(No Model.)

F. B. GARDNER.

HORSESHOE.

No. 331,628. Patented Dec. 1, 1885.

Fig. 1.

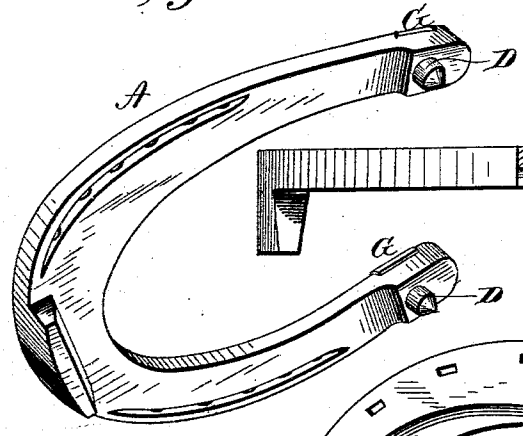


Fig. 3.

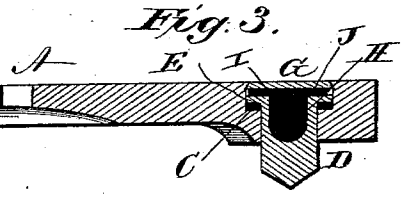
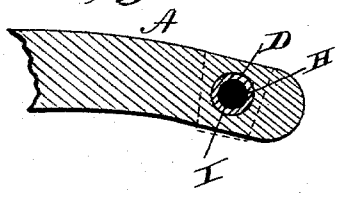


Fig. 5.



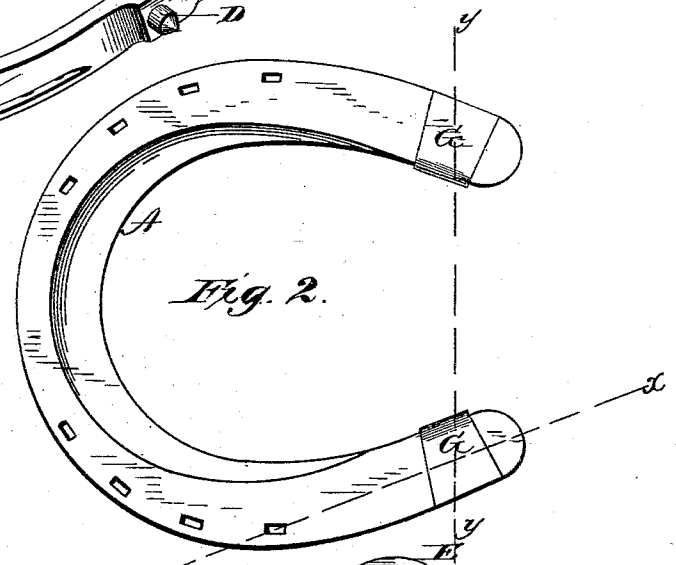
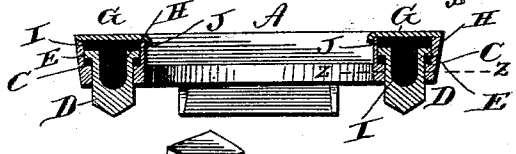


Fig. 2.

Fig. 4.



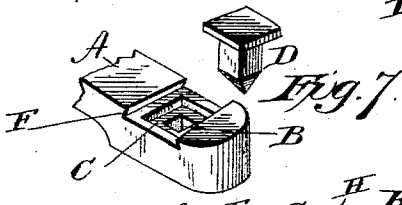


Fig. 7.

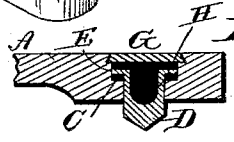


Fig. 8.

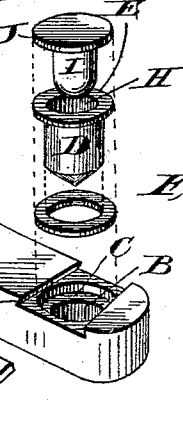


Fig. 6.

WITNESSES

F. L. Ourand.

Wm. Bagger.

INVENTOR:

Frank B. Gardner,

by Louis Bagger & Co.

Attorneys.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

FRANK B. GARDNER, OF COLUMBUS GROVE, OHIO.

HORSESHOE.

SPECIFICATION forming part of Letters Patent No. 331,628, dated December 1, 1885.

Application filed August 20, 1885. Serial No. 174,901. (No model.)

To all whom it may concern:

Be it known that I, FRANK B. GARDNER, a citizen of the United States, and a resident of Columbus Grove, in the county of Putnam and State of Ohio, have invented certain new and useful Improvements in Horseshoes; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a perspective bottom view of a horseshoe embodying my improvements. Fig. 2 is a top view of the same. Fig. 3 is a longitudinal vertical sectional view taken on the line *x x* in Fig. 2. Fig. 4 is a transverse vertical sectional view taken on line *y y* in Fig. 2. Fig. 5 is a horizontal sectional view taken on the line *z z* in Figs. 3 and 4. Fig. 6 is a detail view of one end of my improved horseshoe, with the calk, spring, and covering-plate removed therefrom, and also showing in perspective the said calk, spring, and covering-plate. Fig. 7 is a perspective view of a calk of a slightly-modified construction, showing the same detached from the shoe; and Fig. 8 is a horizontal sectional view showing the calk illustrated in Fig. 7 in position for operation.

The same letters refer to the same parts in all the figures.

This invention relates to horseshoes, and more particularly to that class of horseshoes which are provided with detachable calks; and it has for its object to provide a device of this class which shall possess superior advantages in point of simplicity, durability, and general efficiency, and in which the heel-calks (and, if desired, the toe-calk as well) shall be spring-supported and elastic in their action, the general advantages of which are well known and appreciated.

With these ends in view the invention consists in the improved construction, arrangement, and combination of parts which will be hereinafter fully described, and particularly pointed out in the claims.

In the drawings hereto annexed, A designates the body of a horseshoe which is equipped with spring heel-calks embodying my improvement. The said horseshoe is provided at suitable points near its heel ends with vertical openings B B, having shoulders or offsets C, and adapted to receive the cylindrical calks D D, which are provided at their upper ends with annular collars or flanges E, adapted to rest upon the said shoulders or offsets, and thus support the calks in their respective openings. The lower ends of the calks, which project on the under side of the shoe, as will be seen in Fig. 1 of the drawings, may be either blunt or pointed, according to whether they are intended for winter or for summer use. The upper side of the shoe is provided directly above or registering with the openings B B with transverse recesses F F, having dovetailed sides, which are made slightly converging, as will be clearly seen in Fig. 2 of the drawings.

G G are covering plates or slides having dovetailed or beveled slightly-converging sides, enabling them to be fitted and securely retained in the recesses F F, as will be seen in Figs. 2, 3, and 4 of the drawings. These covering plates or slides are to be made of such a length that their inner or narrow ends shall project slightly beyond the inside or inner edge of the horseshoe, over which the projecting portion of the metal of said slides may be clinched or upset, thus preventing the accidental displacement of the said slides.

The calks D D are provided with recesses H H in their upper sides, in which are placed spring blocks or cushions I I, which are to be made of the best and most durable quality of india-rubber, and which are provided at their upper ends or edges with flanges J J, extending over the flanges E of the calks. It will be seen that when these rubber cushions and the slides or covering-plates are placed in position the said spring-cushions will force the calks in a downward direction, so that when the horse steps down the said cushions will relieve any sudden jar upon the foot of the horse, thus preventing the shoe from bruising the heels and causing corns and lameness. It will be seen that owing to the construction and arrangement of the spring-cushions as herein described this will be effected without any strain either upon the shoe-nails or the foot, whether the horse be traveling or standing still. It will also be seen that while the shoe extends back so as to protect the heel the heel-calks may be located at any suitable point in front of the heel ends of the shoe where they will best support the foot of the horse and be in every respect most efficient.

In Figs. 7 and 8 of the drawings I have shown a modification in the construction of the calks, which consists in making them either square or rectangular, instead of cylindrical, as above described. The rectangular or elongated form will be found especially applicable when the principle of my invention is to be applied to the toe-calk, although it may be applied to the heel-calks as well. Other shapes or forms of calks might be made, and I do not wish to be considered as limiting myself in this respect.

It may also be stated that while, as hereinbefore set forth, I prefer to make the springs of india-rubber, suitably-constructed metallic springs might be employed in lieu thereof.

The operation and advantages of this invention will be readily understood from the foregoing description, taken in connection with the drawings hereto annexed, without requiring any extended explanations.

The construction is simple and inexpensive, the calks and covering-plates being manufactured preferably of cast-steel, and the spring-cushions being cast of india-rubber, while the body of the shoe may be easily made by any skilled blacksmith. The calks may be readily removed and replaced with new ones whenever necessary, and blunt calks may be substituted for sharp ones, or vice versa, whenever desired.

The shoe is strong and durable, and may be made additionally so by thickening and widening the heel ends where the calks are applied, as will be seen in the several figures of the drawings, so as to strengthen and re-enforce them at the points where metal is removed for the insertion of the calks.

In order to prevent rattling of the calks when the horse is traveling, rubber rings or washers W may be interposed between the flanges E of the said calks and the shoulders or offsets C on which they rest; but, while I desire to reserve the right to the use of such washers in connection with the calks, they may be dispensed with when desired.

In the manufacture of my improved spring-heel horseshoes other changes and modifications may be adopted besides those herein specifically described, and I would therefore have it understood that I do not limit myself to the precise construction and arrangement of details herein set forth, but reserve to myself the right to any and all modifications and changes of form and construction which may be resorted to without departing from the spirit of my invention.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The combination, with a horseshoe provided near its heel ends with vertical openings or perforations having shoulders or offsets, of the calks fitting in the said openings and projecting on the under side of the shoe, said calks being provided at their upper edges with flanges or collars adapted to rest upon the said shoulders or offsets, substantially as and for the purpose herein set forth.

2. The combination of the body of a horseshoe having vertical openings or perforations provided with shoulders or offsets, the calks seated in the said openings and having annular flanges resting upon the said shoulders or offsets, suitable covering plates or slides, and springs or elastic cushions interposed between the said calks and the covering plates or slides, substantially as and for the purpose herein shown and specified.

3. The combination of a horseshoe-body having suitable vertical perforations provided with shoulders or offsets and transverse recesses registering with the said perforations and having dovetailed slightly-converging sides, the slides or covering-plates having beveled slightly-converging sides, the calks having annular flanges at their upper edges, and the interposed springs or elastic cushions, substantially as and for the purpose set forth.

4. The combination of the horseshoe-body having vertical perforations provided with shoulders or offsets, the calks having annular flanges adapted to rest upon the said shoulders or offsets and provided with recesses in their upper sides, the rubber spring-cushions adapted to be seated in the recesses in the calks and having flanges extending over the flanges of the latter, and the slides or covering-plates, all combined and arranged substantially as and for the purpose herein shown and specified.

5. The combination of the horseshoe having vertical shouldered recesses, the calks having annular flanges, springs arranged to force the said calks in a downward direction, suitable covering-plates, and washers or rings interposed between the flanges of the calks and the shoulders of the recesses or openings in which said calks are seated, substantially as and for the purpose herein set forth.

6. The combination of the horseshoe-body having vertical shouldered recesses and transverse recesses registering with the same and having dovetailed slightly-converging sides, the calks having annular flanges, the springs or elastic cushions, and the covering plates or slides having beveled slightly-converging sides adapted to be seated in the transverse recesses and projecting with their narrow ends beyond the inner edges of the shoe, against which the projecting ends of the slides may be clinched or upset, so as to prevent the accidental removal or withdrawal of the said covering plates or slides, all combined and arranged to operate substantially in the manner and for the purposes herein shown and specified.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

FRANK B. GARDNER.

Witnesses:

JASPER J. EWING,

HENRY A. FROST.