(No Model.)

G. W. JOHNSON.

PIPE TONGS.

No. 540,790. Patented June 11, 1895.

Fig. 1.

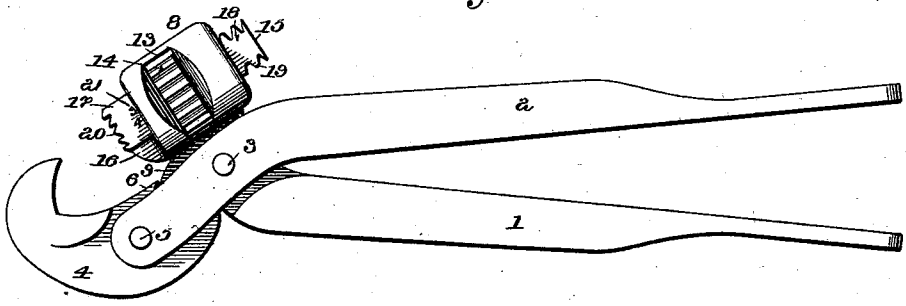


Fig. 2.

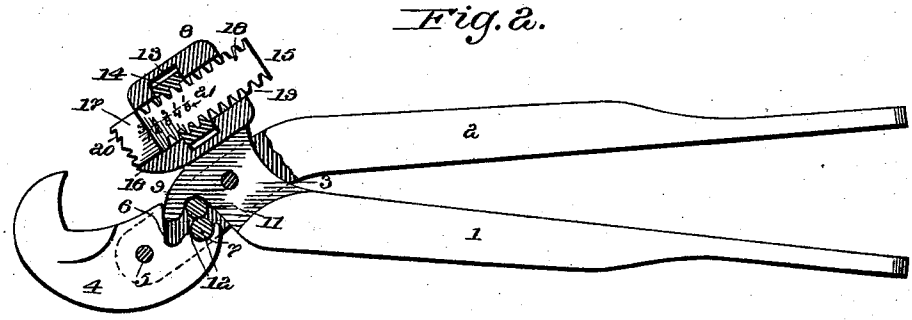


Fig. 3.

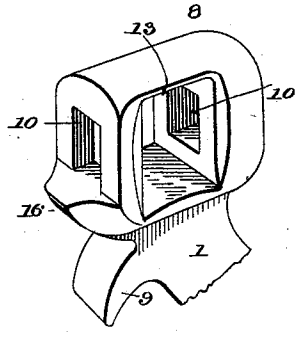
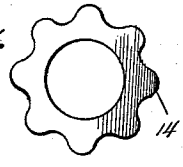


Fig. 5.



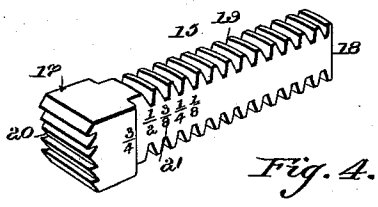


Fig. 4.

Inventor

Geo. W. Johnson,

Witnesses

Arthur Ashley

V. B. Hillyard.

By his Attorneys.

C. A. Snow & Co.

UNITED STATES PATENT OFFICE.

GEORGE W. JOHNSON, OF ERIE, PENNSYLVANIA.

PIPE-TONGS.

SPECIFICATION forming part of Letters Patent No. 540,790, dated June 11, 1895.

Application filed March 30, 1895. Serial No. 543,900. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. JOHNSON, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented a new and useful Pipe-Tongs, of which the following is a specification.

The purpose and intent of the present invention is to improve that class of pipe tongs which embody in their organization a movable jaw and an adjustable and reversible dog such as shown in my previous patent, No. 460,015, bearing date September 22, 1891.

The primary object of the invention is to provide means for accurately and positively adjusting the dog, whereby the tongs are set and adapted to grip the size of pipe to be turned or operated, thereby obviating trials and leaving the adjustment to be effected by adjusting and fitting the tongs upon the said pipe, or rod, which has been found to be a source of annoyance and not feasible in certain positions and conditions in which such tools are frequently required to be used.

A still further purpose of the invention is to firmly and securely brace the dog in its operative position and provide for its ready and positive adjustment to adapt the tongs to the required work to be performed.

The improvement consists, essentially, of the novel features and the peculiar construction and combination of the parts which hereinafter will be more fully set forth and claimed, and which are illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of the improved tongs. Fig. 2 is a view similar to Fig. 1, with parts broken away to show the relative location of the co-operating elements. Fig. 3 is a detail view, on a larger scale, of the head portion of the operating-lever. Fig. 4 is a detail view of the dog. Fig. 5 is a top plan view of the feed-nut.

The tongs comprise the levers 1 and 2, which are pivoted near their operating ends in the usual manner, the lever 2 being bifurcated to receive a reduced portion of the lever 1, the two being connected by a pivot 3. The movable jaw 4, which is hooked at its outer end to provide a seat for the pipe, or rod, to be operated upon, is placed between the bifurcations of the lever 2 and held in place by means of a pivot 5, the lower end having an approximately V-shaped notch 6 on its inner edge and a recess 7 a short distance from the said notch 6. The lever 1 is extended beyond the pivot 3 to form a head 8, and has an inwardly-extending projection 9 to engage with the walls of the V-shaped notch 6, whereby in the operation of the tongs the jaw 4 is caused to rock, or turn, upon the pivot 5. A recess 11 is formed in the inner edge of the head portion of the lever 1 at a point opposite the recess 7, and rollers 12 are located in the space between the opposing sides of the inner end of the jaw 4 and the head 8 and are seated in the said recesses 7 and 11 to facilitate the movement of the jaw 4 on operating the levers 1 and 2.

The head 8 has a longitudinal mortise 10 which is intersected by a transverse mortise 13, the latter receiving a feed nut 14, by means of which the dog 15 is adjusted, said feed nut being internally threaded and having its outer edge milled or corrugated to enable a firm grip to be obtained thereon when it is required to rotate the said nut to effect an adjustment of the dog 15.

The inner wall of the longitudinal mortise 10 is projected to form a bearing lug 16, which braces the dog 15 and sustains the latter when subjected to severe strain incident to the use of this class of tools. It must be remembered that the strain upon the dog is in a direction corresponding to a line passing through the pivot 3 and centrally between the levers 1 and 2. Hence the disposition of the bearing lug 16 approximately on this line enables it to receive the strain and prevent fracturing or rupture of the tool.

The dog 15 comprises a head 17 and a shank 18, the latter being flattened on its sides and having its edge portions provided with segmental threads 19 which correspond in pitch to the threads of the feed nut 14. The head 17 is expanded laterally, and its end is formed with oppositely-disposed gripping teeth 20, which incline from a central point in opposite directions to the respective sides of the said head, so that after one set of teeth have become dulled the position of the dog can be reversed and a new set brought into active and working position. The sides of the dog have graduations, or scale indications, 21

whereby the relative location of the active end of the dog can be accurately determined with respect to the hooked end of the movable jaw 4 in adapting the tongs to the size of the rod, or pipe, to be operated upon. Usually this operation has been determined by applying the tool to the said rod, or pipe, and adjusting the dog until its end will bite into the part to be gripped. This operation is tedious and under certain conditions, and particularly in close places and overhead work, cannot be easily effected without considerable trouble and annoyance and many vexatious applications of the tool to the rod, or pipe, to be gripped. By providing the scale, or graduations, 21, the size of the pipe, or rod, being known, the dog can be easily and quickly set to adapt the tongs for gripping the said rod, or pipe, at the first application of the tool thereto. Both sides of the dog will be similarly graduated to enable the proper positioning of the dog without necessitating the turning of the tool from one side to the other to observe the indicating marks. The upper face of the head 8 forms the indicator which co-operates with the graduations 21 to determine the required adjustment of the dog.

The lever 2 in the present instance is the supporting or relatively fixed part of the tool, and has the hooked end of the movable jaw 4 carried thereby applied to the rod, or pipe, whearas the lever 1 is relatively movable and operated to cause the dog 15 to grip the said rod, or pipe, when it is required to turn the same. As previously stated, the dog 15 is properly adjusted before applying the tool in the performance of work, and after one set of gripping teeth are rendered unfit for use the dog is removed from its mortise 10 and its position reversed so as to bring a new set of teeth in working position. Thus it will be seen that the improved tool facilitates the labor of the workman, and is capable of having its life prolonged by means of the reversibility of the dog and the bracing action of the bearing lug 16, as will be readily understood.

In applying the principles of the invention to the various patterns and styles of tools, it is manifest that changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having thus described the invention, what is claimed as new is—

1. In a pipe tongs, the combination of a relatively fixed lever having a hooked jaw at one end, an operating lever pivoted to the fixed lever a short distance from the said jaw, and having its end projected beyond the pivotal connection and formed into a head which has a longitudinal mortise intersected by a transverse mortise, a dog having a shank portion with flattened sides and toothed edges, the said flattened sides having graduations to facilitate the proper adjustment of the dog to adapt the tongs to the required size of the pipe, or rod, to be gripped thereby, and a feed nut arranged in the said transverse mortise and constructed to engage with the toothed edge portion of the dog, whereby the latter is properly positioned in its longitudinal mortise, substantially as set forth.

2. In a pipe tongs, the combination of a relatively fixed lever having a hooked jaw at one end, an operating lever pivoted to the fixed lever a short distance from the hooked jaw, and having its end projected beyond the said pivot and formed into a head having a longitudinal and a transverse mortise, the inner wall of the longitudinal mortise being projected to provide a bracing, or bearing lug, a dog having its sides flattened and provided with graduations, and having its edges formed with segmental threads, and a feed nut disposed in the said transverse mortise and adapted to engage with the threaded edge portion of the dog to move the latter in the longitudinal mortise, substantially as described for the purpose set forth.

3. In a pipe tongs, the combination of a relatively fixed lever having a hooked jaw, an operating lever having pivotal connection with the said fixed lever, and having its end projected beyond the pivotal point and formed into a head having a longitudinal and a transverse intersecting mortise, the inner wall of the longitudinal mortise being projected to form a bearing, or bracing lug, a dog comprising a head having oppositely-disposed teeth on its end, and having a shank whose sides are flattened and provided with graduations, the edge portions of the shank being toothed, said dog being reversible in the longitudinal mortise, and a feed nut located in the transverse mortise and adapted to engage with the toothed edges of the dog to adjust the latter, substantially as set forth.

4. In a pipe tongs, in combination, pivoted levers having their end portions projected beyond the pivot, the one having a head formed with a longitudinal and transverse mortise and having a bearing lug forming a prolongation of the inner wall of the longitudinal mortise, a hooked jaw pivoted to the projecting end of the other lever, and having a notch to be engaged by a projection on the inner side of the operating lever, a reversible dog having flattened and graduated sides, and a feed nut for adjusting the said dog, substantially as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE W. JOHNSON.

Witnesses:
WARREN M. JORDAN,
BENJAMIN E. REED.