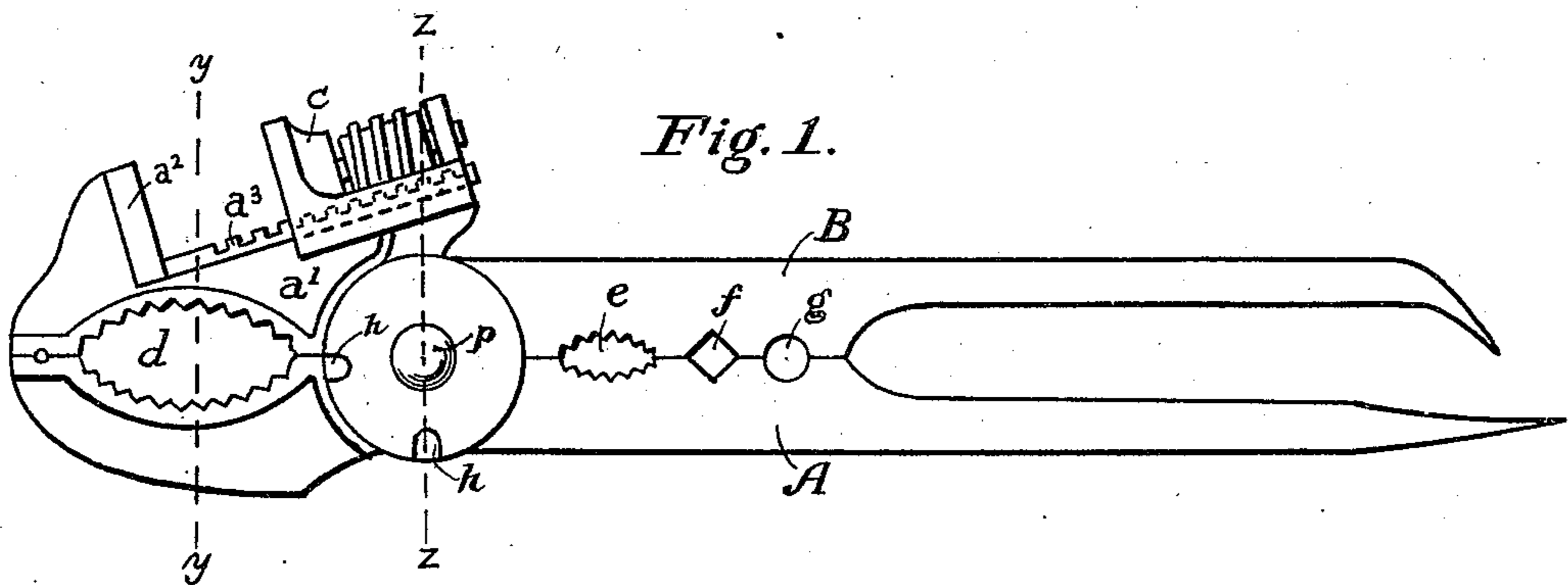


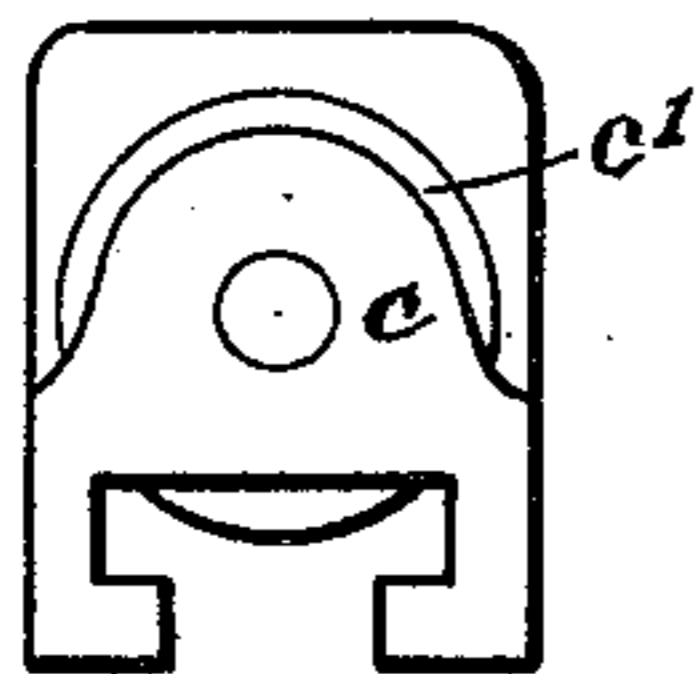
F. J. STOLLE.  
COMBINATION TOOL.  
APPLICATION FILED FEB. 1, 1909.

933,860.

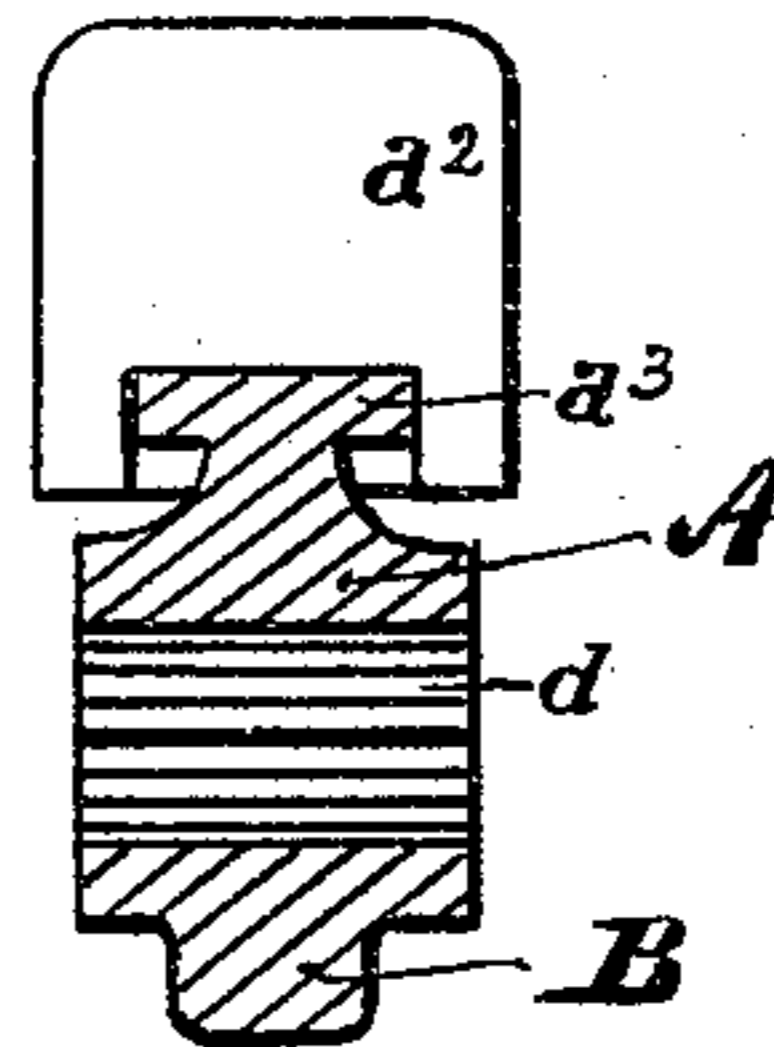
Patented Sept. 14, 1909.



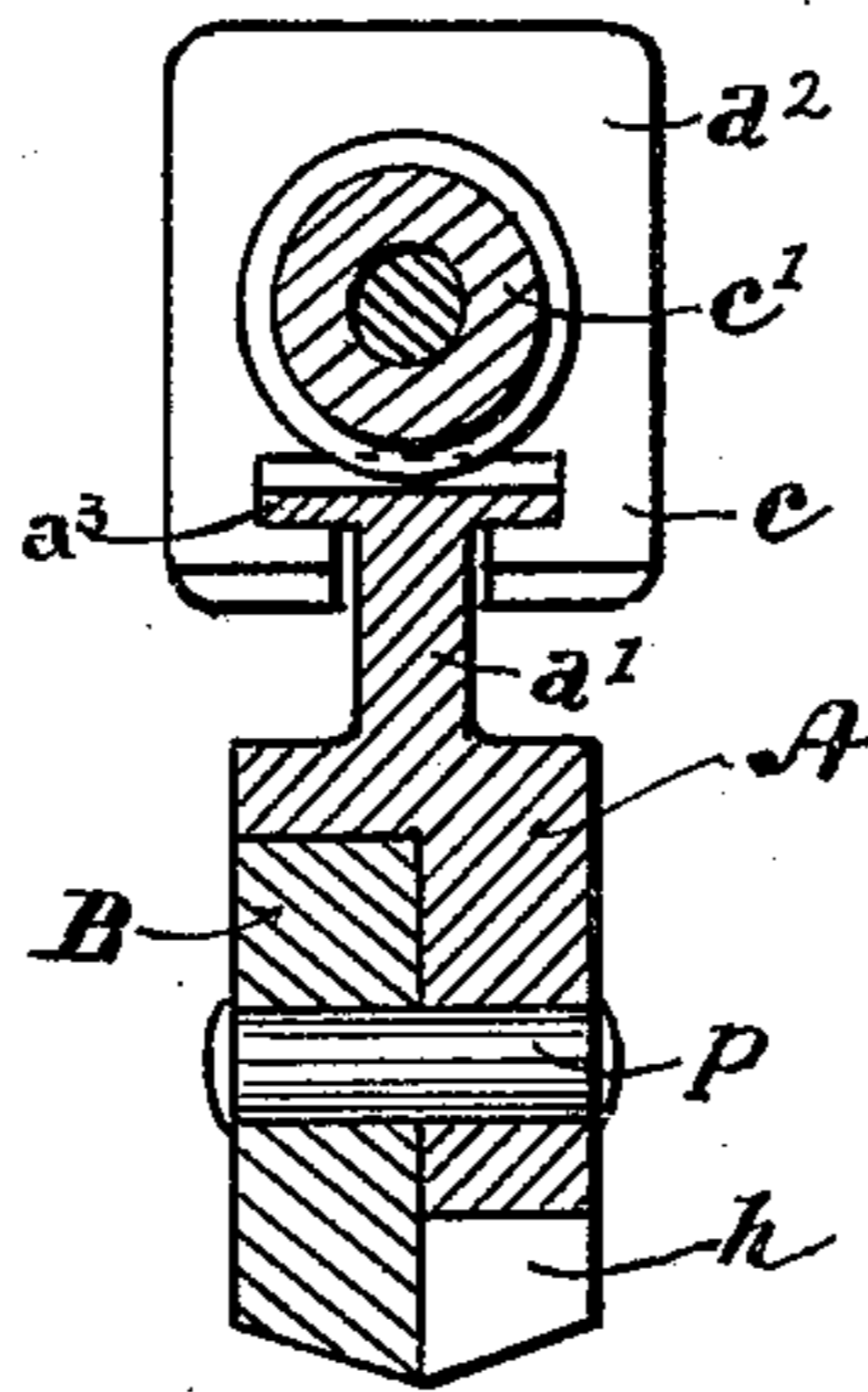
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## COMBINATION-TOOL.

933,860.

Specification of Letters Patent. Patented Sept. 14, 1909.

Application filed February 1, 1909. Serial No. 475,497.

*To all whom it may concern:*

Be it known that I, FRANK J. STOLLE, a citizen of the United States, residing at Fort Thomas, in the county of Campbell and State of Kentucky, have invented new and useful Improvements in Combination-Tools, of which the following is a specification.

My invention relates to the class of implements commonly known as "combination tools"; its object being to produce a tool of improved usefulness and varied functions adapted primarily to use in connection with the operation of automobiles, power launches, etc., but also for the use of plumbers, gas and steam-fitters, electricians and others who may have occasion to deal with pipe and wire connections, where a varied assortment of tools is wanting. Incidentally I have also kept in view the qualities of simplicity and cheapness of construction combined with the maximum strength, durability and convenience of manipulation.

To these ends my invention consists in the device described herein and illustrated in the accompanying drawings, in which—

Figure 1, is a side elevation of the implement; Fig. 2, an end-view of the movable clamp of the wrench portion; Fig. 3, is a cross-section on the line  $y-y$  of Fig. 1 viewed from the right; Fig. 4, is a cross section on the line  $z-z$  of Fig. 1 viewed from the right.

Referring now to the drawings and the parts indicated by the reference letters, the device entire consists of but three principal separate parts, to-wit: two members, A. B., constituting a pair of pipe-tongs, held together by a pivot,  $p$ , and a sliding jaw,  $c$ , constituting part of a monkey-wrench.

The members A. and B., are, excepting as hereinafter described, formed and pivotally connected in the manner of ordinary "pipe tongs", having corresponding curved jaw surfaces in their contiguous faces forming engaging spaces as follows: a comparatively large space,  $d$ , with toothed walls forward of the pivot for manipulating larger pipe, a similar but smaller space,  $e$ , just in rear of the pivot; a plain squared space,  $f$ , with walls for engaging diagonally opposite corners of nuts; and a plain curved space,  $g$ , with walls for manipulating wires. Spaces

$h$  and cutting edges are provided at the central or pivot portion for cutting wires, according to usual methods of construction; and the extreme rear end of the handles may terminate in a "nail claw" and "screw driver" respectively.

The head or forward portion of the member A is extended upward by a web,  $a'$ , supporting the forward or fixed jaw,  $a^2$ , and the guides,  $a^3$ , of a "monkey-wrench"—these last mentioned portions being widened by lateral flanges of the web,  $a'$ . The guideway,  $a^3$ , thus formed is inclined upward from front to rear at an angle to the general meeting line of the members A. and B. The movable jaw,  $c$ , is formed to engage upon and over the lateral extensions of the guideway,  $a^3$ , as shown in Figs. 2 and 4, and is provided with and reciprocated by means of a worm wheel,  $c'$ , carried upon a fore-and-aft pivot seated in the usual manner in the part  $c$ , and engaging in milled cross-slots in the upper face of the guideway,  $a^3$ , (Fig. 4).

The upward inclination of the guideway,  $a^3$ , gives a double advantage not only in permitting a wider range of opening of the forward jaws of the members A. and B. but in rendering it easier to operate in confined spaces.

The part B is the pivotal mate to part A and its construction will be sufficiently obvious without further description.

The general simplicity of the construction will be apparent; but the shape and disposition of metal in the several parts are such as to enable them to be formed of steel by ordinary processes of "drop-forging," leaving but little in the matter of finishing operation to complete and perfect them for assembling. I am thus able to produce a cheap and efficient tool of unusual compactness and strength, and especially convenient for use and adapted to needs of automobilists, plumbers, machinists, etc., in situations where a multiplicity of separate tools would ordinarily be required.

I claim, and desire to secure by Letters Patent of the United States:

The improved pipe tongs embodying in combination a pair of pivoted members having curved co-acting jaws forward of the pivotal connection, one of said jaws having

an upwardly extending web with lateral  
projections, forming an upwardly extending  
stationary jaw, and a guide extending from  
the foot thereof at right angles thereto rear-  
5 wardly and upwardly, and a movable jaw  
adapted to engage the guideway and adjust-  
able thereon in relation to the fixed jaw.

In testimony whereof I have hereunto set  
my hand in presence of two subscribing wit-  
nesses.

FRANK J. STOLLE.

Witnesses:

WALTER A. KNIGHT,  
M. A. JACKSON.