

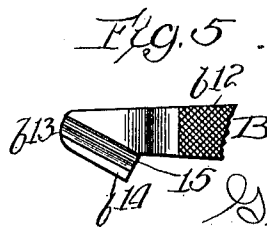
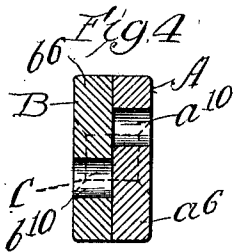
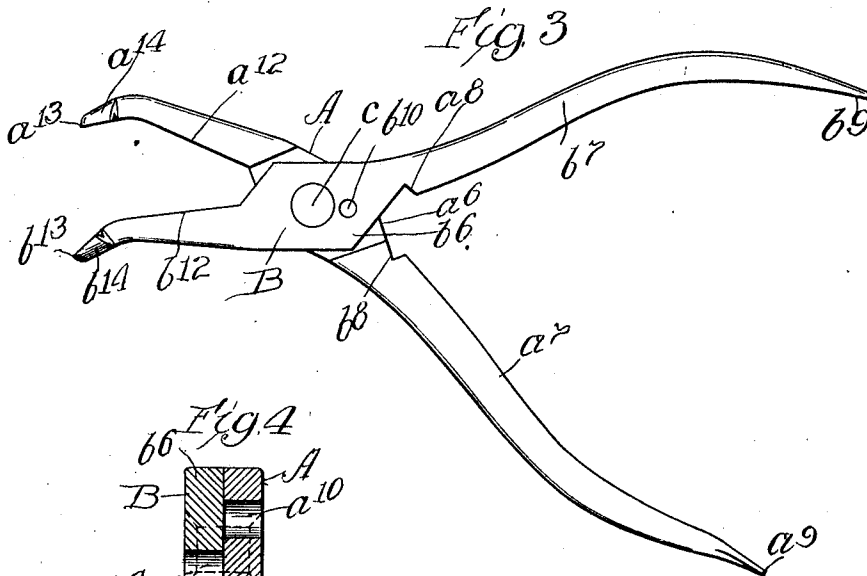
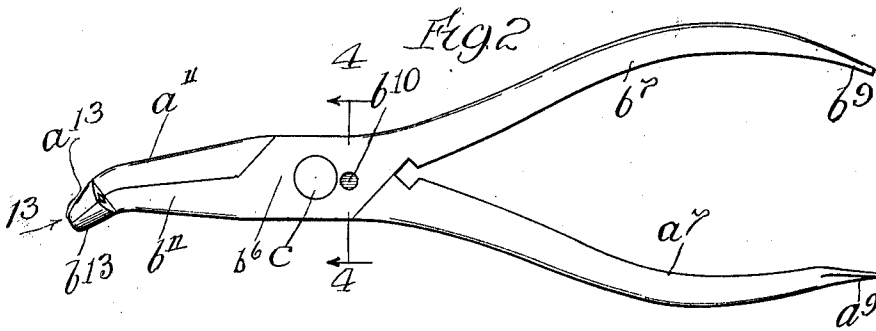
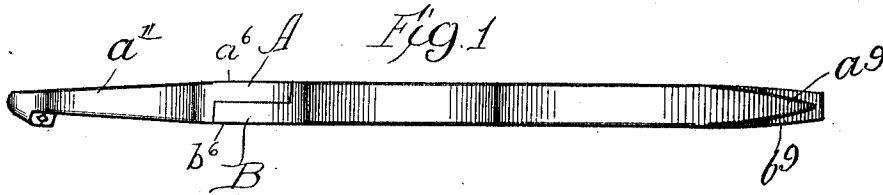
G. R. MESNARD.

PLIERS.

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1,021,372.

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Witnesses:
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UNITED STATES PATENT OFFICE.

GILBERT R. MESNARD, OF CHICAGO, ILLINOIS.

PLIERS.

1,021,372.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, GILBERT R. MESNARD, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Pliers, of which the following is a specification.

My invention relates to improvements in pliers, and more particularly to pliers adapted for the manipulation of cotter-pins, wires, and the like.

One of the salient objects of my invention is to provide a pair of pliers, designed to exert a strong and effective grip upon a cotter-pin or wire, presented generally in a longitudinal direction with reference to the axis of the pliers.

A further object of my invention is to provide pliers in which the gripping axis, or the axis of the part engaged, will stand at an angle to the plane taken centrally to intersect both handles, which I may term a vertical longitudinal plane, and to a longitudinal plane at right angles thereto, or what I may term a horizontal longitudinal plane.

A further object of the invention is to provide pliers, which may effectively be used in restricted spaces, and may be handily used in inserting and withdrawing cotter-pins, and other work.

One of the features of my invention consists in the provision of pliers in which the gripping surfaces are angulated at their extremities out of radial alinement with the pivotal axis of the jaws.

A further feature lies in the provision of laterally off-set jaws by which the gripping axis is thrown to a lateral angle to a vertical plane through the jaws.

Other and further features of my invention will become apparent from the following description, taken in conjunction with the accompanying drawings, wherein—

Figure 1 is a plan view of the pliers; Fig. 2 is a side elevation of the pliers, with the jaws closed; Fig. 3 is a similar view with the jaws partly open; Fig. 4 is a section on line 4—4 of Fig. 2; and Fig. 5 is a plan detail of a jaw nose.

In the drawings, A and B indicate two plier members or levers, pivotally connected in any usual fashion by the rivet, C, taking through the vertically parallel flank portions, a^0 and b^0 , of the respective levers. For convenience of description, I will here-

inafter refer to a plane including or parallel to the plane of relative movement of the flanks as vertical, to a plane at right angles thereto extending approximately midway between the handles, as horizontal, and to the line of juncture of such planes as the plier axis, and I will consider the direction in which the nose of the pliers is deflected as hereinafter described as downward.

The handles, a^1 and b^1 , may be of any suitable configuration, the two handles preferably providing notches, a^8 and b^8 , near their points of conjunction with the flanks of the lever, jointly to form a key-wrench, one handle being substantially pointed, as at b^9 , and the other flattened, as a screw driver, as at a^9 . Likewise, cutter apertures, a^{10} and b^{10} , are preferably provided in the flanks of the lever to register when the pliers are partly open and to pass into non-registering position, shown in Fig. 4, when the pliers are closed. These refinements of the pliers may, however, be omitted, or varied as desired.

The two jaws, a^{11} and b^{11} , preferably provide flat bearing or gripping surfaces, a^{12} and b^{12} , vertically superposed in confronting relation, extending nearly the full length of the jaws, meeting when the plier is closed, and lying nearly radial to the pivot, the meeting line, in the specific construction shown, having a slight downward trend, as shown in Fig. 2. The nose, 13, of the pliers is bent downward at an angle, preferably approximating 45° , to the horizontal plane of the pliers, so as to be angulated to the meeting line of the surfaces, a^{12} and b^{12} , the nose portions, a^{13} and b^{13} , of the two levers, preferably, comprising lateral off-set portions, a^{14} and b^{14} , having made therein appropriate halves of a wire groove, 15, angularly disposed to the longitudinal vertical plane of the plier, the angle being preferably about 30° .

It will be observed that the wire groove, 15, which defines the gripping axis of the plier nose, is disposed to pass from the center of the plier nose, 13, to emerge from the shoulder formed by the offset-portion thereof, in a direction generally longitudinal of the pliers but angulated both laterally and vertically to the longitudinal axis of the pliers, or, otherwise stated, at oblique angles to both the vertical and horizontal planes of the pliers heretofore referred to. The vertical angulation caused by the downward

bend of the plier nose enables the gripping surfaces, as they approach each other from open to closed position, to move longitudinally relative to one another, thereby producing what I may term a sliding bite, as the gripping surfaces engage the wire, or cotter-pin. The lateral angulation enables the pliers to engage the cotter-pin or wire, or the like, between its ends, without interference from any part of the pliers, and yet to present the article engaged in a direction generally longitudinal of the pliers, so that the article engaged may be pushed or pulled by the pliers in natural and easy fashion; while the disposition of the angulated nose of the pliers at a considerable distance from the pivot point gives adequate range of movement to the plier jaws and enables the angulated gripping surfaces of the pliers in opening and closing through a reasonable range, to retain a relation more nearly parallel than would be surfaces truly radial to the pivot point.

While I have herein described in some detail a particular embodiment of my invention, it will be apparent to those skilled in the art that changes might be made in the details of construction, size, and the like, without departure from the spirit and scope of the invention and within the scope of the appended claim.

What I claim is:

A pair of pliers providing two crossed pivoted levers constituting, on one side of the pivot, jaws, said jaws having confronting surfaces arranged to meet throughout their entire length when closed, the meeting line of said jaws extending substantially radially from the pivot center for a relatively long distance from the inner ends of the jaws, and the meeting line of the jaws adjacent the tip being deflected downward at an abrupt angle, the nose portions of the jaws being bent downward conformably with the deflection of the meeting line, and providing lateral off-set portions of relatively short extent having made in their confronting surfaces grooves angularly disposed to the longitudinal vertical plane of the pliers to present the forward end of the grooves in said vertical longitudinal plane and the rear end of said grooves at the rear extremities of the off-set portions, the downwardly deflected nose of said pliers when closed tapering lengthwise and being rounded in cross section.

In testimony whereof I hereunto set my hand in the presence of two witnesses.

GILBERT R. MESNARD.

In the presence of—

W. LINN ALLEN,
MARY F. ALLEN.