

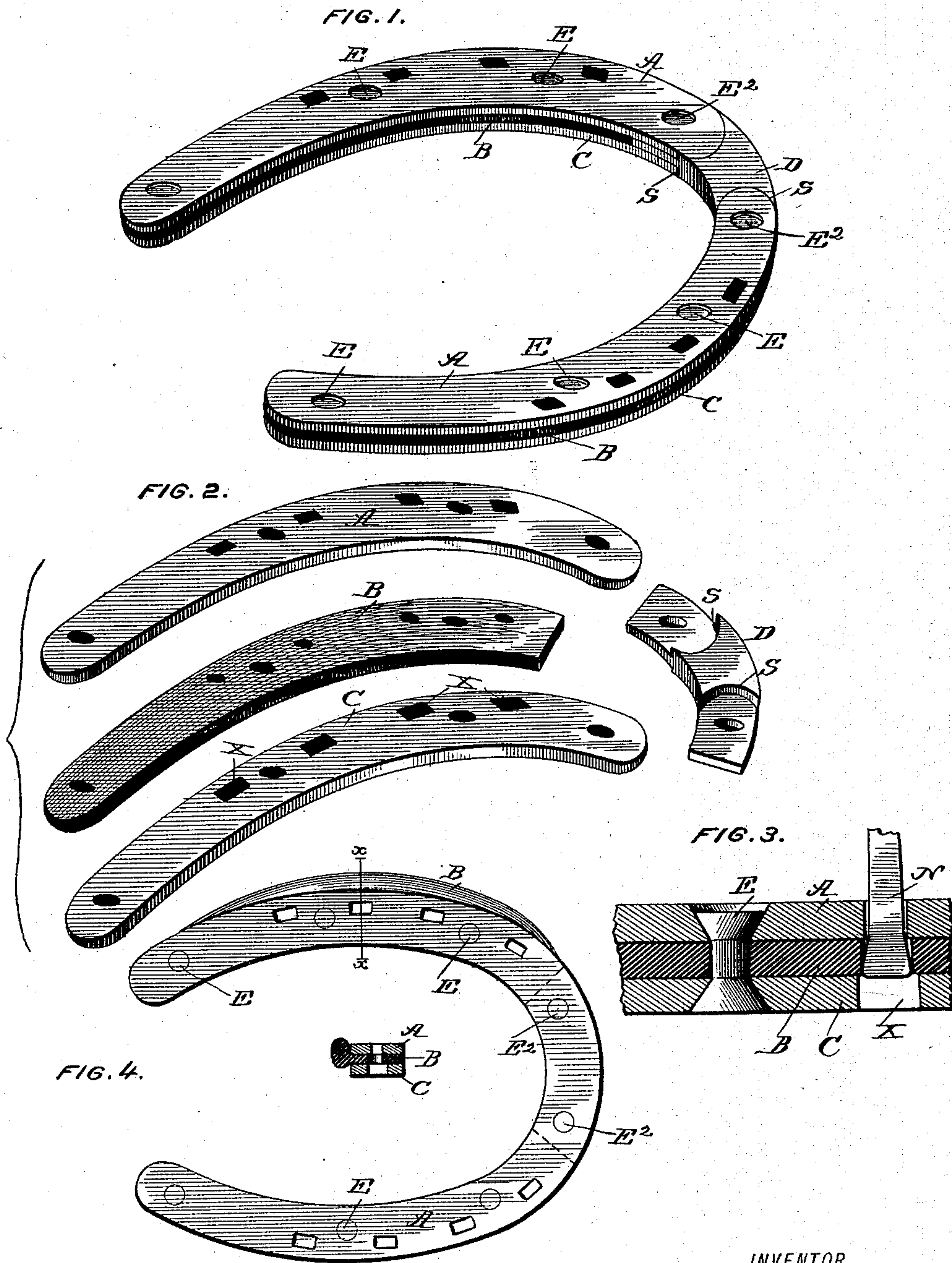
(No Model.)

E. A. MUNGER & J. S. ROWELL.

HORSESHOE.

No. 413,408.

Patented Oct. 22, 1889.



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HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 413,408, dated October 22, 1889.

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To all whom it may concern:

Be it known that we, ERNEST A. MUNGER and JOHN S. ROWELL, of Beaver Dam, in the county of Dodge and State of Wisconsin, have invented a new and useful Improvement in Horseshoes, of which the following is a specification.

Our invention is an improved elastic horseshoe, and seeks to provide a simple construction of parts by which to secure a durable economical shoe, in the use of which there will be given a vertical yielding or spring, avoiding all shocks or jar to the horse while traveling or being driven over hard pavements or roads and race-tracks.

The invention consists in certain novel constructions of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a perspective view of the hinged shoe complete. Fig. 2 is a sectional view of one-half of the shoe, showing the pieces or sections separated. Fig. 3 is an enlarged cross-section, showing in detail the rivet and nail. Fig. 4 is a view of a modified form of shoe without hinge, having continuous sections and showing the cushion projecting from one side and enlarged to form a guard on inside edge of shoe.

In the construction shown in Figs. 1 and 2 each half or side of the shoe is formed in three sections—an upper section A, a lower section C, and an intermediate section or cushion B. The openings for the nails and rivets pass through each section in a corresponding position. The openings X in lower section C are made large enough to allow the nail N, with its head, to pass entirely and freely through, and the opening for nails in upper section A is made to allow the head of nail N to pass only partly through, as in a common shoe. Thus the nail comes in contact with the upper section A alone and holds it firmly to the hoof. The rivets E pass loosely through the openings made for them, and said openings are countersunk clear through in lower section C, as shown in Fig. 3, so that the head of rivet will hold until the section is worn out, the rivet being headed to fill beveled opening full. The upper heads of rivets E in section A are let down below the sur-

face, so there will be room for it to move vertically when cushion is compressed without coming in contact with the horse's hoof. The toe-piece in Figs. 1 and 2, in its central part, between its circular shoulders S S, is as thick as the three sections A B C, and its thin ends are made to correspond in thickness with cushion B and should be made a little thinner than cushion, so that when rivet E² is put in and headed down the cushion will be slightly compressed. The rivet E² passes through thin ends of toe-piece D in the same manner as the rivet E, but is drawn or riveted firmly, making a solid or non-elastic toe and forming a hinge at each end of toe-piece D, thereby making the shoe adjustable to different widths of horses' feet. When needed, a toe-calk can be formed on toe-piece D by having the forward portion of its thick part to project downward, and heel-calks can be made by turning downward a portion of lower section C at the heel. The lower section C can be made with a portion of its outer edge turned downward all the way round, forming a flange, and a downward projection on front part of toe-piece made to correspond with flange. This continuous flange would not only stiffen the lower sections, but would act as a calk to prevent slipping, and for some uses it will be found superior to having the three projections or calks.

Fig. 4 shows the horseshoe made with upper and lower sections A and C made continuous with no joint or hinge. The cushion, however, is not continuous. At the toe of shoe a piece of metal about two inches long and as wide as upper and lower sections forms part of the intermediate section, and the two rivets E² pass through it, forming a solid toe. To prevent slipping, calks or a flange can be made on this shoe the same as described for the hinged shoe, except at the toe, where a portion of the front of lower section C can be cut away sufficiently to allow a downward projection to be formed on the short piece of metal forming part of the intermediate section at the toe; or an extra piece of metal forming a toe-calk could be made and held in place by the two rivets E². We have shown three of the rivets E on each side; but any

number can be used as in practice will be found necessary. It will be seen that by this construction the upper section or sections A are held to the hoof by nails N in the usual way, and that when the nails N are driven to place their heads have passed clear through the lower section C, the openings X in said plate being larger than nail-heads.

The object in having the nail-heads pass freely and clear through lower plate C is to prevent their coming in contact with lower plate and the pavement or ground when the shoe is stepped upon and the cushion is compressed. The rivets E hold the cushion B in place and in a vertical line movably connect the lower section C to upper section A, making the shoe elastic from the toe back to heel, and the two rivets E² firmly hold the upper and lower sections together at the toe upon an intermediate section of metal, forming a solid or non-elastic toe.

Operation: A horse when traveling or being speeded strikes first upon the rear portion or heel of the foot, particularly the fore feet. The muscles of the legs and shoulders are rigid and set to receive the horses' weight when they strike on their feet. If a solid shoe is on the foot, the muscles receive a shock or jar, which must be injurious and unnatural and sooner or later destroy the usefulness of the horse, especially if being driven upon a hard road. This is demonstrated in the street-car horse, who travels on cobblestones, and the best of which are worn out in a few years. Our elastic shoe lets the horse down easy, takes away the sudden shock or jar, and makes traveling over hard and stony roads more natural. The horse when pulling or propelling himself forward uses the toe of the foot. The rear portion of the shoe we have made elastic to receive the blow or horse's weight. The toe we make solid to pull from and give firm footing. The hinges we make in shoe shown in Figs. 1 and 2 not only make it adjustable to different sizes, but prevent contracting of or binding the hoof. This gives freedom of action to the hoof, making it more as nature intended. Some trotting horses, when forced to high speed or an artificial gait, occasionally strike with their fore foot the opposite fore leg about or near the knee-joint, cutting and bruising the leg, which often lays them up for a whole season. The bumper or guard shown on inside of shoe in Fig. 4 is made by letting the elastic cushion project and making a swelled projection as thick as cushion and upper section A. It is rounded or oval and its central part can be a little higher than upper surface of section A to give it a broader striking-surface. This bumper or guard is designed for use on such horses as above mentioned to prevent a severe injury.

We claim that our elastic shoe as constructed gives a horse less fear of self-pun-

ishment, and consequently more freedom of action and greater speed, and prolongs his usefulness.

In manufacturing any weight may be given to the shoe by making the upper and lower sections wide or narrow, thick or thin. When adding to the thickness of the sections to get weight, the addition is to be made to the lower section C, as it takes all the wear. We prefer to make the cushion of rubber one-eighth of an inch thick, but for very tender feet three-sixteenths of an inch thick. Any elastic material can be used, and any thickness may be given to the cushion. The cushions, if made of rubber, can be cut from the sheet or molded. The upper and lower sections of Figs. 1 and 2 can be cut from metal of the right thickness with dies and all holes punched. The continuous sections should be formed from flat bars, and the toe-pieces drop-forged, with or without calks.

It will be seen that by making a few dies of different shapes to cut sections for the hinged shoe different sizes of feet can be fitted.

Different forms can be made for bending the sections for the shoe shown in Fig. 4.

As these shoes will be ready-made to fit the foot, they can be nailed on at any time or place, as no forge and fire are needed. Our shoe can also be made of malleable or steel castings. The nails passing through lower section C, as shown in Fig. 3, cannot be driven to their place with the hammer; but a nail-set or punch is used. After they have been driven with the hammer as far as surface of section the nail-set is used to drive them to place.

We are aware that it is not new to provide a horseshoe with an elastic pad or cushion, and do not claim this, broadly. Neither do we claim the hinge as new.

Having thus described our invention, what we claim as new is—

1. The improved horseshoe herein described, consisting of upper and lower sections with elastic cushions between and rivets connecting the two sections, the rivets being stopped short of the upper surface of the upper section to permit the lower section to rise toward the upper section without bringing the rivets in contact with the horse's hoof, substantially as shown and described.

2. The improved horseshoe herein described, comprising upper and lower sections A and C, a cushion arranged between said sections, and connecting-rivets passing loosely through countersunk openings in such sections, and having their upper ends below the upper surface of the upper section to permit vertical play, whereby the rear portion of sections A and C may move vertically independent of each other, the toe-piece D, and rivets E², tightly riveted through openings in front

ends of said sections and ends of toe-piece, forming a non-elastic hinged toe, substantially as set forth.

5 3. In an elastic horseshoe, the combination, with a solid toe-piece, of upper and lower sections with cushion between, and rivets movably connecting them together over cushion, and rivets firmly holding them together

upon the solid toe-piece, substantially as described.

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