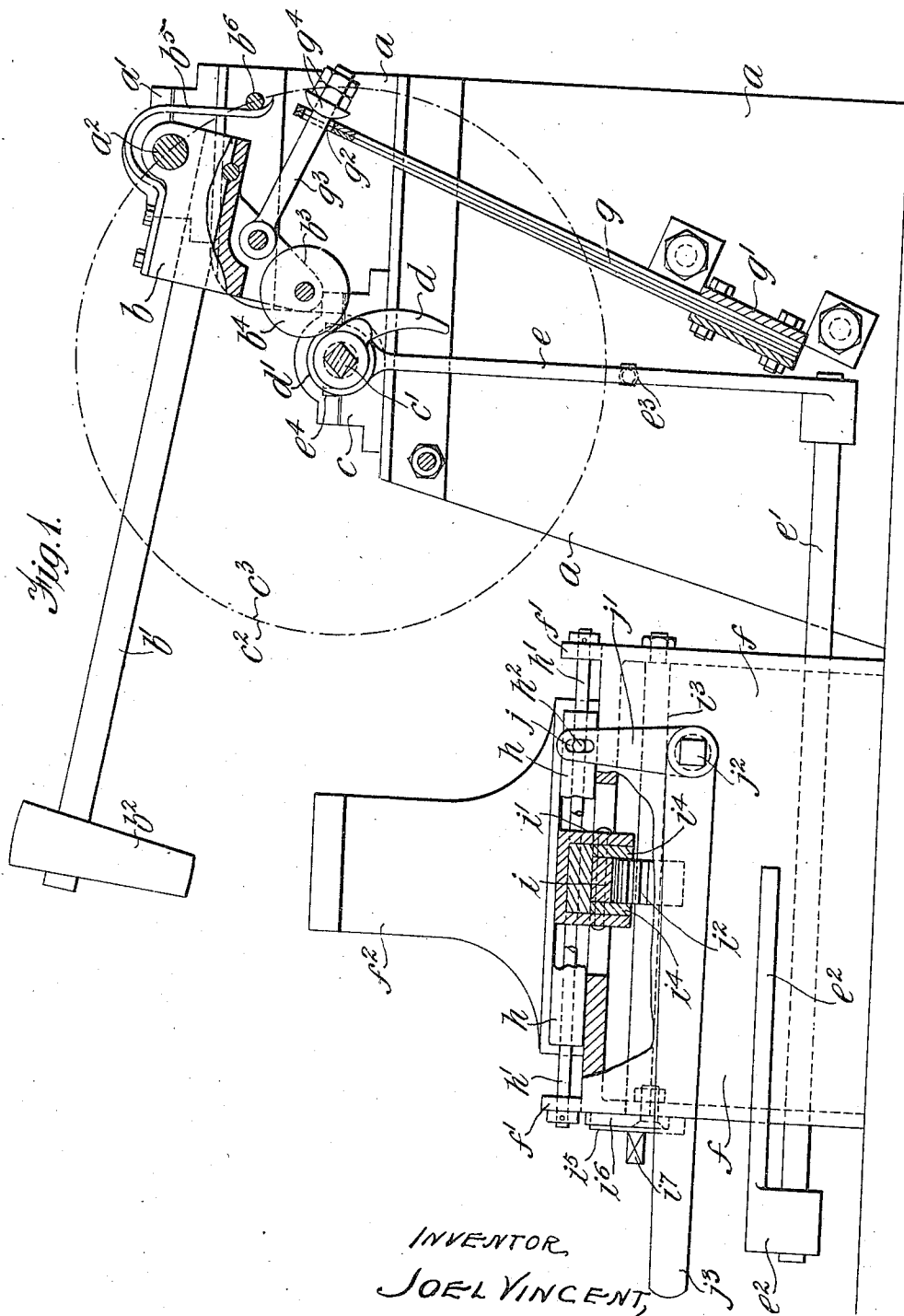


J. VINCENT.
 OLIVER OR TILT HAMMER.
 APPLICATION FILED APR. 4, 1916.

1,236,632.

Patented Aug. 14, 1917.
 2 SHEETS—SHEET 1.



INVENTOR,
 JOEL VINCENT

By *J. M. Vincent*

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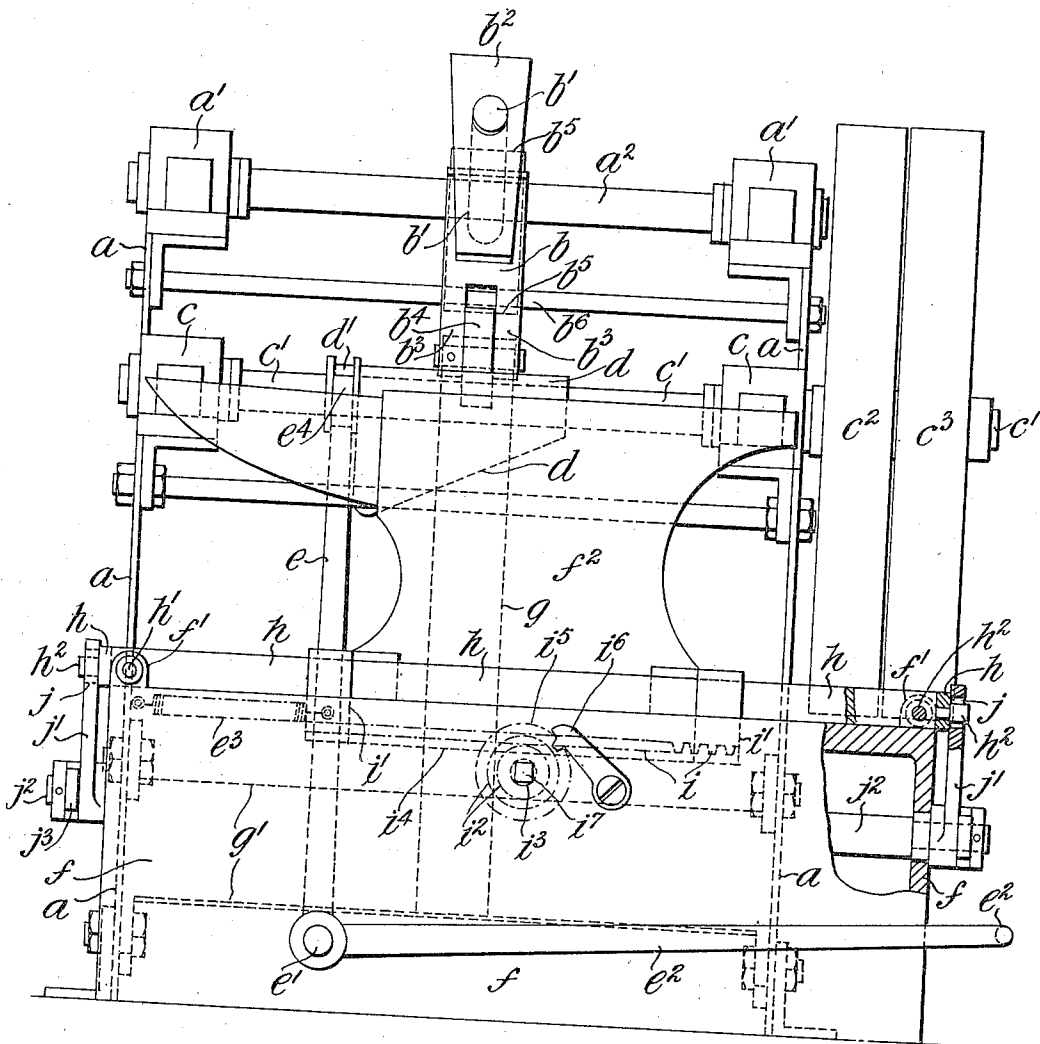


Fig. 2.

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UNITED STATES PATENT OFFICE.

JOEL VINCENT, OF ROCK MEMBURY, ENGLAND, ASSIGNOR OF ONE-HALF TO JAMES VINCENT, OF EASTBOURNE, ENGLAND.

OLIVER OR TILT-HAMMER.

1,236,632.

Specification of Letters Patent. Patented Aug. 14, 1917.

Application filed April 4, 1916. Serial No. 88,912.

To all whom it may concern:

Be it known that I, JOEL VINCENT, a subject of the King of Great Britain and Ireland, and resident of Rock Membury, county of Devon, England, have invented certain new and useful Improvements in and Relating to Power-Driven Olivers or Tilt-Hammers, of which the following is a specification.

This invention, relates to power, belt-driven "olivers" or tilt hammers, and has for its especial objects to obtain by the hereinafter described construction and arrangement of apparatus:—

(1) Light or heavy blows at the will of the operator with a free and drawing action, the blow being effected by the combined weight of the hammer head and helve and the action of a spring; (2) the automatic return of the hammer to its open or ready to work position under the action of a spring; (3) the novel arrangement and form of wiper and its automatic disengagement from the hammer; (4) the provision of means which enable the anvil to be shifted on the anvil block from end to end and from front to back to enable the work to be brought to the most advantageous position; (5) effecting the entire control, starting light or heavy blows by a light pressure of a pedal lever.

The invention is illustrated by the accompanying sheets of drawings, in which:—

Figure 1 is an end view partly in section; Fig. 2 is a front elevation, anvil block partly in section.

Like letters of reference indicate corresponding parts in said figures.

In the drawings, *a* is the main frame and *a'* are bearings in which are mounted the ends of the rock shaft *a²* to which is secured in any suitable manner the carrier *b*, in which is secured the inner end of the helve *b'*, and *b²* is the hammer head secured to the outer end of said helve.

The underside of the carrier *b* is provided with a pair of jaws *b³*, and between said jaws is rotatably mounted the lifting wheel *b⁴*, and *b⁵* is a spring fixed by one end to the top of said carrier *b*, while the other end bears against a rod *b⁶* secured at its ends to the main frame *a*, said spring *b⁵* tending to keep the hammer open ready for work.

Mounted in bearings *c* on the frame *a* is the drive shaft *c'*, and *c²*, *c³* are the fast and

loose pulleys thereon, the shaft *c'* between its bearings being square, and on such square portion is slidably mounted the cam wiper or lifter *d* which is tapered or graduated as shown.

e is an upstanding arm or lever attached to one end of a rod *e'*, which rod *e'* extends to and through the anvil block *f*, and at its other end is provided with the pedal lever *e²*. *e³* is a tension spring connected to the arm *e* and the frame *a*, and *e⁴* is the fork end of the arm *e*, said fork end *e⁴* engaging the collar *d'* on the wiper *d*.

g is a leaf spring bolted to the bridge piece *g'* which is secured to the frame members *a*, said spring *g* having at its upper end a hole *g²* through which passes a rod *g³* pivotally mounted between the jaws *b³* of the helve carrier *b*, and *g⁴* are nuts and washer on the free end of said rod *g³* and bear, adjustably, against the spring *g*.

h is a frame slidably mounted on rods *h'* mounted in lugs *f'* on the upper surface of the anvil block *f*, and *f²* is the anvil slidably mounted on said frame *h*. *i* is a rack carried by hangers *i'* secured to the underpart of the anvil *f²*, said rack *i* engaging with a toothed wheel *i²* slidably mounted on a shaft *i³* rotatably mounted in the anvil block *f*, said wheel *i²* taking between cheeks *i⁴* on the hangers *i'* so that said wheel may be moved along the shaft *i³* in accordance with the movement of the anvil *f²*. *i⁵* is a ratchet or toothed wheel mounted on the shaft *i³*, and *i⁶* is a pawl or click engaging therewith to lock and prevent the rotation of said shaft *i³*, and *i⁷* is the squared end of said shaft to enable the same to be rotated by means of a suitable tool.

h² are pins fixed to the frame *h'* and engaging in slots *j* in the crank arms *j'* fixedly secured to the shaft *j²* which is mounted in the anvil block, and *j³* are the operating handles or arms likewise fixedly secured to said shaft.

In working, on the rotation of the drive shaft *c'* the cam wiper *d* engages with and lifts through the medium of the lifting wheel *b⁴* the hammer helve *b'* to a height in accordance with the position in which said cam wiper *d* has been shifted to by the operator working the pedal lever *e²*.

This lifting movement of the helve *b'* through the medium of the rod *g³* pulls forward the spring *g* till such time as the cam

- wiper d slips the lifting wheel b^4 , whereupon the hammer falls, striking a blow proportionate to the combined weight and fall of the hammer and the pressure of the spring g .
- 5 On the finish of the blow, the spring b^5 on the helve carrier b acting against the rod b^3 lifts said carrier and its wheel clear of the cam wiper, which, under the action of the spring e^3 , will at the same time be automatically shifted along the drive shaft c' so that
- 10 said wiper in its continued rotation will pass clear of the lifting wheel b^4 till such time as the operator depresses the pedal lever e^2 again, bringing the cam wiper to its original position to impart a blow of the same
- 15 strength or to a position where said cam wiper will lift the lifting wheel to a higher or lower position to impart a stronger or weaker blow.
- 20 In the event of a series of blows of the same strength being required, the pedal lever e^2 is held down in its operative position by means of any suitable arrangement of catch, not shown in the drawings.
- 25 When the anvil f^2 is required to be shifted endwise of the anvil block f or from front to back of the same or in both directions, the following procedure obtains:—

- To shift the anvil f^2 endwise, the pawl or
- 30 click i^3 is disengaged from the toothed or ratchet wheel i^2 and the shaft i^3 thereof rotated, the toothed wheel i^2 on said shaft by its engagement with the rack i effecting the required movement of said anvil along the
- 35 frame h mounted on the rods h' carried by the lugs f' on the anvil block f . To shift the anvil f^2 from front to back of the anvil block f , the lever j^3 is depressed or raised according to direction required, said lever
- 40 j^3 by its slotted cranks j' and the pins h^2 on the frame h shifting said frame h along the rods h' , such movement being effected even while the hammer is working, the wheel i^2 on the shaft i^3 being shifted one
- 45 way or other on said shaft i^3 by means of the cheeks i^4 of the hangers i' .

- If desired the rods h' may take the form of screwed rods engaging in the frame h and be operated in any suitable manner to
- 50 effect the movement of said frame h from front to back of the anvil block, and, if desired, the movement of the anvil f^2 on the anvil block f from front to back thereof may be effected by screwed rods in similar
- 55 manner.

Having now described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:—

1. A power driven hammer of the class
- 60 described comprising a main frame, a drive shaft mounted in said frame, a lifting cam having a graduated striking edge and shiftable on said drive shaft, a rock shaft also mounted in the frame above the drive shaft,
- 65 a balanced helve carrier on said rock shaft,

a roller mounted on said carrier and located behind the lifting cam, and pedal actuated means for shifting said cam into and out of engagement with said roller.

2. A power driven hammer of the class
- 70 described comprising a main frame, a rotatable drive shaft mounted therein, a rock shaft also mounted therein, a spring controlled helve carrier fitted to said rock shaft, an actuating spring having one end fixed in
- 75 the main frame, means connecting said helve carrier with the other end of said spring, an anvil block, a pedal lever exterior of said anvil block, a spring controlled graduated cam wiper on the drive shaft, and means
- 80 connecting said pedal lever and cam wiper for shifting the latter along the drive shaft.

3. In a power driven hammer of the class described, the combination with a reciprocating hammer, of an anvil block, means mount-
- 85 ed in said block for controlling said hammer, an anvil carried by said block, crank and lever means for shifting said anvil laterally of the block, and rack and pinion means for shifting said anvil longitudinally
- 90 thereof.

4. In a power driven hammer of the class described, the combination with a reciprocating hammer, of an anvil block arranged at one side of said hammer, a frame on the
- 95 anvil block slidable from end to end thereof, guide rods extending through said frame, outwardly extending pins also on said frame, a shaft extending from front to back of said anvil block, slotted cranks and operating
- 100 levers mounted on the ends of said rods and engaging said outwardly extending pins, an anvil slidably mounted on said frame, a rack carried on the under side of said anvil, a shaft extending from one end of the anvil
- 105 block to the other and rotatably mounted therein, a pinion slidably mounted on said shaft and engaging said rack, a toothed wheel fixed to the end of said pinion shaft and arranged exterior of the anvil block,
- 110 and a pawl on said anvil block for engaging said toothed wheel to lock said pinion shaft against rotation.

5. A power driven oliver or tilt hammer comprising a main frame, a rotatable drive
- 115 shaft and a rock shaft mounted therein, a spring-controlled graduated cam wiper slidably mounted on said drive shaft, a helve carrier fixed to said rock shaft, a lifting wheel rotatably mounted in said helve car-
- 120 rier and adapted to be engaged by said cam wiper, a bridge piece carried by the main frame, a spring carried by said bridge piece, a rod pivotally connected to the helve carrier and adjustably connected to the spring
- 125 on the bridge piece, and pedal-actuated means for shifting the graduated cam wiper along the rotatable drive shaft.

6. A power driven oliver or tilt hammer comprising a main frame, a rotatable drive
- 130

shaft and a rock shaft mounted therein, a
spring-controlled helve carrier fixed to said
rock shaft, an actuating spring carried by
a bridge piece fixed to the main frame, a bolt
5 adjustably connecting said actuating spring
to said spring-controlled helve carrier, a
graduated cam wiper shiftable on said drive
shaft, a collar on said cam wiper, a forked
lever engaging said cam wiper, a tension
10 spring connected to said forked lever and
the main frame, a rock shaft carrying said
forked lever, an anvil block into and through
which said rock shaft carrying the forked
lever extends and a pedal lever carried by
the extending end of said rock shaft. 15

In testimony whereof I have affixed my
signature in presence of two witnesses.

JOEL VINCENT.

Witnesses:

ROBT. HUNTER,
BENJ'N THOS. KING.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."