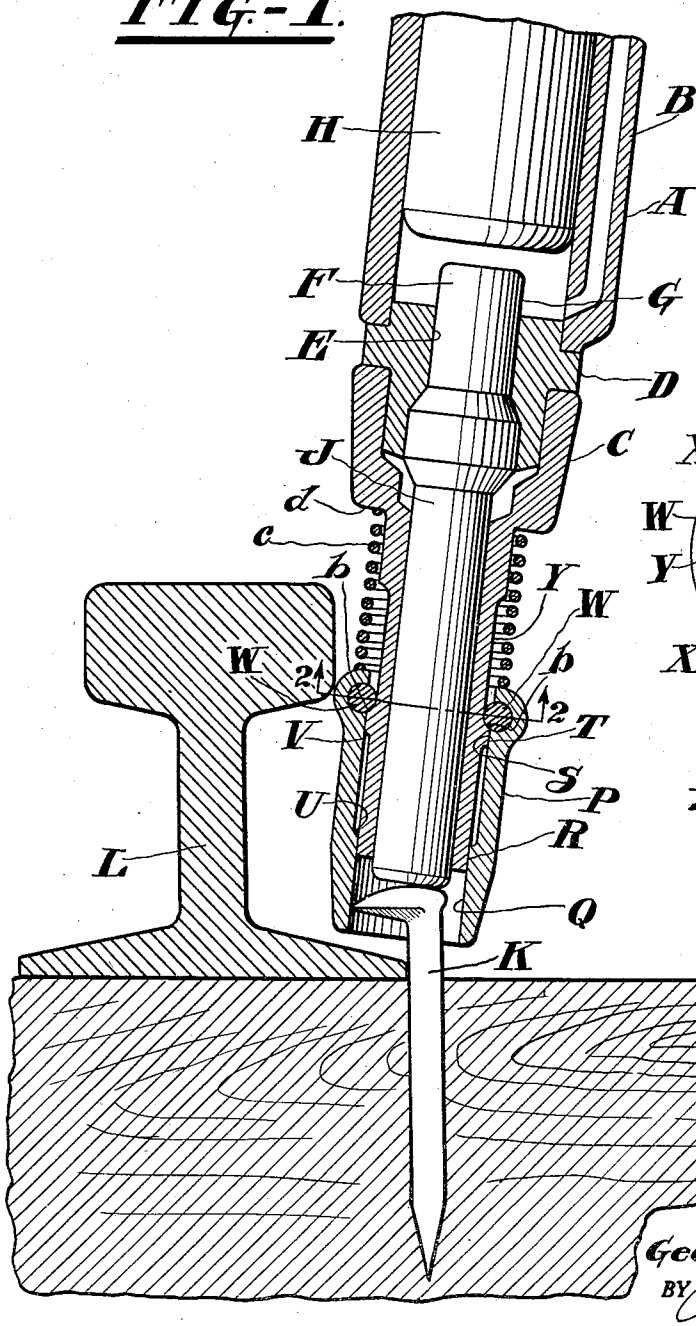
June 2, 1931. G. T. COUSINS 1,808,452

HOLDING DEVICE

Filed Oct. 17, 1928

FIG.-1.



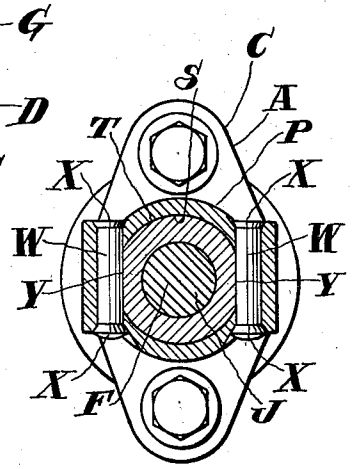


FIG.-2.

INVENTOR.
George T. Cousins.
BY
HIS ATTORNEY.

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UNITED STATES PATENT OFFICE

GEORGE T. COUSINS, OF NEW ROCHELLE, NEW YORK, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY

HOLDING DEVICE

Application filed October 17, 1928. Serial No. 313,096.

This invention relates to holding devices, but more particularly to a holding device adapted for attachment to a pneumatically actuated hammer tool of the type employed for driving spikes and similar articles.

One object of the invention is to enable the hammer tool to be readily retained in striking relation with the spike unaffected by the vibration set up in the drill during its operation.

Other objects will be in part obvious and in part pointed out hereinafter.

In the drawings accompanying the specification and in which similar reference characters refer to similar parts,

Figure 1 is a sectional elevation of a pneumatic tool having the invention applied thereto, and

Figure 2 is a transverse view through Figure 1 taken on the line 2—2 looking in the direction indicated by the arrows and illustrating the manner in which the guide sleeve is mounted on the front head of the pneumatic tool.

Referring to the drawings the invention is shown applied to a pneumatic tool designated by A and only the forward portion of which is shown for the purpose of illustration.

The tool A comprises a cylinder B, a front head C and a front cylinder washer D interposed between the cylinder B and the front head C and extending into these elements to centralize them with respect to each other. A bore E in the front cylinder washer D forms a seat for an anvil block F having a stem G which extends into the front end of the cylinder to receive the blows of a hammer piston H reciprocable in the cylinder B.

In the present instance the anvil block F also has a forwardly extending projection J which extends slidably through the front head to a point slightly in advance thereof to bear against the element intended to be driven, as for instance, a spike K utilized for securing a rail L to a tie O.

One of the principal difficulties in driving spikes such as that illustrated, with pneumatic hammer tools is that of maintaining the tool in the proper striking relation with respect to the spike. One reason for this is that the surface of the spike against which the blows of the tool are delivered is of spherical form so that in using implements of known types which have the usual flat impact surfaces only a small point of contact may be obtained between such implement and the head of the spike. In hand driving this feature may not always be objectionable, but when using pneumatic tools, such as that illustrated in the drawings for this purpose it is difficult to maintain the tool on the spike because of the rapidity at which the blows are delivered and the consequent vibration set up in the tool when operating at high speeds.

In order to overcome the difficulty above set forth means are provided for maintaining the pneumatic tool in the correct striking position relatively to the spike K. To this end a sleeve P is disposed slidably on the exterior of the front head C and the bore Q of the sleeve P is adapted to slidably engage a cylindrical surface R at the front end of the front head C for maintaining the sleeve P substantially coaxial with the front head.

The rearward portion S of the bore Q of the sleeve is preferably enlarged and cooperates with a correspondingly large surface T of the front head to further assure against any relative lateral movement between the front head and the sleeve. Due to this form of construction a flange U and a shoulder V are formed on the sleeve P and the front head C respectively and said flange U and the shoulder V cooperate with each other for limiting the distance which the sleeve P may move on the front head in a rearwardly direction.

Preferably means are provided for maintaining the sleeve P on the front head C so that it will at all times be in substantially the correct position for engagement with the spike. The means employed for this purpose comprises in this instance a pair of rivets or pins W disposed on opposite sides of the sleeve and having their ends X riveted as illustrated more particularly in Figure 2 to maintain them in the sleeve. In the assembled position of the pins said pins extend through recesses or slots Y in opposite sides of the

front head C, said slots having shoulders *b* at their front ends against which the pins W may abut for limiting movement of the sleeve towards the front end of the front head C.

In order to normally insure the guiding position of the sleeve P on the front head, that is the foremost limiting position of said sleeve, a spring *c* is disposed on the front head C which it encircles to bear with one end against the rearward end of the sleeve P and with its other end against a shoulder *d* of the front head.

In practice, whenever it is intended to drive the spike K into a tie the spike K may first be placed in substantially the correct position relatively to the rail which it is intended to secure to the tie. The pneumatic tool A is then seated on the spike and the piston H is set in operation. In the position of the pneumatic tool illustrated the extension J of the anvil block F will bear against the head of the spike and the blows of the hammer piston H will then be transmitted through the anvil block F to the spike for driving it into the tie O. After the spike has been properly started in the tie O the operator may apply pressure to the tool A and the spike will be readily driven into the tie O to secure the rail L thereto.

As the head of the spike approaches the flange of the rail L the front end of the sleeve P will of course contact with the flange of the rail and the sleeve will be gradually pushed rearwardly on the front head C in accordance with the degree of penetration of the spike into the tie O. The front end of the sleeve P will however at all times remain in engagement with the head of the spike, and the extension J of the anvil block F will therefore be maintained on the spike until the spike is driven firmly into the securing position. The pneumatic tool A may then be removed and during its removal from the spike the spring *c* will urge the sleeve P forwardly preparatory to the driving of another spike.

I claim:

1. In a holding device for hammer tools, the combination of a cylinder and a hammer piston, a front head for the cylinder, an anvil block in the front head projecting beyond the forward end thereof to bear against an element intended to be driven for transmitting the blows of the hammer piston to such element, and a sleeve supported by the front head in position to extend over an end portion only of such element for maintaining the tool in operative striking relation with respect to such element, said operative striking relation being either coaxial or oblique.

2. In a holding device for hammer tools, the combination of a cylinder and a hammer piston, a front head for the cylinder having a forward reduced extension, an anvil block in the front head and the extension and projecting beyond the forward end of said extension to bear against an element intended to be driven for transmitting the blows of the hammer piston to such element, a sleeve slidable on the projection and adapted to be fully retracted thereon, and means cooperating with the sleeve and the extension to normally maintain said sleeve in position to extend over an end portion only of such driven element to maintain the tool in operative striking relation with respect to such element, said operative striking relation being either coaxial or oblique.

3. In a holding device, the combination of a hammer tool having a cylinder and a front head, a hammer piston in the cylinder, means in the front head for transmitting the blows of the hammer piston to an element intended to be driven, a sleeve slidable on the front head for guiding such element during the driving thereof, shoulders on the exterior of the front head, means carried by the sleeve cooperating with the shoulders to limit the longitudinal movement of the sleeve on the front head, and a spring encircling the front head and acting on the sleeve to urge said sleeve toward the front end of the front head.

4. In a holding device, the combination of a hammer tool having a cylinder and a front head, shoulders on the exterior of the front head, a hammer piston in the cylinder, an anvil block in the front head for transmitting the blows of the hammer piston to an element intended to be driven, a sleeve slidable on the front head for guiding such element during the driving thereof and having an internal flange to cooperate with one of the shoulders for limiting movement of the sleeve on the front head in a rearwardly direction, a pin in the sleeve to abut another shoulder for maintaining the sleeve on the front head, and a spring acting against the front head and the sleeve for urging the sleeve toward the front end of the front head.

In testimony whereof I have signed this specification.

GEORGE T. COUSINS.