D. T. LELOIS.

PNEUMATIC HAMMER.

APPLICATION FILED NOV. 23, 1914.

1,138,877. Patented May 11, 1915.

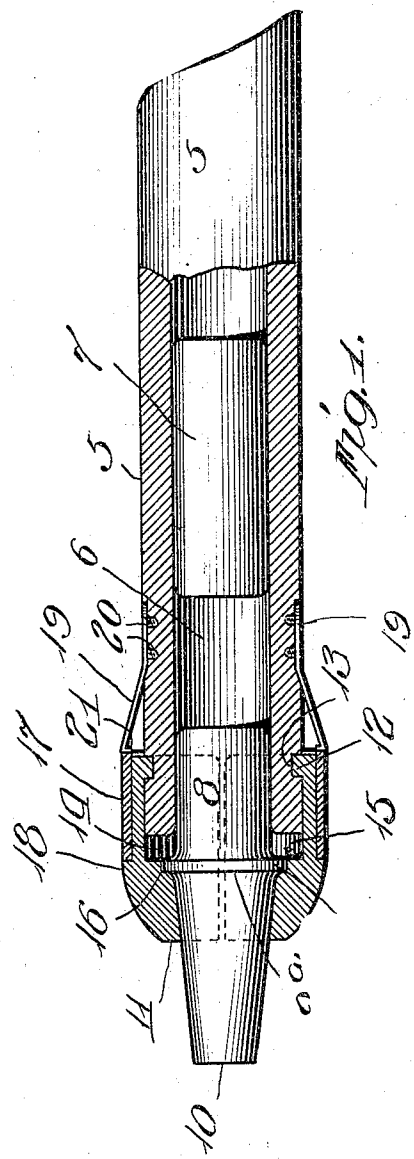


Fig. 1.

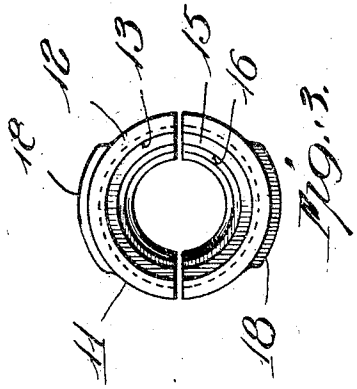


Fig. 3.

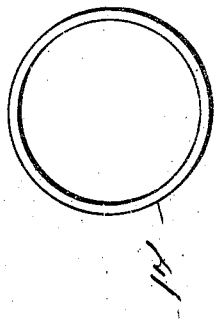


Fig. 4.

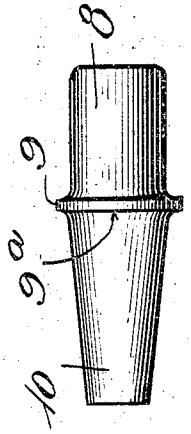


Fig. 2.

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UNITED STATES PATENT OFFICE.

DELPHIS T. LELOIS, OF CHICAGO, ILLINOIS.

PNEUMATIC HAMMER.

1,138,877. Specification of Letters Patent. **Patented May 11, 1915.**

Application filed November 23, 1914. Serial No. 873,448.

To all whom it may concern:

Be it known that I, DELPHIS T. LELOIS, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, (whose post-office address is 11541 Perry avenue, Chicago, Illinois), have invented certain new and useful Improvements in Pneumatic Hammers, as set forth in the annexed specification.

My invention relates to pneumatic hammers and the chief object of the improvements which constitute the subject matter of this application for patent is to provide a locking or retaining mechanism for holding the die in its seat, thus preventing the accidental dislodgment of the die from the impact of the hammer, such a discharge being a frequent source of annoyance or injury in case the throttle lever is inadvertently moved while the hammer is out of its working position.

Other objects of my invention are to furnish a retaining mechanism for the die of a pneumatic hammer that is capable of being quickly and easily removed from its engaging position thus permitting the die to be readily removed and another substituted, the reassembling of the holder being speedily accomplished; to provide a construction that will tend to strengthen the muzzle of the casing or shell rather than to weaken it, and to produce a device for the purpose stated that can be readily applied to the barrels of the various types of pneumatic hammers in present use.

I accomplish the desired results by a simple and efficient mechanism illustrated in the accompanying drawings which forms a part of this specification, the details of construction being disclosed in the following views:—

Figure 1 is a sectional elevation of a portion of the shell or barrel of a pneumatic hammer embodying my improvements; Fig. 2 is a side elevation of the die; Fig. 3 is a rear end elevation of the split collar, and Fig. 4 is an end elevation of the retaining ring.

Referring to the details of the drawing, the numeral 5 indicates the cylindrical shell or barrel of a pneumatic hammer similar to those in ordinary use. Within the bore 6 of said barrel is the usual piston or hammer 7, which is free to reciprocate in said bore. Inserted in the end of the barrel 5 is a die, comprising a body portion 8 slidably fitting the bore 6 and provided with an annular collar 9 forming a shoulder or stop which limits the inward movement of the die by striking the end face of the barrel. The portion 10 of the die in front of the collar 9 is made tapering toward the end and is of less diameter than the collar adjacent the latter forming a shoulder 9^a. As devices of this class are ordinarily constructed there is nothing to prevent the die from being drawn or dislodged from its position in the nozzle of the barrel, except when opposed by some sufficiently resisting abutment, as, for instance, when in opposition with the piece of work which is to be operated upon, this alone preventing the die from being driven clear of the barrel by the impact of the hammer 7. For the purpose of retaining the die in its seat, whether the device is in operation or idle, I provide a split collar or sleeve, comprising two duplicate sections or halves 11, which surround the die and muzzle the barrel. The forward end of the sections is fitted to closely engage the tapering part 10 of the die and the rear part is counterbored to embrace the extremity of the barrel. The rear ends of the collar or sleeve sections 11 are provided with inwardly projecting flanges 12 which engage a peripheral recess or groove 13 cut in the outer surface of the barrel at such a distance from the end that when assembled there will be an interval 14 between the end of the barrel and the shoulder 15 formed by the counterbore. An annular recess 16 cut in said shoulder is adapted to receive the collar 9 as shown in Fig. 1. The rear portions of said sleeve sections 11 are embraced by a retaining or clamping ring or ferrule 17. The outer surfaces of the said sections 11 are furnished with circumferentially extended lugs or abutments 18 which engage the front margin of the said ring 17, thus constituting stops which prevent the ring from slipping over the end of the sleeve and thus becoming dislodged from the sleeve.

It will be readily understood that when the die and sleeve sections are assembled in the manner shown in Fig. 1 and the clasp ring or ferrule 17 placed thereover, the said sections will be firmly retained by the ring, and the die, in turn, will be held in position by the forward end of the embracing split sleeve, its reciprocating movement, however, will not be interfered with, since it is loosely fitted in its seat.

As the jar of the hammer impact upon the die may be likely to cause the retaining ring to work backward and release the sections, I provide retaining catches in the form of flat springs 19 secured to the outer side of the barrel by suitable screws 20, and having their free ends extending forward to engage the rear margins of the said ring 17, the extremities of the springs being bent downward, as shown at 21, to present a larger engaging surface.

To assemble the device the ring 17 is first slipped over the end of the barrel 5, the springs 19 being depressed to permit the ring to pass over them. The selected die is then inserted in the muzzle of the barrel, until the collar 9 is against the barrel end. The sections of the split sleeve can now be quickly placed upon the opposite sides of the muzzle with the flanges 12 engaging the groove 13. It is now a very easy matter to slip the ring 17 forward over the springs 19 and upon the rear portions of the sections until it is stopped by the abutments 18, when the springs 19 will spring into engaging position. To remove the engaging sleeve 11 it is only necessary to reverse the above movements, first depressing the springs 19 and sliding the ring back so as to free the sleeve when the sections of the latter will be freely removed. This gives an opportunity to quickly change the dies, and as this is frequently necessary in certain kinds of work, the removable feature is one of great value, and the employment of a slip ferrule to secure the split sleeves, which can be manipulated with great ease and rapidity, presents an unusual advantage in the economy of time, while the particular construction made use of is calculated to strengthen the parts to which the device is connected.

In applying my improved die retaining mechanism to the type of pneumatic hammers in common use it is only necessary to turn down the tapering front end of the die in order to form the shoulder 9^a, to form the groove 13 for the flange 12, and affix the ring retaining springs 19.

Having described my invention, what I claim as new and desire to secure by Letters Patent is,—

1. A tool-holder for pneumatic hammers comprising semi-circular jaws detachably engaging the hammer barrel and the tool and adapted to permit longitudinal movement of the latter, a sleeve seated on and embracing said jaws, and means secured to said barrel and detachably engaging said sleeve for holding it against displacement.

2. A tool-holder for pneumatic hammers comprising semi-circular jaws detachably engaging the hammer barrel and the tool and adapted to permit longitudinal movement of the latter, said jaws each having a recess in its outer face shouldered at one end, a closed sleeve detachably fitting said recess and clamping said jaws in operative position and springs secured to the barrel and having their free ends removably engaging said sleeve.

Signed at Chicago, Cook county, Illinois, this 21st. day of November, 1914.

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Witnesses:
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