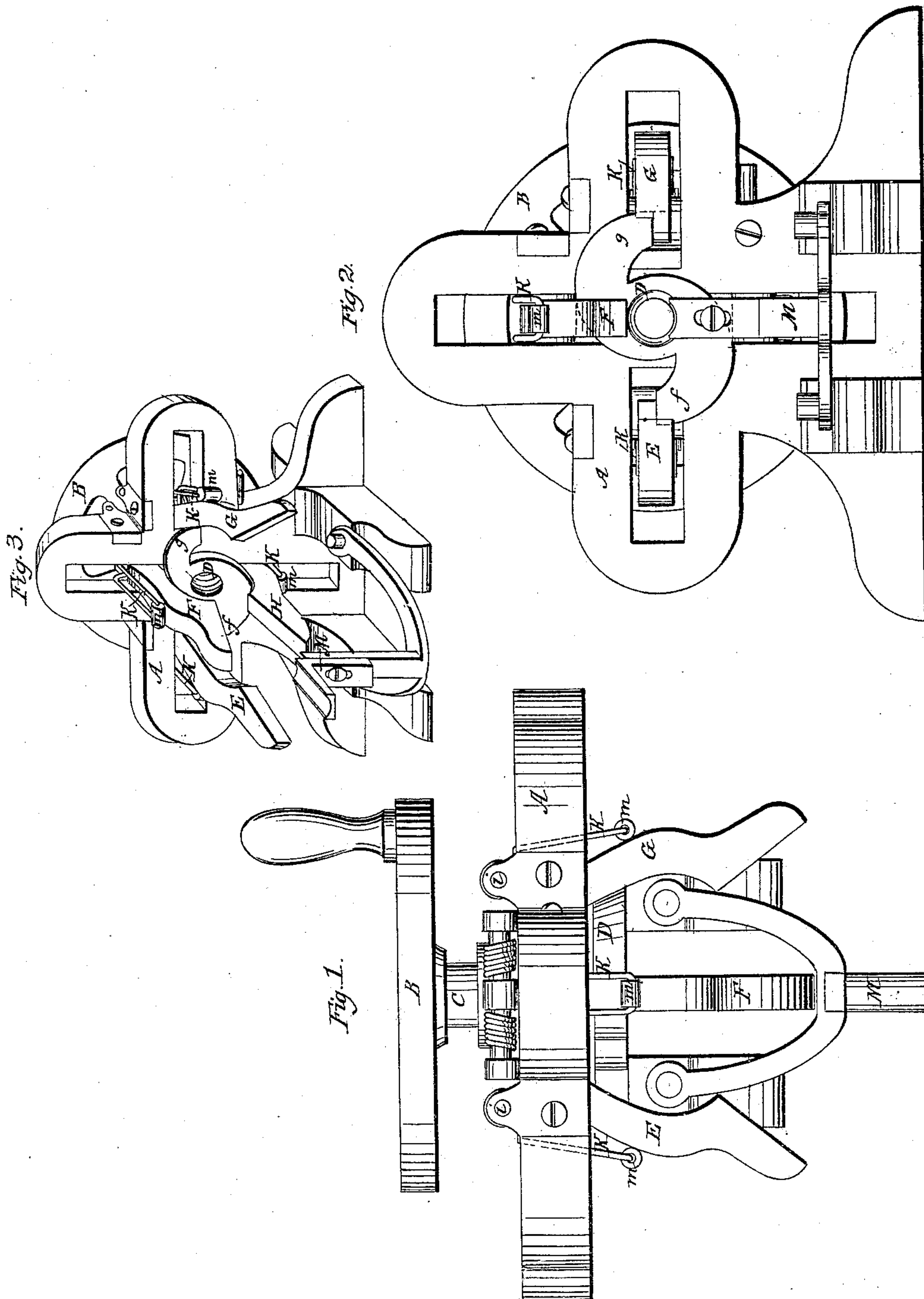


S. S. PUTNAM.
Horseshoe Nail Machine.

No. 16,186.

Patented Dec. 9, 1856.



UNITED STATES PATENT OFFICE.

S. S. PUTNAM, OF BOSTON, MASSACHUSETTS.

MACHINE FOR FORGING IRON.

Specification of Letters Patent No. 16,186, dated December 9, 1856.

To all whom it may concern:

Be it known that I, SILAS S. PUTNAM, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Forging Iron, of which the following is a full, clear, and exact description, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a plan. Fig. 2 a front view. Fig. 3 a perspective view.

My machine is of that class in which the hammers are thrown by the force of springs, and are brought to bear in pairs upon opposite sides of the iron, and my invention consists in so arranging the hammers and the machinery which actuates them, that they shall all be driven by one cam upon the driving shaft, without the intervention or necessity of other shafting or gearing for the purpose, and my invention also consists in the employment of a hollow driving shaft with a perforated cam so placed with reference to the line around which the hammers act, that the iron may be passed through the shaft as the work proceeds, whereby I am enabled to operate upon a bar of indefinite length as will be presently more fully described.

To enable others skilled in the art to understand my invention, I will proceed to describe the manner in which I have carried it out.

In the said drawings A, is the frame work of the machine; B, a fly wheel upon the driving shaft C, to one end of which is secured the driving cam D, which actuates the hammers, this cam is constructed with two branches *f*, and *g*, placed symmetrically upon opposite sides of the center, and so arranged as to release the two opposite hammers at the same instant, and to operate each pair of hammers alternately in succession.

E, F, G, and H, are the hammers which are pivoted to the frame at their extreme ends *i*, and are thrown when released from the cam by the springs K, one end of which is secured to the frame, the other being furnished with rollers *m*, to facilitate the motion of the hammers. By causing the springs and cams to bear upon the ham-

mers at a point intermediate between the pivots *i*, and the face of the hammers, I am enabled greatly to relieve the strain upon the pivots, which inevitably occurs when the hammer helve is pivoted at a point removed from its extreme end.

That the machine may be capable of operating upon a bar of indefinite length, or upon any portion of a long bar, the shaft C, is made hollow and the cam D, which is fitted thereto has an opening in its center into and through which the iron is passed. During the operation of forging, the iron is supported by the rest M, that is suitably secured to the frame work.

For some work I propose to dispense with the lower vertical hammer and employ instead thereof a stationary anvil which receives the blow of the upper vertical hammer, and across the face of which the horizontal hammers operate. This I consider but the modification of the plan described above.

Operation: Power being applied to the driving shaft, the cam D is brought to bear upon the opposite pairs of hammers which are alternately released and are brought together by the springs K, with a quick and powerful blow, the cam being so adapted that one pair of the hammers is out of the way before the others fall.

It will be perceived that the arrangement of my invention is exceedingly simple, there being no anvil, no cog wheels, and but a single cam and driving shaft; while all sides of the iron are similarly acted upon, the blows are powerful and succeed each other in rapid succession, and the pivots which have heretofore been the weakest part of these machines, are in my machine subjected to comparatively slight wear or strain.

What I claim as my invention, and desire to secure by Letters Patent, is—

The arrangement of the four hammers operating in pairs in the manner set forth and actuated by a single central cam as described.

SILAS S. PUTNAM.

Witnesses:

THOS. R. ROACH,
P. E. TESCHEMACHER.