

C. A. VAUGHN.
POWER HAMMER.

No. 459,092.

Patented Sept. 8, 1891.

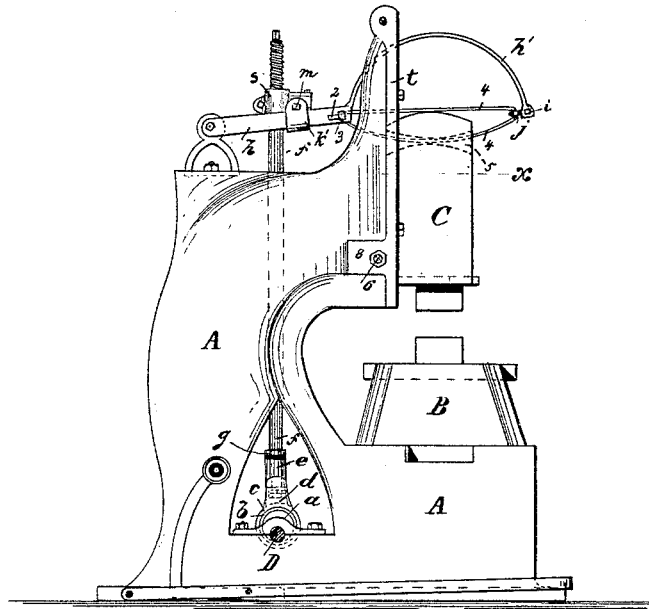


Fig. 1

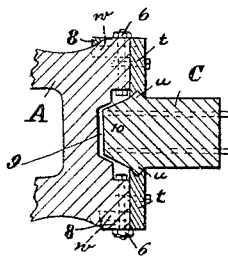


Fig. 2

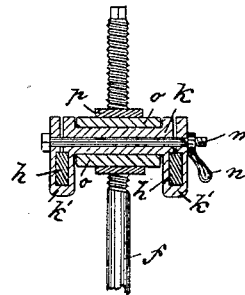


Fig. 3

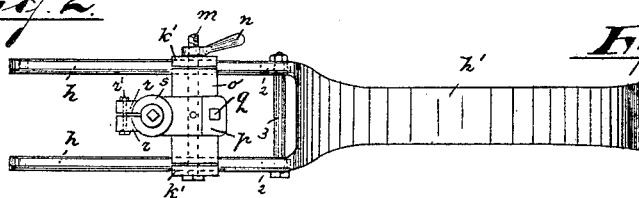


Fig. 4

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Wm. D. Bell.

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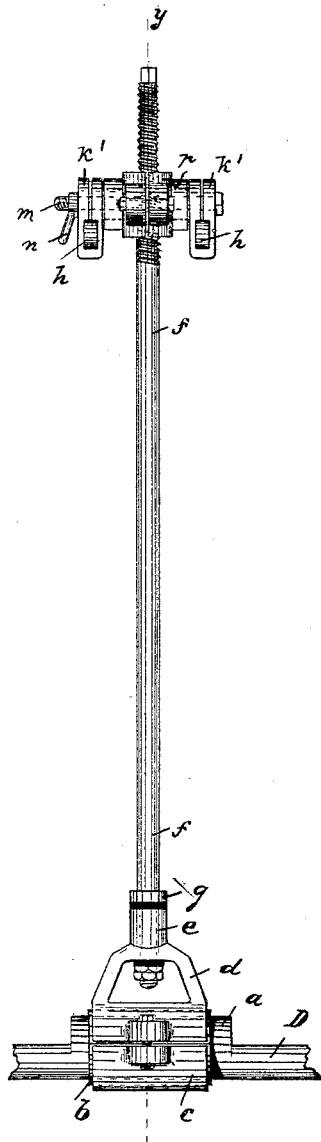


Fig. 5.

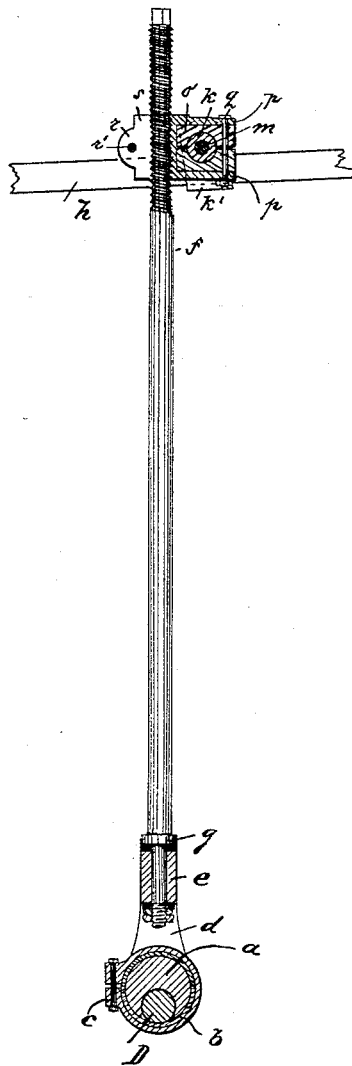


Fig. 6.

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UNITED STATES PATENT OFFICE.

CHARLES A. VAUGHN, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF
TO F. J. SCHMITT & CO., OF NEWARK, NEW JERSEY.

POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 459,092, dated September 8, 1891.

Application filed May 9, 1891. Serial No. 392,173. (No model.)

To all whom it may concern:

Be it known that I, CHARLES A. VAUGHN, a citizen of the United States, residing at Brooklyn, Kings county, and State of New York, have invented certain new and useful Improvements in Power-Hammers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

The object of this invention is to more readily adjust the length of the drop of the hammer and to provide simple and reliable means for increasing its power.

The invention consists in the improved power-hammer hereinafter described and the combinations and arrangements of the various parts thereof, substantially as will be hereinafter more fully described, and finally embodied in the claims, and is an improvement on the power-hammer described in United States Letters Patent granted to me October 15, 1889, No. 412,809.

Referring to the accompanying drawings, in which like letters and figures of reference indicate corresponding parts in each of the several views, Figure 1 is a side view of a power-hammer embodying my improvement. Fig. 2 is a section of the same on line *x*. Fig. 3 is a top plan view of the helve. Fig. 4 is a transverse sectional view of the adjustable bearing on the helve. Fig. 5 is a rear view of a part of the machine, showing the connections between the driving shaft; and Fig. 6 is a vertical central section on line *y*, Fig. 5.

In said drawings, A represents the frame of the machine.

B is an anvil-support.

C is a hammer-stock.

D is a main shaft running in suitable bearings on the frame and carrying a driving-pulley. (Not shown.)

On the main driving-shaft is formed or rigidly secured thereto an eccentric *a*, with metallic bushing or bearing *b*. Surrounding said bushing and eccentric is an eccentric-strap *c*, preferably in two parts and provided with a

yoke-extension *d*. (Shown more clearly in Fig. 5.) This yoke is provided on its upper portion with a shoulder *e*, the shoulder and yoke being socketed to receive the lower end of a connecting-rod *f*, as shown in Figs. 1, 5, and 6. Upon the connecting-rod is formed a shoulder *g*, adapted to rest on an elastic washer on the upper part of the shoulder *e*, and the lower end of this rod, which projects below and within the yoke, is threaded to receive binding and locking nuts, with an elastic washer interposed between the binding-nut and yoke. This rod *f* extends upward and is pivotally connected with the helve, as will be hereinafter described.

On the top of the rear of the frame is secured in any desired manner a pivotal connection for the rear end of a forked helve *h*. (Shown more clearly in Fig. 3.) The forward end of this helve is formed into a flat semi-circular spring *h'* and made integral therewith, as shown in Fig. 1. The outer end of said spring *h'* is turned over or down to form a bearing for a pin *i*, on which is pivoted a shackle *j*, as shown in Fig. 1. Between the arms of the fork of the helve is arranged a bearing or block *k*, the ends of said bearing being formed with downward and upward extending portions *k'* *k'* and adapted to surround the arms of the fork and be reciprocated thereon, as shown clearly in section in Fig. 4. Through the center of this bearing and the upturned sides and above the arms of the fork is an opening, through which passes a tightening-bolt *m* for adjustably securing the bearing in position on the arms of the fork of the helve. This bolt *m* is threaded at one end to receive a hand tightening-nut *n*. The outer surface of the bearing *k* is channeled to receive a bushing *o*, as shown in section in Figs. 4 and 6. Around this bushing *o* is fitted a rod-holder *p*, and firmly held thereon by a tightening-bolt *q*, as shown in Figs. 3 and 6. The forward end of this holder *p* is provided with a clamp *r*, having clamp-bolt *r'* and concave threaded recesses, which, when the clamp *r* is closed, form a threaded socket *s*, Figs. 1 and 3, to receive the upper threaded end of the connecting-rod *f*, as shown in Fig. 1. The extreme upper end of this connecting-rod is formed to receive a wrench to turn

the connecting-rod in the socket *s*, so that the connection between the driving-shaft and the helve can be increased or diminished, as desired.

5 Upon the sides of the front of the frame *A* are guide-plates *tt*, secured thereto by bolts 6 6, passing through side flanges 8 8 on the lower portions of the guides and the sides of the frame, and these plates are provided on
10 their inner edges with vertical triangular slots, as shown in Fig. 2. The hammer-stock *C* is provided on or near the rear of its sides with vertical angular projections *uu*, adapted to fit in the triangular slots, and in which the
15 hammer-stock slides vertically, as shown in Fig. 2. Between the lower side flanges of the guide-plates and the frame pieces of rubber or elastic material are inserted, as shown in dotted lines at *w*, Fig 2, to relieve the jarring
20 consequent from the concussion of the hammer. The front of the frame *A* is vertically recessed, as at 9, Fig. 2, in which moves freely the portion 10 of the hammer-stock in the rear of the slides, as shown in section in Fig. 2.
25 The forward ends of the forks of the helves are provided with elongated slots 2, in which is adjustably secured a pin 3, as shown in Figs. 1 and 3. Around this pin 3 and extending forward and around the shackle *j* is adjusted and arranged a leather band 4. This
30 leather band passes over the top of the hammer-stock, and also through an opening 5 in the upper part of the hammer-stock, the upper and lower surfaces of this opening 5 being convex, as shown in dotted lines in Fig. 1.
35 By my improved connection between the top of the connecting-rod and the adjustable bearing on the helve the rod is not only held firmly in connection therewith, but at the
40 same time is free to oscillate on the bushing on the adjustable bearing. When considerable increase or decrease of power is required, the adjustable bearing on the helve is loosened by the hand-nut and moved forward or back-
45 ward, as may be desired; but if a slight variation only in the power of the hammer is desired the position of the adjustable bearing need not be changed, and the variation can be effected by merely turning the connecting-
50 rod around in its threaded connection with the holder in either direction, thus slightly increasing or decreasing the length of the connection between the driving-shaft and the helve, as desired. By the employment of a
55 leather band passing over the top of the hammer-stock, and also through a convex opening

in the stock, as shown in Fig. 1, the descent of the hammer is materially assisted, while by convexing the opening in the stock the band has a more even bearing when raising the
60 stock, and at the same time the strain on the band is much less than when the opening is straight. By extending the hammer-stock to the rear of the slides and recessing the frame to allow its free passage the hammer-stock is
65 more evenly balanced and can move more readily in the guides.

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

1. In a power-hammer, means for connecting the driving mechanism with the hammer mechanism, consisting of an eccentric on the driving-shaft, an eccentric-strap with socketed yoke-extension and connecting-rod, one end
75 of which is adjustably secured in the socket in the yoke, the other end being adjustably connected with the hammer mechanism, substantially as described, and for the purpose set forth.

2. In a power-hammer, means for connecting the hammer mechanism with the driving mechanism, consisting of an adjustable block-bearing on the helve of the hammer mechanism, a rod-holder pivoted to said block-bearing
85 and provided with a threaded socketed clamp, and a connecting-rod, one end of which is threaded and adapted to enter the threaded socket in said rod-holder, the other end being adjustably connected with the driving mechanism, substantially as described, and for the purposes set forth.

3. In a power-hammer, the combination, with the helve and means for operating said helve, of a semicircular spring secured to or
95 made integral therewith, a hammer-stock provided with convex surface-opening, and a flexible band adjustably connecting the ends of said spring, one portion of said band being adapted to rest on the top of said hammer-stock, the other portion being adapted to pass through the opening in said hammer-stock, substantially as described, and for the purpose set forth.

In testimony that I claim the foregoing I
105 have hereunto set my hand this 16th day of April, 1891.

CHARLES A. VAUGHN.

Witnesses:

WALTER THOMPSON,
E. L. SHERMAN.