected together by means of the split pins 13, which split pins are passed through the thimbles 4 as illustrated in Fig. 13.

Between the cell plates 9 and 10 are located rubber frames or jackets 14 within which jackets are located the absorbent pads 15.

The object of the jacket 14 is to form a cell that will, be perfectly insulated and do away with other transverse fastenings for connecting the plates except the insulated pin 13 and also when decomposition of the zinc plate 10 takes place a new one may be replaced without mechanical skill or disarranging the battery; the new plates being attached by simply removing the pins 13 at which time the old plates are free to be removed and new ones applied.

The frame or jacket 14 is provided with the notches 16, which notches are located upon opposite sides of the frame or jacket as illustrated in Fig. 10, said notches being for the purpose of receiving the hooked extended portion 18 of the plates 9 and 10, said hooked extended portions being open to form eyes which eyes are for the purpose of hinging the battery cells together by means of the open coiled hinges or connections 19.

The object and purpose of hinging the cells together by means of the open coiled hinges 19 is to provide room for easily attaching the plug 20 having an open eye 20×,

which plug can be removed and placed between any desired cells, thereby cutting in or out to increase or decrease the battery force.

The electrode plates 6 and 7 are connected together by bending the plates 6 over the plates 7 as illustrated in Fig. 8.

For the purpose of ventilating the electrode and also the pad contained therein, the plate 6 is perforated as illustrated in Figs. 5 and 9.

For the purpose of providing means for connecting the electrodes to the bandages of the belt proper, the staples 21 are provided, which staples are substantially of the form shown in Fig. 4, and are bent as illustrated in Fig. 7, the long prong of said staple being bent to form the hook 22 which hook is for the purpose of connecting the wires such as 23 to the electrode.

By providing the frames or jacket 14 and locating the same between the cell plates 9 and 10, I am enabled to surround and inclose the absorbent pads 15 thereby providing against rapid evaporation and producing a belt that will retain its usefulness much longer.

In Figs. 18 and 19 I have illustrated the manner of attaching my improved belt, and in Fig. 20 a spinal strap or webb 23*a* is illustrated connected to the belt and to the neck band 24, said connections being made in any convenient manner inasmuch as it is immaterial as to the particular manner of attaching the spinal strap.

The object and purpose of providing the spinal strap 23 is to provide a means for locating electrodes 25 upon the spinal column of the wearer.

For the purpose of attaching the electrodes 25 so as to bring them at any desired point, said electrodes are adjustably connected to the strap 23*a*.

For the purpose of producing a plug such as 20 that will not be easily detached said plug is formed by twisting two wires together by which arrangement the convolutions of the hinge 29 together with the convulutions of the plug will prevent said plug from becoming easily detached.

It will be understood that the plug is for the purpose of cutting in and out the battery, said plug being connected to the insulated wire 26, which latter is connected to the eye 27.

For the purpose of holding the batteries in proper position with the belt 1 the clasp hook 28 is provided which engages the link 29.

For the purpose of adjusting the size of the suspender or loop 5*a* with which the belt may be provided, and which forms an electrode, a sliding clasp 30 is provided located as illustrated in Fig. 17, the said loop being held in position by means of the belt and the snap hook 31 or its equivalent.

The series of batteries are held to the belt at their fixed end by means of the link 32, which link is connected to the eye 33, said eye being properly connected to the belt 1 in any convenient and well known manner.

It will be understood that when my improved belt is applied to animals that it is to be formed of a size to properly fit such animal and adjusted with reference to the size and shape of the animal upon which it is to be placed.

It will be understood that I do not desire to be confined to the exact location of the electrodes shown in the drawings inasmuch as they may be differently located, and differently connected without departing from the nature of my invention.

For the purpose of making proper connection from the batteries to any electrode such as 5*a* the flexible insulated conductor such as 4*a* Figs 17 and 19 are employed it being understood that they are to be properly connected to close the circuit.

For the purpose of providing a means for producing perfect action of the batteries under all circumstances and preventing the perforated electrode from becoming inactive by clogging the perforations by the excrementitious matter, I place an absorbant pad at the back of the electrode bringing the electrode between the absorbant pad and the body. From long use I have discovered that by placing covers over the electrode upon the body contact face thereof the air becomes excluded and the ventilation cut off by the accumulation of excrementitious and oily matters from the body thus preventing the air and electric current from passing through the same, therefore I place the perforated convexo-concave metallic plate on the outside of the absorbent pad.

The object of using the perforated metallic plate is to secure a metal surface, and at the same time to allow a free circulation and ventilation of air through the electrode to allow the admission of the air over the surface of the electrode, which also prevents blistering the skin where the electrode comes in contact. By this construction I have found from long experience that a perfect circulation of air insuring a perfect circuit and no interruption of electrical energy is secured, hence it will be understood that in order to derive the greatest benefit a free circulation of electricity must be maintained between the batteries proper and the body, and it is quite important that the electrodes be non-insulated, hence the importance of maintaining under all circumstances a well ventilated electrode which must be provided to accomplish the above result by placing the absorbant pad back of the electrode and allowing the contact face of a metallic electrode to come in direct contact with the body or upon the under-garments.

It will be understood that when the contact face of the electrode is covered, that poisonous matters will be collected, but by my peculiar location of the parts this objectionable feature is entirely overcome.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. In an electric galvanic belt, the casing or covering 1 having connected thereto a series of batteries consisting of the convexo-concave plates 9 and 10, non-metallic jackets located between the plates, pads located within the jackets, and between the plates and electrodes, substantially as and for the purpose specified.

2. In an electric galvanic belt a casing or covering provided with a series of cells hinged together, an electrode consisting of the perforated convexo-concave plate, a plate connected to said convexo concave plate and an absorbant pad located back of the electrode and between the plates, substantially as for the purpose specified.

3. The combination of plates 9 and 10, a non-metallic thimble located through one or both of the plates the pin 13 extended through the thimbles, the jacket 14 located between the cell plates and surrounded the absorbant pad, substantially as and for the purpose specified

4. The combination of the jacket 14 formed of insulating material and provided with notches and located upon opposite sides, and edges of said jacket, the plates 9 and 10 provided with hooked edges, the open coiled hinge or connection 19 and the plug 20, substantially as and for the purpose specified.

5. In an electric-galvanic belt, a covering having connected thereto a series of batteries, the open coiled hinge or connection 19 located between the batteries, and the twisted plug 20, substantially as and for the purpose specified.

6. The combination of a belt, a jacket or housing formed of insulating material, an absorbant pad located with the jacket, plates 9 and 10 connected together and located upon opposite sides of the absorbant pad and the jacket, substantially as and for the purpose specified.

Dated this 28th day of January 1902.

HASELTINE, LAKE & Co.,
45 Southampton Buildings, London, W.C. Agents for the Applicant.

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Fig. 1.

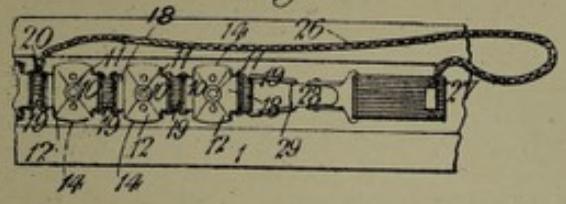

Fig. 2.

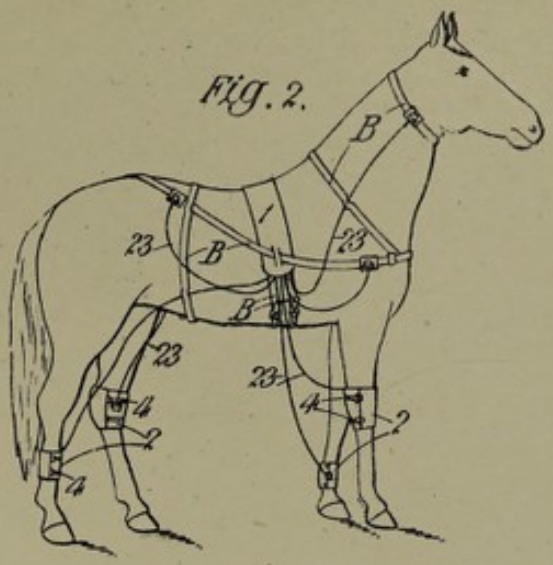

Fig. 3.

Fig. 5.

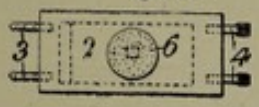

Fig. 4.

Fig. 6.

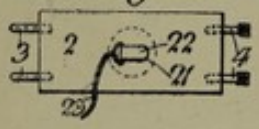

Fig. 7.

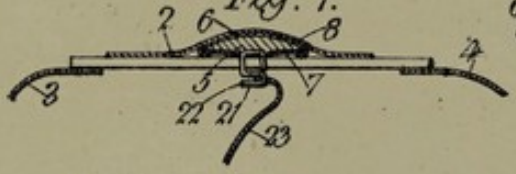

Fig. 8.

Fig. 9.

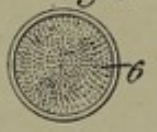

Fig. 10.

Fig. 11.

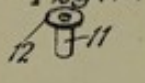

Fig. 12.

Fig. 13.

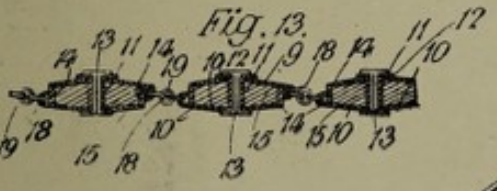

Fig. 17.

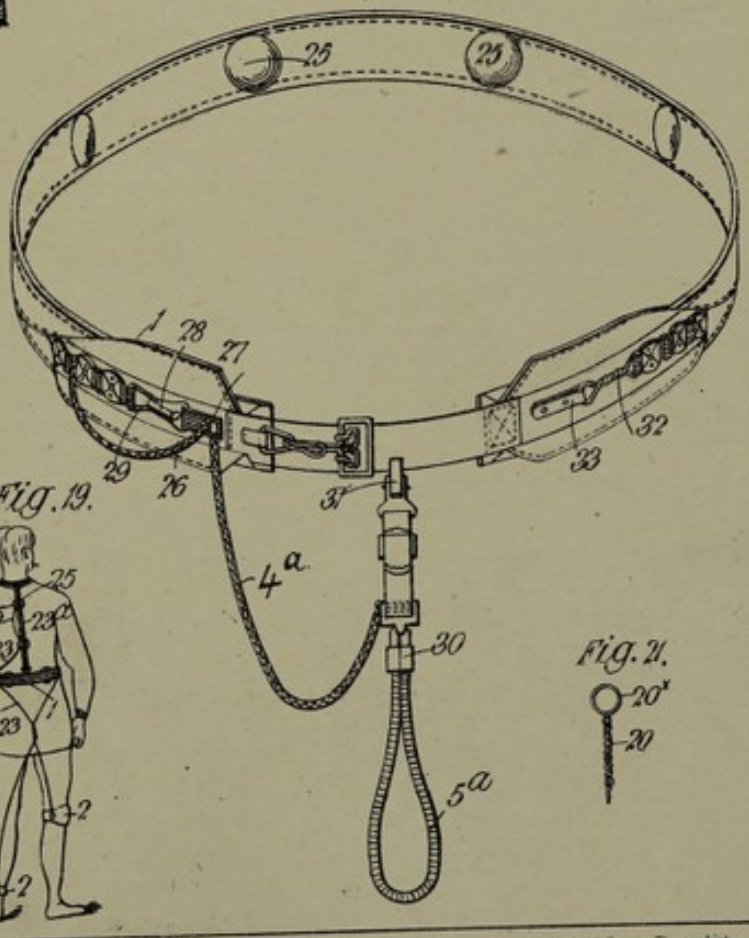

Fig. 14.

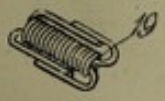

Fig. 15.

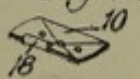

Fig. 16.

Fig. 18.

Fig. 19.

Fig. 20.

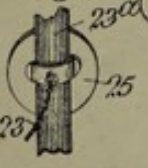

Fig. 21.

[This Drawing is a reproduction of the Original on a reduced scale.]

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