A. HUNTER.

POWER DRIVEN HAMMER.

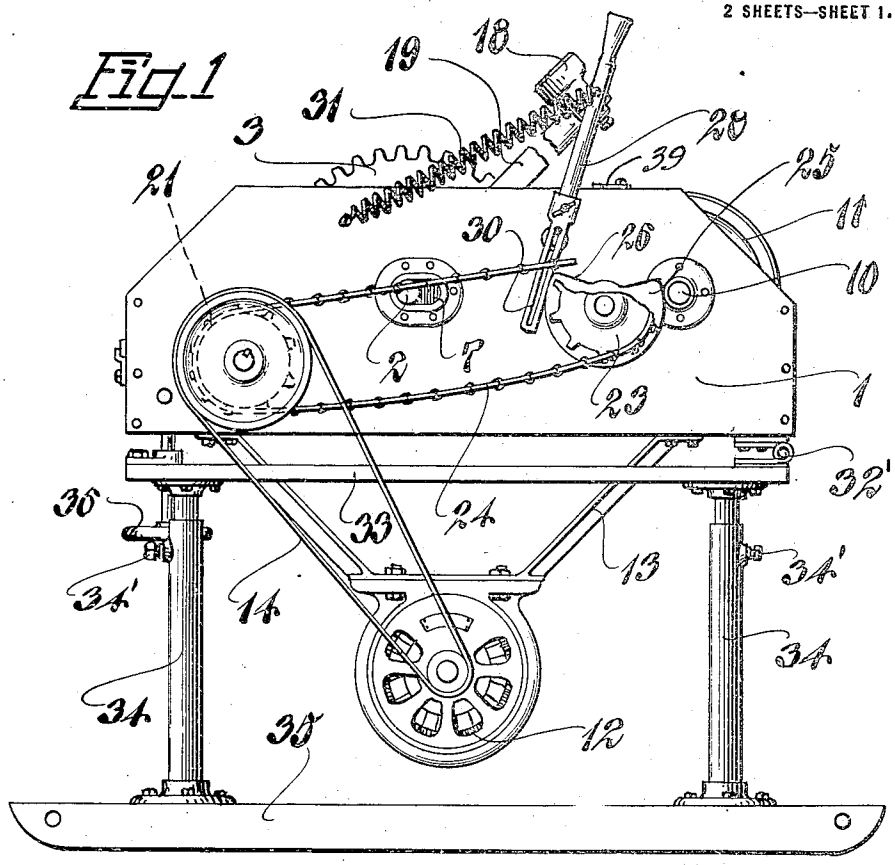
APPLICATION FILED APR. 4, 1917.

1,251,667.

Patented Jan. 1, 1918.

2 SHEETS—SHEET 1.

Fig. 1



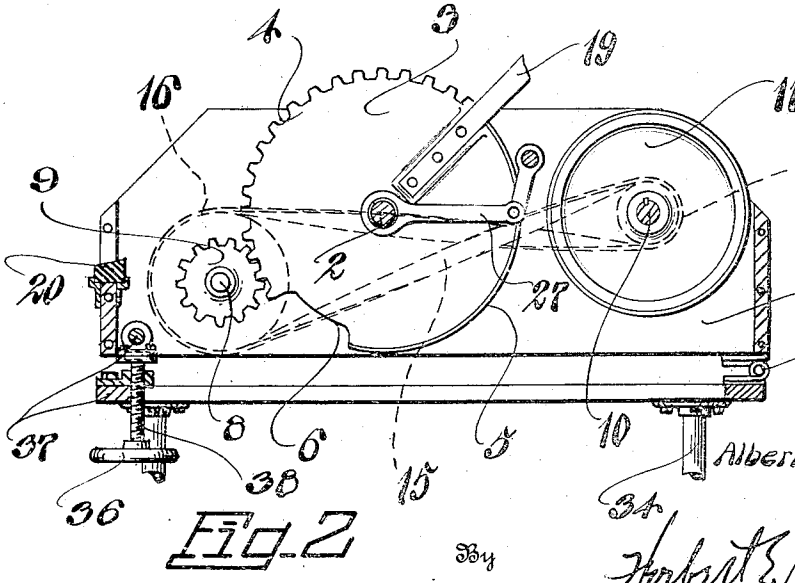




Fig. 2

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2 SHEETS—SHEET 2.

Fig. 3

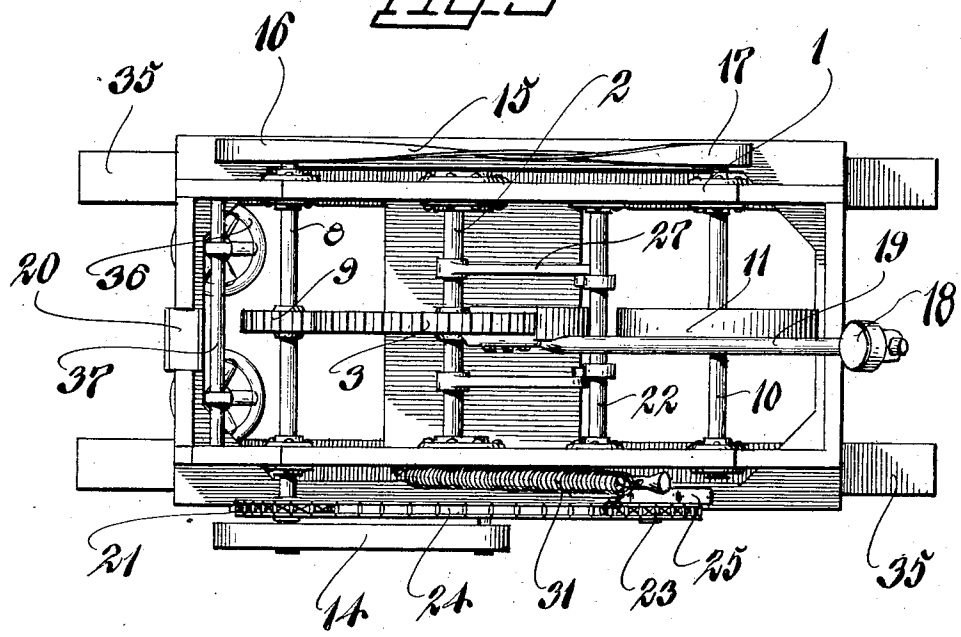
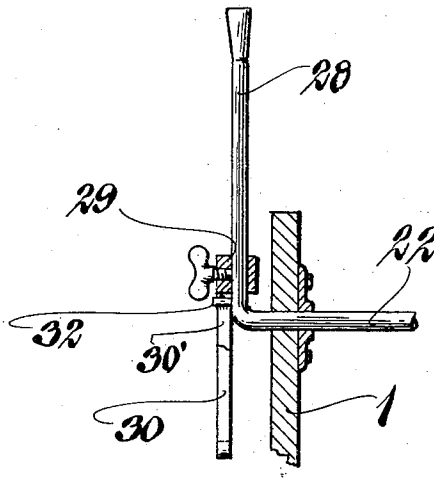



Fig. 4




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# UNITED STATES PATENT OFFICE.

ALBERT HUNTER, OF SPOKANE, WASHINGTON.

## POWER-DRIVEN HAMMER.

1,251,667. Specification of Letters Patent. Patented Jan. 1, 1918.

Application filed April 4, 1917. Serial No. 159,827.

*To all whom it may concern:*

Be it known that I, ALBERT HUNTER, a citizen of the United States, residing at Spokane, in the county of Spokane and State of Washington, have invented certain new and useful Improvements in Power-Driven Hammers, of which the following is a specification.

My invention relates to improvements in power driven hammers, and the object thereof is the provision of a novel, highly efficient, comparatively simple, and easily operated mechanism which is well adapted for the heavier work generally accomplished with hand sledges, such, for instance, as the driving of wedges, for wood splitting, of rock drills and the like employed in mining, logging, and numerous other industries.

In carrying out my invention I have provided an apparatus which may be readily transported from place to place in the course of the day's work. I have also provided in the construction adjusting means by which the striking element may be conveniently brought into proper relation with the object to be operated upon.

Generally speaking, the organization comprises a hammer or sledge adapted to have a pivotal swinging action, a toothed and friction faced rotatable supporting wheel to which the hammer is secured, a shiftable shaft upon which the wheel is rotatably mounted, a power driven friction wheel adapted to engaged the hammer supporting wheel to provide the striking movement, a toothed wheel adapted to engage the hammer supporting wheel for retractive movement of the hammer, and both automatic and manually controlled actuating means for effecting alternate movement of the hammer.

The various features of construction, combination, arrangement, and details of the several elements will be hereinafter fully pointed out and described, recourse being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the complete device.

Fig. 2 is a sectional view showing the arrangement of the immediate hammer actuating mechanism.

Fig. 3 is a top plan view of the apparatus.

Fig. 4 is an enlarged sectional detail view of a portion of the shifting mechanism.

Referring more specifically to the drawings in which like characters of reference are used to indicate like parts in the several views, the numeral 1 designates a rectangular, open topped casing the side walls of which support a transverse shaft 2 upon which is rotatably mounted a wheel 3 having a toothed portion 4, a friction wheel engaging portion 5, and a cut-out portion 6. The shaft is shiftably mounted at either end in the horizontal slots 7 of said side walls.

A shaft 8 is rotatably mounted in the side walls of the casing and has fixedly mounted thereon a toothed gear 9 which is adapted to mesh with the toothed portion 4 of the wheel 3.

A shaft 10 is also revolubly mounted in said side walls and carries a fixedly mounted friction wheel 11 adapted to engage with the portion 5 of said wheel 3.

A motor 12 is suspended from the bottom of the casing 1 by brackets 13 and is adapted to drive the gear 9 by means of belting 14 in the direction of the arrows, Figs. 1 and 2. A reversing power belting 15 engages pulleys 16 and 17 on shafts 8 and 10, respectively, and, as is obvious will serve to rotate the latter shaft and the friction wheel 11 in a clockwise direction.

In the object striking movement of hammer 18 whose shaft 19 is radially and fixedly secured to the wheel 3, the wheel is adapted to be shifted into frictional engagement with the revolving friction wheel 11 when the latter will serve to rotate the hammer supporting wheel in an anti-clockwise direction and thereby to actuate the hammer to the left, the movement of the hammer terminating when its head strikes the object or the cushion an anvil 20 in the end of the casing.

To effect a retractive movement of the hammer the wheel 3 is adapted to be shifted into toothed engagement with the revolving wheel 9 which will operate to reverse the motion of the former and thereby to return the hammer to its initial striking position, substantially as illustrated in the drawings. To obviate any danger of further positive

retractive movement of the hammer carrying wheel 3 by the gear wheel 9, the wheel 3 is provided with the cut-out portion 6.

It is apparent that adequate means must be provided to reverse the hammer wheel when the hammer has reached its prescribed limit of movement in either direction. To this end I have provided both an automatic and a manually operable mechanism which may be employed selectively as the occasion may require.

To automatically shift the hammer carrying wheel shaft 2 in the slots 7, to right and left alternately, the shaft 8 has fixedly mounted at one end a sprocket wheel 21, while a sprocket-wheel 23 is rotatably mounted on the casing 1, the sprockets being geared together by a chain 24. By this arrangement the sprocket 23 will be caused to rotate in an anti-clockwise direction, as viewed in the drawings. A segmental cam-wheel 25, adapted to be rotated by the sprocket 23, has a cam-like portion 26. A pair of pivoted shifting levers 27 connect the shaft 2 with crank arms on a shaft 22, and a handle extension 28 of the latter has slidably mounted thereon by means of a collar 29, a slotted depending arm 30 which is under tension of a spring 31 attached to said handle extension and is adapted to engage for reciprocating movement the cam-wheel 25. A pin 32 projecting from the handle extension engages a slot 30′ of said arm.

As long as the arm 30 is retained in the position shown in Fig. 1, by reason of its engagement with the circular periphery of the cam-wheel 25, the wheel 3 will be held, through the instrumentality of the shifting levers 27, in positive engagement with the retracting toothed gear wheel 9. But as the extremity of the arm 30 rides the cam portion of the wheel 25 the arm will be released for pivotal movement under the action of the spring 31, and in consequence the shaft 2 will be shifted in the slots 7 toward the right, disengaging the wheels 3 and 9 and drawing the wheel 3 into frictional engagement with the friction-wheel 11.

When it is desired to shift the wheel 3 by hand the arm 30 is slid out of engagement with the cam-wheel 25, and secured by a set-screw 33, the operator using the handle 28 to effect the desired engagement of the wheel 3. It is evident that the wheel may be shifted into a neutral position out of engagement with either operating wheel 9 or 11. In this connection, it will be advantageous to provide a latch 39 or other device, for retaining the handle 28 in neutral position.

The entire operating mechanism is supported by the casing 1 which is mounted at one end, by hinges 32, upon beams 33 which in turn are adjustably supported by standards 34 upon runners 35. By means of hand-wheels 36, a cross-bar 37, and threaded bolts 38, a tilting adjustment for the casing is provided. The entire casing may be elevated or lowered by means of the standards 34 having set-screws 34′. It is obvious that these adjustments are essential in the practical operation of the machine, providing, as they do, effective means for bringing the hammer in proper relation with the work. The runners provide convenient means for dragging the contrivance from one setting to another.

I claim:—

1. A machine of the character described, comprising a shiftable shaft, a hammer wheel mounted thereon, an impact element carried by the wheel, a rotatable gear wheel adapted to engage said hammer wheel to rotate the same, and an additional gear wheel adapted to engage said hammer wheel to impart reverse rotation thereto.

2. A machine of the character described, comprising a shiftable shaft, a hammer wheel mounted thereon, an impact element carried by the wheel, a rotatable gear wheel adapted to engage said hammer carrying wheel to rotate the same in one direction of rotation, an additional gear wheel adapted to engage said hammer carrying wheel to rotate the same in an opposite or reverse direction of rotation from that induced by the first mentioned gear wheel, and means for manually shifting said shiftable shaft.

3. A machine of the character described, comprising a shiftable shaft, a hammer carrying wheel mounted thereon, an impact element carried by the wheel, a rotatable gear wheel adapted to engage said hammer carrying wheel to rotate the same in one direction of rotation, an additional gear wheel adapted to engage said hammer carrying wheel to rotate the same in an opposite or reverse direction of rotation from that induced by the first mentioned gear wheel, and automatic shifting means for operatively and alternately engaging said hammer carrying wheel with said gear wheels.

4. A machine of the character described, comprising a shiftably mounted shaft, a hammer carrying wheel rotatably mounted thereon, an impact element carried by the wheel and extending radially therefrom, a rotatable shaft, a gear wheel fixedly mounted thereon and adapted to engage said hammer carrying wheel to rotate the same in one direction, an additional rotatable shaft, a gear wheel fixedly mounted thereon and adapted to engage said hammer carrying wheel to rotate the same in an opposite or reverse direction from that induced by the first mentioned gear wheel, pulleys mounted on said rotatable shafts, a transmission belting on said pulleys adapted to rotate said wheels in opposite directions, driving means for said rotatable

shafts, a rotatably mounted shaft provided with pivoted levers connecting the same to said shiftably mounted shaft, a revoluble cam-wheel, and a spring tensioned arm carried by the last mentioned rotatable shaft, said arm being adapted to engage said cam-wheel.

5. An apparatus of the character described, comprising a machine hammer, a portable stand, a casing having one end hingedly mounted on said stand the casing serving to support the hammer, and threaded adjusting elements adapted to elevate and depress the opposite end of said casing to position said hammer.

In testimony whereof I affix my signature.

ALBERT HUNTER.

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