(No Model.)

A. BEAUDRY.

POWER HAMMER.

No. 526,370. Patented Sept. 25, 1894.

Fig. 1.

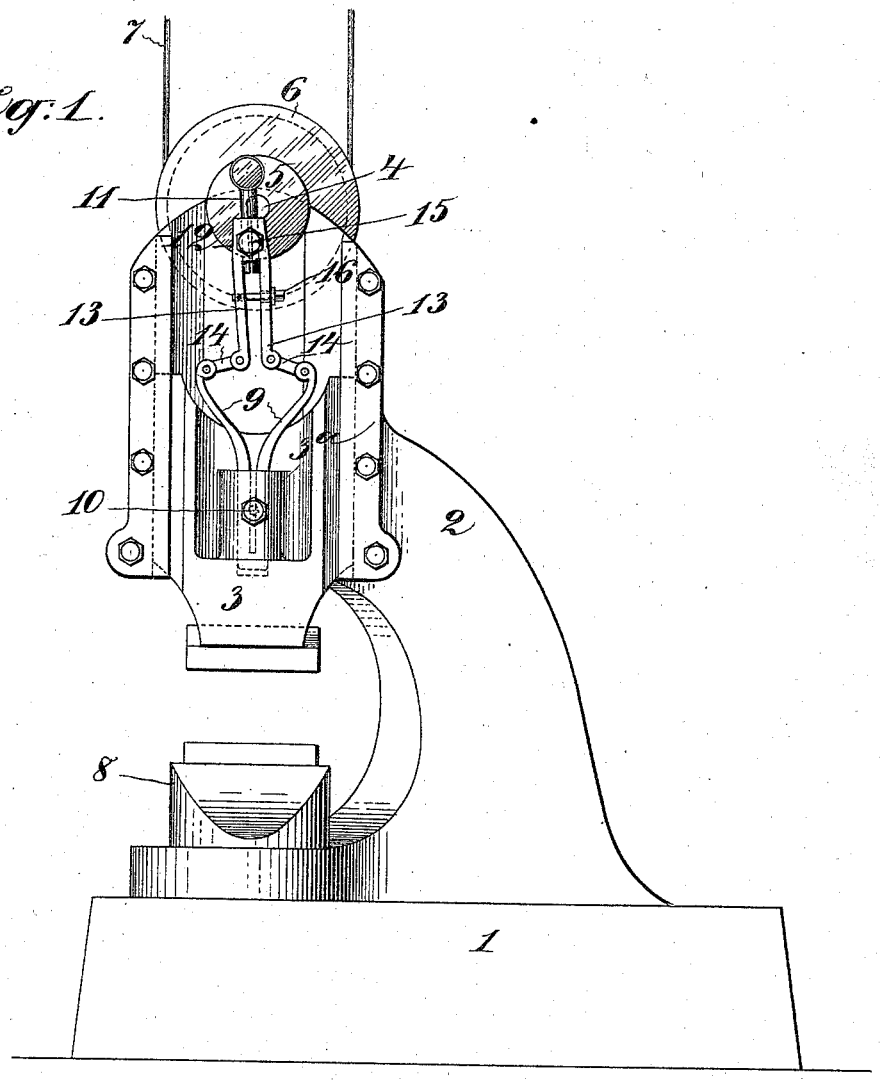
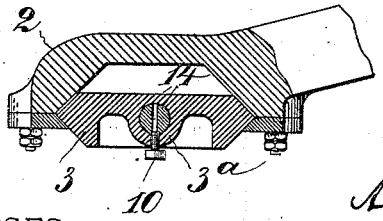


Fig. 2.



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UNITED STATES PATENT OFFICE.

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POWER-HAMMER.

SPECIFICATION forming part of Letters Patent No. 526,370, dated September 25, 1894.

Application filed December 29, 1893. Serial No. 495,031. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTIN BEAUDRY, a citizen of the United States, residing at Somerville, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Power-Hammers, of which the following is a specification.

This invention relates to the class of power hammers wherein a reciprocating hammer-head is coupled to a crank which, by its rotation imparts the reciprocating movement to the hammer-head, and particularly to that type of such hammer in which an elastic intermediary is placed between the hammer-head and crank which enables the operator to give a stroke to the hammer somewhat in excess than that due to the crank alone.

To this end the invention consists in providing the hammer-head with two upwardly projecting parts or arms, preferably diverging, and spring-like and providing the connecting-rod, which is coupled at its upper end to the pin of the crank, with two downwardly directed spring-branches, which latter are coupled at their lower ends to the upper ends of the respective spring-arms on the hammer-head by links. This construction permits of the desired elastic elongation of the intermediary connection between the hammer-head and crank and at the same time allows the connecting-rod to vibrate laterally in consonance with the movements of the crank.

In the accompanying drawings I have illustrated an embodiment of the invention.

Figure 1 is a front elevation of the hammer. Fig. 2 is a transverse section of the hammer-head and frame taken in the plane of the set screw 10.

1 is the base or bed-piece of the hammer and 2 the frame thereon in which the hammer-head, 3, is mounted to reciprocate vertically in guides. In the frame is mounted a crank-shaft, 4, on the front end of which is fixed a crank, 5. On the other or rear end of the shaft is fixed a driving pulley, 6, to receive the belt, 7, for imparting rotary motion to the shaft. In the bed-piece 1, is set the anvil, 8, directly under the hammer-head 3.

All of the above mechanisms are common in this class of hammers and they may be varied to suit conditions.

My invention relates to the intermediate mechanism whereby the rotating crank imparts a reciprocating motion to the hammer-head.

In the hammer-head is formed a socket, 3^a, to receive a Y-shaped piece comprising two spring-arms, 9, 9, which have each a half-round shank which fits into the socket 3^a, a pointed screw, 10, serving as a set-screw to hold them firmly in place, as seen best in Fig. 2.

I prefer to employ the construction shown, but an equivalent construction consisting of a solid shank with two branches or arms would serve, the shank being held in place by an ordinary set-screw. Indeed the arms may be screwed to the hammer-head in any manner so as to project upwardly therefrom. Coupled to the crank-pin is a crank-rod, 11, and secured to this rod adjustably is a sleeve, 12, on which are two spring-branches, 13, 13. The lower ends of these spring-branches are coupled, respectively, to the upper ends of the spring-arms 9, by links, 14, as shown in Fig. 1. The rod 11, sleeve 12, and branches 13, 13, constitute a spring connecting-rod, and I prefer to construct it as herein shown, but the crank-rod and sleeve might be integral in a case where no adjustment of the length of the connecting-rod was required. It is desirable where the hammer is to operate on pieces varying considerably in thickness, to provide a means for varying the distance between the center of the crank-shaft and the lower face of the hammer-head, and this may be done by adjusting the shanks of the spring-arms 9, in the socket in the hammer-head, or by the adjustment of the sleeve 12, along the rod 11, securing the sleeve in place by means of a pointed set-screw, 15, which is driven into a longitudinal slit in the crank-rod so as to expand the latter in the sleeve and hold it fast therein. Any equivalent means of securing the rod in the sleeve may, however, be provided.

Usually, in this class of hammers, a treadle is employed whereby a roller is made to bear on the belt and tighten it on the pulley so as to set the crank-shaft in motion. This device I have not shown herein as it is not new with my hammer and is not essential to it.

When the crank-shaft rotates slowly the hammer-head will have given to it a stroke or travel about equal to the throw of the crank, but if set in rapid motion the momentum of the hammer-head acting through the spring-arms 9, the spring-branches 13, and links 14, will impart to the head a greater length of stroke, the spring connecting media being distensible longitudinally. The device will also serve to overcome gradually the inertia of the hammer-head at the ends of the strokes. The tension of the spring-arms and spring-rods may be increased by means of a tension-regulating screw, 16, which passes freely through one branch 13, and screws into the other, as clearly shown.

It will be noted that in the construction shown the elongation of the connecting media between the hammer-head and crank draws the spring-arms 9, inward toward each other and spreads the spring-branches 13, apart. This is because of the arrangement of the arms 9, at a greater distance apart than the branches 13; but the operation would be the same if this arrangement were reversed and the spring-branches be placed wide apart.

Having thus described my invention, I claim—

1. In a power hammer, the combination with a frame, a crank-shaft and crank and a hammer-head mounted to reciprocate in the frame, of a connecting-rod intermediate the pin of the crank and the hammer-head, said connecting-rod being split to form spring-branches, and links which couple the said branches respectively with upwardly projecting parts on the hammer-head, substantially as set forth.

2. In a power hammer, the combination with the frame, crank-shaft and crank and the hammer-head mounted to reciprocate in the frame and provided with upright spring-arms, of a spring connecting-rod, coupled at one end to the pin of the crank and having spring-branches, and links which couple the said spring-branches with the respective spring-arms on the hammer-head, substantially as set forth.

3. In a power hammer, the combination with the frame, a crank-shaft and crank mounted therein and a hammer-head mounted to reciprocate in the frame, said hammer-head being provided with spring-arms 9, 9, of the connecting-rod, comprising the crank-rod, the sleeve mounted adjustably thereon, and the spring-branches on said sleeve, and the links connecting said spring-branches respectively with the spring-arms on the hammer-head, substantially as set forth.

4. In a power hammer, the combination with the frame, the crank-shaft and crank, and the hammer-head 3, mounted to reciprocate in the frame and provided with a socket 3^a, of the spring-arms 9, secured adjustably in the said socket, the connecting-rod coupled to the pin of the crank and having two spring-branches 13, the tension-regulating screw in the branches, and the links 14, which couple the respective spring-branches to the spring-arms on the hammer-head, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

AUGUSTIN BEAUDRY.

Witnesses:
PETER S. MAHER,
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