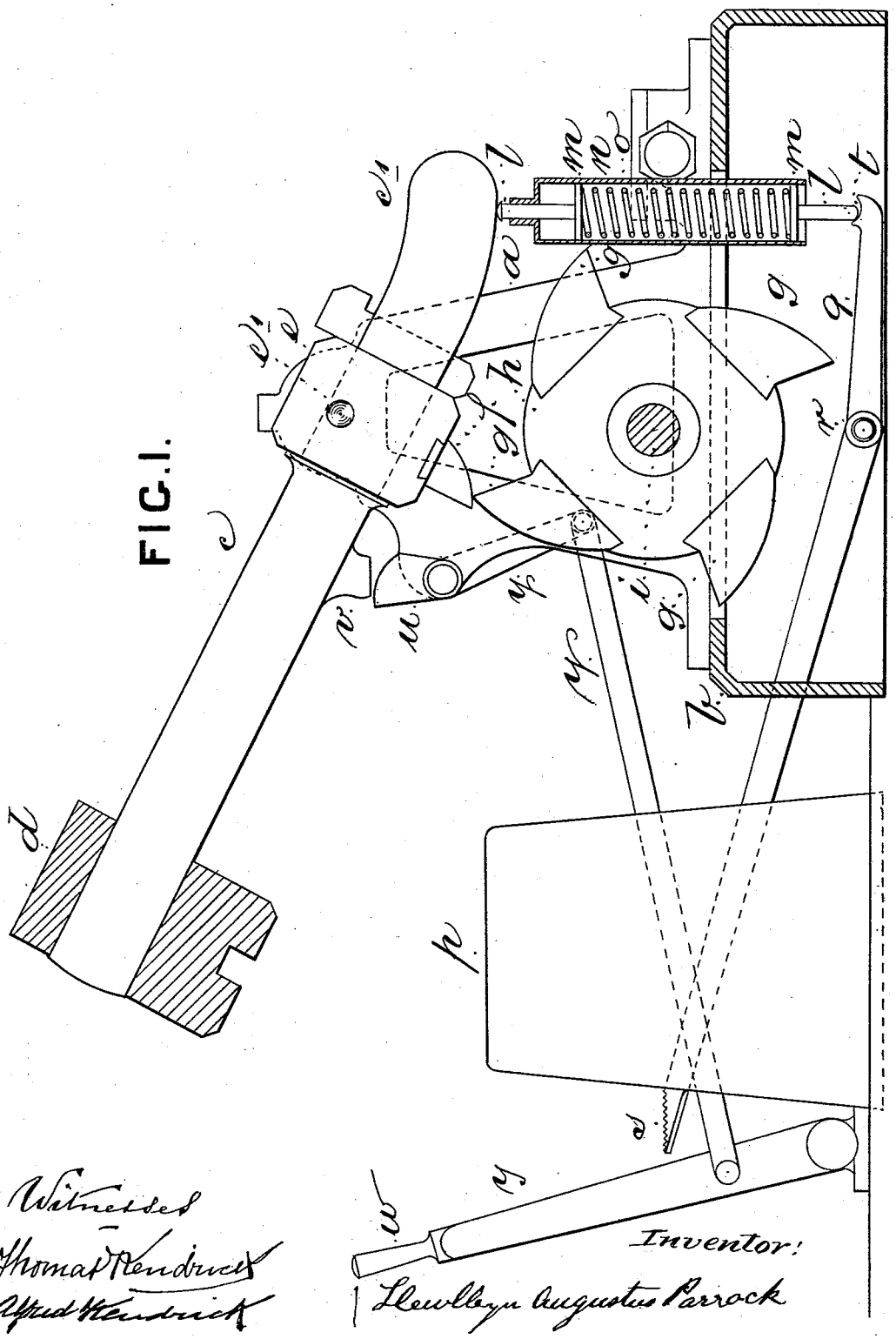
(No Model.) 3 Sheets—Sheet 1.

L. A. PARROCK.

MACHINE FOR FORGING OR HAMMERING METAL.

No. 523,050. Patented July 17, 1894.

FIG. 1.



Witnesses
Thomas Kendrick
Alfred Kendrick

Inventor:
Llewellyn Augustus Parrock

(No Model.) 3 Sheets—Sheet 2.

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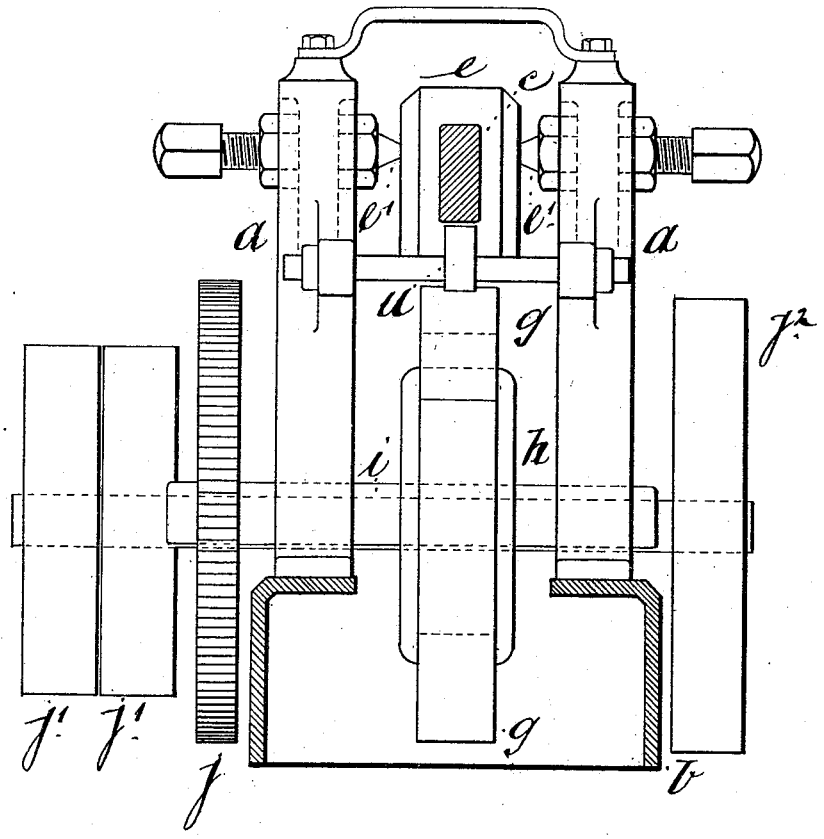
MACHINE FOR FORGING OR HAMMERING METAL.

No. 523,050. Patented July 17, 1894.

FIG. 2.



Witnesses
Thomas Kendrick
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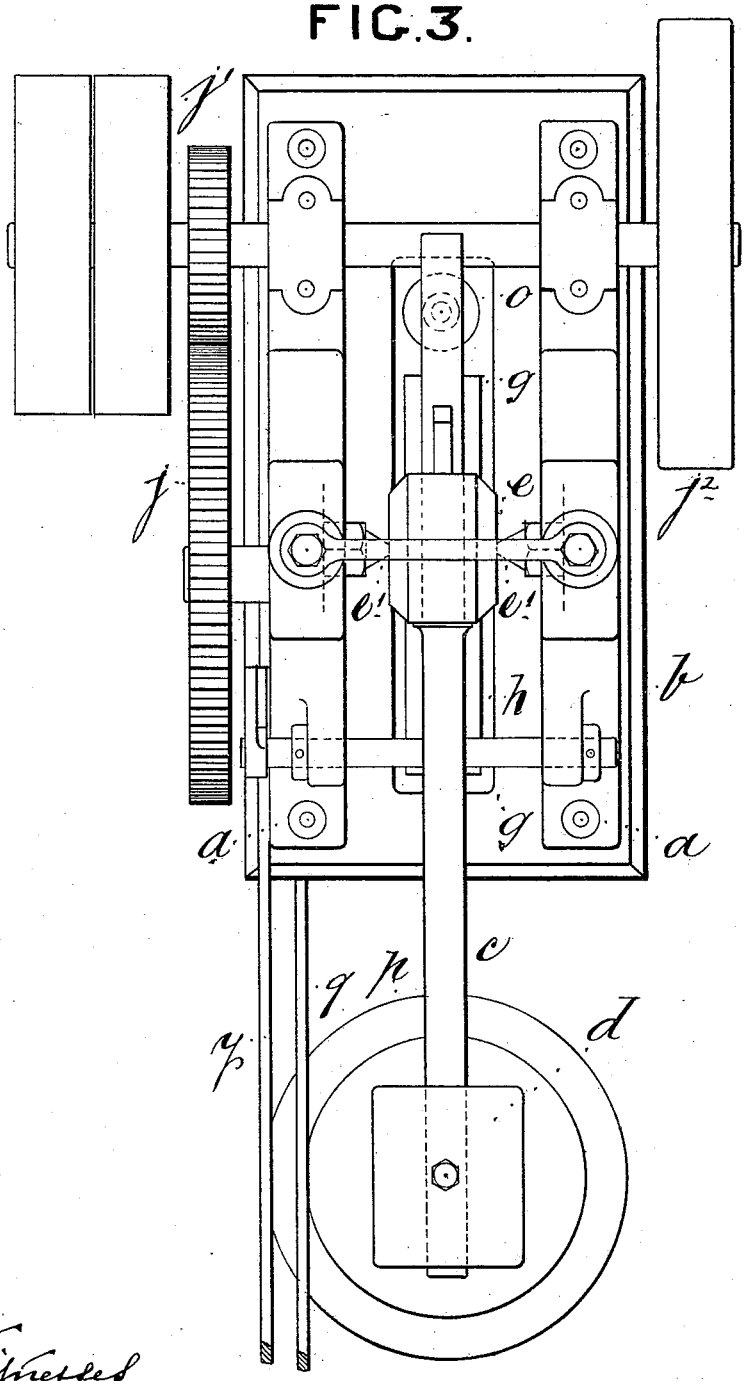
(No Model.) 3 Sheets—Sheet 3.

L. A. PARROCK.

MACHINE FOR FORGING OR HAMMERING METAL.

No. 523,050. Patented July 17, 1894.

FIG. 3.



Witnesses
Thomas Kendrick
Alfred Kendrick

Inventor:
Llewellyn Augustus Parrock

UNITED STATES PATENT OFFICE.

LLEWLLEYN AUGUSTUS PARROCK, OF BIRMINGHAM, ENGLAND.

MACHINE FOR FORGING OR HAMMERING METAL.

SPECIFICATION forming part of Letters Patent No. 523,050, dated July 17, 1894.

Application filed October 2, 1893. Serial No. 486,985. (No model.) Patented in England October 23, 1890, No. 16,952.

To all whom it may concern:

Be it known that I, LLEWLLEYN AUGUSTUS PARROCK, a citizen of England, and a subject of Her Britannic Majesty, residing at 264 Victoria Road, Aston, Birmingham, England, have invented a new and useful Improvement in or Relating to Machinery to be Employed in the Forging or Hammering of Metals, (for which I have obtained a patent in Great Britain, No. 16,952, bearing date October 23, 1890,) of which the following is a full, clear, and exact description, reference being had to the accompanying sheets of drawings, and to the letters of reference marked thereon.

My invention has reference to hammers of the kind known as "tilt hammers" in which the hammer head is at the extremity of a lever and moves in the arc of a circle, the end of the lever remote from the hammer head being actuated by a cam. Most "tilt hammers" are levers of the third order but in a hammer or machine constructed according to my invention the hammer head is at the outer extremity of the long arm of an unequal armed lever of the first order. The lever has a short projection at or nearly at right angles to its general direction and close to its fulcrum, thus making virtually a combined first order lever and a bell crank lever with one long arm the extremity of which carries the hammer head and one short arm. The end of the short arm of this bell crank is formed so as to engage with a suitable cam or wiper on a revolving shaft, so that every time that the projecting part of the cam engages with the short arm the hammer head is raised. I prefer to use a short revolving shaft with each hammer driving it by means of spur gearing-wheels from a line shaft. At the same time that the hammer head is raised, the end of the first order lever which is farthest from the hammer head is depressed and while being depressed it puts a suitable spring into a state of stress, preferably the spring is helical and is put into stress by being compressed longitudinally. When the projection on the cam or wiper has in its revolution cleared the short arm of the bell crank, the head of the hammer falls on the anvil or on the article of metal on the anvil which is being forged or hammered as in an ordinary "tilt hammer." The force of the blow is due partly to the weight of the hammer head and partly to the elasticity of the spring which was put into a state of stress by the descent of the short end of the hammer lever.

By means of suitable levers and a treadle actuated by the foot of the workman that part of the force of the blow which is due to the action of the spring may be increased or diminished.

I provide a stop whereby the hammer may be retained in its highest position when desired for the purpose of changing the work on the anvil and keeping the hammer at rest. This movable stop I actuate by preference by means of a handle placed conveniently to the hand of the workman though it might be worked by another treadle if preferred.

The spring may be made in different modes but I prefer to make it helical and inclosed in a case with a disk or plunger pressing upon it above and below the plunger above being pressed down by the short or tail end of the hammer lever and the plunger below being actuated by means of the treadle levers. The spring may be arranged so as to be extended instead of compressed when being actuated by the tail end of the lever.

Figure 1 is a view in side elevation sectional showing "improvements in or relating to machinery to be employed in the forging or hammering of metals" as my invention. Fig. 2 is an end view elevation of same. Fig. 3 is a plan view of same.

The mechanical parts for actuating the hammer are supported by the standards *a*, upon the bed *b*.

c. is the unequal lever carrying the hammer head *d*. on the longer part, the short arm *c'*. receives the carrier *e*. taking its fulcrum at *e'*. and carries the form or segment *f*. which engages with the segments or forms *g*. *g*. *g*. *g*. keyed or otherwise connected to *h*. forming a cam or wiper fixed upon the revolving shaft *i*. so that at each time as *g*. comes in contact with *f*. in its revolution *c*. and *d* are raised the means of communicating the motion would by preference be effected by using spur-gearing *j* and pulleys *j'*, *j'*.

J^2 is the fly-wheel upon the shaft *i* at the time that *c*. with *d*. is raised. *c'*. is lowered, and engaging the rod or upper plunger *l*. with disk *m*. the spring *n*. which is incased

in *o*. is put into a state of stress by the longitudinal pressure given. When the cam or wiper segment *g*. in its revolution has cleared the form *f*., *d*. instantly falls upon the article, upon the anvil *p*, which is to be hammered or forged, and so continuously as required.

The power or force of the blow or fall of *d*. may be increased when required by the employment of the lever *q*. jointed at *r*. actuated by the foot of the workman at *s*. the cupped part *t*. which engages the rod with disk of lower plunger *l*. the spring *n* receives a further stress.

When the hammer *d*. is required to be fixed chiefly for changing the work I employ the stop *u*. which engages with *v*. being actuated by means of the handle *w*. and the jointed levers *y*.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a power hammer, the combination, with the pivoted lever *c* carrying the hammer head and provided with the rearward extension *c'*, and the segment *f* below its pivot; of a spring operating on the said extension to increase the force of the blow, and a pivoted lever for adjusting the strength of the spring, substantially as set forth.

2. In a power hammer, the combination, with the pivoted lever *c* carrying the hammer head and provided with the rearward extension *c'*, of a longitudinally-adjustable helical spring arranged under the said extension and operating to increase the force of the blow to a greater or less extent as required, and a pivoted lever for adjusting the said spring, substantially as set forth.

3. In a power hammer, the combination, with the standards *a*, of the hammer lever pivotally supported by the said standards and provided with the projection *v*, the handle *y* pivoted in one of the said standards and provided with a cam-shaped stop *u*, arranged under the said projection, a pivoted lever at the front of the anvil, and a rod pivoted to the lever and handle for operating the said handle, substantially as set forth.

In testimony whereof I affix my signature in the presence of two subscribing witnesses.

LLEWLLEYN AUGUSTUS PARROCK. [L. S.]

Witnesses:
THOMAS KENDRICK,
ALFRED KENDRICK.