J. W. HARRISON.

SAFETY LOCKING DEVICE FOR PNEUMATIC TOOLS.

APPLICATION FILED MAR. 23, 1914.

1,125,521. Patented Jan. 19, 1915.

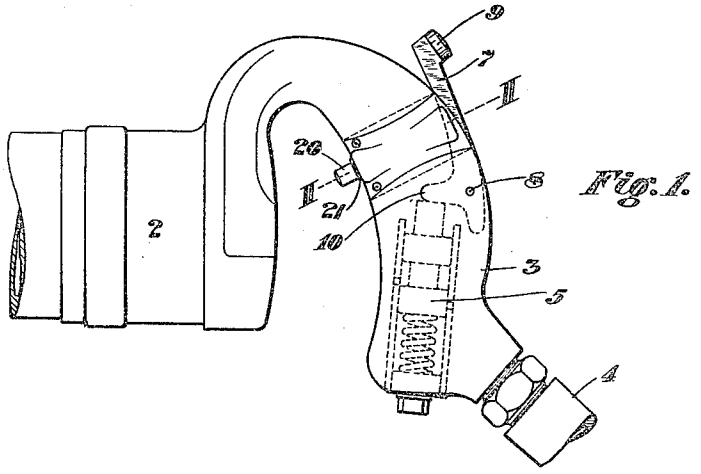


Fig. 1.

Fig. 2.

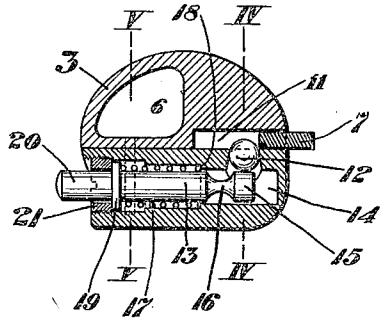
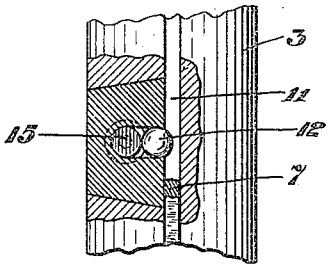


Fig. 4.



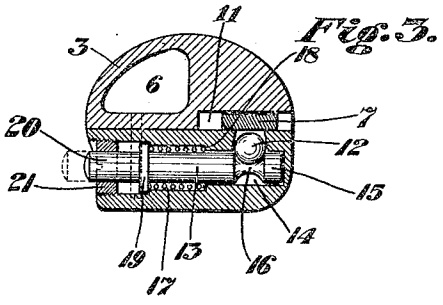


Fig. 3.

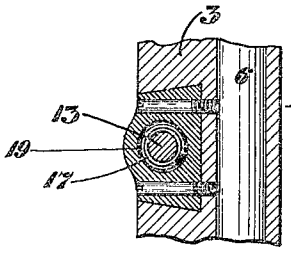


Fig. 5.

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UNITED STATES PATENT OFFICE.

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SAFETY LOCKING DEVICE FOR PNEUMATIC TOOLS.

1,125,521. Specification of Letters Patent. Patented Jan. 19, 1915.

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To all whom it may concern:

Be it known that I, JOHN W. HARRISON, a citizen of the United States, residing at Wilmerding, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Safety Locking Devices for Pneumatic Tools, of which the following is a specification.

My invention consists of an improvement in safety locking devices for pneumatic tools, such as hammers, riveters, etc.

It has for its object to provide a lock-controlled trigger mechanism for the air-controlled valve.

In apparatus of this kind, provided with the usual unguarded trigger for operating the air pressure valve, accidents frequently occur from the opening of the valve, due to unexpected or accidental operation of the trigger, resulting in the striking of blows, discharge of the terminal tool, as a missile, and otherwise effecting injury or derangement of the tool itself.

In my invention I provide means for regulating or controlling the operation of the releasing trigger, whereby it is impossible to set the tool into operation without preliminary actuation of such controlling device.

In the drawings, illustrating one preferred form of the invention,—Figure 1 represents a grip or handle of a pneumatic tool provided with my improvement. Fig. 2 is an enlarged cross sectional view on the line II. II. of Fig. 1. Fig. 3 is a similar sectional view, showing the device in operative position for releasing the trigger for use. Fig. 4 is a vertical sectional view on the line IV. IV. of Fig. 2. Fig. 5 is an enlarged sectional detail view, indicated by the line V. V. of Fig. 2.

In the drawings, 2 represents the body portion of the pneumatic tool, which is provided at its rear end with the usual grip or handle 3, of well-known construction, having connection with the compressed air supply by a flexible tube 4. The air supply is controlled by valve mechanism 5, indicated in dotted lines, by the shifting of which air circulation is established through a channel or port 6 to the working portions in the interior of the cylindrical tool body 2. An operating trigger 7, pivoted at 8, and provided with a depressible thumb terminal 9, actuates the valve 5 by a projecting lug 10, or otherwise, as it may be designed by the builder. Ordinarily, such trigger 7 is merely depressed by the thumb without any restriction, being retracted by suitable spring mechanism, usually associated with the valve member 5, so as to normally close the valve when pressure upon the trigger is released.

In the construction as shown, the trigger is reciprocably mounted within a receiving slot 11 in the front edge of the grip 3. For the purpose of providing a locking abutment against inward movement of trigger 7, I have provided a suitable device, as a ball 12, capable of being thrust laterally by the trigger on entering, or of being maintained in position in front of the trigger, by a co-acting abutment. Such co-acting abutment is in the form of the stem 13, reciprocably mounted within a suitable receiving cavity 14, provided with a head 15 and a neck 16 between it and the main stem. The neck, as shown, is annularly reduced, providing an annular clearance cavity for the ball abutment 12, so that when the stem 13 is thrust backwardly, the annular recess will register with the ball, as indicated in Fig. 3. In such case the trigger 7 may be thrust inwardly, as shown, the ball disappearing from in front of it by reason of the temporary clearance provided by the cavity surrounding neck 16.

Stem 13 is normally pressed outwardly to the position shown in Fig. 2 by a suitable spring 17 bearing against an interior shoulder 18 and a collar 19 upon the stem, sufficient clearance being provided for such collar to allow of its inward movement and spring-operation, as shown in Fig. 3. Outwardly beyond the collar 19 is an extended stem projection 20 passing through a surrounding bushing 21 or other suitable socket. Projection 20, as thus located, is arranged in suitable position for engagement by the finger of the operator, whereby it may be depressed inwardly to effect release of the interior trigger locking ball abutment 12. Upon release of the trigger 7 to discontinue the operation, the stem 13, which has been held backwardly by the entrance of ball abutment 12 into the annular recess around neck 16, will be thrust outwardly through the communicating opening in which the ball is mounted, due to the action of spring 17, resuming its normal position, as in Fig. 2. It will thus be seen that it is impossible

to effect operation of trigger 7 without first depressing the stem 13 to allow the ball 12 to recede, so that accidental operation of the air-controlling valve is thus effectually prevented, and the tool is protected against any unintentional operation.

It will be understood that the particular mechanism above described and illustrated may be utilized with good results, and that it may be changed or substituted by the skilled mechanic with other equivalent mechanism for the same purpose, but that all such changes are within the scope of the following claims.

What I claim is:

1. A safety locking device for a pneumatic tool provided with a valve operating trigger consisting of a freely movable ball, and means for inserting it in the path of the trigger, substantially as set forth.

2. A safety locking device for a pneumatic tool provided with a valve operating trigger consisting of an unattached movable ball operable across the path of the trigger, and a separately adjustable device adapted to effect positioning of the ball, substantially as set forth.

3. A safety locking device for a pneumatic tool provided with a valve operating trigger consisting of an unattached movable ball operable across the path of the trigger, and a separately adjustable device adapted to effect positioning of the ball and provided with a retracting spring, substantially as set forth.

4. In a pneumatic tool, the combination with the valve-actuating trigger, of an unattached ball operable across the path of the trigger, and a controlling stud therefor provided with an annular recess for clearance of the ball to admit of its movement away from interlocking engagement with the trigger, substantially as set forth.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

JOHN W. HARRISON.

Witnesses:
C. M. CLARKE,
FRED'K STAUB.

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