

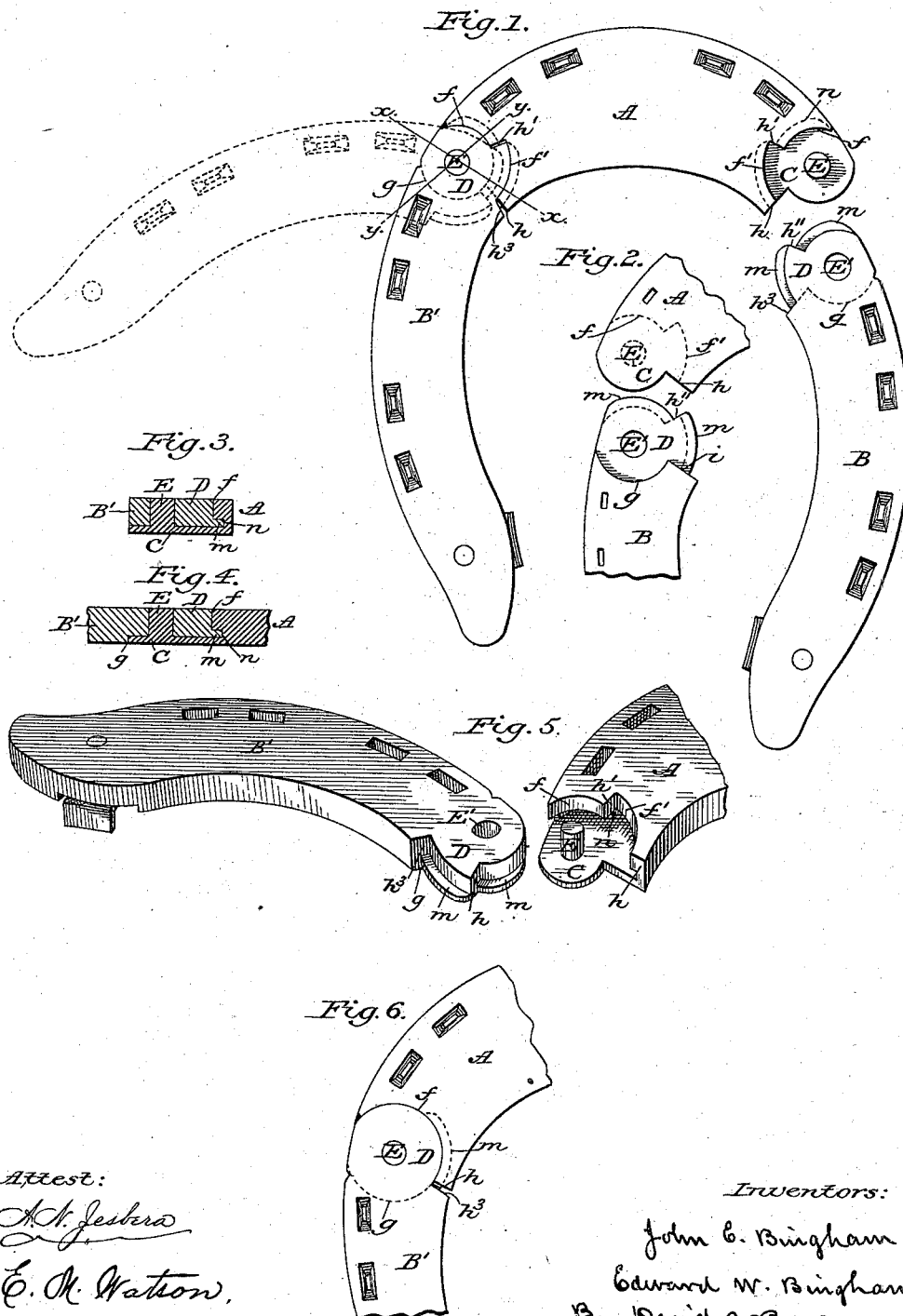
(No Model.)

J. E. & E. W. BINGHAM.

HORSESHOE.

No. 382,131.

Patented May 1, 1888.



Attest:

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# UNITED STATES PATENT OFFICE.

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## HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 382,131, dated May 1, 1888.

Application filed October 26, 1887. Serial No. 253,415. (No model.)

### *To all whom it may concern:*

Be it known that we, JOHN E. BINGHAM, of Walla Walla, in the county of Walla Walla and Territory of Washington, and EDWARD W. BINGHAM, of Portland, in the county of Multnomah and State of Oregon, have invented a new and useful Improvement in Sectional Horseshoes; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a plan view of the ground side of our improved horseshoe with one of its sections detached; Fig. 2, a plan view of the opposite or hoof side of the two separated ends of the shoe shown in Fig. 1; Fig. 3, a transverse section in line *xx* of Fig. 1; Fig. 4, a similar section in line *yy* of Fig. 1; Fig. 5, a view in perspective of the detached heel-section and of the opposite end of the toe-section with the ground side uppermost, illustrating more clearly the form of the rule-joint by which they are united; Fig. 6, a plan view illustrating a simple modification in the joint.

Our invention relates especially to that class of sectional horseshoes which are constructed by assembling and uniting suitable toe and heel parts selected from a number of interchangeable sections severally formed of varying dimensions and curvatures, so as to fit thereby any size or shape of hoof to be shod, in manner as described in the Letters Patent granted to John E. Bingham July 27, 1886, No. 346,350, although it is adapted to all forms of sectional or jointed horseshoes.

The object of said invention is to produce a simpler and more perfect lock-joint between the toe and heel sections, so that the parts may be easily united, and when united and brought into proper position to form the shoe shall be securely locked.

It consists in the combination, as hereinafter described, with the proximate ends of heel and toe sections of the shoe, of a tongue upon the one section entering a slot in the other to form a rule-joint, whose two divisions may be fitted together when the sections are opened out, and will interlock when the sections are

closed in proper relation to follow the curve of the horse's hoof.

In the accompanying drawings, A represents the toe-section, and B B' the heel-sections, of the shoe. One end, D, of each heel-section is fitted to overlap the appropriate end, C, of the toe-section, the overlapping portions being each recessed, so as to receive the thickness of the other and thereby avoid any increase of the thickness of the shoe at the joint. The overlapping ends C D are secured and prevented from sliding apart by means of a transverse pin, E, which may be secured to or made integral with either section to pass through an aperture, E', in the other and form a pivot therefor. This pin E is preferably placed near to the outer edge of the shoe, and the shoulders *fg*, (see Figs. 1, 2, and 4,) forming the inner walls of the recesses in the overlapping ends, are severally made to describe an arc having the axis of the pin E, or its counterpart aperture E', as its center. The radius of the arc by which the shoulders are severally defined is made smaller than the width of the section, and at the inner end of each arc an offset is formed in the wall upon a radial line, as at *h h'* in the drawings.

Where the recess for the lap-joint is made with but a single curved wall, as in Fig. 6, the radial offset *h h'* therefrom extends out directly to the edge of the shoe; but, by preference, instead of bounding the recesses or recess for the lap-joint on both sections with a single curved shoulder or wall at the inner end thereof, we prefer to form the inner wall for the recess C upon the toe-section A with two curved portions, *ff'*, (see Figs. 1 and 5,) having arcs of different radii struck from the same pivotal center at E, the first, *f*, being connected with the second, *f'*, by a radial offset, *h'*, and the second, *f'*, continued to the edge of the shoe by a similar radial offset, *h*.

The ends of the two sections A B are made to form each an exact counterpart of the wall of the recess against which they are fitted, the end C of the toe-section A being made to terminate in a curve having the pivot-pin E as a center, corresponding to the curve *g* of the recess in the hoof side of the heel-section B, as shown in Fig. 2, and with an offset, *i*, corre-

sponding to the offset  $h$  on said section, and the end D of the heel-section B being made with two curves of different radii struck from the common center of the pivot-hole E' therein, said curves corresponding with the opposite curves  $f f'$  of the recess C on the ground side of the toe-section A, as shown in Figs. 1 and 5, and with two offsets,  $h'' h^3$ , corresponding to the offsets  $h h'$  on said toe-section.

When the two ends C D are superimposed and pivoted upon the pin E, the radial offsets  $h$  and  $h^3$ ,  $h'$  and  $h''$  all simultaneously about when the heel-section is swung around upon the pivot-pin to produce a proper shape of the shoe, as shown at the left hand in Fig. 1.

The overlapping joint formed as above described is completed for the purposes of our invention by the formation of curved tongues  $m$  in the curved wall of the end of the one section to enter counterpart slots  $n$  in the wall of the recess in the end of the other section. (See Figs. 1, 3, 4, and 5, and dotted lines, Figs. 2 and 6.) These tongues  $m m$  prevent the two ends from being interposed one upon the other over the pivot-pin E, unless the heel-section B or B' be swung out laterally from the toe-section A (see dotted lines, Fig. 1) in a position transverse to the normal position of the section when fitted upon the horse's foot.

When the heel-section is thus swung out laterally, the tongues  $m m$  are brought into position not to interfere with the walls having the recesses therein, (see Fig. 5,) and the two ends C D may then be readily superimposed, the pivot-pin E being passed through the aperture E', so as to bring the faces of said ends in contact and the ends of the tongues  $m$  in register with the ends of the slots  $n$ . The heel-section may now be swung around upon the pin E, so as to cause the tongues  $m$  to enter the slots  $n$ , whereupon the two divisions of the joint become firmly locked, so as to be inseparable so long as the sections are in position to be fitted or are fitted upon the horse's foot. The entire shoe is rendered rigid and unyielding with regard to twisting strains by the tongues  $m$  and slots  $n$ , as if made in one piece, the longitudinal separation of the parts being prevented and the joint measurably re-enforced by the pin E.

The tongues  $m m$  and slots  $n n$  are preferably formed quite close to the inner or hoof face of the shoe, so that the shoe may be worn nearly through without weakening the rule-joint formed thereby.

It is evident that the arrangement of the parts may be reversed, so that the toe section

shall lap the heel-section, and the tongues be formed in the toe-section A and the slots in the heel-section B; also, that the pivot-pin may project from either section through an aperture in the opposite section.

A modification of the invention is represented in Fig. 6 of the drawings, wherein the curved walls of the joint are formed upon arcs having a common center and equal radii, and with a single tongue,  $m$ ; but in this case the extent of bearing-surface is necessarily reduced.

The formation of the overlapping joint with double curved walls  $f f'$ , having arcs of different radii, affords the advantage of the wide bearing obtained in the wide surface of the arc of greater radius without interfering with the proper location of the proximate nail-holes, which would be intersected by the ends of the sections were they formed throughout upon the arc  $f'$  of greater radius.

We claim as our invention—

1. The combination, with the overlapping ends of the toe and heel sections of a sectional horseshoe, and with a transverse pin uniting the two, of a tongue,  $m$ , upon the one section entering a slot,  $n$ , in the opposite section to form a rule-joint having the pin as its pivotal center, said tongue being disposed to engage its slot when the two sections are in normal position, and to be released only when the sections are swung out at about a right angle with each other, all substantially in the manner and for the purpose herein set forth.

2. The combination, with the overlapping ends of the toe and heel sections of a sectional horseshoe having a transverse pivot-pin uniting the two, and a terminal segmental tongue,  $m$ , upon the one section, describing an arc having the pivot-pin as its center, and adapted to enter a slot,  $n$ , in the opposite section, of a second terminal segmental tongue formed upon the same section as the first to enter a counterpart slot in the opposite section, but describing an arc of greater radius, having the same pivot-pin as its center to form a double rule-joint, substantially in the manner and for the purpose herein set forth.

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

JOHN E. BINGHAM.  
EDWARD W. BINGHAM.

Witnesses:

PHILO H. PRINDLE,  
GEO. W. WARNER.