

VINE & ASHMEAD.

Gold Beater.

No. 7,552.

Patented Aug. 6, 1850.

Fig. 1.

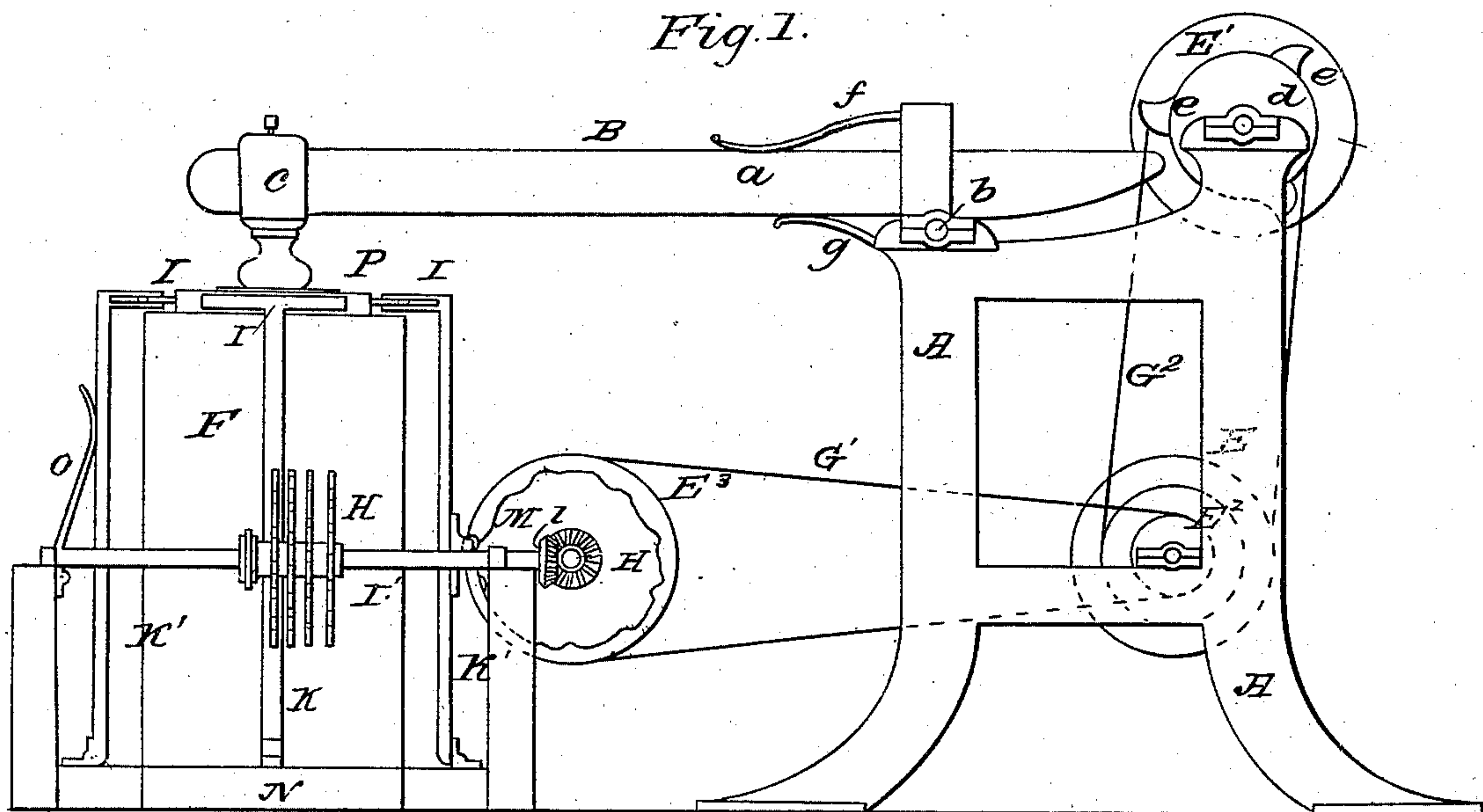
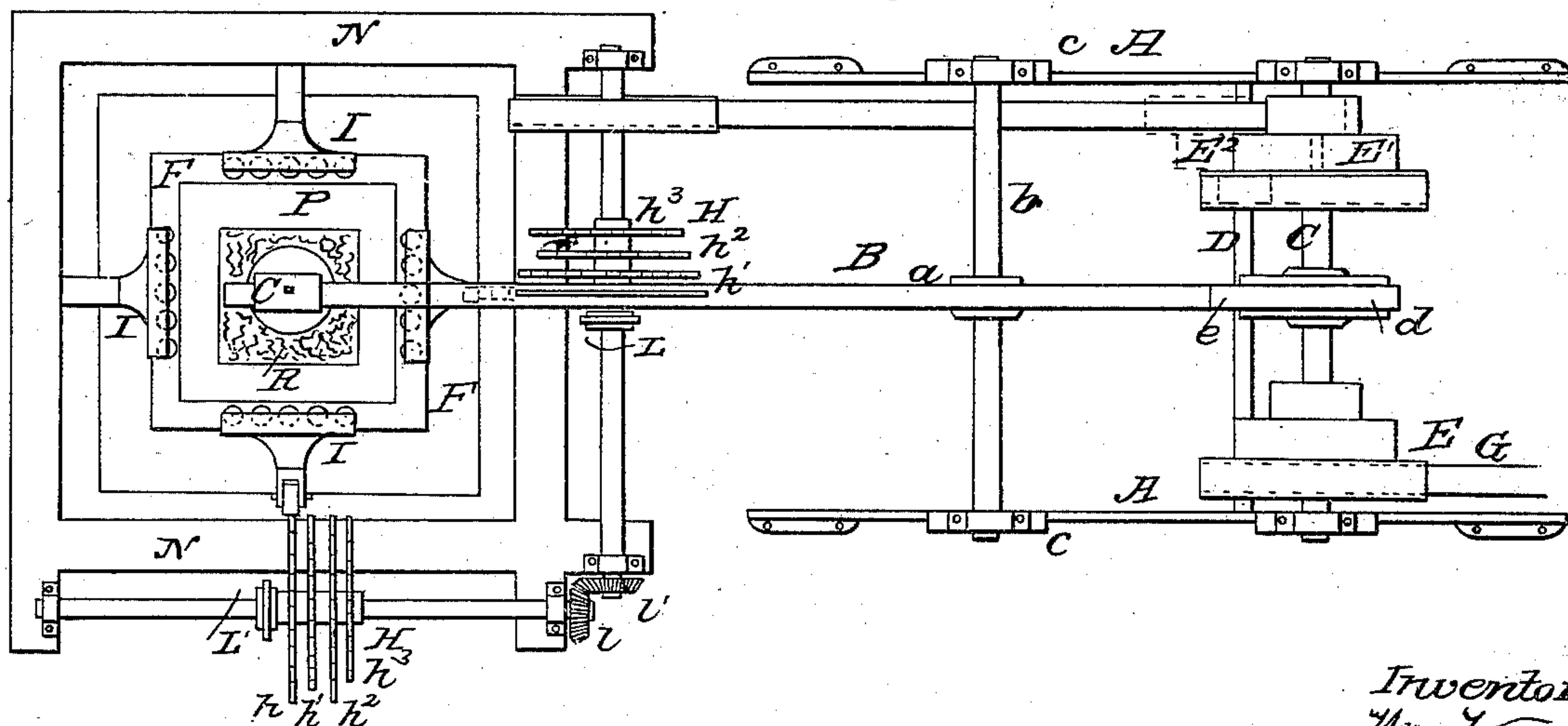


Fig. 2.



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# UNITED STATES PATENT OFFICE.

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## MACHINE FOR BEATING GOLD.

Specification of Letters Patent No. 7,552, dated August 6, 1850.

*To all whom it may concern:*

Be it known that we, WILLIAM VINE and JAMES H. ASHMEAD, both of the city and county of Hartford and State of Connecticut, have invented a new and useful Improvement in the Art of Gold-Beating; and we do hereby declare that the following is a full, clear, and exact description of our invention, reference being had to the accompanying drawing, which forms part of this specification, and in which—

Figure 1 is a side elevation and Fig. 2 a plan of our automatic goldbeater.

The machine invented by us is composed essentially of two devices which act in concert, by the one the beating or hammering is performed, while the other shifts the packet between the blows. The former device consists of a tilt-hammer driven by cams secured to a cam shaft to which motion is imparted by the prime mover; the hammer head has a rounded face which acts in combination with a block on which the packet lies. The shifting apparatus consists of a frame which embraces the packet and which is acted upon by a double set of inverted pendulums moved by indented or cam disks, and acting in combination with springs. Both devices are adjustable in such manner that the velocity or the stroke of the hammer can be varied, and the velocity and distance to which the packet is moved can be correspondingly varied.

In the accompanying drawing A, A, is the hammer frame; it is constructed in this example of cast-iron and supports the hammer B, the cam shaft C, and a countershaft D from which motion is imparted to the shifting apparatus. The hammer consists of a helve *a* tilting upon an axis *b* and fitted with a head *c*, which acts upon the packet supported upon a block F. The hinder extremity or tail of the helve is struck by cams *e* secured to a cam ring *d* mounted upon the cam shaft C. The latter is fitted with a series of belt pulleys E to which the motion of the prime mover is conveyed by a belt G. Two springs *f*, *g*, are secured to the hammer frame, the one acting upon the top of the helve increases the force of the blow, the other acting upon the bottom of

the helve prevents the rebounding of the hammer after it has struck.

The block F is surrounded by the frame N of the shifting apparatus; the latter consists of a frame P lying and traveling in all directions upon the top of the block F, of the inverted pendulums K, K', and of the indented or cam disks H and springs O. The upper extremities of the inverted pendulums are bent toward each other and are fitted with friction rollers to facilitate the movement of the frame P; those portions of the pendulums upon which the cam disks act are also fitted with friction wheels M.

The inverted pendulums are arranged in two sets to move the frame in two directions, each set is composed of two moved in one direction by one of a series of cam-disks H and in the opposite direction by a spring O which tends to keep the friction-wheel M always in contact with the cam disk H. The cam disks are arranged in sets of unequal size *h*, *h*<sup>1</sup>, *h*<sup>2</sup>, *h*<sup>3</sup> upon sleeves which are mounted adjustably on shafts of which there are two L L', one corresponding with each set of inverted pendulums. One of these shafts is driven by a belt G', from the counter-shaft D on the hammer frame. The other is driven from the first by beveled wheels *l*, *l*'. The speed of the hammer can be varied by shifting the driving belt, on the cone of belt-pulleys E; and the speed of the shifting apparatus with respect to the hammer can be varied by shifting the belt G<sup>2</sup>, on the cones of belt-pulleys E<sup>1</sup>, E<sup>2</sup>, on the cam (C) and counter (D) shafts. The distance to which the hammer is raised is varied in this machine by substituting longer cams in place of those represented in the drawing, and the distance to which the frame is moved between the blows of the hammer, is varied by shifting the disk sleeves on their shafts and bringing disks of different forms into action.

The packet of gold to be beaten is made up in the usual manner, and is placed in the frame P upon the block F. The machine being then set in motion, the packet is beaten by the rising and falling hammer while it is also shifted between the blows by the action of the traveling frame P. The head of

the hammer is secured to the helve by a clamp screw, so as to admit of its withdrawal and of the substitution of hammer heads of different forms and dimensions.

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

The combination of the adjustable differential cams (H) with the pendulums by

means of which the packet is shifted under the hammer so as to regulate the distribu- 10  
tion of the blows upon it as herein set forth.

WM. VINE.

JAS. H. ASHMEAD.

Witnesses:

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