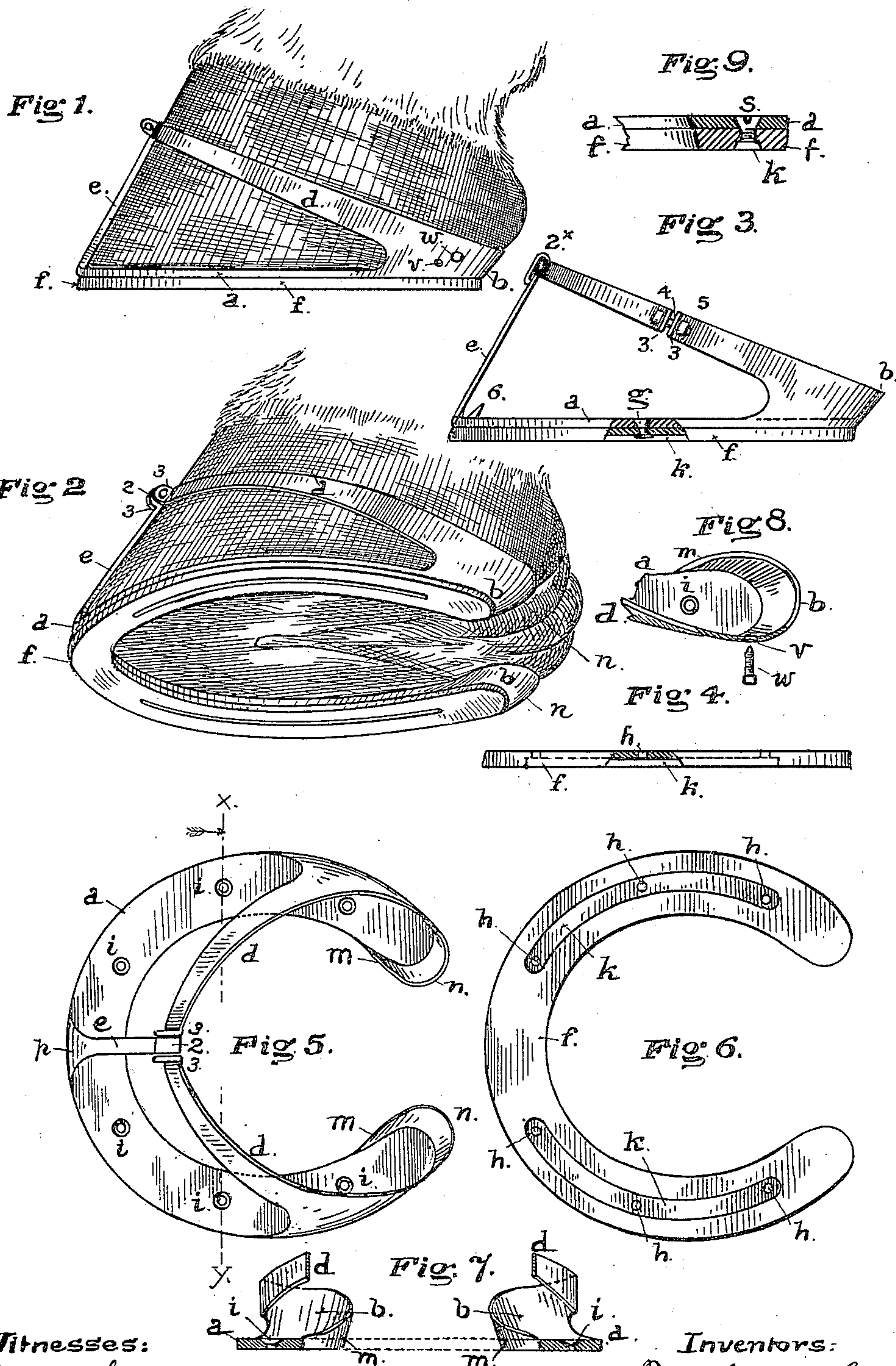


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NAILLESS HORSESHOE.

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NAILLESS HORSESHOE.

No. 817,638.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROBERT HAMILTON GIBB, of London, England, and JOHN D. W. ELLIOTT, of Wanganui, New Zealand, subjects of the King of Great Britain, have invented new and useful Improvements in Nailless Horseshoes, of which the following is a specification.

The invention relates to devices for securing shoes to the feet of horses and other shoe-wearing quadrupeds without driving nails and similar fastenings into the hoof; and the invention comprises a sole-plate having fastening devices formed integrally with it, which are adapted to embrace the hoof at several points, combined with a shoe or wearing-plate detachably secured to the sole-plate, and other novel points and features of construction, all as hereinafter described, and pointed out in the claims at the end of this specification.

In the following description of the said invention reference is had to the accompanying drawings, in which—

Figure 1 is a view of a horse's foot, showing a shoe and fastening device embodying our invention secured thereon. Fig. 2 is a perspective view of the under side of the foot and shoe represented in Fig. 1. Fig. 3 is a side view of the sole-plate and fastenings, showing the shoe or wearing-plate secured in place. Fig. 4 is a side view of the detachable shoe or wearing-plate before it is secured in place. Figs. 5 and 6 are top views, respectively, of Figs. 3 and 4. Fig. 7 is a cross-section through Fig. 5 on the line $x y$. Fig. 8 is a detail, on an enlarged scale, of the screw-peg on the side of the heel-cup. Fig. 9 is a cross-section through the sole-plate and shoe, showing a screw-fastening.

The several parts of the device are designated in this description as the sole-plate a , the heel-cups $b b$, the heel-bands $d d$, and the toe-strap e . The part fastened to the bottom of the sole-plate and indicated at f is the wearing-plate or that part of the shoe which comes in contact with the ground.

In carrying out and producing the invention the sole-plate, the heel-bands, and the toe-strap are formed integrally or without joints, the peculiar shape and arrangement of the several parts permitting them to be struck up or otherwise formed in one piece with the sole-plate. The last-named mem-

ber of the device is made of the usual horse-shoe shape, with open center, flat bottom face, and a top face beveled on the inner edge.

At intervals apart holes i , countersunk for the heads of rivets, are provided in the sole-plate, and rivets g , with round shanks, inserted in the holes and into holes h in the wearing-plate f , fix the latter part in place against the bottom of the sole-plate. The holes h , either cylindrical or preferably of slightly-tapering shape to receive the rivets, are located in a groove or channel k in the bottom face of the wearing-plate, in which the ends of the rivets are headed or upset to fasten the wearing-plate. This forms a simple, as well as an effective, means for securing the wearing-plate f to the sole-plate, and it is of advantage especially not only in holding the wearing-plate securely, even after it becomes worn down to a considerable extent, but also in enabling a person of ordinary experience in handling tools to put on or take off a wearing-plate without calling for a skilled workman to do the work. As often as the outer plate f becomes worn or requires to be removed it is readily detached from the sole-plate by chipping off the headed ends of the rivets in the groove k until the rivets are sufficiently reduced to draw readily out of the holes i in the wearing-plate. New studs or rivets are substituted for the old ones as they become too short for use.

It will be obvious that screws can be used in place of rivets by providing threaded holes in the shoe f , as seen at s , Fig. 9. The screws should have conical heads to fit the countersunk holes in the sole-plate.

The improvements relating to the sole-plate consist, first, in forming or providing on each heel or rear end a relatively deep socket or cup b , of proper size and shape to receive and fit closely over the angle of the heel and bars of the foot and as well on the inner and outer sides of the heel, as on the back. On the outer side the heel-cups extend upward and forward at an angle and continue each in a relatively narrow band d , having approximately the same degree of inclination with respect to the plane of the sole-plate and of proper curvature to fit the hoof. These bands are made of proper length to extend around the sides and over the toe or inclined front of the hoof and are formed or provided with fastening means for drawing them up

and securing them together. On its inner side the wall of the heel-cup is reduced gradually in height or is sloped, as shown at *m*, and the standing back of each heel-cup is inclined rearwardly at a greater or less angle, as shown at *n*, in order to conform to and fit closely over the sloping back of the heel. The effect of this form and construction of heel-cups and fastening means is to hold the sole-plate firmly in place against the bottom of the hoof and in opposition to all strains to which the sole-plate is exposed under action, and particularly those which have a tendency to move or shift the sole-plate in a forward direction upon the hoof. At the toe or front a spike 6 is firmly fixed in the top side of the sole-plate, as seen in Fig. 3. This spike becomes embedded in the bottom of the hoof as the sole-plate is drawn up to place, with the effect to overcome any tendency on the sole-plate to slip in a forward thrust of the foot. At the toe or front also the metal of the sole-plate is turned up and shaped to form a triangular toe-clip *p* and a relatively narrow toe-strip *e*. The last-named part extends upward to meet and connect with or be attached to the heel-bands above the toe, for which purpose the end of the strap is provided with an eye 2, as seen in Fig. 2, corresponding in size to the eyes 3 on the ends of the heel-bands, so as to take the same screw or bolt 4 that is used to draw the bands together around the hoof and fasten them in place, or the strap *e* is provided with a loop 2^x on the end to admit the heel-band, which is passed through the loop, as seen in Fig. 3, the bottom of the loop being left open for that purpose.

The eye 3 on one of the heel-bands is threaded, but the eye on the other heel-band is smooth or without a thread. The screw 4 then being inserted from that side and passed through the eye on the toe-strap, it is screwed into the threaded eye, thus drawing up the heel-bands tightly around the hoof and fastening them together. This fastening may be located at the front of the hoof, as shown in Fig. 1, or it may be arranged on the side of the hoof, as illustrated in Fig. 3, according to the special conditions controlling the application of the device to the horse's foot or the peculiarities of the horse's action when in motion—as, for example, in cases of overreaching, where the fastening on one shoe might be in danger of being struck by the shoe on the other foot on the same side. In such cases one heel-band is shortened and the other lengthened to a corresponding extent in order to bring the fastening-point on the side, as shown in Fig. 3, and in such modification the fastening is preferably placed on the outer side of the hoof. A lock of some kind, such as a check-nut, should be placed on the screw 4 to prevent it from working loose.

In practice it has been found that the heel-band *d* should extend forward from the back of the heel-cup at such an angle that the line on which it is situated will lie in a plane perpendicular, or approximately so, to the inclined front face of the hoof, and the length and the inclination of the heel-bands should be such that the fastening-point will lie about midway between the toe and the coronet of the hoof when the device is in place.

For additional security in holding the heel-cups to a close seat and preventing the sole-plate from working loose at the heel the screw-pegs *w* are sometimes inserted through the side of the heel-cup into the wall of the hoof in the outer side of the shoe, as seen in Figs. 1 and 2.

The pegs *w* are threaded for a portion of their length, and threaded holes *v* are provided in the outer wall of the heel-cup for inserting the peg when the same is used, usually several holes being arranged in staggered order for the purpose of enabling the stud to be inserted at a different point in the hoof each time of removing and replacing the device. These pegs are of advantage in cases of peculiar formation of the heel of the animal where the heel-cups will not fit closely over the heel when drawn to place.

Among other advantages incident to these improvements the bands and strap are made in one piece with the sole-plate, thereby eliminating all the joints and rivets or other fastening and securing a neat fit on the hoof and providing, besides, the requisite strength at those points most exposed to strains and wear.

The only joint in the whole device is at the junction of the heel-bands with each other and with the toe-strap, and at such points the tension or pulling strain of the bands comes in a direct line with the fastening-screw.

Wearing-plates of metal, rubber, papier-mâché, or composition are fixed to the hoof of a horse by means of this device with the advantage of being readily replaced when worn.

What we claim as our invention, and desire to secure by Letters Patent, is—

1. In a device for securing shoes to horses' feet, a sole-plate having heel-cups with standing inner and outer walls on the ends and heel-bands formed integrally with the heel-cups and extending forward at an angle from opposite sides over the front of the sole-plate, and a toe-strap on the sole-plate, means for securing the ends of the heel-bands together and the end of the toe-strap to the heel-bands.

2. In a device for securing shoes to horses' feet, a sole-plate having heel-cups on the ends with inner and outer standing walls, heel-bands extending from the sides of the heel-cups forward and upward at an angle to the sole-plate, each heel-band being an extension or prolongation of the standing wall of

the heel-cup on the outer side, a toe-strap extending upward from the sole-plate at the front, fastening means for drawing and securing together the ends of the heel-bands, and means for attaching the toe-strap to the heel-bands, in combination with a detachable wearing-plate on the bottom of the sole-plate.

3. A device for securing a shoe to a horse's foot, comprising a sole-plate having heel-cups with standing walls formed integrally with the sole-plate, heel-bands integral with the outer side walls of the heel-cups, a toe-strap on the toe of the sole-plate, studs on the sole-plate for detachably securing a wearing-plate to the sole-plate, and means for fastening together the ends of the heel-bands and the toe-strap.

4. A sole-plate conforming in shape generally to the bottom of a horse's hoof, having heel-cups with standing walls formed integrally with the sole-plate and provided with heel-bands integral with the outer walls of the heel-cups, screw-pegs in the sides of the heel-cups adapted to enter the hoof, a toe-strap on the front of the sole-plate integral therewith, and fastening devices for drawing and securing together the ends of the heel-bands and the toe-strap.

5. A sole-plate conforming in shape gener-

ally to the bottom of a horse's hoof having heel-cups with standing walls at the back and on the sides of the heel of the sole-plate, heel-bands formed by a prolongation of the outer side walls of the heel-cups, pegs in the outer sides of the heel-cups adapted to enter the hoof, fastening devices for drawing together and securing the ends of the heel-bands and means at the front connecting the heel-bands to the toe of the sole-plate.

6. In a device for securing a shoe to a horse's foot, the combination with a shoe, of a sole-plate having means for detachably fastening the shoe to the said plate, heel-bands integral with the sole-plate and extending from the heel of said plate at an angle upward and forward, heel-cups at the junction of said heel-bands with the sole-plate having inclined back walls and fastening means for securing the heel-bands together over the hoof.

In testimony whereof we have hereunto set our names to this specification in the presence of two subscribing witnesses.

ROBERT HAMILTON GIBB.
JOHN D. W. ELLIOTT.

Witnesses:

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