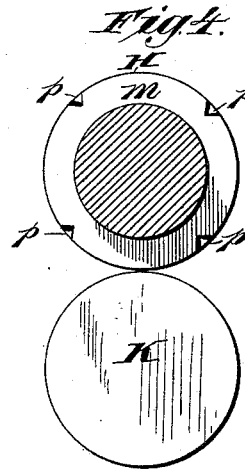
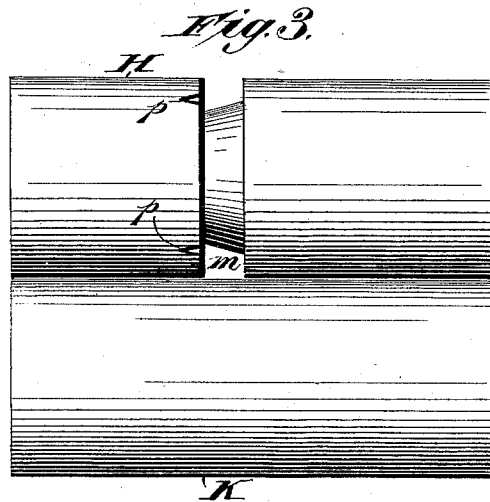
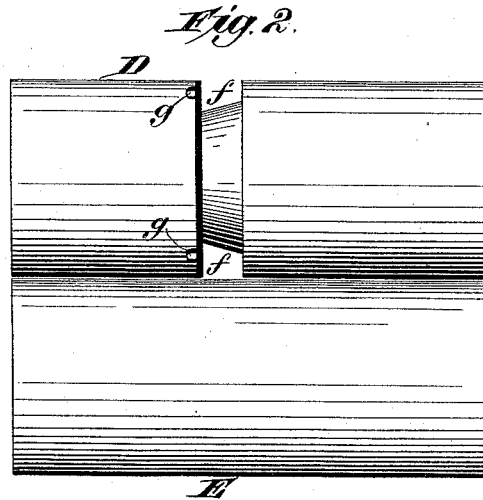
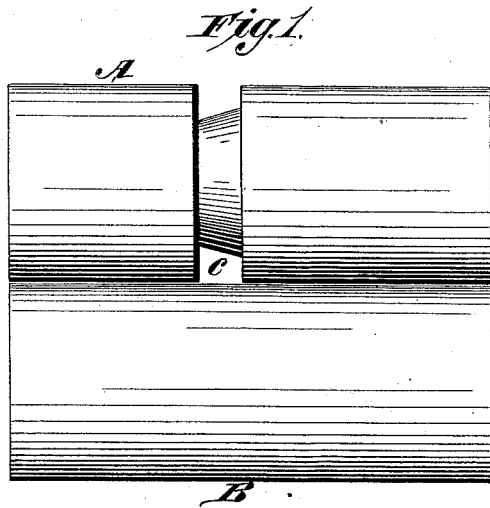


(No Model.)

J. W. FOULKS.  
MANUFACTURE OF HORSESHOE CALKS.

No. 417,912.

Patented Dec. 24, 1889.



Witnesses  
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Inventor:  
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*Atty.*

# UNITED STATES PATENT OFFICE.

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NEW YORK, N. Y.

## MANUFACTURE OF HORSESHOE-CALKS.

SPECIFICATION forming part of Letters Patent No. 417,912, dated December 24, 1889.

Application filed April 16, 1889. Serial No. 307,480. (No model.)

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

Be it known that I, JOHN W. FOULKS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in the Manufacture of Horseshoe-Calks, of which the following is a specification.

This invention relates to an improved method of treating stock in the manufacture of horseshoe-calks.

Heretofore a bar of iron or steel has been first rolled of unequal thickness, next passed between rolls adapted to form a continuous rib or tongue upon the wider side of the bar, and then between rolls provided at intervals with cavities shaped to conform to the required calk spurs or teats, so that the rib on the bar will be rolled down at all points, except where the teats or spurs are formed, said bars being finally subjected to swaging or cold rolling for the purpose of hardening, lengthening, and pointing the teats or spurs, so that they may more readily be driven into a heated shoe.

The object of my invention is to avoid the usual necessity of forming a preliminary rib or tongue upon the horseshoe-calk bar, and thereby lessen the number of operations generally required in the manufacture of horseshoe-calks.

To this end my invention consists in the method of treating horseshoe-calk stock, as hereinafter described and claimed.

In the annexed drawings, illustrating my invention, Figure 1 is a side elevation of a pair of rolls for beveling a bar of iron or steel on one side. Fig. 2 is a similar view of another pair of rolls for reducing the thickness of the beveled bar and at the same time forming a series of spurs or teats directly on one side. Fig. 3 is a side view of still another pair of rolls for hardening, lengthening, and pointing the spurs or teats. Fig. 4 is a section of one of the rolls for forming the spurs or teats.

In carrying my invention into effect I first pass a metallic bar between the rolls A B, (shown in Fig. 1,) the roll A being provided

with a circumferential groove *c*, having an inclined bottom and parallel opposite sides, while the roll B is a plain cylinder. By this operation the metallic bar is beveled on one side so as to be of unequal thickness. The beveled metallic bar is next passed between the rolls D E. (Illustrated in Fig. 2.) One of these rolls, as D, is formed with a circumferential groove *f*, similar to the groove *c*, but of less width and depth, and in the deeper vertical side of this groove *f* is arranged a series of cavities *g*, that conform to the shape of the required calk spurs or teats. The roll E is a plain cylinder. It will be seen that by passing the beveled calk-bar between these rolls D and E said bar will become reduced in thickness, and at the same time a series of spurs or teats will be formed on that side of the bar which is in contact with the cavities *g* in the grooved roll. In order to lengthen and point the extremities of the calk spurs or teats thus formed, I next pass the beveled calk-bar between the rolls H K, which, as shown in Fig. 3, are similar to the rolls D E in form and size, except that the circumferential groove *m* is provided with cavities *p* of greater depth but less diameter than the cavities *g*, and the calk spurs or teats are thereby elongated, while the body of the calk-bar is unchanged either in form or thickness. The elongated cavities *p* are tapered from top to bottom, so as to sharpen or point the calk-spurs, which are likewise hardened by the compression to which they are subjected. The calk-bars which are thus provided with spurs or teats at suitable intervals can be cut into proper lengths to form the calks as they are required for use.

This method of making horseshoe-calks is simple, economical, and effective, and can be readily practiced without requiring the employment of expensive or complicated appliances. It will be seen that the spurs or teats are formed of the wider side of the calk-bar, thus affording a firm support for the calk when attached to the shoe, into which the sharp and hard spurs or teats can be easily driven.

What I claim as my invention is—

The method of manufacturing horseshoe-calks which consists in first rolling a metallic bar to the required form without ribs, tongues, or flanges, next rolling said bar to directly  
5 form spurs or teats on one side, and finally strengthening, hardening, and pointing said spurs or teats by again rolling the calk-bar, substantially as described.

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

JOHN W. FOULKS.

Witnesses:

TIMOTHY J. LYONS,

P. Q. ELVERSON.