Nov. 26, 1935. R. P. MARTIN 2,022,546

POWER HAMMER

Filed Sept. 18, 1933

Fig-1.

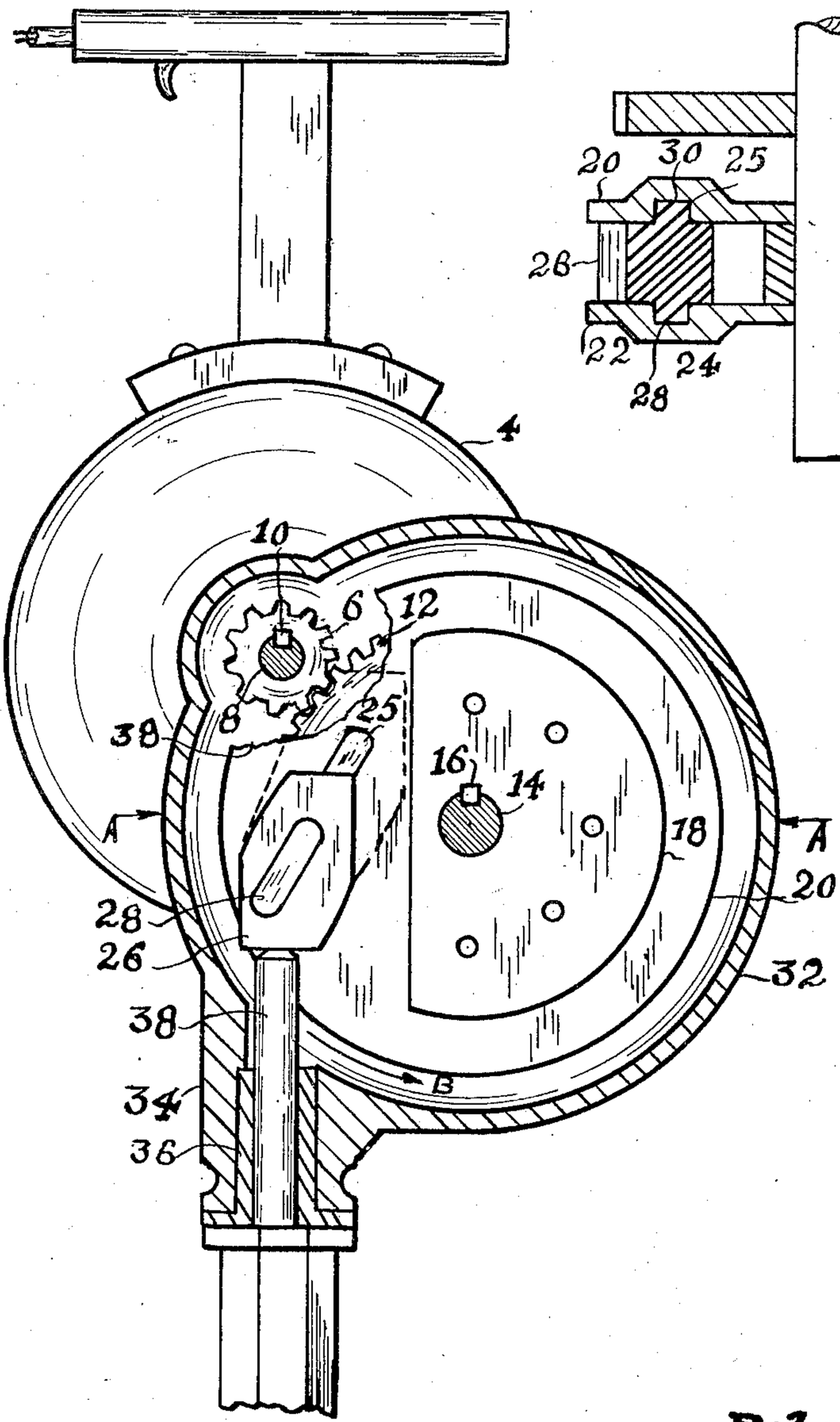
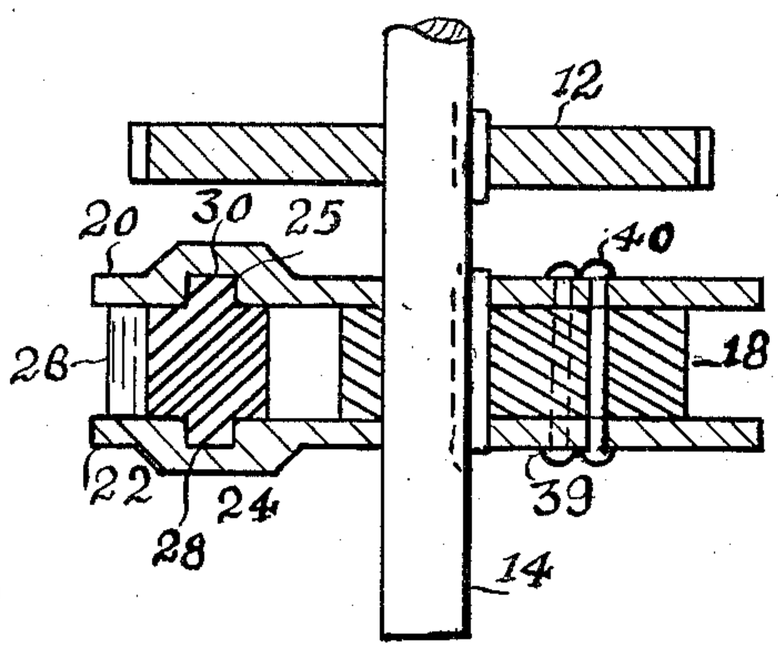


Fig-2.



INVENTOR
Robert P. Martin.
BY Robert P. Martin.
ATTORNEY

Patented Nov. 26, 1935

2,022,546

UNITED STATES PATENT OFFICE

2,022,546

POWER HAMMER

Robert P. Martin, Seattle, Wash., assignor to
Horace Byford, Seattle, Wash.

Application September 18, 1933, Serial No. 689,866

3 Claims. (Cl. 125—33)

My invention relates to the art of power hammers and more particularly to that class of hammers which employ centrifugal force to restore the hammer element to its striking position.

This hammer is to be used for heavy duty, such as mining, breaking concrete, riveting, chipping, caulking, scaling and the like, where a heavy hammer blow is required, and to do this work it requires a very durable hammer, eliminating all small screws, bolts, nuts, pins and the like in the structure shown in the drawing. I have shown a free striking member having a combination of a long stroke, a free striker, the striking point of the tool being approximately 30 degrees in a plane taken from the point of impact and the center of rotation in the hammer base and which will accomplish either light or heavy duty, depending on the weight of hammer and the amount of horse power applied to drive the hammer, and it will be understood that any suitable means of power may be employed to drive this hammer.

Having thus described my invention in brief, the objects I obtain with my device are, namely:

First: The production of a power hammer which is characterized by extreme simplicity of construction, a fact which permits economical construction and long life for the machine;

Second: The production of a power hammer mechanism in which the striking member strikes the tool squarely at a tangent in respect to the rotation of the striking member;

Third: The production of a hammer mechanism in which the striking member is a free striker operatively disposed in a cross-head;

Fourth: The production of a hammer mechanism having a free striker provided with two elongated guides integral thereon and to register with two guides laterally disposed of said striker;

Fifth: The production of a hammer mechanism provided with a hammer base having its front portion cut away to provide for a hammer member and provided with two side plates, one on each side of the hammer base, the said side plates being provided with elongated guides to receive a hammer member and forming a cross head movement of the hammer striker when in operation. This hammer will strike one blow to each revolution of the tool when revolved in the direction indicated by the arrow on the inside of the lower housing at B;

Sixth: The production of a hammer mechanism in which the striker is a free striker and maintains its vertical position throughout a reciprocating motion which is slanting in respect to the longitudinal axis of the free striker. It will be understood that any suitable guide means that either reverse male and female may be employed.

Other and more specific objects will be apparent from the following description taken in connection with the accompanying drawing, wherein

Fig. 1 is a view partly in elevation of a centrifugal rotary hammer constructed in accordance with my invention;

Fig. 2 is a transverse section taken on the line indicated by arrows AA showing the assembly.

Referring to the drawing, throughout which like reference numerals designate like parts, numeral **4** designates the motor which rotates a pinion **6**, which is keyed to the motor shaft **8** by key **10**. **12** is the drive gear which is keyed to drive shaft **14** by key **16** and is in mesh with the pinion **6**. This method of drive means is merely illustrative and the invention will not be confined to any particular drive means the builder may employ. **18** is the hammer base which is fixedly secured to the drive shaft **14**. **20** and **22** are the side plates which are provided with guides **24** and **25**. These side plates and guide plates to be made of sheet plate hardened and properly tempered to stand the wear of the crosshead action of the hammer member **26**, which is also provided with guide lugs **28** and **30** to register with said side plate guides. The striker member **26** will also be made of a high carbon steel to stand shock and register with the hardened side plate guides. **32** is the hammer housing which is provided with substantial longitudinal guide **34** which, on the inside, is provided with a bushing **36** which, in turn, receives the shank of tool **38**, which is slidably inserted in bushing **36**. **38** shows a portion of the side plat cut away to show drive gear **12**. **39** and **40** are rivets.

Method of operation

In the operation of this hammer, when the motor **4** is started it revolves the pinion **6**, fixedly secured to motor shaft **10**, which is in mesh with drive gear **12** which, in turn, is fixedly secured to drive shaft **14**; drive shaft **14** being fixedly secured to hammer base **18** and side plates **20** and **22** which, in turn, carry the free striker **26**, which is operatively disposed therein to strike one blow each revolution and after striking said blow to a tool **38** slides upward and inward sufficiently to pass the end of the tool. The centrifugal force restoring the striker to its striking position each circle of operation and revolution.

The foregoing description and the accompany-

ing drawing are believed to clearly disclose a preferred embodiment of my invention, but it will be understood that this disclosure is merely illustrative and that such changes in the invention may be made as are fairly within the scope of the following claims.

What I claim is:

1. In a power hammer of the class described, a revolvable shaft, a bifurcated hammer base fixedly secured to said shaft, straight line guide means disposed on the inner surfaces of each branch of the hammer base, a reciprocating hammer member of polyhedron form having guide means adapted to coact with the guide means in the hammer base to limit the direction and extent of reciprocation of said hammer base and a tool disposed within the path of said hammer member when the same is in its outermost position.

2. In a hammer of the class described, a tool, a revolvable shaft disposed at right angles to the axis of said tool, a hammer base eccentrically mounted upon said shaft and provided with two sides extending forward past said hammer base, said sides being provided with elongated guides, a hammer member of polyhedron form provided with elongated guides obliquely positioned in respect to the longitudinal center line of the hammer member and disposed to register with guides formed in said sides.

3. In a hammer of the class described, a tool, a revolvable shaft disposed at right angles to the axis of said tool, a hammer base eccentrically mounted upon said shaft and provided with two sides extending forward past said hammer base, said sides being provided with elongated guides, a hammer member of polyhedron form provided with elongated guides obliquely positioned in respect to the longitudinal center line of the hammer member and disposed to register with guides formed in said sides which guides form an obtuse angle with a radius from the center of said revolvable shaft.

ROBERT P. MARTIN.