to the nail they will at the same time taper off that end of the head which, when the nail is driven, receives the blow of the hammer, the nail being cut off from the bar at the extreme end of such taper *n* to the nail-head.

From the above description of the operation of my improved forging-machine for horseshoe-nails it is apparent, first, that until the head is given to the nail, and at all times while the tapering blade to the nail is being forged, only the portion *f* of the dies strikes the bar, and that, therefore, as the bar is to be continuously fed, a new portion of the same is being brought into position for being forged, and that those portions previously sufficiently forged are not again touched by the dies until the time arrives to strike up the head, finishing the whole forged portion at the same time; second, that by automatic movable fulcrums a most successful longitudinal drawing of the metal is secured, and the process of hand-forging most perfectly imitated; third, that articles can be forged of a most perfect and uniform quality and texture, and it is believed equal in quality and uniformity to articles forged by hand.

In Fig. 7 a nail, Q, is shown possessing all the elements of this invention. *p* is the blade or shank; *h*, the head; and *n*, the taper to the striking end or head, this taper ending in a flat face, *r*. By giving the taper end *n* to the nail the liability of its drawing, upsetting, or turning out of its true course and direction when driven is obviated.

Having thus described my invention, I shall state my claims as follows:

1. In forging-machines, the levers K carrying the forging-tools at one end and at the other end connected to the operating mechanism, substantially as described, and intermediate of their length hung upon the fulcrums *b*, so constructed as to be changed, as herein shown, for the purpose specified.

2. The combination, substantially as described, with a forging-machine adapted for forging horseshoe-nails from a continuous blank, of forging-tools formed as shown, so as to forge the shank of the nail to a taper and to taper off the nail-head at its striking end, as herein set forth.

3. The shafts L, forming the fulcrums for the forging-tools, when said shafts L are connected together by rods N for simultaneous operation, substantially as described.

4. The forging-tools connected through rods I to eccentrics J of shaft F, in combination with fulcrum-shafts L, connected together by rods N, substantially as and for the purpose specified.

The above specification of my improvements in forging-machine signed by me this 10th day of August, A. D. 1872.

FRANCIS HENRY RICHARDS.

Witnesses:
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EDWIN W. BROWN.

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Centrifugal Clothes-Wringers.

No. 142,045. Patented August 19, 1873.

Fig 1.

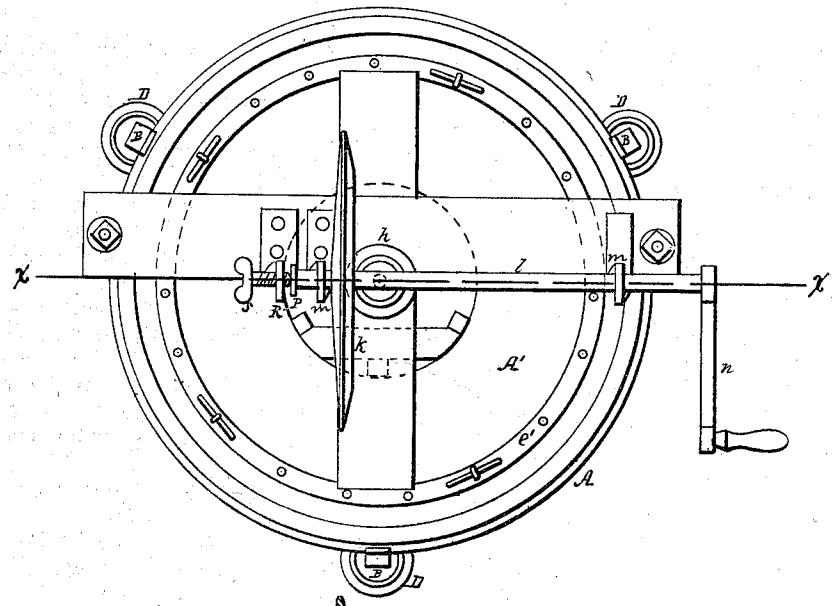
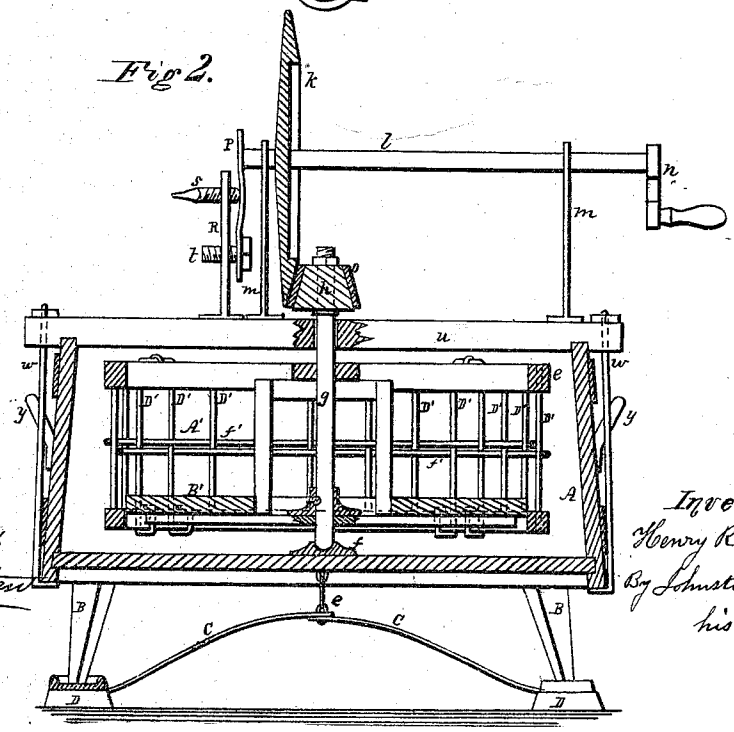


Fig 2.



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