(No Model.)

G. BRYDEN.

DEVICE FOR FASTENING HORSESHOES.

No. 255,765. Patented Apr. 4, 1882.

Fig. 1.

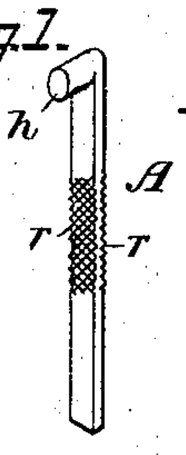


Fig. 2.

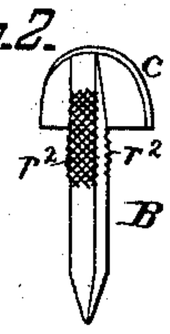


Fig. 3.

Fig. 9.

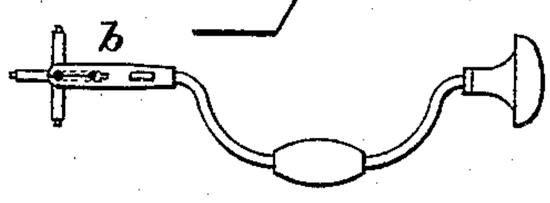


Fig. 10.

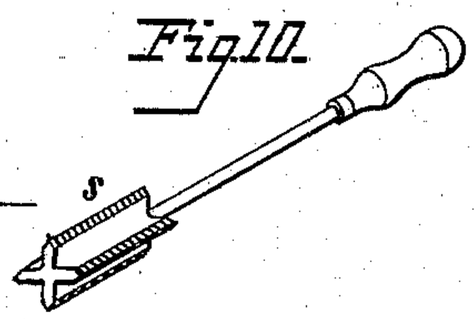


Fig. 4.

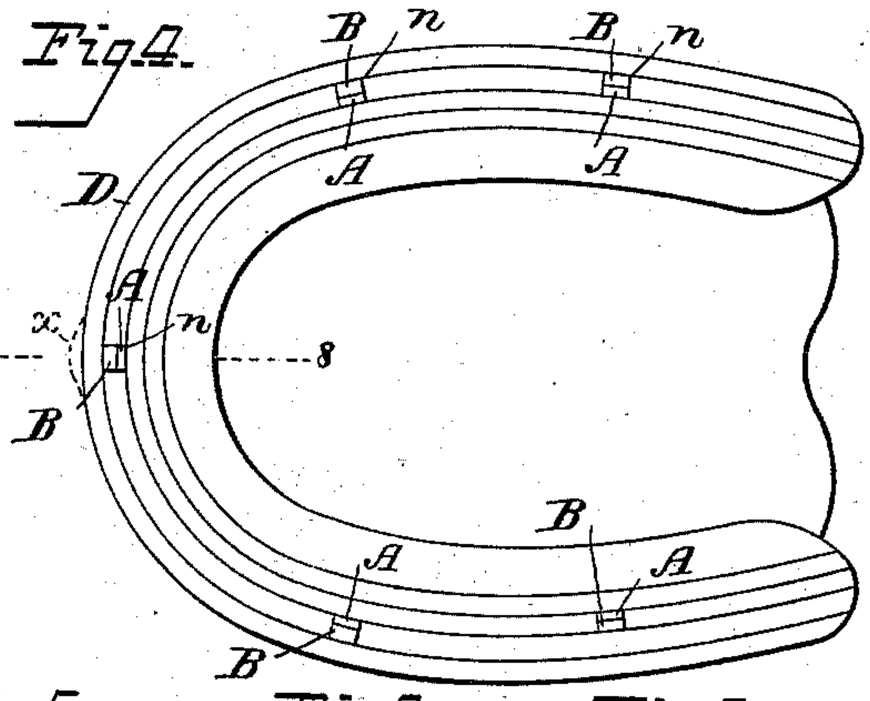


Fig. 11.

Fig. 5.

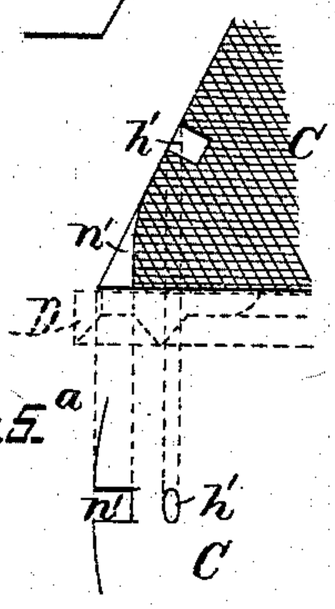


Fig. 6.

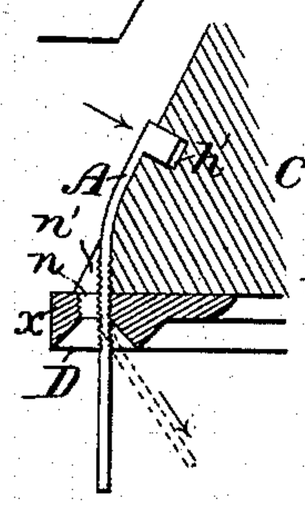


Fig. 7.

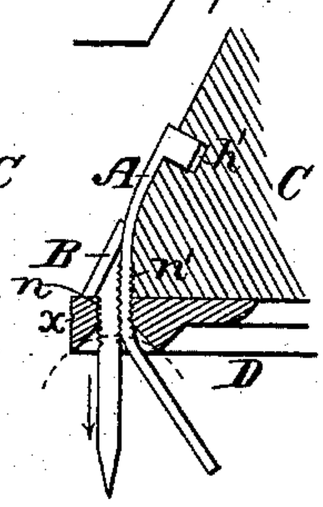
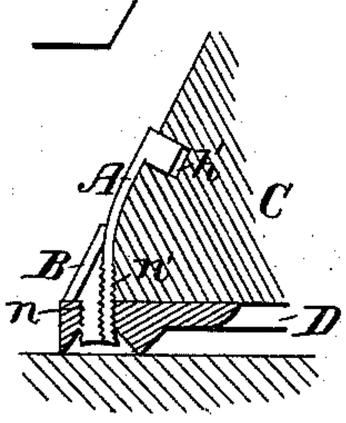


Fig. 8.



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UNITED STATES PATENT OFFICE.

GEORGE BRYDEN, OF HARTFORD, CONNECTICUT.

DEVICE FOR FASTENING HORSESHOES.

SPECIFICATION forming part of Letters Patent No. 255,765, dated April 4, 1882.

Application filed July 23, 1881. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BRYDEN, a citizen of the United States, residing at Hartford, in the State of Connecticut, have invented a new and useful Improvement in Fastenings for Horseshoes, of which the following is a specification.

This invention consists in certain novel substitutes for ordinary horseshoe-nails, &c., as means for attaching or fastening horseshoes of any description to the hoofs of horses and mules.

The evils incident to nailing shoes to horses' hoofs have long been recognized, and many devices and methods have been proposed as means for remedying and avoiding these evils; but horseshoe-nails driven through the shoe into the hoof and clinched at the outer surface of the latter are still almost exclusively used in practice, and this is owing, presumably, to the superior simplicity, cheapness, lightness, and neatness of horseshoe-nails as compared with other known horseshoe-fastenings, and more particularly the freedom of properly-nailed hoofs to expand naturally to a considerable extent, and the adaptation of the nails for substantially indiscriminate use in attaching horseshoes of all the various patterns, and their adaptation to be drawn perfectly tight in applying the shoes, and to be readily tightened when loosened by wear, with the simplicity of the adaptation of the shoes to receive nails.

The object of the present invention is to furnish horseshoe-fastenings possessing, in large degree at least, the said advantages of ordinary horseshoe-nails, without their disadvantages or evils aforesaid.

Figures 1 and 2 of the accompanying drawings are perspective views respectively of one of my primary fastenings or nails and one of my secondary fastenings or clips. Figs. 3 and 4 are respectively a side view and a bottom view of a horse's foot shod according to this invention, the fastenings at one of the nail-holes being omitted in Fig. 3 and the edge of the shoe cut through said hole. Figs. 5 to 8, inclusive, are a series of vertical sections in one and the same plane, illustrating the shoeing operation; and Figs. 9 to 11, inclusive, are small views of special tools used in applying the fastenings.

Like letters of reference indicate corresponding parts in the several figures.

The said primary fastenings or nails are represented by A, and the said secondary fastenings or clips by B.

C represents a horse's hoof, and D an illustrative horseshoe.

The fastenings A B are intended to be made of bar-steel or nail-rod iron, of suitable sizes, by rolling the same so as to raise suitable lugs thereon to supply metal for the heads of the fastenings, then swaging it in dies, so as to swage the fastenings in sets of four, more or less, at each heat, and finally trimming and separating the fastenings either hot or cold; but I do not limit myself to this mode of manufacture, as the fastenings can be readily made by other known processes by skilled blacksmiths and iron and steel forgers. Each of the nails A is constructed with a long flat body substantially rectangular in cross-section, and with a cylindrical head, *h*, projecting at an angle of about eighty degrees at its upper end. The opposite extremity may be blunt, as the nail is not driven. At an intermediate point the front and back of the body of the nail are roughened, (in the roll or dies, or by any preferred means,) as shown at *r*. Each of the clips B is constructed with an inclined semicircular clip-head, *c*, analogous in appearance to an ordinary horseshoe clip, and with a body or shank substantially square or rectangular in cross-section, but pointed at its lower end, the face and back of the body being roughened, as shown at r^2. The fastenings are intended to be made of four sizes, suitable respectively for attaching the various sizes of horseshoes in common use.

The hoof C is prepared to receive the fastenings A B by means of a boring-tool, Fig. 9, and a rasp, Fig. 10, after having had the shoe D fitted thereto in the ordinary way. Figs. 3 and 5 illustrate this operation. By said boring-tool, Fig. 9, a round hole, *h'*, of proper size, is formed within the horny outer wall of the hoof, above each nail-hole *n*, by a cutting operation, a shoulder or stop on the bit serving to limit the penetration of the latter, so as to

preclude boring too close to the sensitive inner part of the hoof.

Fig. 9 represents a boring-tool having a revolving bit-head, *b*, with four shouldered points adapted for use successively to bore holes to fit the heads of the several sizes of nails. By said rasp, Fig. 10, a suitable notch or nick, *n'*, is cut in the edge of the hoof in line with the hole *h'*, to receive the body of the nail and also that of the clip, so that the back of the clip-head *c* may fit snugly against the edge of the hoof, like that of an ordinary clip, adapting the latter to perform all the functions of an ordinary clip, while it serves to conceal said nick and co-operates with the nail as a fastening device, as hereinafter set forth. The particular rasp shown in Fig. 10 has a cruciform steel, *s*, the respective ribs of which are adapted to cut nicks of the several sizes required for the four sizes of fastenings.

The horseshoe D is simply provided with the required number of nail-holes *n*, preferably five, including one at the toe. In forming these, however, I prefer that the shoe be punched hot, so as to form the common bulge *x* at each nail-hole, as shown in dotted lines in Fig. 4. A shoe having an endless calk is shown; but my invention is not confined to this variety of horseshoes, being adapted and designed for use in attaching any kind of horseshoe that can be attached by ordinary horseshoe-nails.

The method of uniting the parts is illustrated by Figs. 5, 6, 7, and 8. The hoof is held in the position most convenient to the shoer, and the fitted shoe is placed loosely thereon, as shown in dotted lines in Fig. 5. The nails A are then passed loosely through the nicks *n'* and nail-holes *n*, and their heads *h* are successively driven into the hoof-holes *h'*, which they fit tightly, except as to depth, as shown in Fig. 6. The end of each nail protruding through the shoe is next grasped by means of pinchers, Fig. 11, and drawn upon and bent, as illustrated by dotted lines in Fig. 6, preparatory to the insertion of the point of a clip, B, outside of the nail, as illustrated by Fig. 7. The clip is driven home while the shoe is supported by the jaws *j* of the pinchers, and the bodies of the nail and clip together tightly fill the nail-hole *n*, and being roughened, as aforesaid, become securely locked therein, as a file is locked against withdrawal in a spiked cannon, and the security of the fastenings is further increased by hammering down the aforesaid bulges *x*. The two protruding extremities at each nail-hole are now cut off by means of the ordinary cutting-nippers, as illustrated by dotted line in Fig. 7, and if there be a nail-crease, as in the example, the ends are preferably so cut therein as to remain out of contact with the ground as long as possible, as illustrated by Fig. 8.

The parallel, or substantially parallel, sides of the nails A adapt them to be readily tightened by means of the hammer, like ordinary horseshoe-nails, should the shoe become loose.

In an inferior modification of my invention the nails A, adapted to tightly fill the nail-holes, may be used without the clips B, and in this case clips need not necessarily be raised on the shoes to supplement the nails; but the described combination of parts is preferred. I also propose, as an inferior modification, making both sets of fastenings A B of soft iron and annealing them, so that their lower ends may be clinched within the nail-crease, and in this case roughening the shanks may be omitted.

I do not claim herein the described method of making my horseshoe-fastenings, nor the described special tools used in applying them; nor do I limit myself to the use of either, as well-known substitutes can be used; but I reserve the right to claim the same or any features thereof which may be patentable in a future specification or specifications.

What I now claim as new, and desire to protect under this specification, is—

1. The within-described horseshoe-fastening A, constructed with a long flat body substantially rectangular in cross-section, and with a cylindrical head projecting at an angle at its upper end, substantially as shown, as a new article of manufacture.

2. The combination, substantially as herein described, of a primary fastening, A, having a head at its upper end to fit a hole in the shell of the hoof, and a body or tang to occupy a nail-hole in a horseshoe, and a secondary fastening, B, having a clip-head at its upper end, and a pointed body or tang, adapted to be driven tightly into said nail-hole outside of said primary fastening, the bodies or tangs of both fastenings being roughened to adapt them to interlock with each other and with the shoe, as set forth.

3. The within-described method of fastening shoes to the hoofs of horses and mules, consisting in providing the shoes with a sufficient number of nail-holes and cutting nicks in the edges of the hoofs to receive the fastenings, inserting primary fastenings loosely into said nicks and nail-holes, and driving their heads into said holes in the hoofs, then drawing said primary fastenings tight and driving secondary fastenings into said nail-holes outside of said primary fastenings, and cutting off the extremities which protrude through the shoes, the lower end of each fastening being secured within or beneath the shoe, substantially as herein specified, for the purposes set forth.

GEO. BRYDEN.

Witnesses:
B. L. ROGERS,
CHAS. E. MCCLURE.