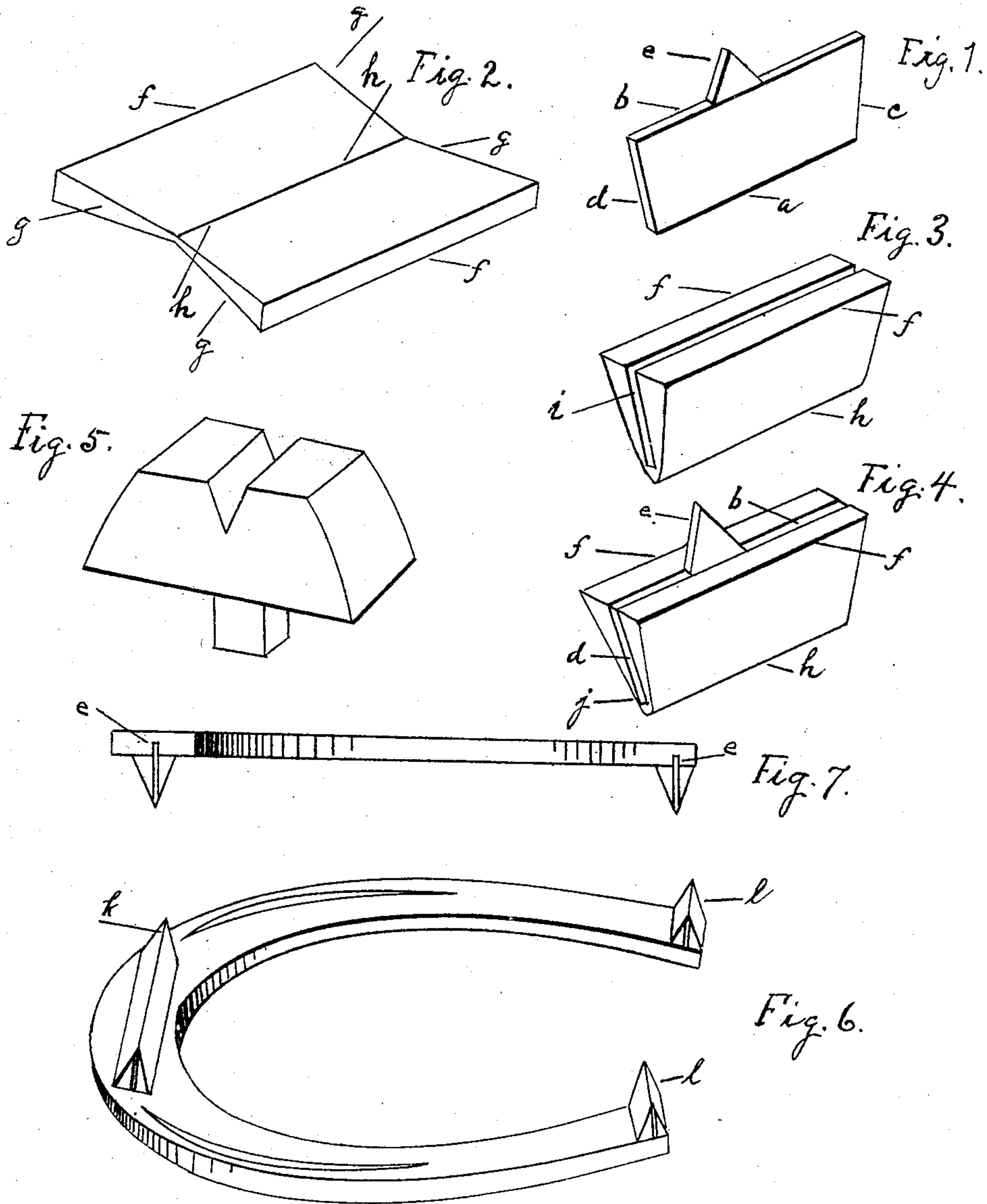


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PATENTED AUG. 8, 1905.

J. DURKEE, JR.
CALK FOR HORSESHOES.
APPLICATION FILED JAN. 30, 1905.



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JOHN DURKEE, JR., OF WOODBINE, IOWA.

CALK FOR HORSESHOES.

No. 796,827.

Specification of Letters Patent.

Patented Aug. 8, 1905.

Application filed January 30, 1905. Serial No. 243,243.

To all whom it may concern:

Be it known that I, JOHN DURKEE, Jr., a citizen of the United States, residing at Woodbine, in the county of Harrison and State of Iowa, have invented certain new and useful Improvements in Calks for Horseshoes, of which the following is a specification.

My invention relates to that class of toe and heel calks for horseshoes known as "self-sharpening" calks having a steel central portion with a softer outer portion, so that in the wear the softer parts are worn away faster than the central part, the continued wearing of the combined metals resulting in a sharpening of the calk while in use, avoiding any necessity for thereafter removing the shoe for purpose of sharpening the calk.

One of the objects of my invention is to provide a means for the prevention of decarbonization of the wearing edge of the steel core or center plate of a horseshoe-calk during the necessary firing of the combined metals to attain an adequate heat for welding purposes and provide means so that hereafter during the heating process the wearing edge of the steel portion will not come in contact with fire.

Another object of my invention is to present a calk which can be shaped, sharpened, and welded upon the shoe all at one operation, thereby saving time and expense and at the same time to furnish a calk that shall be strong, durable, and which by reason of the simplicity of its parts and means of union can be completely made use of upon the body of any common horseshoe by any ironworker.

My newly-invented calk is one in which both the steel and softer portions are heated and pressed into permanent union by swaging at the time the calk is welded to the shoe, and the use of my calk as disclosed by my invention practically eliminates the well-known evils of decarbonization of the wearing edge of the central steel portion which has attended the firing of self-sharpening calks heretofore in use.

With these objects in view my invention consists of calks for horseshoes composed of a comparatively thin interior steel portion of uniform thickness and of generally rectangular form having a welding-lug extending from and above its central upper line and pointed to enter the shoe, this steel portion being used in connection with a casing or housing of iron, the latter being so formed that it extends along and under the whole

length of the wearing edge of the rectangular steel portion and covering the sides thereof, the walls of such housing or casing gradually increasing in thickness to its upper surface-line, the broad upper surface of this V-shaped housing, as well as the upper surface of the steel portion, furnishing a bearing upon the body of the horseshoe for purposes of welding thereto and the specific details of shaping and sharpening the calk at the moment of welding by a single operation, all embodying novel arrangement of parts to produce the completed calk upon the horseshoe without subjecting the wearing edge of the steel portion to the action of fire. Broadly considered, my invention consists of these enumerated features, but is more fully illustrated by the drawings herein, in which—

Figure 1 is a perspective view of a thin steel plate of uniform thickness with the line of the wearing edge *a* parallel and equidistant from the upper line *b* thereof and with the end lines *c* and *d* slightly converging from the upper to the lower line, so that the width of the lower is slightly less than the upper edge. A pointed welding-lug *e* arises from the upper central edge of this steel portion, being a part thereof. Fig. 2 is a perspective view of the softer metal portion before being bent to form the housing and consists of an iron plate with the side lines *f* equidistant and end lines *g* slightly converging from the sides *f* to the longitudinal center line *h*, its length being the same as the steel portion shown at Fig. 1. The central longitudinal portion *h* is of uniform thickness and of less diameter than at the side lines *f*. Fig. 3 is a perspective view showing the iron portion of Fig. 2 now bent from the line of its lesser diameter *h* to form a V-shaped housing and is bent in a manner to preserve an angular opening *i*, extending throughout its length, so that the steel plate may be received therein. Fig. 4 is a perspective view of my complete toe-calk with the steel portion seated within the housing with its wearing edge resting upon the lower surface-line *j* of the angular opening, the upper surface of the housing and steel portion being upon the same line and furnishing conjointly a broad bearing for the calk upon the body of the horseshoe at time of welding. The steel portion makes close and accurate contact with the inner walls of the housing, and in forming the housing I generally use the inner steel plate as a pattern while rolling or swaging the

housing, so that the walls of the latter will make this close contact. Fig. 5 is a view of a die for welding my newly-invented horse-shoe-calks; and Fig. 6 is a view of a horse-shoe, showing the toe-calk $\frac{1}{2}$ and the heel-calk $\frac{1}{2}$ welded thereon. Fig. 7 is a sectional view showing the toe and heel calk welded to the shoe with welding-lug entered within the shoe-body.

After heating that part of the shoe-body where the calk is to be placed the welding-lug is driven into the shoe and the calk properly positioned. The shoe and calk are then heated to a welding heat. The metal portions of the calk are then welded and calk welded to the shoe by the one operation of delivering swaging blows upon the shoe after the calk has been placed in the die. It will be noted that the wearing edge of the steel-plate portion is protected from the fire by the housing, so that this part of the plate does not come in contact with the forge-fire while attaining the welding heat. The fire comes upon the fold of the housing and not upon the steel wearing edge, the latter being protected in this manner from decarbonization. Also the calk is quite unfinished before welding. Its form is not particularly changed; but the operation of welding completely unites the iron and steel of the calk, corrects any uneven surfaces of its outer walls, and adds a true sharpened edge to the calk ready for wearing.

In my invention I make heel-calks of about the same height as the toe-calk. The heel-calks correspond in every particular to the toe-calk in material, manner of construction, and mode of welding, the difference being in size only.

I am aware that Letters Patent No. 372,398 to E. S. Brainard describe a process for making steel-centered calks after the manner employed in rolling-mills by rolling a covering layer of iron while at welding heat over a steel core, completely and thoroughly inclosing the latter to prevent decarbonization, and to afterward make up this steel-centered stock by

means of screw-machines into calks, the welding being accomplished before it is manufactured into shoe-calks; but I am not aware that any means has heretofore been presented whereby a calk could be shaped, sharpened, and welded upon the shoe at one operation in a manner to avoid decarbonization of the wearing edge. In my invention the steel core and its iron housing are entirely separate, are not welded until after being positioned on the shoe, and affords a method of welding and fashioning the assembled parts in a very economical manner free from decarbonization and within the reach of any blacksmith. Also Letters Patent No. 599,350 to H. Olson present a method of welding a steel core within a U-shaped iron housing and of afterward making up the stock into calks, but has no reference to any method of protecting the steel center from the fire by housing it during the welding, nor of uniting the iron and steel portions of the calk at the time of welding it to the shoe.

What I claim as my invention is—

1. A horseshoe-calk composed of a V-shaped outer plate of iron with an angular opening extending lengthwise of its body below the line of its free ends, and a steel plate fitting within the opening, the steel plate being provided with a pointed lug integral therewith and extending outwardly from the edges of the outer plate.

2. A horseshoe-calk consisting of a steel-plate portion having a pointed lug extending from its edge and integral therewith, having a plate of iron folded upon the lengthwise edge opposite the lug, said iron portion enveloping one edge and entire side surfaces of the steel-plate portion, substantially as shown and described.

In testimony whereof I have affixed my signature in presence of two witnesses.

JOHN DURKEE, JR.

Witnesses:

WALTER F. RICHARD,
CHAS. MARTIN.