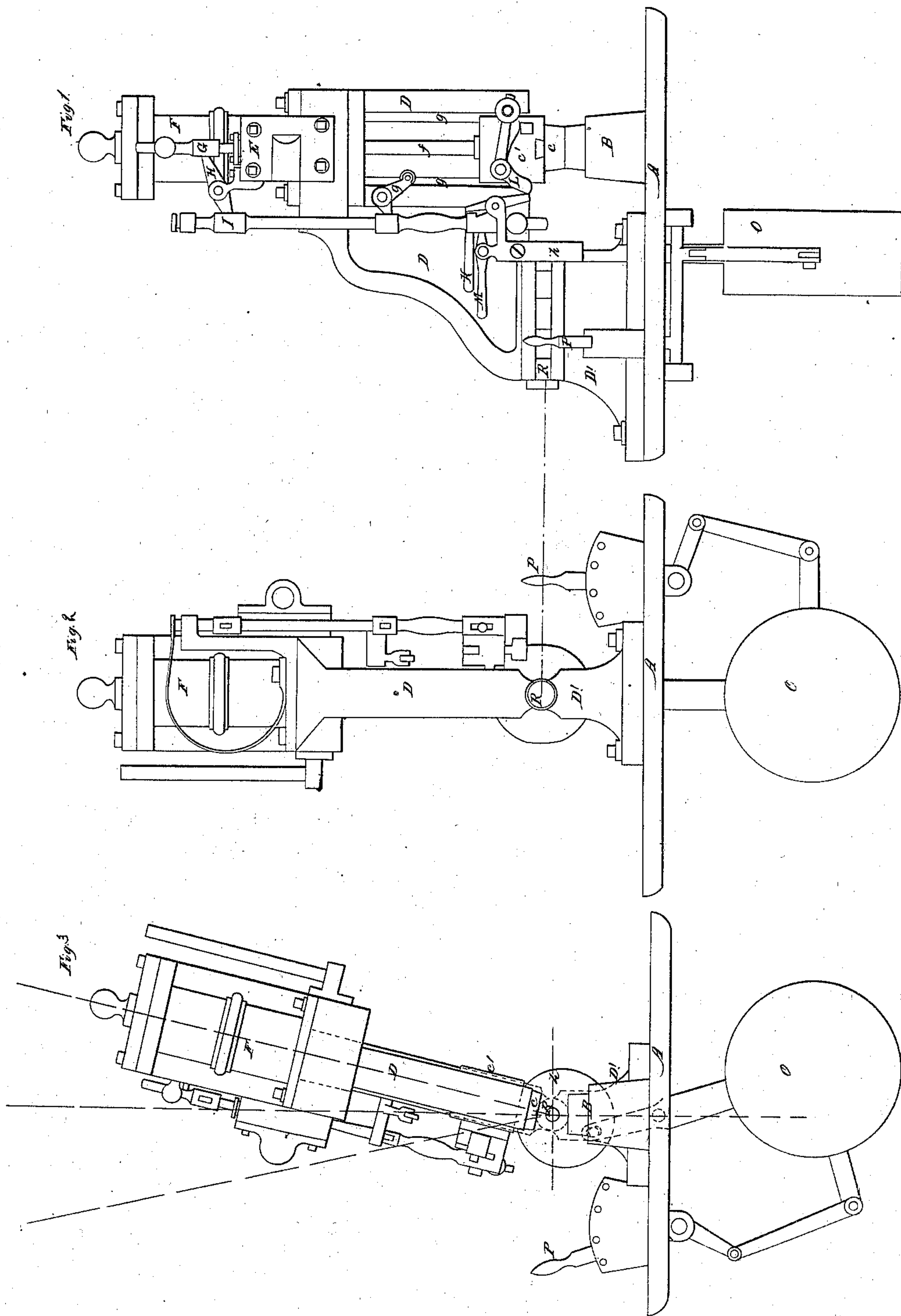


*T. Sumner,  
Steam Hammer.*

*N<sup>o</sup> 11,182.*

*Patented June 27, 1854.*





# UNITED STATES PATENT OFFICE.

THOMAS SUMNER, OF PATERSON, NEW JERSEY.

## STEAM-HAMMER.

Specification of Letters Patent No. 11,182, dated June 27, 1854.

*To all whom it may concern:*

Be it known that I, THOMAS SUMNER, of the city of Paterson, in the county of Passaic and State of New Jersey, have invented a new and useful Improvement on the Steam-Hammer, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification, and in which—

Figure 1 represents a side view of my improved steam hammer in a perpendicular position and at the extremity of its bottom stroke; Fig. 2, a back elevation of the same in a similar position; and Fig. 3, (Sheet 2,) a front elevation of the hammer in an oblique position and partly raised.

In the accompanying drawings, the hammer (*c*) is driven or made to perform its work on the anvil (*B*) by means of a steam engine, the cylinder (*F*) of which is situated above, and the connection of the engine with the hammer made direct by piston rod (*f*). The valve gear for regulating the motion of the engine, and appliances for reversing the action thereof and for diminishing or increasing its stroke, according to the requirements of the work, may be the same as those in use in other steam hammers or may be of any improved construction and arrangement; but as such gear and appliances form no part of the subject of my present claim, it is unnecessary further to advert to them here, it being borne in mind that the hammer (*c*) is caused to ascend and descend to perform its work on the anvil as required, the hammer block (*c'*) sliding or moving up and down in guides (*g*) which form part of a frame (*D*). This frame (*D*) also carries the engine which operates the hammer, and is hung or supported, by a hinge or joint (*R*), on a fixed frame or standard (*D'*) fast to the bed plate (*A*) below. This hinge or joint (*R*) forms a center of motion for the frame (*D*) which carries the engine and hammer, to admit of the engine and hammer being swung to an oblique or toward an horizontal position (as represented in Fig. 3, Sheet 2) on either side of the perpendicular. The hinge or joint (*R*), it will be observed, is at the back of or on one side of the anvil, and its height, in relation to the anvil, is the same, or thereabout, as that occupied, in a general way, by the bar or piece of work when under opera-

tion on the anvil, so that the hammer may be swung into various radial positions with the work resting upon the center of the anvil to operate across or over the surface of the work, or around it as it were, and to act alike upon the top and corners or edges and sides of the work for the purpose of hammering or fashioning it, at different points transversely, and giving it a curved, beveled or polygonal shape without involving the necessity of frequently turning the bar or piece of metal on the anvil, as is now done with the ordinary steam hammer and which, where the bar or work is heavy is a slow and laborious operation. But by my arrangement of varying the direction of the blow from the perpendicular into various oblique positions radial to the work, it will be obvious that the frequent turning of the work is avoided and that one swage will serve to give the work certain shapes while with the ordinary steam hammer, having a perpendicular descent only, several swages to give the same shape would be required. In order however to make my improved mode of operating the hammer effectual, it is necessary that the hammer, with its engine and swinging frame, should be capable of being worked into its various radial positions with ease and rapidity and that it should be as steady when working in an oblique as in a perpendicular position. To effect this I attach by lever or otherwise to the swinging hammer frame, or to a projection (*h*) therefrom a counterbalance weight (*O*), which, whatever the oblique position of the hammer, swinging frame and engine, balances them so that the hammer may be swung about across or over the work in the manner and for the purposes described, rapidly and with ease, and the hammer be made to operate steadily and without involving strainage when occupying an oblique position. The swing of the hammer and the set of it in any desired radial position may be effected by a hand lever (*P*) connected by rods with the counterbalance weight (*O*) attached to or connected with the swinging frame (*D*) as specified. Thus the greatest convenience is afforded for working metal on the anvil, and, in addition to the time and labor saved by my specified swinging arrangement of the hammer, work may be finished at one heat, which with the ordinary hammer requires several, also frequent stoppage of the



hammer, changing of swages, &c., and by my arrangement a taper or curved form may be given to the work as readily as a flat.

5 I am aware that machine or friction hammers for straightening metal bars have been constructed so that the descending hammer has been made capable of direction to strike the bar on the anvil at various points  
10 throughout its length, and at different angles, in such a manner that the hammer, when directed to descend vertically, strikes the bar at a point over the center of the anvil, and, when its direction is changed,  
15 strikes the bar obliquely at any desired point on either side of the center of the anvil so as to give the hammer increased range over the face of the anvil for the whole width thereof if desired, to straighten the  
20 bar resting thereon; and that this has been accomplished by working the hammer in guides suspended from a rock shaft above or over the anvil, with a lever for directing the said guides so as to give the hammer  
25 either the said vertical or oblique descent as required, but such oblique action or diversion of the blow from that portion of the bar resting on the center of the anvil is totally inapplicable to the work for which  
30 my improved hammer is designed, and therefore such method of operation, or merely varying the direction of the blow, and employing for that purpose a hinged or rocking guide frame for the hammer to de-

scend in, with lever to direct the descent, I 35 do not claim; but

I do claim as new and useful, and desire to secure by Letters Patent—

The arrangement herein described of the hinged guide frame which carries the ham- 40 mer in relation to the anvil, by supporting the said guide frame on a trunnion below situated at the back of or on one side of the anvil and at the same level, or thereabout, as that occupied by the bar, or work, under 45 operation on the anvil, the said hinged guide frame being furnished with a counterbalance weight to facilitate and steady its swing and relieve the swinging parts from strain when occupying an oblique position, 50 substantially as specified; by which arrangement the hammer may be swiveled from the vertical toward the horizontal position, on either side, into radial positions with that portion of the bar or work resting on 55 the center of the anvil for the purpose of enabling the hammer to be worked across or around the bar, and to operate alike on its top and corners or sides, to give it a round, taper or polygonal form in its transverse 60 section, or otherwise work and shape it, with convenience and dispatch, and whereby the frequent handling or turning of the heavy bar or work is avoided.

THOMAS SUMNER.

Witnesses:

THOS. D. HOKSEY,  
HENRY CODDINGTON.