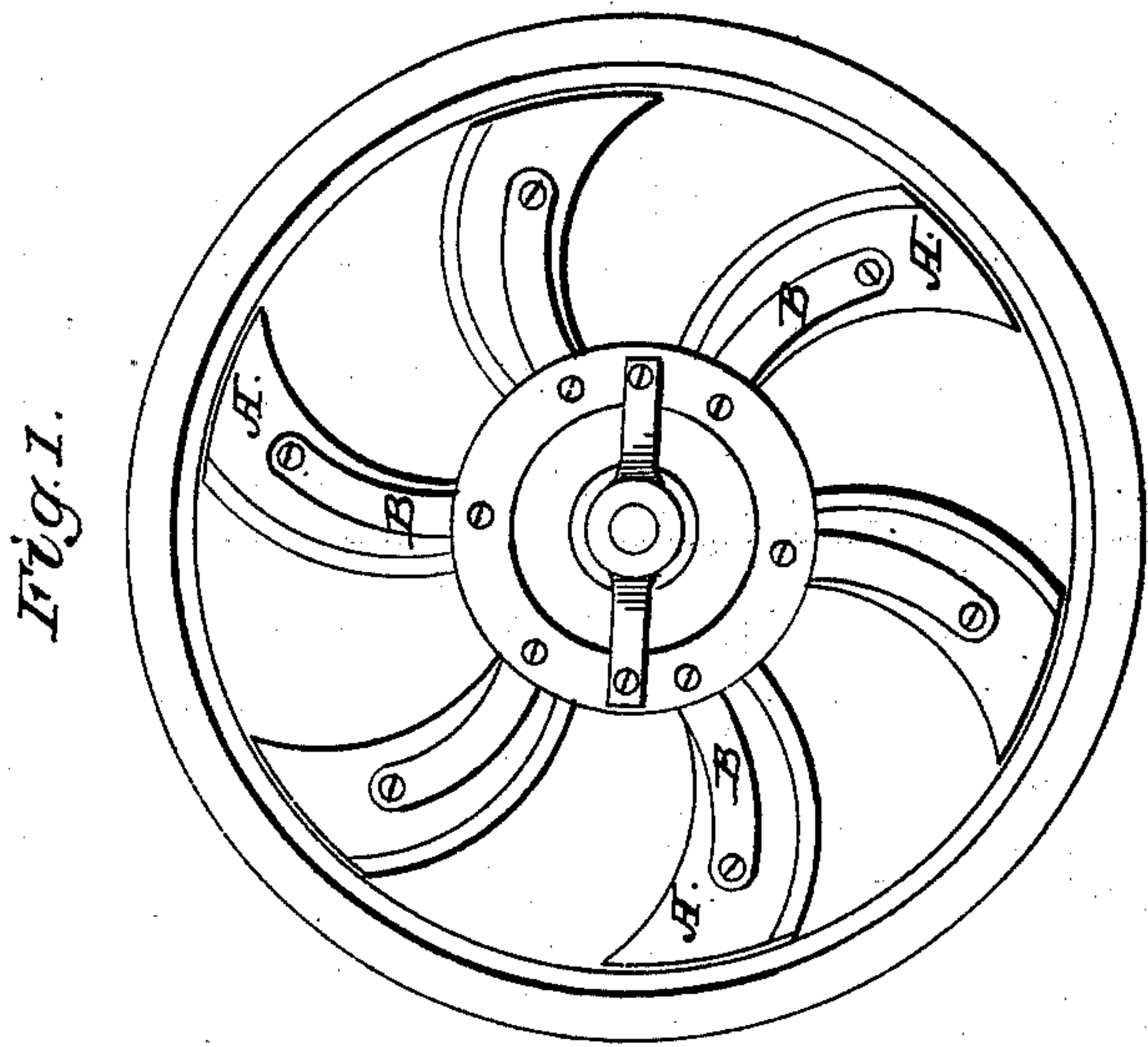
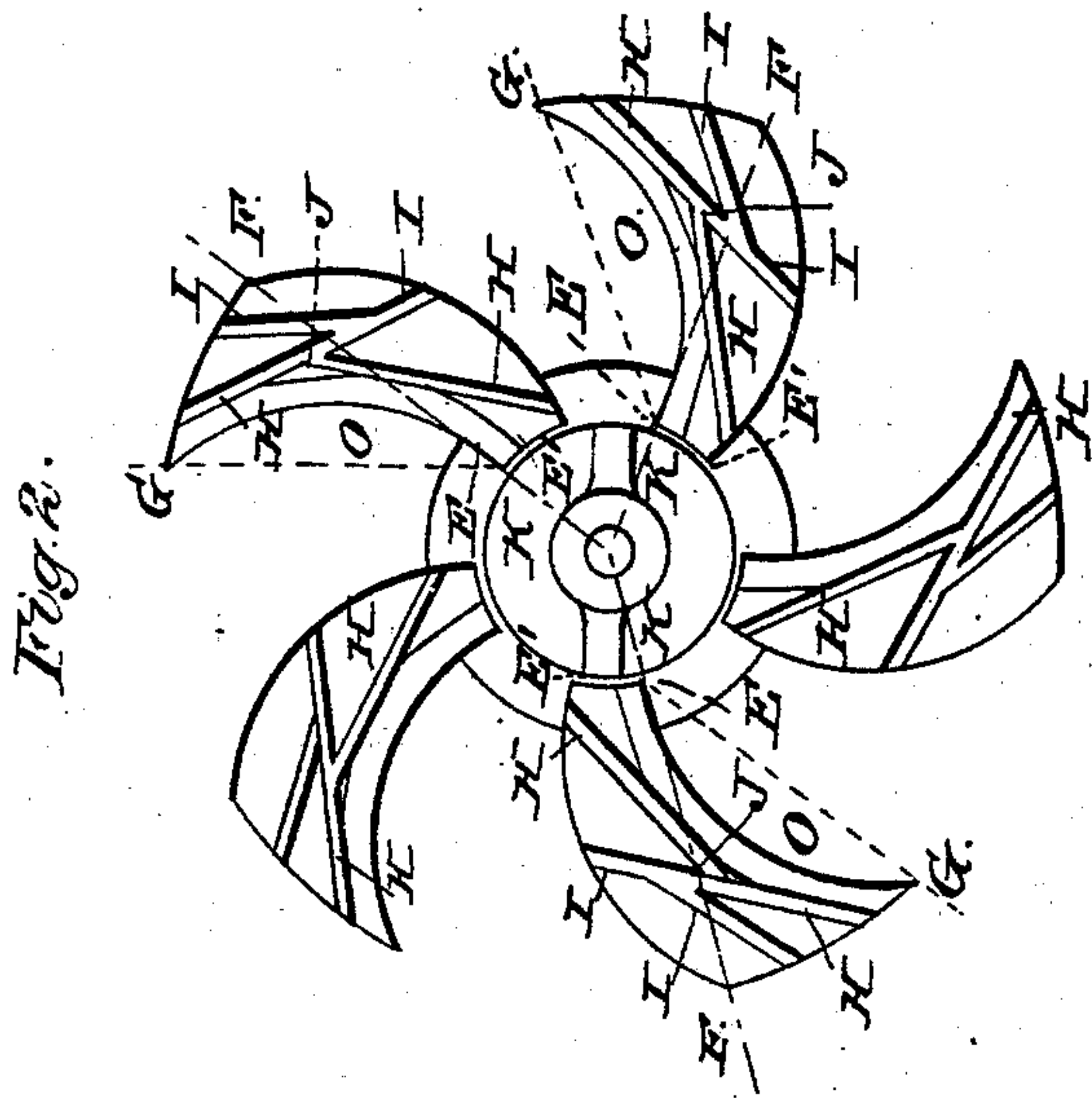


# Amalgamator Shoe.

**No. 77,868.**

Patented May 12, 1868.



Witnesses  
Jno. L. Poove  
Geo. H. Strong

Inventor  
John H. Bullock  
By his Atty<sup>s</sup> Perry & Co

# United States Patent Office.

JOHN H. BULLOCK, OF GOLD HILL, NEVADA.

*Letters Patent No. 77,868, dated May 12, 1868.*

## IMPROVED SHOE FOR AMALGAMATORS.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN H. BULLOCK, of Gold Hill, county of Storey, State of Nevada, have invented an Improved Shoe for Grinding and Amalgamating Ores containing the precious metals; and I do hereby declare the following description and accompanying drawings are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention or improvements without further invention or experiment.

The nature of my invention consists in so constructing the shoes of grinders and amalgamators that the quicksilver which is used in the process, and which, from its density or specific gravity, would naturally be thrown to the periphery of the pan as it revolves, is caught on the toe or point of the shoes and carried to the centre, and back again through grooves made at different angles in the face of the shoes.

To more fully illustrate and describe my invention, reference is had to the accompanying drawings, and letters marked thereon, of which—

Figure 1 is a top view of the pan.

Figure 2 is a bottom view of the shoe.

Similar letters of reference in each of the figures indicate like parts.

A A represent the shoes, attached to the muller-arms B B by bolts or screws passing through the arms into projections or standards upon the back of the shoes, each having four curved sides.

E is the inside point or heel, and F the rear outside point of the shoe. G represents the point or toe of the shoe, showing the relative distance to the rim of the pan in its revolution.

H is a groove, in a curved line on the face, running from the toe of the shoe at G back in a line, so as to strike a short distance back of the heel or rear portion of the shoe at E'.

Supplementary grooves I I, intersect with the groove H at J J. The shoe is set at such an angle, with a line drawn from the centre of motion to the periphery of the pan, that the toe of the shoe at G will be carried about thirty degrees forward of the same, as shown at O O, and so that a radial line will pass directly across the points of the shoe at E and F, shown in red at K K.

The advantage derived from shoes of this construction is that the quicksilver, from its great density or specific gravity, is carried by the motion of the pan outwards to the periphery, where it would remain were the ordinary shoe used, but with this shoe the quicksilver is caught on the point or toe of the shoe at G, and is carried back across the bottom of the pan, through the groove H, and strikes the heel of the succeeding shoe at the point E, from whence it is thrown forward through the intersecting or supplementary groove I I, to the periphery of the pan, and so on through all of the shoes, thereby causing the quicksilver to cover the bottom of the pan, and of course presenting a much greater surface to the pulp.

This shoe wears the bottom of the pan off level, whereas the ordinary shoe wears the bottom of the pan off in ridges, and very uneven. Several days are required to bring it smooth or even again, so that good work can be done by the pan.

By the use of this shoe, the pan can be charged with one-sixth more pulp, working it in the same time, thereby doing from fifteen to twenty per cent. more work than can be performed with the same pan using the ordinary shoe, while from being set ahead, on an angle with a right line drawn from the centre to the rim of the pan, it requires a large percentage less of power to do the same amount of work.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The combination and arrangement, on the face of a shoe or grinder for amalgamators, of the grooves H H, with the supplementary grooves I I, by which the quicksilver is taken from different points at the outer edge of said shoe, and delivered at different points at the rear of the same, to be in the way of the following shoe, substantially as described.

In witness whereof, I have hereunto set my hand and seal.

JOHN H. BULLOCK. [L. S.]

Witnesses:

W. N. HALL,

SAMUEL EVANS.