

(No Model.)

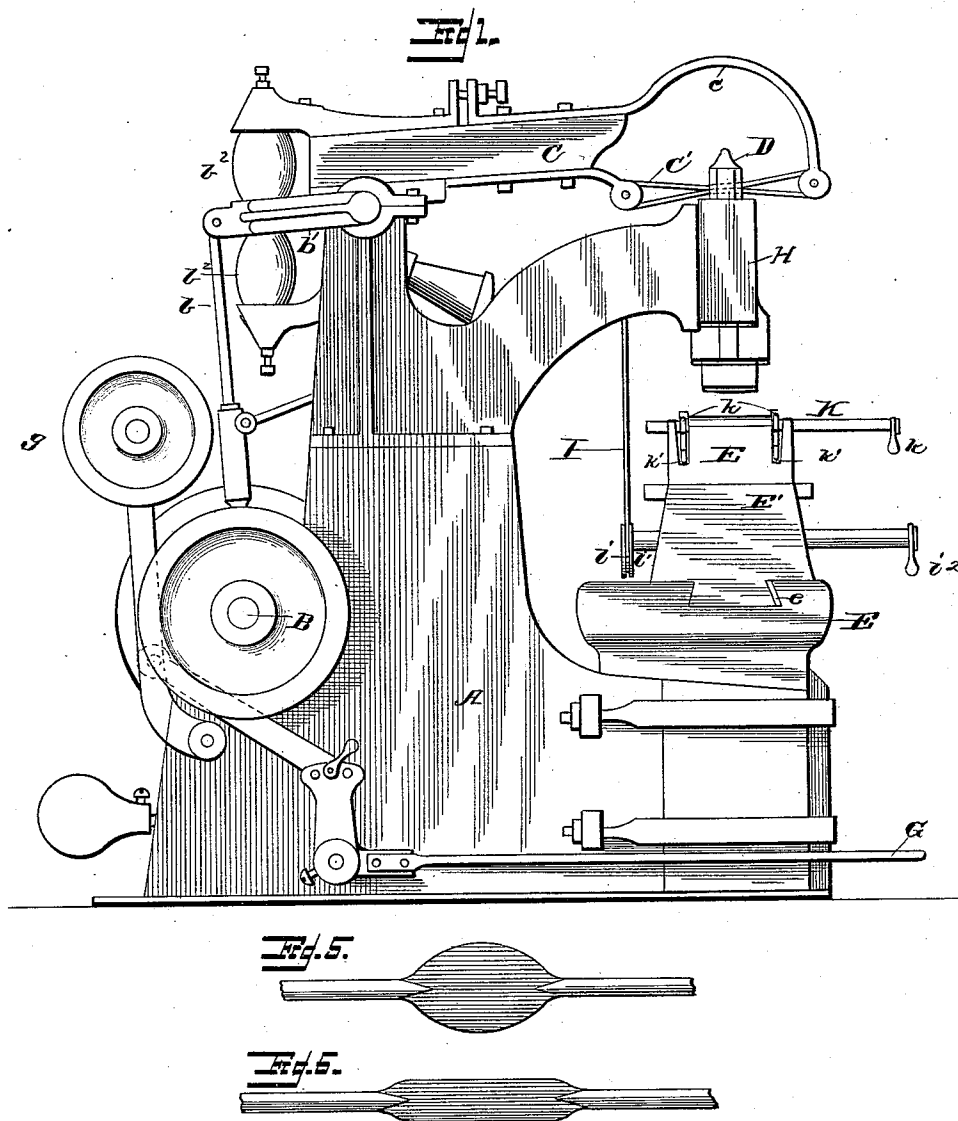
2 Sheets—Sheet 1.

A. L. KERN.

MACHINE FOR FORGING VEHICLE CLIPS.

No. 486,784.

Patented Nov. 22, 1892.



Witnesses.

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Aly Stewart

Inventor
By Albert L. Kern,
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His Attorneys.

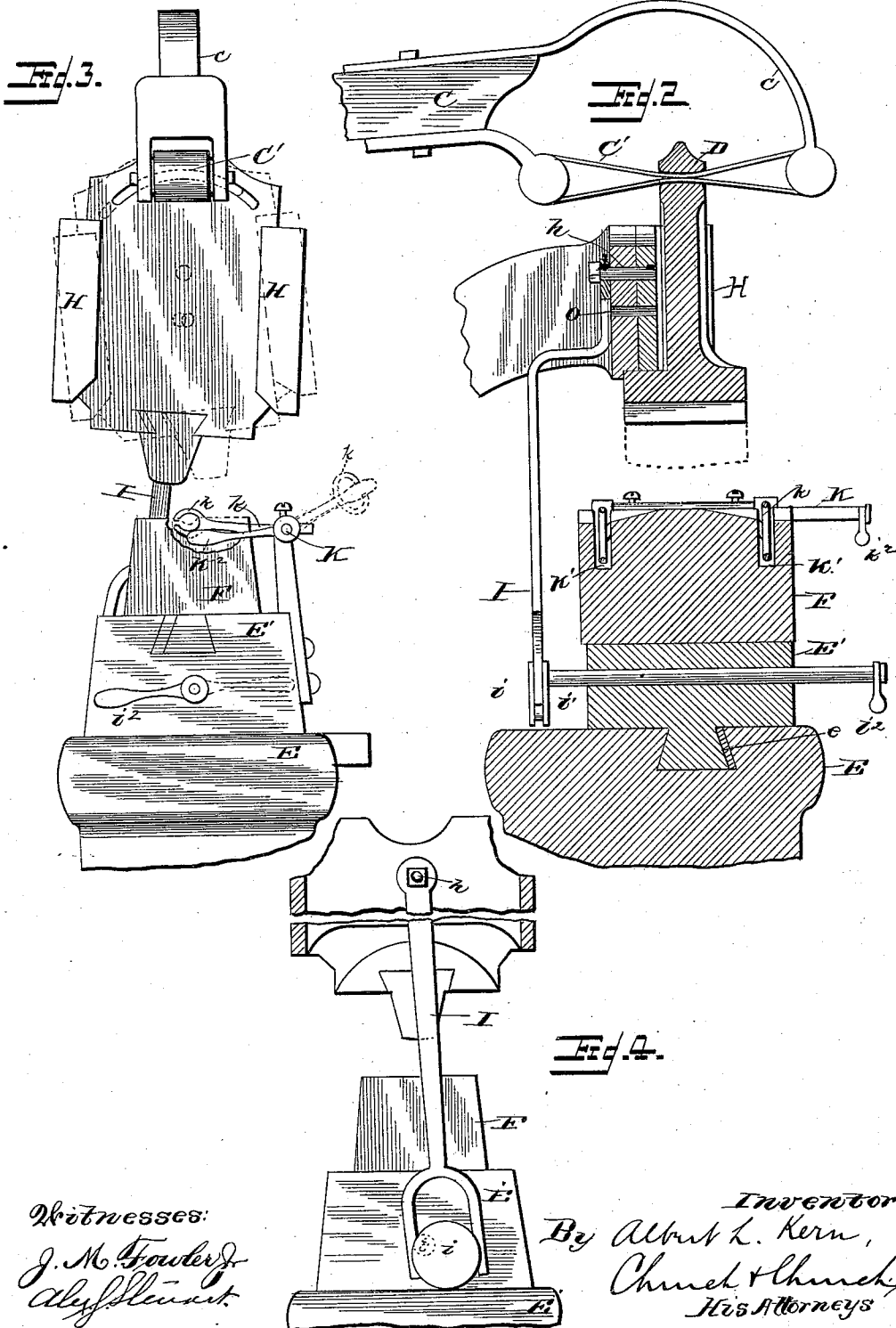
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UNITED STATES PATENT OFFICE.

ALBERT L. KERN, OF YORK, ASSIGNOR OF ONE-HALF TO THE KEYSTONE WAGON COMPANY, OF READING, PENNSYLVANIA.

MACHINE FOR FORGING VEHICLE-CLIPS.

SPECIFICATION forming part of Letters Patent No. 486,784, dated November 22, 1892.

Application filed February 18, 1892. Serial No. 422,034. (No model.)

To all whom it may concern:

Be it known that I, ALBERT L. KERN, of York, in the county of York and State of Pennsylvania, have invented certain new and useful Improvements in Machines for Forging Vehicle-Clips; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

The object of the present invention is to provide a machine especially adapted for forging carriage or wagon clips, although capable of a wide range of usefulness in other branches of art of forging where power-hammering is required, which machine shall be simple in so far as its construction differs from an ordinary power-hammer and at the same time powerful and easily and perfectly controlled by the operator to permit of the formation of regular symmetrical clips.

Referring to the accompanying drawings, Figure 1 is a side elevation of a power-hammer of the "Bradley" type modified in accordance with my present invention. Fig. 2 is a vertical section through the hammer, anvil, and die-blocks. Fig. 3 is a front elevation of the same. Fig. 4 is a detail elevation looking at the rear of the anvil, die-block, and hammer with its guides. Figs. 5 and 6 are specimens of clips forged on the machine.

Similar letters of reference indicate the same parts in all the figures.

In the manufacture of articles such as herein contemplated it is usual to make use of round or bar iron or steel blanks, which are rendered malleable by heat, then forged out on each side at an intermediate point to form the strap portion. In expediting this step in the manufacture power-hammers have been employed and the bar-blank carried by a laterally-movable die-block having the conformation desired for the outside of the clip. Thus the blank was placed in position, the hammer started, and the die-block moved laterally to cause the metal to spread properly. By the careful regulation of the force of the blows and the movement of the die-block beneath the hammer the metal can bespread properly

and the die gives the proper conformation to the face or outside of the clip. Now while I propose to secure the same or better results and to flange or forge the metal from the center out and form the face of the clip in a die-block, as just described, yet I propose to entirely do away with the necessity of moving the die-block, (which latter may be keyed rigidly in place on the anvil), thus overcoming a serious defect in prior machines, and at the same time securing an automatic action which gives lighter blows as the metal is reduced to a thin edge, enabling a workman of less skill than heretofore to forge perfect clips.

In carrying out the invention I have shown it applied to what is known as a "Bradley" hammer and designated more particularly in the trade as an "upright cushioned strap-hammer;" but it will be understood that the invention may be applied to practically any of the power-hammers now on the market.

The hammer shown is well known and needs no particular description. Suffice it to say that A is the bed or main frame; B, the power-shaft connected through the usual eccentric, connecting-rod *b*, lever *b'*, and rubber cushions *b²* with the rear end of the pivoted helve C. The latter has an arched steel front end *c* with a suspension-strap C', upon which is hung the ram or hammer proper D. Below the ram or hammer is the anvil E, carrying the anvil-block E', which in turn carries the die-block F, these parts being adjusted and held rigidly in place by keys *e* or other suitable devices. The usual foot-lever G passes around the front of the anvil and controls the belt-tightener wheel *g* and brake to start, stop, or control the speed or force of the blows delivered by the ram.

Heretofore the ram or hammer has been made to travel as nearly as possible in a fixed path to and from the die-block; but to secure the necessary flanging or beating out of the blank I mount the ram or hammer in movable bearings, with means convenient to the operator for moving said bearings to shift the ram or hammer laterally with relation to the die.

The guides, bearings, or ways for the ram

are preferably pivoted, and as they are turned on the pivot cause the hammer to strike to one side or the other of the center of the die, and at the same time an important advantage is gained in that the distance the ram travels is increased and the force of the blows delivered is reduced as the edge of the flanged portions are reached, thus preventing the breaking or splitting of the edges, although it will be understood that the ordinary mode of regulation may be employed in addition—*i. e.*, by reducing the power of the stroke through the foot-lever, belt-tightener, and brake.

The movable guides for the hammer are lettered H in the drawings, and, in fact, constitute a head connected to the overhanging arm of the frame by a pivot-bolt *h*. (See Fig. 2.) It is thus capable of a swinging movement, which may be secured through any suitable mechanism, preferably, however, through a downwardly-extending arm, I connected rigidly to the pivot *h* and adapted to be shifted by an eccentric *i* on the rear end of a shaft *i'*, journaled in the anvil-block and provided with a handle *i²* at the forward end. Where the ram is pivoted in this way it is desirable that the pivot be located rather high to give a longer and straighter lateral movement to the end of the ram.

A carrier for the blanks is provided, consisting of a shaft K, journaled at one side of the die-block and provided with arms *k*, bifurcated at the outer ends to receive the blanks and preferably fitting into recesses *k'* in said block. The shaft has an operating-handle *k²* at the forward end and is adapted to turn over, as indicated in dotted lines, Fig. 3, when a blank is being inserted or removed.

The connection between the ram and helve in the present instance is a suspension-strap, which makes it desirable that the slot or opening through which the strap passes shall be segmental or curved in an arc with the pivot-pin as a center. This permits the ram to be swung to either side of the center far enough to form the widest carriage-clips. With other forms of hammer, however, other detail mechanism may be found desirable; but such changes are within the range of ordinary skill, and therefore fall within the scope of the present invention. It is preferable, however, to have a ram connected with the helve by a flexible connection, as this gives a somewhat more elastic stroke and allows the greater movement necessary when the head is moved to either side.

In operation a blank is placed in the holders and turned over onto the die. Then the operator starts the hammer by the foot-lever and with the handle moves the ram properly to spread the metal out into the desired shape. The shape of the flanged portion may be varied greatly by those skilled in the art, and under some circumstances the effects sought may be more easily reached by changing the shape of the upper die or nose. Ordinarily,

however, a slightly curved and elongated nose, as shown, is employed with excellent results.

The upper die, as well as the die-block, is easily removed and any ordinary form of hammer-face and anvil-block substituted when desired, and if it is desired to hold the hammer-guides vertical it may be accomplished by inserting a pin or screw in the registering openings *o* in the guide-head and overhanging arm. This makes the hammer substantially the same as the ordinary hammer and capable of all ordinary uses.

Having thus described my invention, what I claim as new is—

1. In a machine such as described, the combination, with the anvil, of the vertically-reciprocating hammer with power mechanism for reciprocating the same, the connected movable bearings for said hammer, and the operating-handle connected with the bearings and projecting at the hammer end of the machine for moving said bearings, whereby the operator may watch the effect of the blows and simultaneously move the operative end of the hammer laterally, substantially as described.

2. In a machine such as described, the combination, with the anvil, of a vertically-reciprocating hammer pivoted on a substantially-horizontal center to swing laterally, whereby the point at which the blow is delivered may be changed, substantially as described.

3. In a machine such as described, the combination, with the anvil and vertically-reciprocating hammer, of the bearings in which the hammer is mounted pivoted to swing laterally, substantially as described.

4. In a machine such as described, the combination, with the anvil, vertically-reciprocating hammer, power mechanism, and an elastic connection between the hammer and power mechanism, of the pivoted guides in which the hammer is mounted, substantially as described.

5. In a machine such as described, the combination, with the anvil, vertically-reciprocating hammer, power mechanism, and suspension-strap connecting the hammer and power mechanism, of the guides in which the hammer is mounted pivoted to swing laterally, substantially as described.

6. In a machine such as described, the combination, with the anvil, vertically-reciprocating hammer having the curved slot at the upper end, power mechanism, and a suspension-strap carried thereby and passing through the slot in the hammer, of the guides in which the hammer is mounted pivoted to swing laterally, substantially as described.

7. In a machine such as described, the combination, with the anvil and vertically-reciprocating hammer, of the pivoted guides in which the hammer is mounted, the downwardly-extending arm connected thereto, and

the operating shaft and handle for moving said arm and guides, substantially as described.

5 8. In a machine such as described, the combination, with the anvil and vertically-reciprocating hammer, of the pivoted guides in which the hammer is mounted, the downwardly-extending arm connected thereto, the

operating-shaft having the eccentric engaging said arm, and the handle for the shaft, 10 substantially as described.

ALBERT L. KERN.

Witnesses:

D. E. SEWALL,
DANIEL K. TRIMMER.