Feb. 26, 1924. 1,484,845

J. H. PHILLIPS

SPRING HAMMER

Filed Aug. 1, 1918 2 Sheets-Sheet 1

Fig. 2.

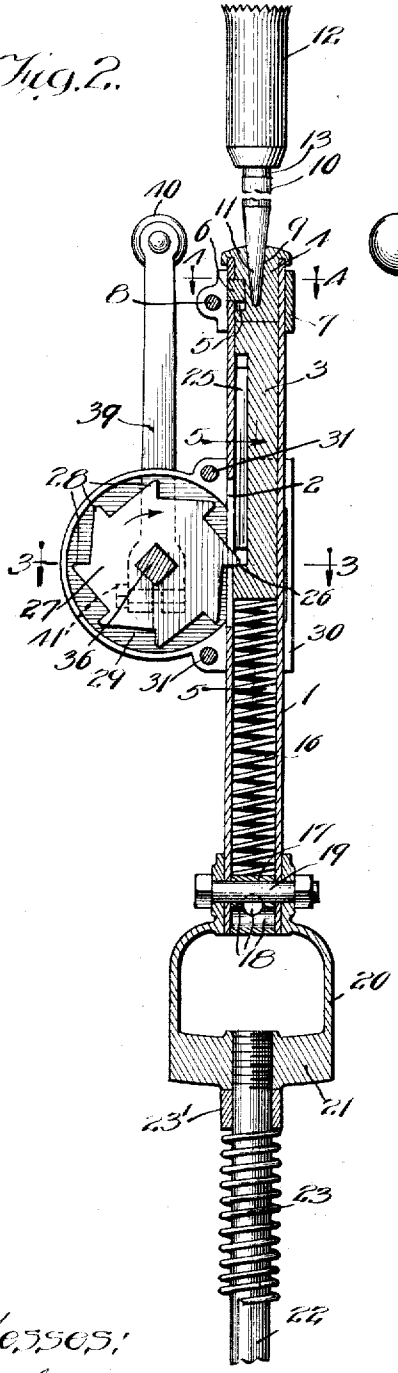
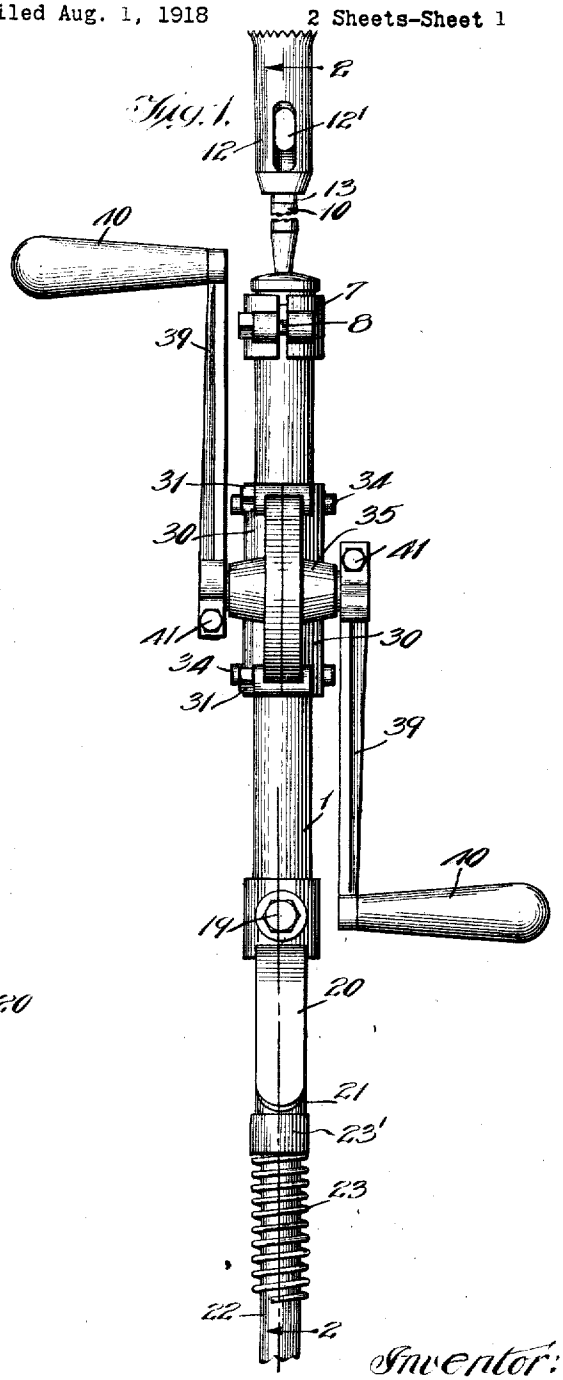


Fig. 1.



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Fig. 3.

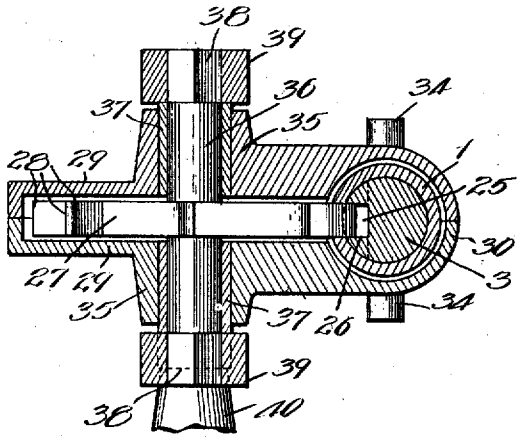


Fig. 4.

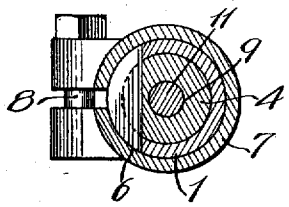


Fig. 6.

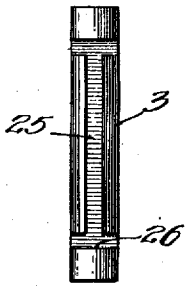


Fig. 5.

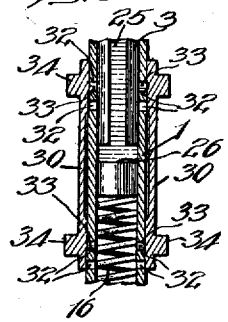
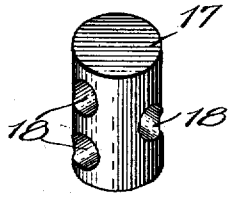


Fig. 7.



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UNITED STATES PATENT OFFICE.

JOHN H. PHILLIPS, OF CHICAGO, ILLINOIS.

SPRING HAMMER.

Application filed August 1, 1918. Serial No. 247,855.

To all whom it may concern:

Be it known that I, JOHN H. PHILLIPS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Spring Hammers, of which the following is a description.

My invention belongs to that general class of devices known as hammers, and relates particularly to a portable hammer of the type which are mechanically operated. The invention has among its objects the production of a device of the kind described that is simple, efficient, compact, durable, convenient, adjustable and satisfactory for use wherever found applicable. It has particularly as an object the production of a hammer of the kind described which may be quickly and accurately adjusted for various uses, and which, although simple and of comparatively light weight, will consist of a minimum number of parts and will be extremely durable for hard usage. Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosures herein given. The present invention is in the nature of an improvement over the spring hammers shown in my United States Letters Patent Numbers 1,006,873 and 1,053,744.

To this end my invention consists in the novel construction, arrangement and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, wherein like reference characters indicate like or corresponding parts,

Fig. 1 is a view in elevation of my improved device;

Fig. 2 is a sectional view taken substantially on line 2—2 of Fig. 1;

Fig. 3 is a sectional view taken substantially on line 3—3 of Fig. 2, enlarged to more clearly show the construction;

Fig. 4 is an enlarged sectional view taken substantially on line 4—4 of Fig. 2;

Fig. 5 is a sectional view taken substantially on line 5—5 of Fig. 2;

Fig. 6 is a view in elevation of the hammer removed from its barrel; and

Fig. 7 is a perspective view of the stop member.

Referring to the drawings, 1 represents a suitable barrel of the desired size and shape, which is preferably slotted at 2 at one side. Arranged within the barrel is a hammer member 3 which is of a size to slide or reciprocate in the barrel as will be hereafter described. Arranged at one end of the barrel 1 is what may be termed a hammer block or chuck 4 arranged to cooperate with the hammer 3 and receive the blow and transmit it to the tool. The hammer block 4 is of a size to fit the barrel, and in the construction shown has a slight sliding movement therein. It is maintained in place and prevented from being thrown out of the barrel by a key 6 arranged to engage therewith in the slot or groove 5 (see Figs. 2 and 4). The key is maintained in place by a collar 7 and retaining bolt 8, or equivalent means for the purpose. The block 4 is provided with a recess 9 which is preferably tapered, so as to receive the tapered end 11 of the shank 10, at the end of which is arranged a suitable tool 12. In the construction shown I have illustrated a stone or concrete drill 12 mounted on the tapered end 13 of the shank 10. The particular construction and kind of tool is immaterial in so far as the present invention is concerned. I have shown the tool 12 removably mounted on the shank 10, it being understood that it may be made integral therewith if desired. In the particular tool illustrated I have shown the discharge opening 12′ through which dust, chips, etc., may drop out, preventing clogging of the tool. Where desired the tool shank may project through the block 4 as shown in my prior patents mentioned, and in this case the recess 5 is of a size to fit the key 6, so that the block does not move, and the tool shank receives the blow direct.

Arranged within the barrel is a spring 16, one end of which is arranged to bear against the hammer 3, and the other against a stop 17. I have shown the stop 17 secured in place by a bolt 19, the stop having one or more holes 18 therethrough. I prefer to provide a plurality of holes 18, so that the stop or block 17 may be adjusted in the barrel so as to vary the effect of the spring 16, as will be more clearly explained in the operation of the device. I have shown a handle at the end of the barrel consisting of the side parts 20 connected by the handle part 21.

If desired the whole device may be supported from a rod 22 and cooperating parts, not shown, arranged to co-act with the spring 23. The spring 23 bearing against the collar 23' at the handle end tends to maintain the tool in contact with the work. This part of the mechanism is employed when ceiling work is to be done, or at such times where a rest or stop for the mechanism 22, 23, etc. may be employed.

As most clearly shown in Figs. 2, 3 and 5, the hammer 3 is provided with a groove 25 having a shoulder 26 at one end. I prefer to form a similar shoulder at the opposite end so that the part 3 may be reversed after use after the same has become worn. Arranged opposite the slot 2 is a ratchet wheel 27 having the desired number of teeth 28 arranged to successively cooperate with the shoulder 26 on the hammer 3, and move the same in a direction to retract the spring, the same moving out of engagement with the shoulder and permitting the spring to drive the hammer against the hammer block or chuck 4, or tool as the case may be. The ratchet wheel 27 is mounted in a casing part 29, which is formed with the parts 30 and secured together by bolts 31, or their equivalents for the purpose. I prefer to make the casing 29 in two parts as shown. While the bolts 31 lock the same in place, I prefer to provide positive engaging means between the barrel and the casing, so that there will be no tendency for the casing to slip or slide on the barrel. Parts 30 are provided with lugs 33 arranged to fit in recesses or holes 32 in the barrel. I prefer to provide a plurality of holes 32 so as to permit adjustment of the casing on the barrel so as to vary the operation of the hammer, as will be hereafter described. I have shown the parts 30 reinforced by the lugs 34 at the points where the lugs 33 project inwardly. The casing parts 29 are provided with the extending portions 35 so as to form a hub or bearing for the shaft 36 which carries the ratchet 27. Bushings 37 are provided on the squared shaft 36 so that the same is free to rotate and carry or drive the ratchet wheel. I have shown each end of the shaft squared as at 38 and crank arms 39 mounted thereon, the same being provided with handles 40. The crank arms 39 are secured in place by the bolts 41, or equivalent means for the purpose.

In operation, assuming that the device is assembled as shown and referring particularly to Fig. 2, as the handles are turned to drive the ratchet in the direction indicated by the arrow, the teeth will successively engage with the shoulder 26 and move the hammer 3 toward the handle 21, and thence release the same, the spring 16 driving the hammer back to strike the hammer block 4, and this having a slight sliding movement, the force of the blow is transmitted through the shank 10 to the tool 12 regardless of the length of the shank 10. As soon as the hammer is again retracted the hammer block 4 again takes the position as shown in Fig. 2, ready for the next blow. The tension of the spring may be varied by changing the position of the block or stop 17. The length of the blow or travel of the hammer 3 may be varied by moving the casing 29 and ratchet 27 toward or from the tool end of the barrel. This varies the stroke, making a shorter and lighter blow or a longer and heavier blow as the case may be. By removing the casing 29 and placing another ratchet thereon and reassembling the casing, on the barrel in adjusted position the blow may also be varied. The ratchet may be employed with a considerable number of teeth so that the device will render short, light blows, or the number of teeth reduced so that fewer but heavier blows are struck. The device in this way is adjustable for practically any kind of work. It will be particularly noted that there is no chance for dust, grit and dirt of any kind to get into the barrel, causing wear or impairing the action of the device.

What I claim as new and desire to secure by Letters Patent is:—

1. A spring hammer comprising a barrel having a slot in one side thereof, a chuck received in one end of the barrel, a block received in the opposite end of the barrel, a handle received on that end of the barrel carrying the block, single transversely extending means passing through the handle, barrel and block for securing the handle and block to the barrel, a reciprocating member mounted in the barrel between the chuck and block, a coiled spring received in the barrel for normally holding the reciprocating member in engagement with the chuck, one end of the spring engaging the end of the reciprocating member and the opposite end engaging the block, and means extending through the slot in the barrel for operating the reciprocating member against the tension of the spring.

2. A spring hammer comprising a barrel having a slot in one side thereof, a chuck received in one end of the barrel, a block received in the opposite end of the barrel, said block having transversely extending intersecting openings, a handle received on that end of the barrel carrying the block, single transversely extending means passing through the handle, barrel, and one of the openings in the block for securing the handle and block to the barrel, a reciprocating member mounted in the barrel between the chuck and block, a coiled spring received in the barrel for normally holding the re-

ciprocating member in engagement with the chuck, one end of the spring engaging the end of the reciprocating member and the opposite end engaging the block, and means extending through the slot in the barrel for operating the reciprocating member against the tension of the spring.

In testimony whereof, I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN H. PHILLIPS.

Witnesses:
ROY W. HILL,
CHARLES I. COBB.