



Description of a new horse-shoe, removable at pleasure

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Fig 2.

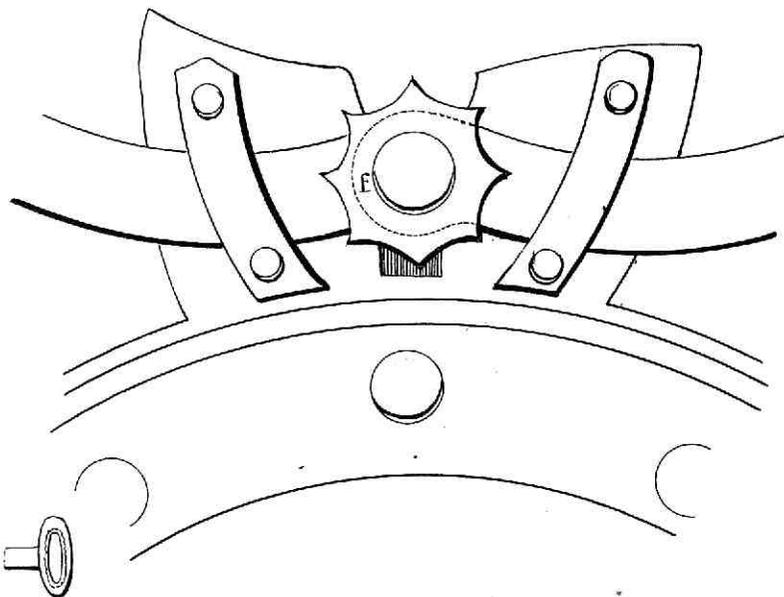


Fig 4.

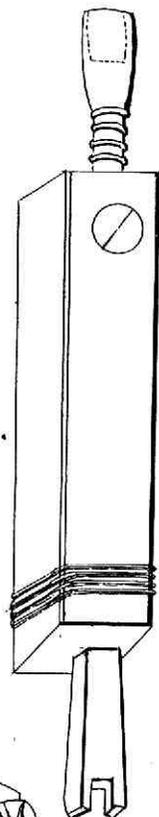


Fig 3.

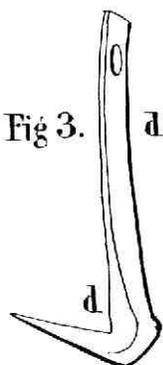
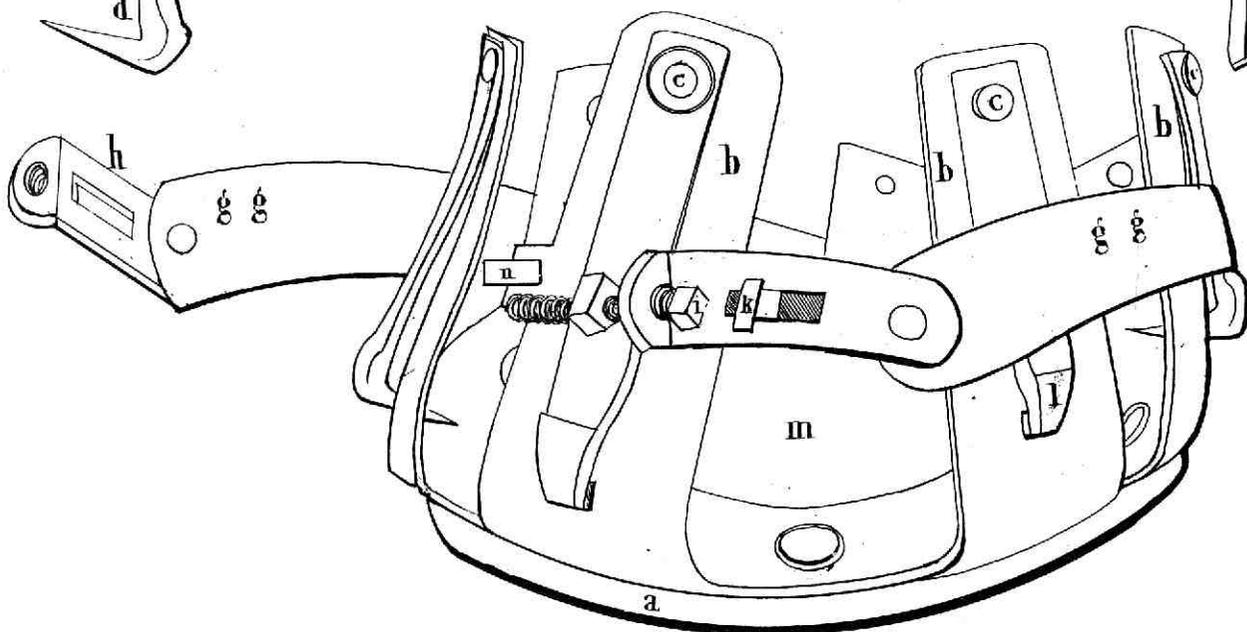


Fig 1.



CLARK'S REMOVABLE SHOE.

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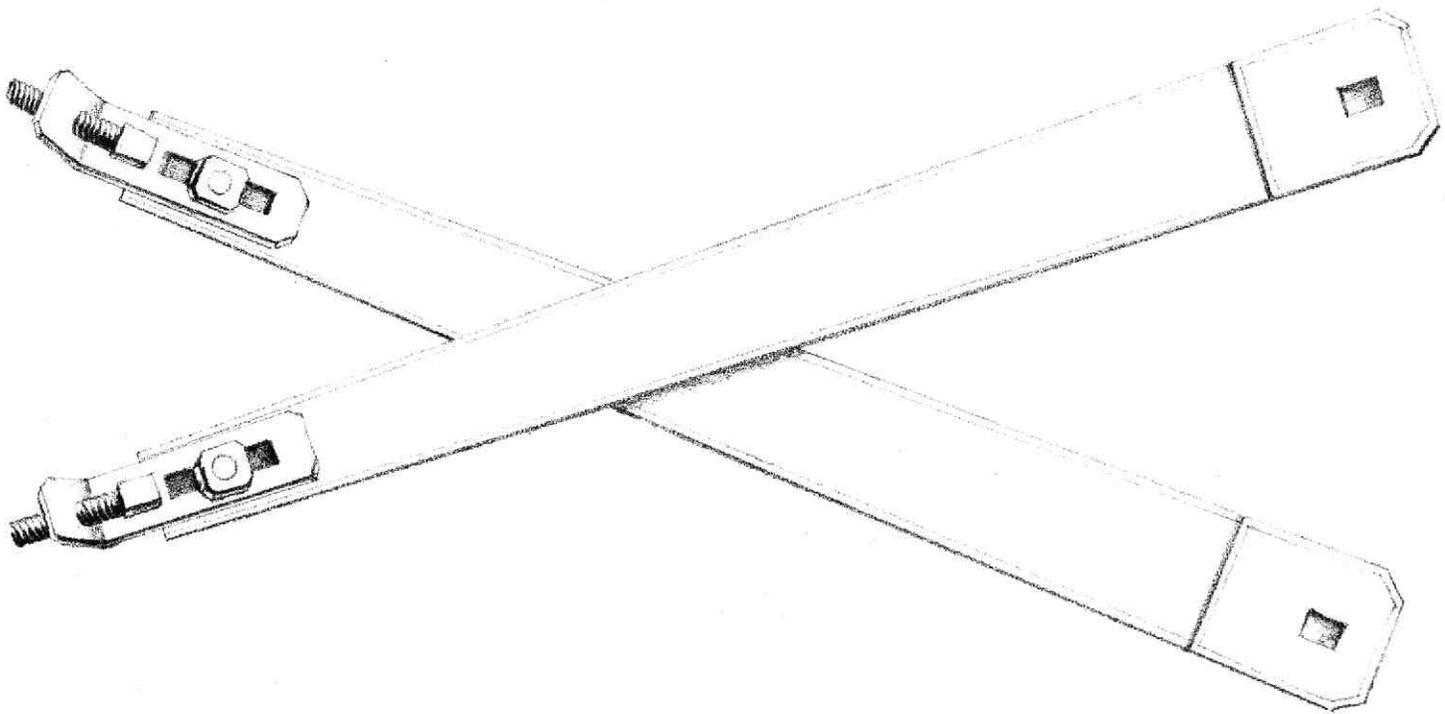
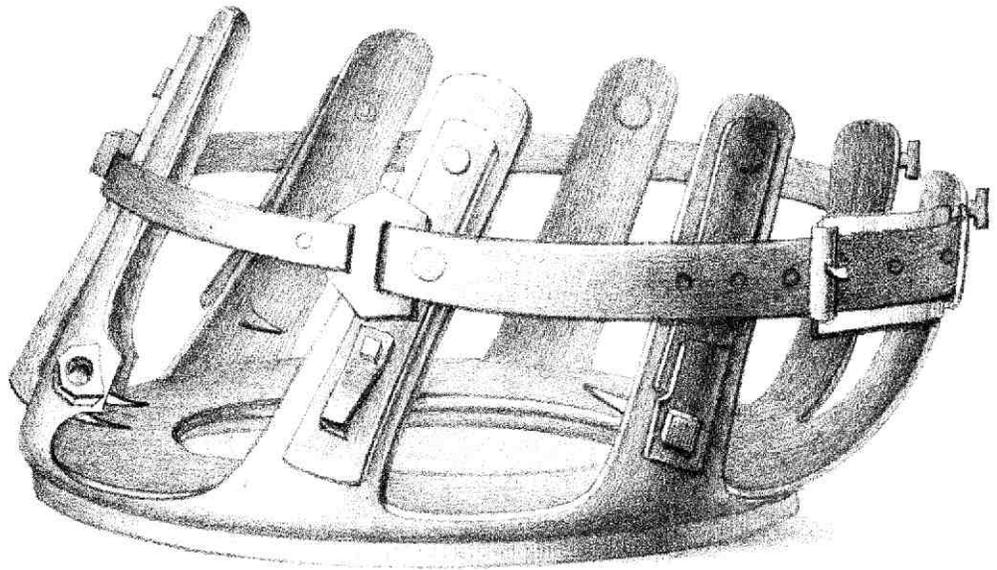
DESCRIPTION
OF
A NEW HORSE-SHOE,
REMOVABLE AT PLEASURE.

INVENTED BY
BRACY CLARK, F.L.S.,
AND FOREIGN MEMBER OF THE FRENCH INSTITUTE, &c.

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THERE is no branch or department of Natural History half so important to mankind as is the knowledge of the Horse, and what respects the obtaining from him, without injury to him, the largest possible share of his invaluable labours. Forcibly struck with the destructively deleterious consequences of the common practice of shoeing, as well by its gross abuses as by its principle, I was early led to imagine that it would be practicable to apply a defence to the foot by other means than a perpetual nailed shoe, working evil to this highly-elastic organ day and night, week by week, month by month, and year by year, without intermission, by its rigid embrace. After expending many years of labour and expense upon this desirable object, the following is a brief description of the result of these labours,—after wading through many a crooked lane or by-way that had no outlet of profit or utility.

The first idea or objection that occurs is, that any more delicate shoe would be too expensive and soon worn out; but this difficulty was quickly removed by placing a shoe beneath this fitted shoe, to receive all the wear of the roads,—for we could not hope for its general adoption unless great economy attended it. This wearing shoe is seen at fig. 1 *a, a*. On this ring is placed the fitted shoe, which is exactly embracing the hoof, and circumscribing it by its clips *b, b, b*.



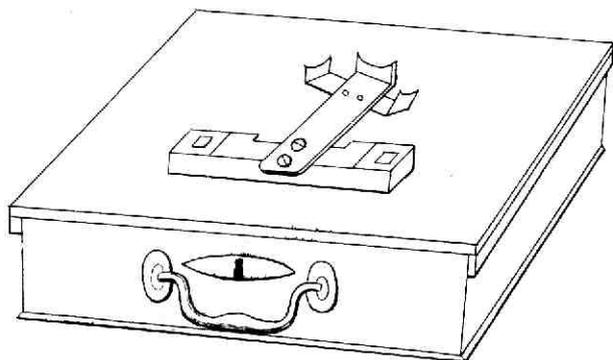
Openings or slits in the above clips are receiving-fangs or spikes of tempered steel, bent at right angles and well sharpened, and are by the stroke of a small hammer driven into the substance of the hoof pretty deep, but not so as to endanger at all the wounding of the quick, the hoof being of considerable thickness and solidity at this lower part,—diminishing their length, however, as we proceed backwards, where the hoof is more elastic and slender. The shafts carrying these fangs at their summits or upper parts, as seen at *c, c, c*, are perforated, and a rivet passed through them lashes them to the clips, and on which rivet they will rotate when disengaged from their slits; and these rivets may be ornamented or made plain, as shall be preferred by the taste of the artist. The front clip is made a little wider and stronger than the others, in order to resist any pitches of the hoof against the ground, of the toe or pince, and the middle part of this front clip has on each side a square projecting piece of the metal issuing from it. This contrivance is extending the space in this part for affording abundant room for the operation of the screw,—a difficulty that at one time gave us very serious embarrassment.

The clips embrace the hoof but loosely; but by the means of a broad *band of sheet steel*, (*g, g,*) and aided by the screw (*i*), any degree of tightness and pressure is given that is thought necessary.

The two posterior ends of this steel band are enlarged and rounded for strength, and are made to lap or cover each other, and are then covered over and defended by a larger round piece of steel, which we may call *the shield*, ornamented, if thought agreeable, by having the blue colour given it of tempered steel. All three are then perforated through the centre, and riveted firmly together.

In order to the closing of this band effectually, an oblong stiff piece of brass or iron is attached to the front extremity of it, much thickened and bent at a right angle (*h*), and having an extensive slit in its middle; it is perforated largely for receiving the screw (*i*); a nipple or cross rivet at *k* passing through this slit, its shank guides the advance of the screw. This piece of iron has been called by some workmen *a slot*, a term I don't very well understand the meaning of, but suppose it may have some reference or relation to the slit in it. The cross head of the turn-buckle, or rivet, closes the band to the hoof, previous to the screw being used.

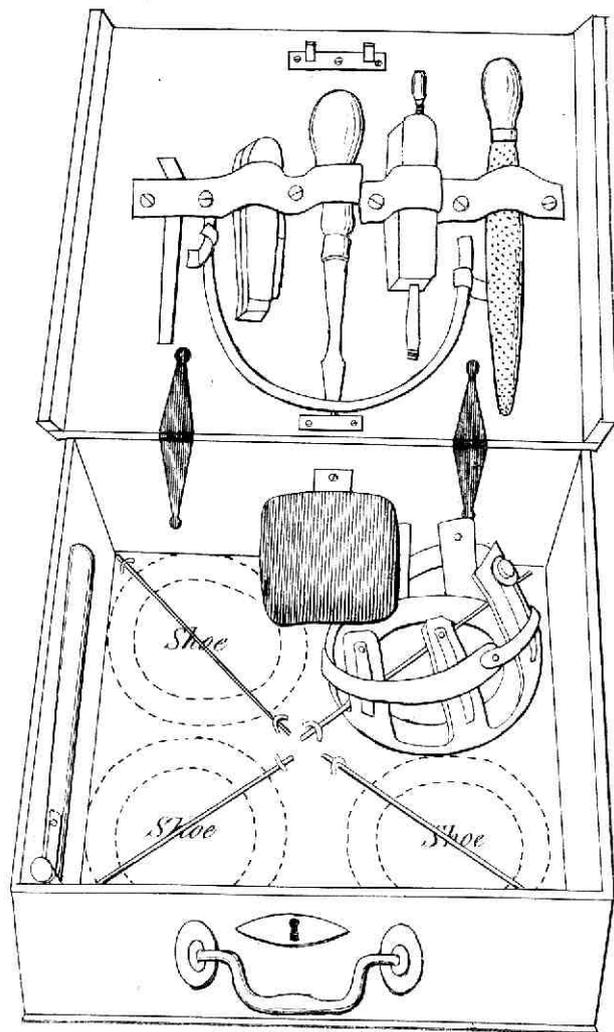
The steel band embracing them is operating on both clips and fangs at the same time,—an improvement which afforded me much pleasure, as in the early attempts at forming this shoe two bands were deemed necessary, and every clip had its separate turn-buckle.



## A BOX

*Provided with four Shoes, and  
also the Tools used in putting them  
on and off, described in the work.*

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As the two sides of the foot differ materially, it is well to determine beforehand which foot, whether the off or near, is designed, as an inattention to this circumstance often created perplexity in my early attempts. I mark in commencing with an "o" or an "n," the summit of the front clip, as indicating the off or the near foot.

It is well to keep the rough side of the plate uppermost before turning up the clips, as being more out of sight.

It is best, we have thought, to rivet on the wearing-shoe before we turn up the clips; seven rivets are sufficient, the seventh falling in the space between the two posterior clips. In order to secure a good fit, there should be a separate mould for the off and near foot. The slits, also, for the entrance of the fangs, or spikes, are best made before the clips are turned up, at any rate for the front ones. The clips having been all turned, we place the shoe, reversed, on a shaft stuck in the anvil, and so conveniently cut out the inner circle (*m*) to the extent desired. In order to turn up the clips, and adapt them nicely to the figure of the mould, we use a wooden hammer, not to bruise and disfigure the metal.

The front clip, having no pressure from the steel band, is held down by the contact of the screw, or, if that be too high, by a brass cube running upon it, having various thicknesses of its sides, adapting it to give the requisite pressure.

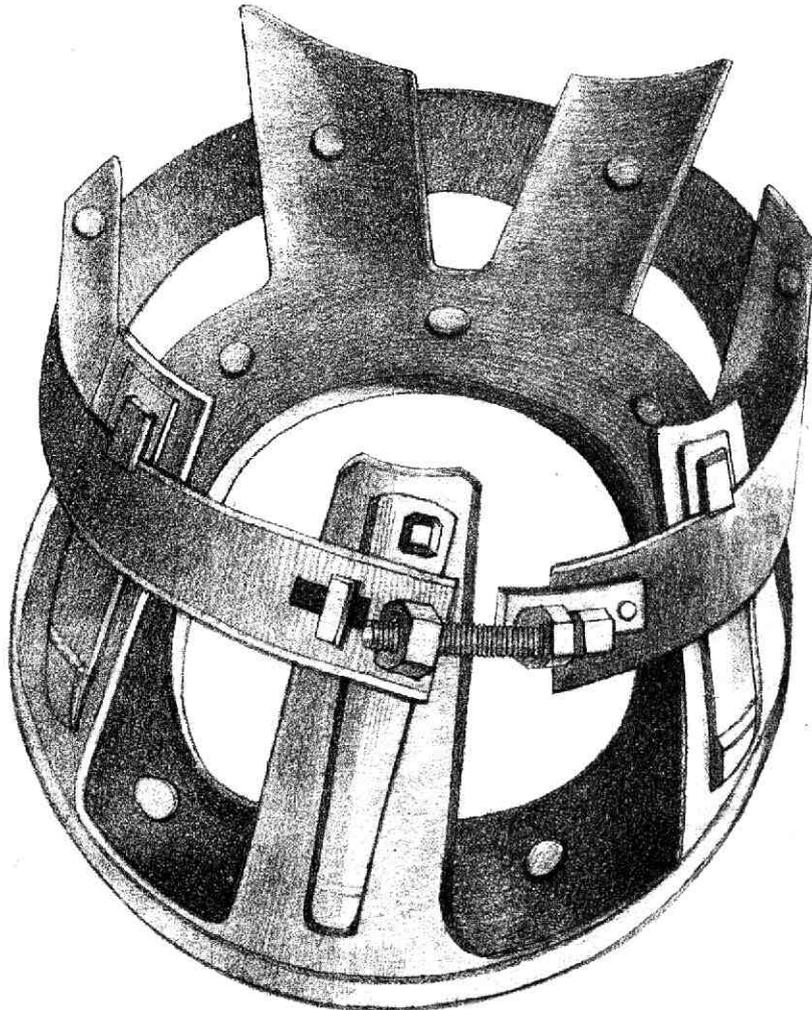
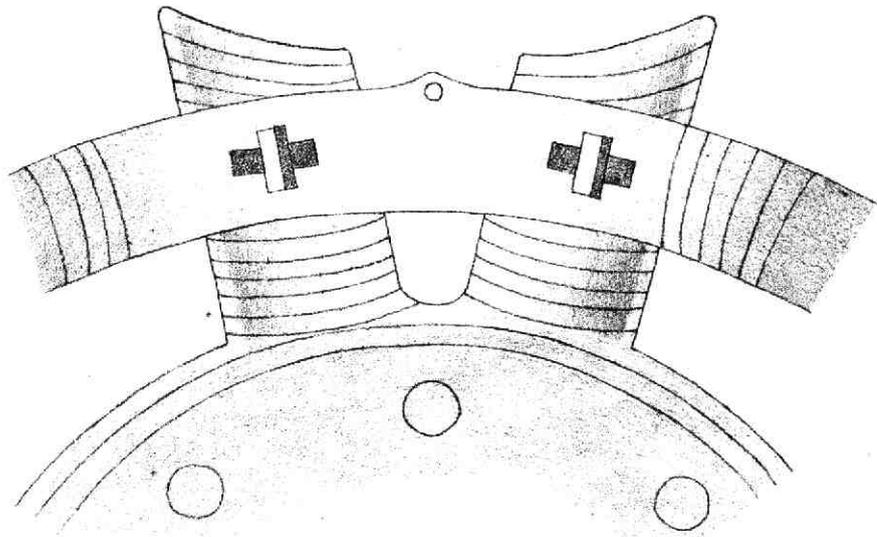
In the cutting out of the shoe, also, besides a chisel I found a small steel gauge useful in previously impressing the sharp angles pretty deeply, that the metal might not be subject to rend at these places.

The usual figure of a fang, or spike, with its shaft, is given at fig. 3 *d, d*, and also the rivet, which is a little convexed inside the head, for relieving its shaft when raised in taking off the shoe.

*To make the Fitted Shoe.*—The very best charcoal plate iron is to be used. We take measure of the foot across its middle and widest part, assuming the half of this measure for our radius in describing the circle; for, although the foot be not in reality a true circle, this measure is found near enough for our purpose at present; at a future time, when perhaps a regular manufactory may be instituted for the construction, a greater exactness may be demanded.

To fit the foot with tolerable exactness, we obtain a mould of it in cast iron, by making a plaster cast, dividing the plaster a moment before it sets by a knife into two halves; we then place within these a cylindrical piece of wood, say about two inches diameter, greased or lapped with paper; then filling in

Screw - band removeable Shoe, inv. by BC. 1852.



the hollow space with fresh plaster, we thus obtain a direct figure of the hoof, from which we make a cast in iron, having a large perforation.

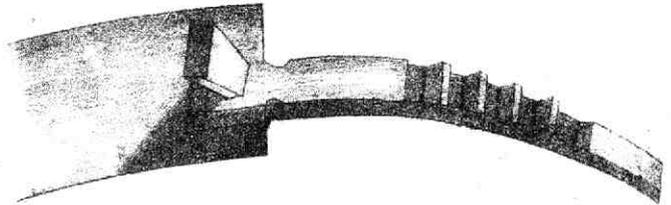
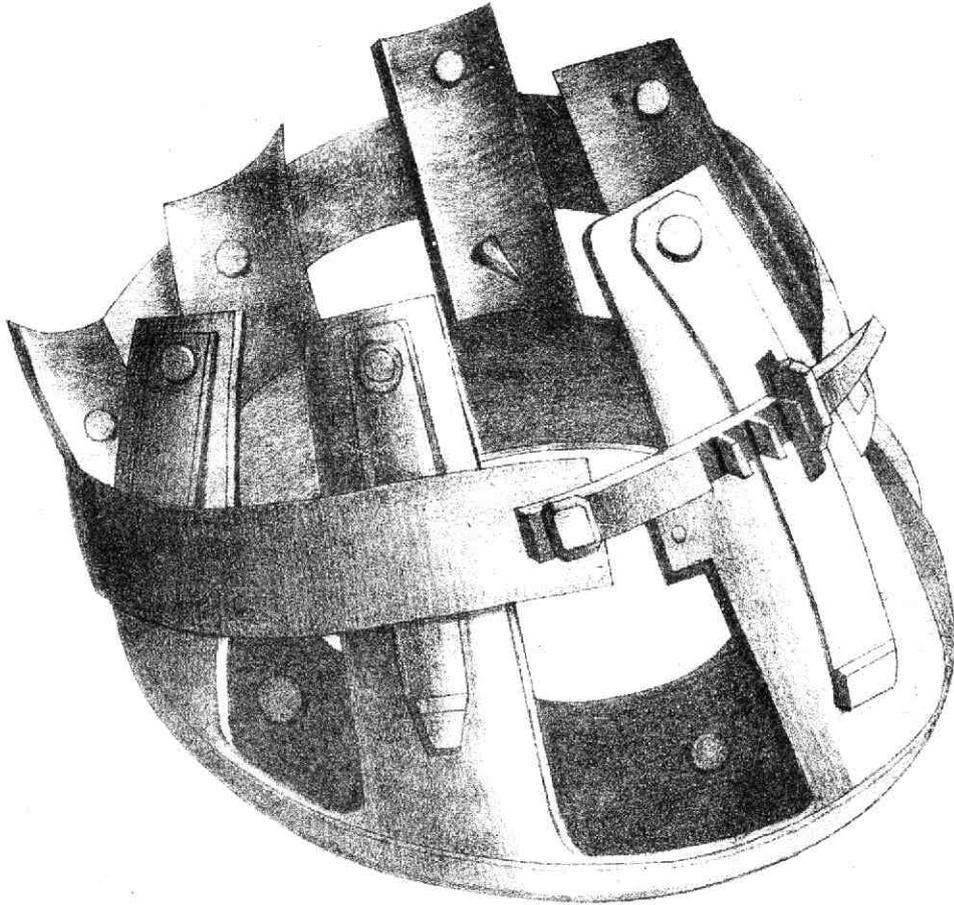
The iron plate being cut out after a paper pattern, is then fixed to a solid flat ring of iron, viz., *the wearing shoe*, which is taking the ground, being punched through with seven holes, is now fixed on the plate by seven strong rivets, the seventh, as we have stated, falling in the space between the two posterior clips.

Fastening then the iron mould representing the foot by a shaft passing through its perforation, by means of a wedge or a clamp, very firmly, we proceed to turn up the clips about the mould, making them closely to embrace it; afterwards loosening it, we suspend it by a link or hook to the bick (beak?) of the anvil, and, by introducing chisels or wedges between the mould and the shoe, loosen them, till the mould thus inverted falls out to the ground, without distending unnecessarily the clips. To give, however, the requisite concavity to the clips, we ought first to have stated that we place them one after another in a channeled or grooved piece of iron, called by the smiths *a swedge*, and, with a round-faced hammer, give them the requisite longitudinal concavity, and rather greater than that of the hoof, as they are again dilated in hammering them upon the iron mould.

The figure of one of these fangs or spikes is seen at fig 3, being bent at something more than a right angle, and well sharpened and tempered to the spring temper, and is finally fitted on to the clip by a rivet, which may be made of either brass or iron, and ornamented to the taste of the artificer, especially the front one.

*The Steel Band* is formed of two pieces of plate steel, the extremities of which are enlarged and rounded, for better security; lapping over each other, they are covered over by a thicker piece of steel, which I call *the shield*, and all three, perforated through the centre, are strongly lashed together by an ornamental rivet, (*f*.) blued to the spring temper, or such may be of brass, as may suit the taste of the workman. Two straps held by rivets confine these ends of the band as seen at fig. 3. The other or front extremities of the band have attached to them two strong pieces of iron or brass, which are much thickened at their extremities and turned up at a right angle, and perforated for the passage of a screw, (*i*.) these are made to approach each other, embracing within them and enclosing all the clips and the fangs, drawing them to any degree of approximation to the hoof that is required,—an arrangement that gave us great pleasure, having, in our early attempts, a separate fastening for

Rack-band removeable Shoe, inv. by BC. 1853.



each. As the screw advances it is held and directed by the turn-rivets, (*k*, *k*,) whose longitudinal or cross heads confine the band during the operation.

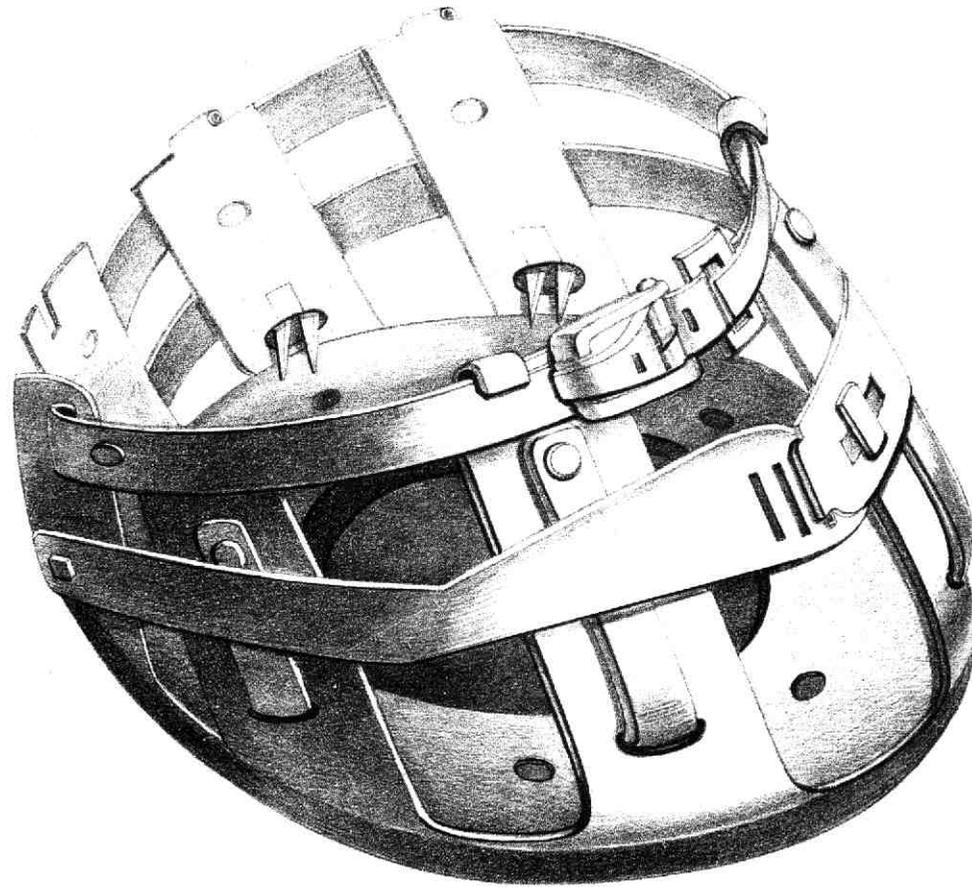
We drive the points of steel into the hoof with a small hammer, observing to make their direction exactly in the periphery of their shafts turning on the rivets, otherwise they may refuse to enter. And in taking off the shoes we lift these points in succession by a common turn-screw, whose shaft is of the width corresponding to the length of these points, so as, by rotating it, we shall exactly raise and deliver them to the surface of the clips, without unnecessarily straining them upon their rivets. A screw and nut might also be used for fastening these points to the clips, thus setting them at liberty if desired; also by a still easier way, they may be set at liberty and be taken off at pleasure to clean or alter them in any way. For this purpose the rivet is filed to an oblong figure at the head, and this, passed through an oblong slit provided in the shaft, which turned round on its axis, locks and confines the shaft, and by the reverse movement, the slit and head being in the same direction, it is set at liberty again. The fangs may thus be cleaned and marked, and kept separate for immediate application, when the use of the shoe is required; also each fang, if thought necessary, may have two spikes instead of one, which, however, we find quite sufficient.

Misfortunes often brought us some of the best improvements, and are not to be despised or create despair, and I rarely made a fresh shoe but some advantage was suggested by it. I for a long time endeavoured to confine this kind of shoe by leather straps and buckles, as being more easy and familiar of use, but in the end was led to lay them aside. One of these, however, furnished with its band going over the coronet, is represented in Plate II at the end of this dissertation.

*To remove the Shoe.*—Setting the turn-points right with the slit of the band, we undo the screw, and with the point of the screw-driver we lift the points from their insertions, resting them on the outside of the clips, then clapping the shaft of the screw-driver under the posterior parts or heels of the shoe, and raising it a little, being of a cylindrical form, it glides off and falls to the ground; it is then washed, cleaned, wiped dry, and oiled, and put by for use.

Now the foot being left again in its natural liberty, is ensuring its growth, if it be young, to its proper size and dimensions; and if already full grown to maturity, it will maintain its form uninjured, and retain its most desirable elastic properties in their full integrity, to the great pleasure of the horse, security of the rider, and preservation to the horse's knees, instead of the

*B.C. inv.† 1854.*



*J.C. 1854.*

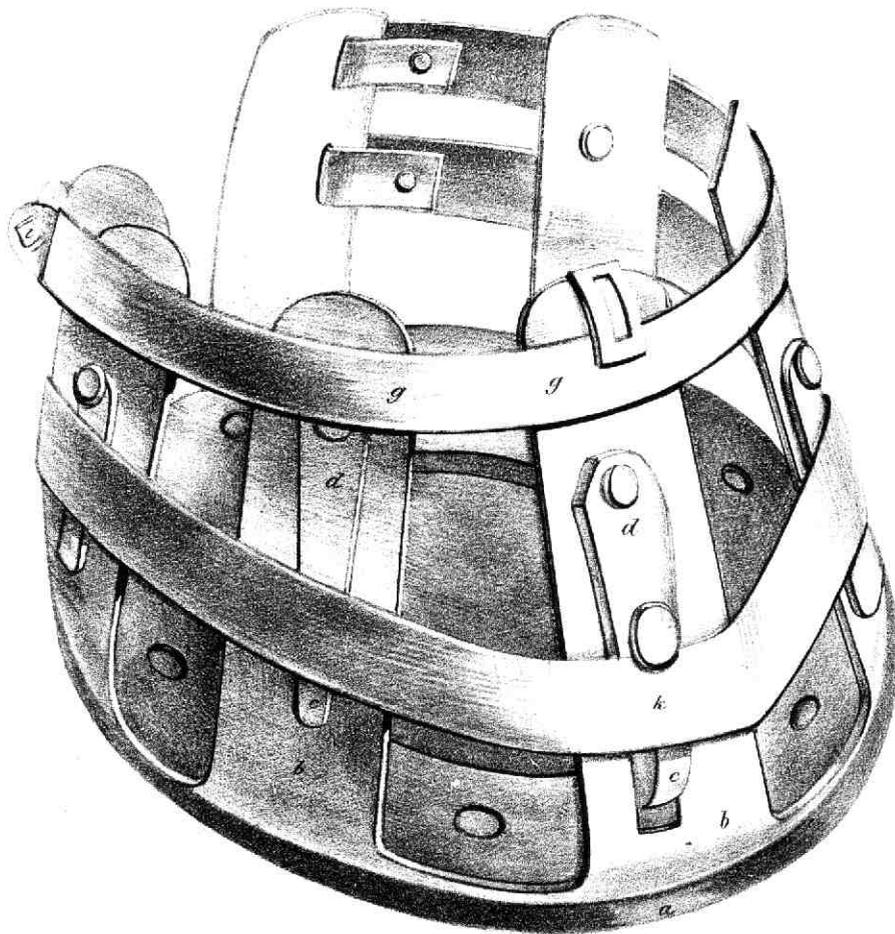
perpetual calamitous effects of the present shoe. And we have long since discovered, (see Hippod., p. 74,) that horses do not cut or interfere with their legs unless their feet have first been rendered painful, benumbed, and senseless by the pressure, confinement, and rigid embrace of the iron-nailed permanent shoe.\* The lower edge or margin of this steel band may be made to touch or rest against the shoulder of the shaft affording the spike, thus communicating to both a greater degree of firmness.

To the groom, also, it will be a boon of inestimable value, as affording him the means, under his own control, of the shoeing and of giving greater satisfaction to his master by the better going of the horse, and as affording him opportunity of displaying his care, ingenuity, and address and knowledge in providing the best shoes, and of putting them on and off, for keeping up and ensuring his good performance, and of keeping them neat and clean and ready for inspection at any hour, instead of the idle nonsense of praying from time to time, and bribing to no purpose, the smith "*to shoe his horse well.*"

We may just state that in our early attempts with this shoe we were not a little embarrassed in getting them on the foot, which was found to be occasioned by the approach of the clips at their summits, especially the two præpostal ones, or anterior ones to the hind clips; we learned, however, to overcome this difficulty by bending them open; this distension, however, left them more relaxed than was wished, and we contrived a steel bow of sufficient strength to hold them open to the degree required, while we passed in the foot, pulling it away when the foot had passed the point of obstruction; and to prevent this elastic bow from slipping off, some pack-thread was wound round its extremities, fastening it by a perforation and tie. After getting the foot in, we give it a forcible jab or two against the ground to force it fully home to the front clips, and sometimes, in order to do this the more effectually, we employed a metal slipper, raised high behind by a wooden heel, and with a turn-up in front, against which the front of the shoe is brought and ensures its home fit; the opposite foot being now raised from the ground by an assistant, thus bringing the whole weight of the horse on the bedding of the shoe, and while in this state the points are driven in, beginning at the posterior ones, and finishing with the front one. The broad steel band is then made to embrace the fangs and clips, and pressed by the screw with any degree of tightness, the shoe becomes thoroughly fixed; we should have said the cross points being first with their heads turned across the slits. The one screw fixes all with a tightness, *ad libitum*, short, however, of creating uneasiness.

\* See also Henry Hunt's testimony to this effect at the end of the account of the expansion shoe.

*B.C. inv.<sup>t</sup> 1855.*



*J.C. 1855.*

Such is the quotient or final result of a long and most tedious series of attempts to shoe the horse in a less destructive fashion; and many more ingenious-looking and elaborate modes of shoeing them we have hit upon before arriving at the present truly simple one, but were successively abandoned and not brought into public notice, during a period of fifty years in which I have been sedulously occupied with it; for who, knowing and seeing the sufferings of this noble, generous, and profitable animal, would begrudge any endeavours to help and assist him. For his sufferings and wrongs have been of the most afflicting kind for upwards of a thousand years, and misunderstandings and ignorant misapprehensions have led to the most opposite, violent, and cruel measures with him, severe biting, castigation, and shameful ill treatment, in order, though vainly enough, to overcome them. For a woeful ignorance prevails among the artificers in this line; and I may observe, that during a period little short of sixty years that I have been daily occupied with these horse pursuits and concerns, have I ever known an individual man entering a forge to shoe the horse that had received any preliminary knowledge or instruction given him respecting the organ he was about to be employed upon, or any examination made of his fitness for such an office!

It is also truly astonishing that horses will bear so patiently the ruining of their feet, of which they cannot but be sensible, for their sense is much quicker than in a general way is apprehended; I have, however, known more than one or two stoutly resist the proceeding, and by all their means of offensive warfare set at defiance their going on with it.