(No Model.) 2 Sheets—Sheet 1.

A. B. HOLSON.

ELECTRIC DEVICE FOR HARNESS.

No. 452,571. Patented May 19, 1891.

Fig. 1.

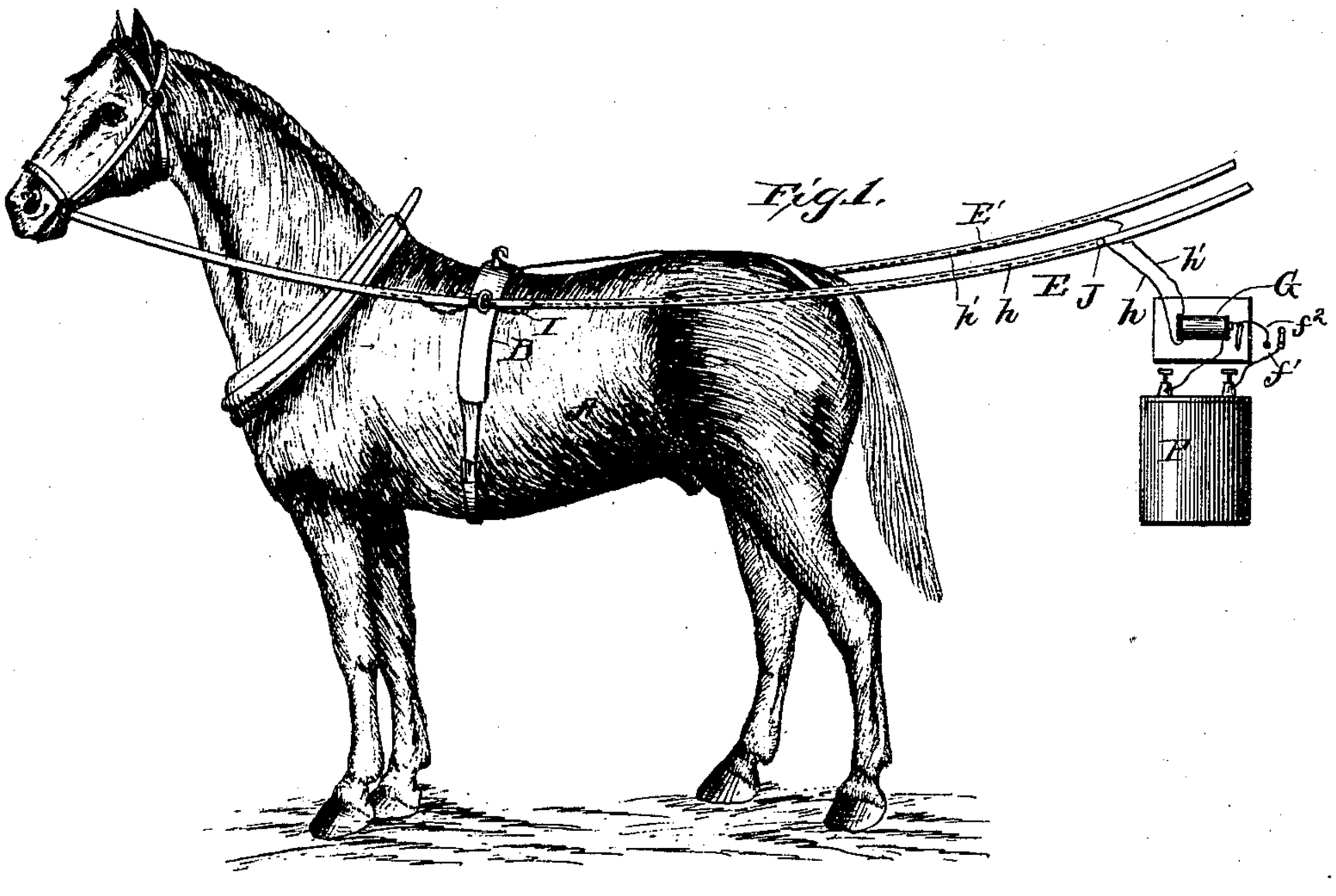


Fig. 2.

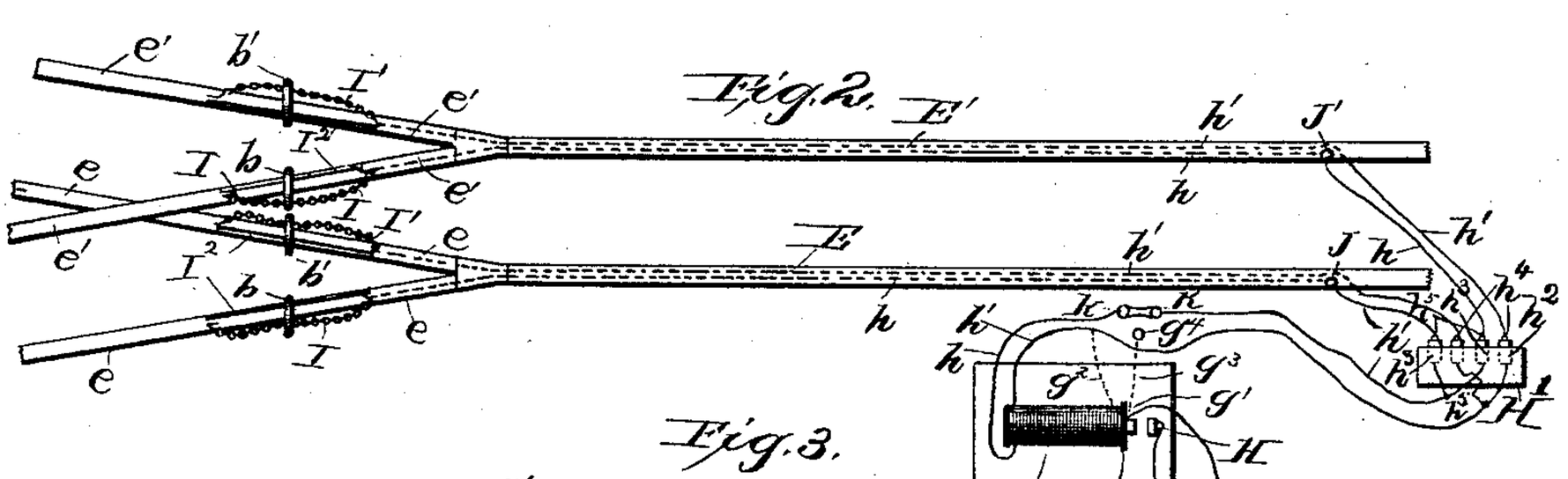
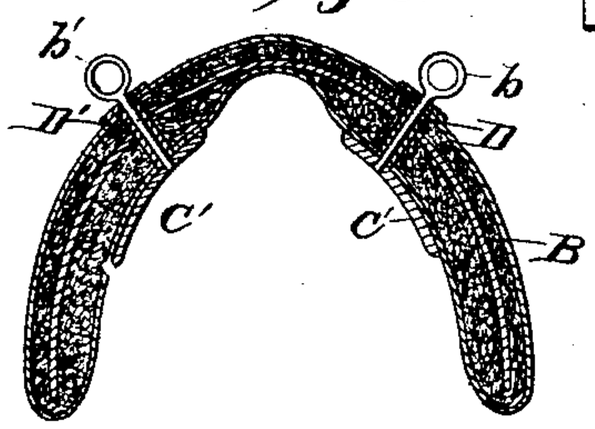


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 4.

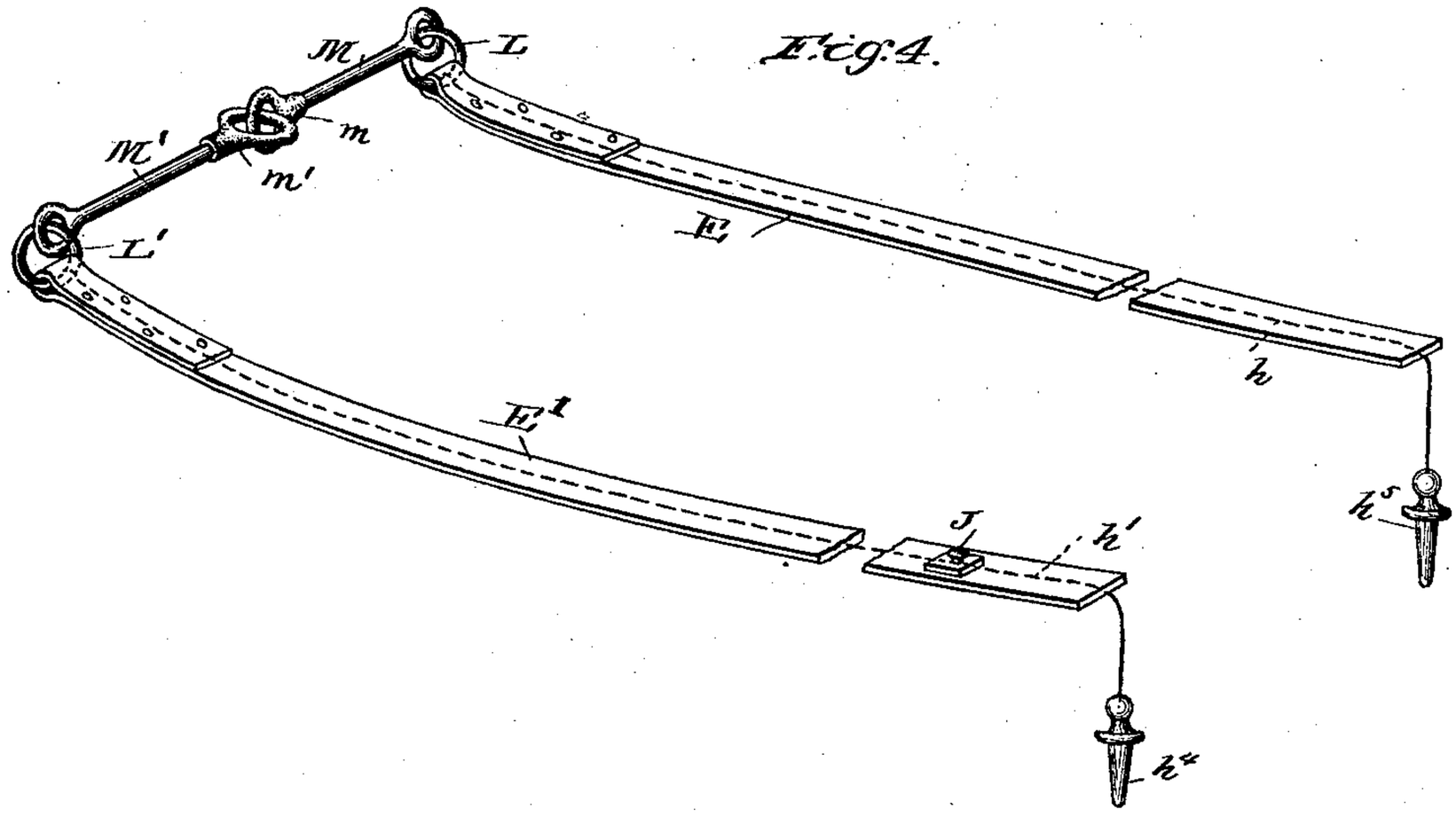
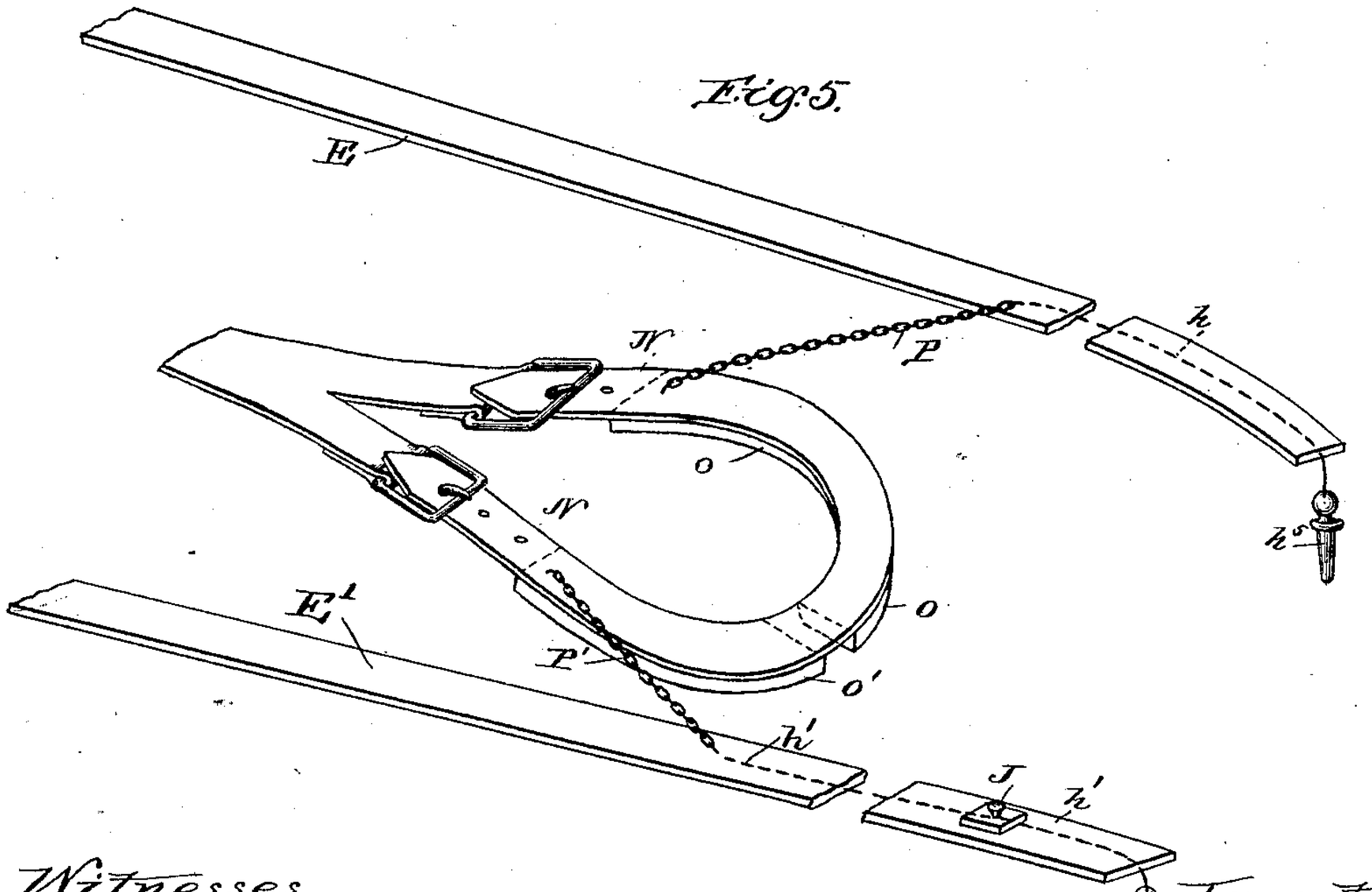


Fig. 5.



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UNITED STATES PATENT OFFICE.

ALBERT B. HOLSON, OF CHICAGO, ILLINOIS, ASSIGNOR OF THIRTY-SEVEN FIFTIETHS TO ROBERT J. ZORGE AND S. WHIPPLE GEHR, BOTH OF SAME PLACE.

ELECTRIC DEVICE FOR HARNESS.

SPECIFICATION forming part of Letters Patent No. 452,571, dated May 19, 1891.

Application filed October 6, 1890. Serial No. 367,202. (No model.)

To all whom it may concern:

Be it known that I, ALBERT B. HOLSON, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Electrical Devices for Harness, of which the following is a specification.

My invention relates to electrical devices adapted to be combined with an ordinary one or two horse harness; and the object of my invention is to obtain a device whereby an electric shock may be given to the horse carrying the harness to which the device is attached whenever the driver desires, thereby securing an electric spur or whip well adapted to perform the functions of the spur or whip heretofore used, and also securing a device wherewith the attention of a balking horse may be diverted and the horse started.

By my device an electric shock varying in intensity with the power of the battery employed, and also varying in regard to whether a primary or secondary current is used to give the shock, can be given to either one or both of the horses forming a span or to a single horse by the driver upon and when such driver presses an ordinary electrical push-button contained either in the lines forming the reins, upon the seat by the side of the driver, or any other position within the vehicle to which the horse or horses are hitched.

I have illustrated my invention by the drawings accompanying and forming a part of this specification, in which—

Figure 1 is an elevation of a horse wearing a harness to which my device is attached; Fig. 2, a diagram of driving-reins of a double harness with my invention attached thereto; and Fig. 3, an end elevation of a harness-saddle having my device secured thereon; Fig. 4, a perspective view of the bit and reins of a bridle, the two parts of the bit being electrically disconnected, with my invention attached to the rings thereof; and Fig. 5, a crupper having metal plates thereunder and chains extending from such metal plates to electric conducting wires in the reins with a push-button interposed on one of such wires.

Like letters refer to the same part through the several views thereof.

A is a horse; B, a saddle to the harness; *b b'*, terrets on the saddle; C C', metal plates secured to the under side of the saddle so as to come in contact with the horse when the saddle is placed upon it; D D', rubber tubes extending around the body of terrets *b b'*, thereby insulating the terrets from the metal plates often found in harness-saddles and placed there as stiffening. Plates C C' are electrically connected with terrets *b b'*, respectively.

E E' are the reins of the harness, and *e e' e e'*, Fig. 2, the lines in a two-horse harness extending from the reins to the bits.

F is a battery, and *f f'* wires extending from the battery to and through the coil G, thereby forming the primary coil of coil G.

H is the vibrating armature, ordinarily employed in obtaining an intermittent current, placed in front of coil G.

h h' are the wires forming the secondary coil of coil G. Wires *h h'* extend from the coil G to chains I I', which chains pass through the terrets *b b'*, lying loosely therein, but electrically connected therewith or to strips of metal I^2 I^2, which are secured to the edges of the reins E E'. In one of the wires *h h'* (in the illustration I have chosen wire *h'*) a push-button is interposed between the coil G and the plates C C', so that the circuit which would otherwise be formed from the coil to the plates, or one of them, through that part of the animal's body between the plates, through the other plate, and back to the coil is broken except when the push-button is actuated by pressing upon it. Metal strip I^2 and chains I I' serve the same purpose and may be used interchangeably, and hereinafter I refer only to chains I I'. The wires forming the primary coil of coil G are electrically connected with wires *h h'*, as illustrated by the dotted lines in Fig. 2, and having a switch interposed, (lettered K.) When switch K is open, the primary current cannot extend over wires *h h'* under any circumstances; but when the switch is turned so that the end *k* thereof is in electrical contact with the end g^4 of one of the wires *f f'* a primary current will ex-

tend over wires *h h'* whenever push-buttons J J' are actuated. When the switch K is in the position illustrated in Fig. 2, a secondary current extends over the wires *h h'* upon the actuating of the push-buttons J J', respectively. As hereinbefore stated, the wires *h h'* extending along each rein and sewed therein, and one of the wires having a push-button interposed at some point between the coil G and chains I I' or plates I^2, a shock can be administered to either or both of the horses of a span.

When the device is attached to the reins of a single harness, the wire *h* extends along one of the reins and the wire *h'* extends along the other, and the push-button J is interposed on either wire.

In Fig. 2 is shown a plug switch-board, which in practice I use to allow the reins to be taken from the vehicle in the ordinary manner. II' is the switch-board, having sockets h^2 h^3 and plugs h^4 h^5 fitting therein. The wires *h h'* are cut, and one of the cut ends is electrically secured to plugs h^4 h^5 and the other to sockets h^2 h^3, respectively. When the plugs are inserted, the circuit is established in the manner described by pushing the button J or J', while if the horses are detached from the vehicle and driven away from it without attention to the device secured to the reins the plugs will pull out of the sockets and no injury will be done to the device.

It will be observed that, the plugs being secured, respectively, to wires *h h'*, these plugs may be inserted in either of the sockets h^2 h^3, care being required to have one of such plugs inserted in the socket electrically connected with the positive pole of the battery or induction-coil and the other to the negative pole thereof.

The battery, induction-coil, and plug switch-board are all contained within the vehicle, but the particular position which such parts or any of them occupy is of no consequence, and I have therefore not illustrated the vehicle, simply showing the essential parts of my device.

It will be understood that if the chains are connected electrically with the rings on each side of the bits, and such bits are made of some non-conducting material, or if the two halves of the bit being made of conducting material are insulated from each other at their point of junction, the shock will be administered in precisely the same manner as hereinbefore described, but about the mouth of the animal. Ordinarily I consider this objectionable and do not usually so construct my device. In Fig. 4 this modification of my invention is illustrated, *h h'* being the wires in the reins, L L' the rings of the bit, with which rings the wires *h h'* are respectively in electrical contact, M M' the two parts of the bit and *m m'* a rubber covering extending over the end of the parts M M' where such parts are joined, thereby electrically disconnecting these parts.

The chains I I', I prefer to make of brass, bronze, or other ornamental metal, and such chains are made of sufficient length so that whether reins E E' are allowed to lie loosely upon the horse's back or are drawn taut a portion of such chains will be contained in the terrets *b b'*, respectively, and in electrical contact therewith. I have found by practice that the metal plates C C', in combination with the saddle B, will cause sufficient moisture in the hair of the horse so that electrical connection is established from plate C to plate C' through the animal.

The operation of my invention when attached to the reins of a single harness and arranged in connection with the coil G, so that a secondary current alone is employed, as illustrated in Fig. 1, is: Battery F is charged and a circuit thereby established from one of the poles of the battery over wire *f* through the primary wire of coil G and back over the wire *f'* to the other pole of the battery. A switch f^2 may of course be interposed between the battery F and coil G, but this switch is always closed when the device is in use. The wire *h'* extends from coil G to the chain extending through one of the terrets of the harness, and wire *h* extends to push-button J, and from thence to the chain passing through the other terret of the harness. When the push-button J is closed, a continuous electrical circuit is formed along wire *h*, through push-button J, wire *h'*, chain I, terret *b* to the metal plate underneath the saddle. From thence the body of the animal forms the electrical conductor to the other metal plate C', which is electrically connected to terret *b'*, and from such terret *b'* the electrical current may and does extend to the chain passing through it to wire *h'* in rein *e'* and back to the coil G. When, as in Fig. 2, it is arranged so that the secondary current of electricity may extend along the wire *h h'* and through the push-buttons interposed therein (when such push-buttons are actuated) whenever the switch K is in the closed position lliustrated in Fig. 2, the same results are attained and in the same manner as in the arraugement illustrated in Fig. 1 and last described. When, however, with the device illustrated in Fig. 2 it is desired to administer a shock by the primary current, the end *k* of switch K is brought into electrical contact with button g^4. Upon pushing the button J the circuit is closed and a shock will be administered to the animal upon which is placed the saddle, through the terrets of which are passed the chains I I, and upon actuating button J' the circuit is closed and a shock will be administered to the animal upon which is placed the saddle, through the turrets of which are passed the chains I' I'. It will be observed that one of the wires *f f'* may be a continuous wire through the coil G,

and the other wire may extend from the battery to the vibrating armature H and from thence through the coil G, both of such wires extending from the coil G through the reins to the chains passing through the terrets, with a push-button interposed between the battery and the chains. This construction is illustrated in Fig. 2 by the battery F, wires *f f'*, coil G, switch K, wires *h h'*, chains I I', and push-buttons J J'. A primary coil is thereby formed. The chains I I' are interposed between the wires *h h'* and the terrets *b b'* for appearance, and, if preferred, the wires *h h'* may extend from the reins E E' to the terrets, sufficient "slack" being given to the wires to allow the reins to lie loosely upon the horse's back or to be drawn taut; but in such case, in everything except ornamental appearance, the portion of the wires from the reins to the terrets will be the equivalent of the chains I I'.

I have embodied my invention in a device wherein the metal plates are secured to the crupper of the harness, with chains extending from the plates to the wires *h h'* in the reins, and also with the wires from the plates extending directly into the vehicle without extending to the reins, but having a push-button interposed between the plates and the induction-coil on one of the wires. Where the wires are allowed to extend directly into the vehicle the appearance of double reins, which I deem unsightly and undesirable, is produced, and I do not therefore employ this construction. Furthermore, I do not deem it advisable to place the plates in the crupper of the harness, for the reason that I have found by practice that there is a liability and a tendency to produce kicking in the animal, which liability, combined with the rapidity of action engendered by the administration of the herein-described electric shock, tends to produce unpleasant not to say disastrous results.

In Fig. 5 I have illustrated a crupper having a metal plate thereunder and chains electrically connected thereto and extending therefrom to the wires *h h'* in the reins. In this figure, N is the crupper, O O' metal plates secured to the crupper so as to come in electrical contact with an animal carrying such crupper, but not with each other, and P P' the chains extending from plates O O', respectively, to wires *h h'*. I have placed these plates in the breast-plate and in the collar of the harness; but I find that when so placed the animal shrinks back from the collar or breast-plate, particularly when the shock is being administered, at which time it is especially desirable that he move forward, and for such reason I prefer not to embody my invention in such construction. This form of construction in which the plates are put in the breast-plate or collar of the harness is especially to be avoided where the harness is to be applied to a balky horse, for which the device is particularly applicable and efficacious, forming an electric spur of easy application by the driver and to which the animal is readily responsive.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. In an electrical device for harness, the combination of a battery, an induction-coil, sockets, wires extending from the induction-coil thereto, plugs fitting the sockets, plates secured in the harness and resting upon the animal carrying the harness, wires extending from the plugs to such plates, and a push-button interposed in one of the wires between the battery and the plates, whereby upon actuating the push-button an electrical circuit is formed, the body of the animal upon which the harness is placed forming a part of such circuit, and an electrical shock thereby given the animal, substantially as described.

2. In an electrical device for harness, the combination of a battery, an induction-coil, terrets in the saddle of the harness, chains passing through such terrets and in electrical contact therewith, plates electrically connected to the terrets and insulated from each other and such plates resting upon the animal carrying the harness, wires extending from the induction-coil to and in electrical contact with the chains passing through the terrets thereof, and a push-button interposed in one of such wires between the battery and the chain, whereby upon actuating the push-button an electrical circuit is formed, the body of the animal upon which the harness is placed forming a part of such circuit, substantially as described.

3. In an electrical device for harness, the combination of a battery, an induction-coil, wires extending from the battery to the induction-coil, a switch inserted in one of such wires, chains passing through the terrets of the harness-saddle, wires extending from the induction-coil along the reins of the harness to such chains and electrically connected thereto, plates electrically connected to the terrets, one to each terret, and a push-button interposed on one of such wires between the battery and the chain, whereby upon actuating the push-button an electric circuit is formed, the body of the animal upon which the saddle of the harness is placed forming a part of such circuit, and an electrical shock is thereby given the animal, substantially as described.

4. In an electrical device for harness, the combination of chains passing through the terrets of the saddle of the harness and in electrical contact with such terrets, a battery, an induction-coil, wires, one of which extends from the battery to the induction-coil, and the other of which extends from the battery to a vibrating armature, and from thence to and through the induction-coil, both of such wires extending from the induction-coil through the reins of the harness and electri-

cally connected to the chains passing through the terrets of the saddle of the harness, plates electrically connected one to each terret, and a push-button interposed on one of such wires between the battery and the chains, whereby upon the actuating of the push-button an electric circuit is formed, the body of the animal upon which the saddle of the harness is placed forming a part of such circuit, and an electrical shock is thereby given such animal, substantially as described.

ALBERT B. HOLSON.

In presence of—
FLORA L. BROWN,
ALFRED B. WESTRUP.