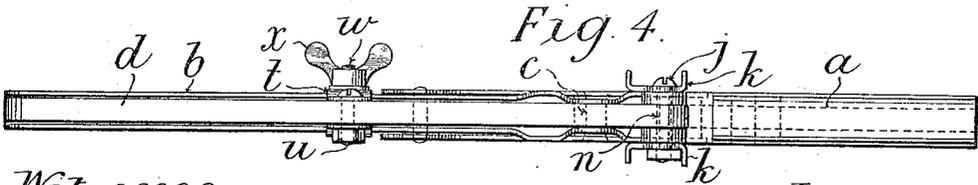
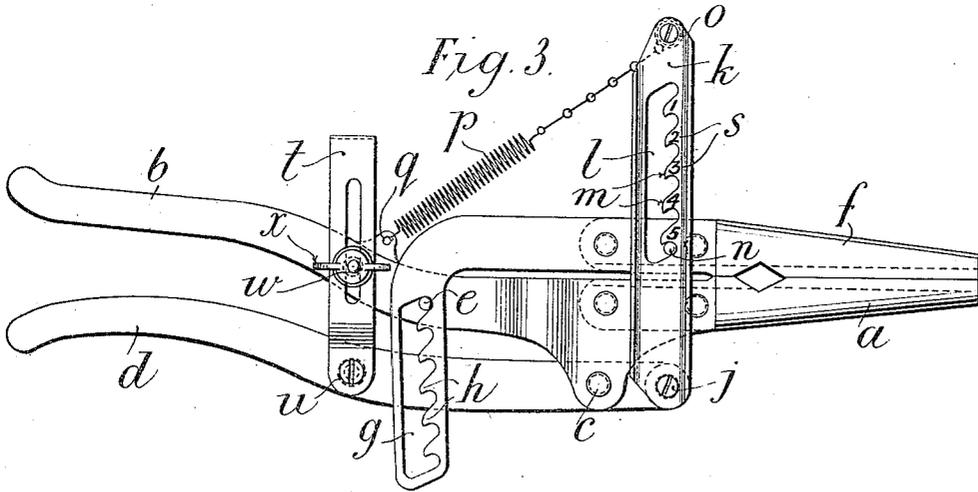
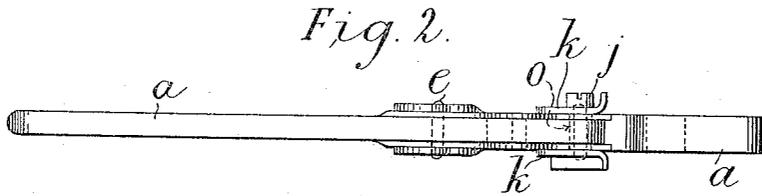
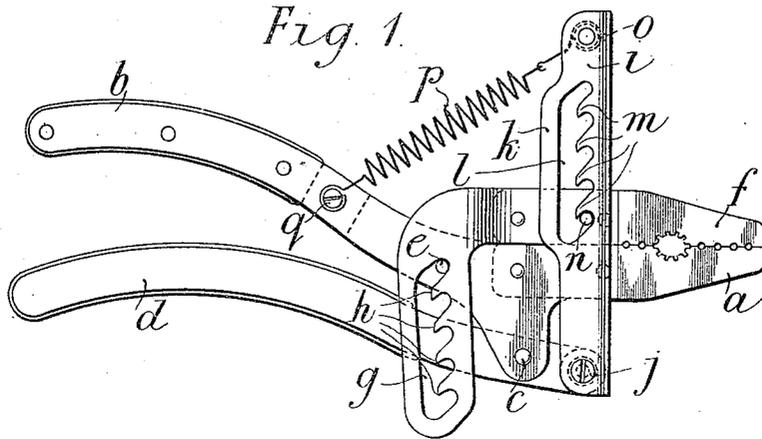


A. S. F. ROBINSON,
 PLIERS AND LIKE GRIPPING TOOL.
 APPLICATION FILED MAY 4, 1914.

1,136,618.

Patented Apr. 20, 1915.



Witnesses:
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UNITED STATES PATENT OFFICE.

ARTHUR SAMUEL FRANCIS ROBINSON, OF BECCLES, ENGLAND.

PLIERS AND LIKE GRIPPING-TOOL.

1,136,618.

Specification of Letters Patent. Patented Apr. 20, 1915.

Application filed May 4, 1914. Serial No. 836,296.

To all whom it may concern:

Be it known that I, ARTHUR SAMUEL FRANCIS ROBINSON, a subject of the King of Great Britain and Ireland, residing at Beccles, in the county of Suffolk, England, have invented Improvements in Pliers and like Gripping-Tools, of which the following is a specification.

This invention has reference to pliers and like gripping tools of the kind comprising gripping members adjustably pivoted to each other, an operating lever pivoted to one of said members, and a link adjustably connecting the said lever to the other member, the object being to enable the adjustments to be easily effected without manipulation of screws or the like. For this purpose the pivotal connections of the link and of the two gripping members are constituted by ratchet-like racks adapted to engage with fixed pins, a spring arrangement being provided to maintain the desired teeth of the racks in engagement with the pins when adjustment has been effected.

Figure 1 of the accompanying drawings illustrates in side elevation and Fig. 2 in underside plan, a pair of flat nose pliers embodying the invention. Figs. 3 and 4 are similar views to Figs. 1 and 2 showing a pair of smith's tongs embodying the invention.

Referring to Figs. 1 and 2, a gripping member *a*, which is formed with a hand grip *b* and has pivoted to it at *c* the operating lever *d*, is provided, between the hand grip and the pivot, with a fixed pin *e* extending beyond its opposite faces, and the corresponding end portion of the other gripping member *f*, which is bent toward the operating lever, is formed of a pair of plates secured on opposite sides of a solid gripping jaw and formed with corresponding slots *g* into which the end portions of the fixed pin *e* extend. The slots *g* are formed with ratchet teeth *h* adapted to engage the pin *e* along that edge nearest the solid jaw and the link *i*, which is pivoted at *j* to the end of the operating lever *d*, is also constituted of a pair of plates *k* similarly formed with slots *l* and teeth *m*; the plates *k* embrace the jaw portions of both the gripping members *a* and *f* and the teeth *m* similarly engage the projecting ends of another pin *n* fixed in the jaw portion of the gripping member *f*. The free ends of the link plates *k* are connected by a distance piece *o* to

which is connected one end of a coiled spring *p* the other end of which is attached to a pin *q* of the gripping member *a*. With this arrangement, each rack can be disengaged from its fixed pin to adjust the movable jaw in one direction, and can be pressed in the other direction so as to ride over the pin, thus enabling adjustment to be readily and quickly effected. When the gripping member *f* is adjusted to the extreme position opposite to that shown the spring *p* will lie between the racked plates.

The smith's tongs shown in Figs. 3 and 4 are of similar construction to the flat nose pliers hereinbefore described and the corresponding parts are indicated by corresponding reference letters. *t* is a slotted link pivoted at *u* to the operating lever *d* and *w* is a bolt passed through the slots of the link *t* and through a hole in the gripping member *a*, a fly nut *x* on the bolt *w* enabling the jaws to be locked in position when gripping an article.

To increase the stiffness laterally of the link plates *k*, one of their edges may be flanged outwardly as shown in Fig. 2, or both their edges may be flanged outwardly as shown in Fig. 4. The spaces between the teeth of the two racks may be marked with letters or numbers *s* to enable adjustments to be readily noted for repetition. The arrangement of the plates *g* forming the racks of the movable jaw *f* enables them to be sprung apart sufficiently to clear the ends of the pins *e* to enable the tool to be taken to pieces.

As will be understood, the arrangement may be modified, for example, the spring arrangement described is convenient and cheap but other arrangements may be substituted.

What I claim is:—

1. In a gripping tool, a pair of gripping members, an operating lever pivoted to one of said gripping members, pins fixed one to each of said gripping members, ratchet-like racks each engaging the said pin of one of said gripping members, one of said racks being connected to one of said gripping members on one side of the pivot of said operating lever, and the other of said racks being pivoted to said operating lever beyond its pivot, and a spring tending to maintain said racks in engagement with said pins.

2. In a gripping tool, a pair of gripping members, an operating lever pivoted to one

of said gripping members, pins fixed one to each of said gripping members, a ratchet-like rack engaging the said pin of the said gripping member to which the said operating lever is pivoted and fixed to the other said gripping member, a ratchet-like rack pivoted to the operating lever and engaging the said pin of the gripping member other than that to which said operating lever is pivoted, and a spring tending to maintain said racks in engagement with said pins.

3. In a gripping tool, a gripping member formed with a hand grip, an operating lever pivoted to said gripping member, a pin fixed to said gripping member between said hand grip and the pivot of said operating lever, a movable gripping member, a ratchet-like rack projecting from the inner end of said movable gripping member toward said operating lever and engaging said pin, a ratchet-like rack pivoted to said operating lever, a pin on said movable gripping member engaged by said pivoted rack, and a spring tending to maintain said racks in engagement with said pins.

4. In a gripping tool, a gripping member formed with a hand grip, an operating lever pivoted to said gripping member, a pin fixed to said gripping member between said hand grip and the pivot of said operating lever, a movable gripping member, a ratchet-like rack projecting from the inner end of said movable gripping member toward said operating lever and engaging said pin, a ratchet-like rack pivoted to said operating lever, a pin on said movable gripping member engaged by said pivoted rack, and a spring connected at one end to the said pivoted rack and at the other end to the said gripping member formed with a hand grip.

5. In a gripping tool, a gripping member formed with a hand grip, an operating lever pivoted to said gripping member, a pin fixed to said gripping member between said hand

grip and the pivot of said operating lever, a movable gripping member, an extension of said movable gripping member formed with a slot provided along one edge with ratchet-like teeth engaging said pin, a link pivoted to said operating lever and formed with a slot having ratchet-like teeth along one edge, a pin on said movable gripping member engaged by the ratchet-like teeth of said link, and a spring tending to maintain the ratchet-like teeth of said extension and the ratchet-like teeth of said link in engagement with said pins.

6. In a gripping tool, a gripping member formed with a hand grip, an operating lever pivoted to said gripping member, a pin fixed to said gripping member between said hand grip and the pivot of said operating lever extending beyond the opposite faces of said gripping member, a movable gripping member, a pair of plates secured on opposite sides of said movable gripping member and embracing said gripping member formed with a hand grip, said plates being formed with slots through which the end portions of said pins project and with ratchet-like teeth adapted to be engaged by said pin, a link constituted by a pair of plates pivoted to said operating lever and embracing said movable jaw, the plates of said link being formed with slots and with ratchet-like teeth, a pin fixed to said movable gripping member and projecting from opposite sides thereof into the slots of said link, and a spring fixed at one end to the free end of said link and at its other end to the said gripping member to which the said operating lever is pivoted.

Signed at the United States consulate general, London, England, this 23 day of April, 1914.

ARTHUR SAMUEL FRANCIS ROBINSON.

Witnesses:

ALFRED HEVENS,
W. E. ROGERS.