R. N. JOHNSON & E. NEWBERG.

PINCERS.

APPLICATION FILED APR. 30, 1909.

929,310.

Patented July 27, 1909.

2 SHEETS—SHEET 1.

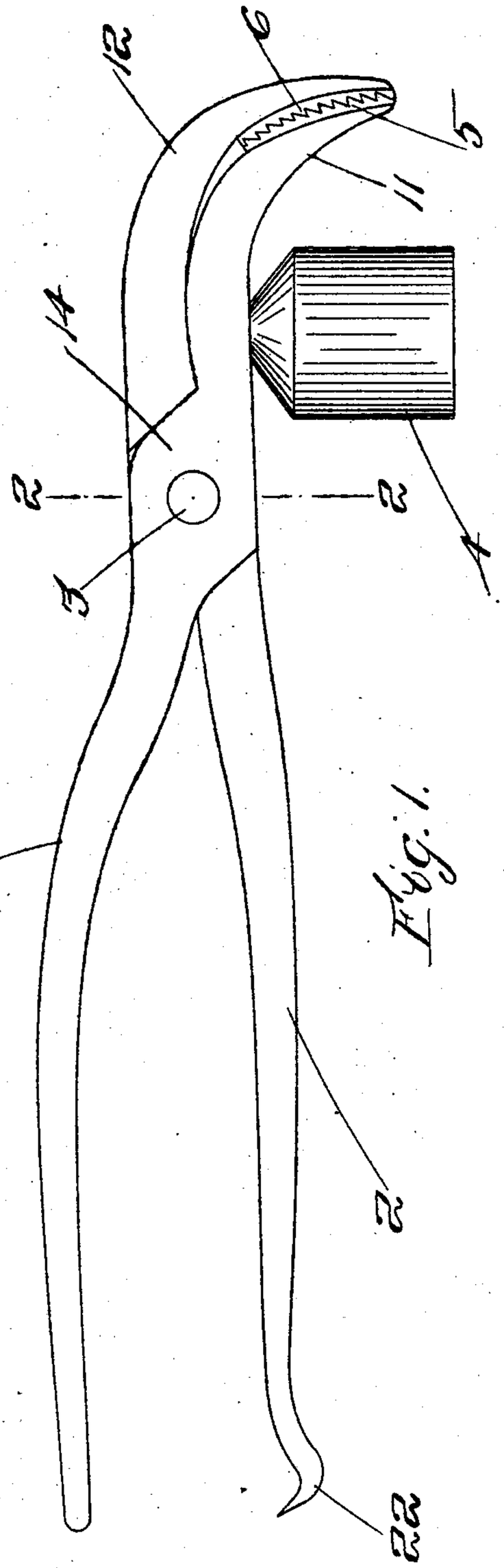

Fig. 1.

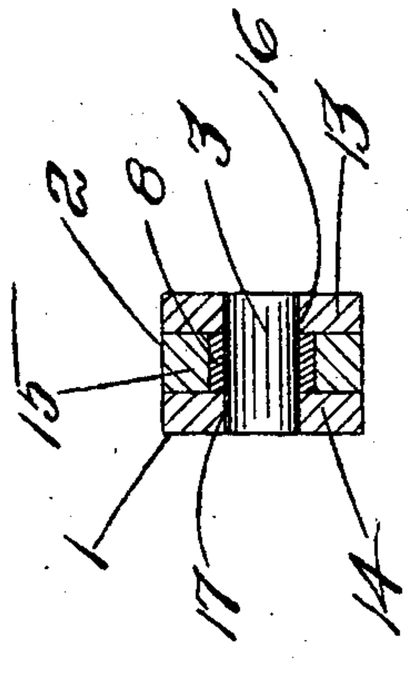

Fig. 2.

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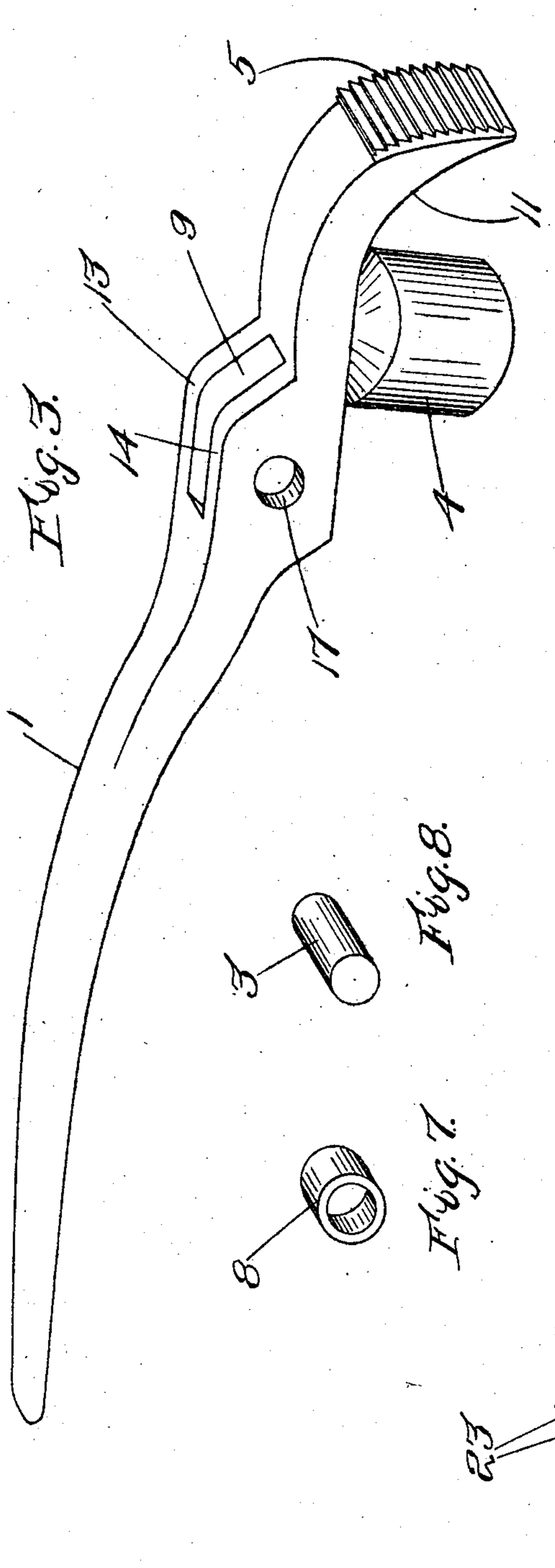

Fig. 3.

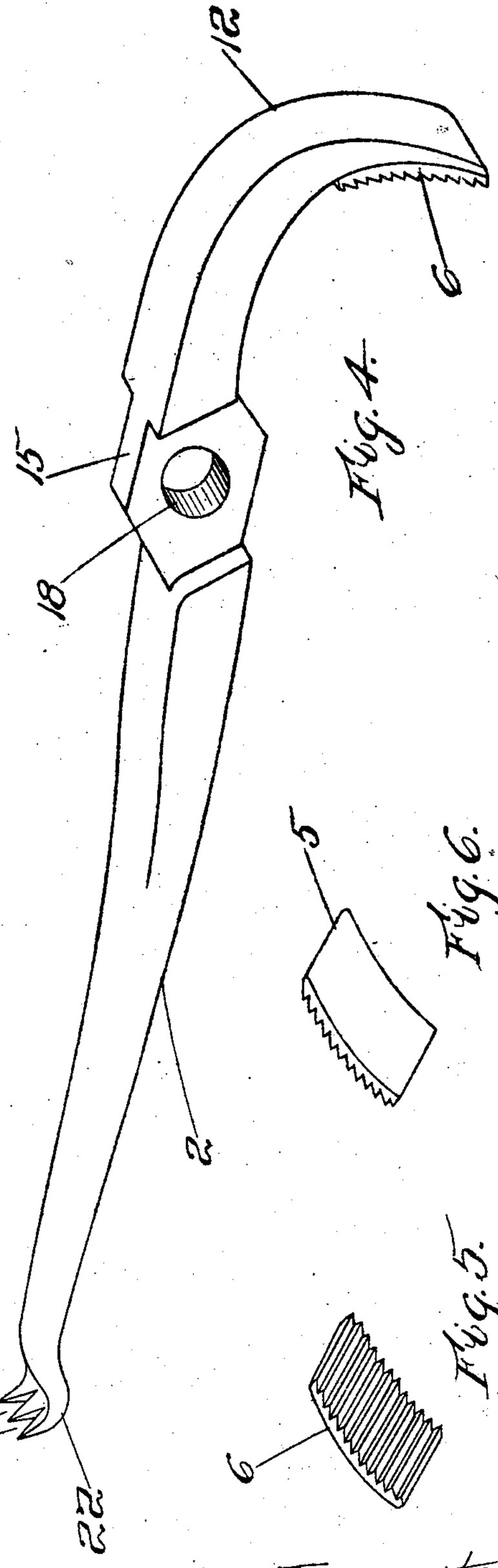

Fig. 4.

Fig. 8.

Fig. 7.

Fig. 6.

Fig. 5.

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UNITED STATES PATENT OFFICE.

ROBERT N. JOHNSON AND EMIL NEWBERG, OF BROCKTON, MASSACHUSETTS, ASSIGNORS TO F. W. WHITCHER COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF MAINE.

PINCERS.

No. 929,310. Specification of Letters Patent. Patented July 27, 1909.

Application filed April 30, 1909. Serial No. 493,157.

To all whom it may concern:

Be it known that we, ROBERT N. JOHNSON and EMIL NEWBERG, citizens of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, have invented a certain new and useful Improvement in Pincers, of which the following is a specification, reference being had therein to the accompanying drawings.

Lasting pincers, such as are employed in the manufacture of boots and shoes, are provided with curved jaws, the engaging portions of which have transversely serrated surfaces for engagement with the leather or other material of the upper of a boot or shoe. The serrated surfaces of the two jaws of a pair of lasting pincers match in the closed condition of the pincers, the ridges or projections of the one jaw entering the grooves or depressions of the other jaw, and vice versa. It is necessary that the edges of the ridges or projections of the serrations should be sharp enough to bite effectively upon the leather or other material that is grasped between the jaws, so as to prevent the jaws from slipping upon the said leather or other material upon the application of strain for the purposes of stretching the latter. Wear takes place quickly, in the service to which the pincers are applied. The wear dulls the said serrated surfaces, which then have to be sharpened again. The sharpening process wears away the serrated surfaces so that in order to enable the said surfaces to close tightly together it becomes necessary to either bend the extremities of the jaws toward each other, or else file or grind away the contacting portions of the movable members of the pincers adjacent the fulcrum of such members. The bending of the said extremities frequently results in breakage thereof. After several sharpenings the grasping portions of the jaws become worn away so completely that they cannot be sharpened again, and therefore on becoming dulled once more they lose their utility. Another drawback or disadvantage that is incident to lasting pincers is the tendency to wear at the pivotal connection between the members. This wear, if not compensated for, permits lateral play or twisting of the said members with relation to each other.

One of the objects of our invention is to produce a tool of greater durability than heretofore conveniently attainable in a tool of that class.

Another object is to make the serrations of the gripping faces of such form as to afford a firmer grip than the ordinary form.

Other features of the invention will be set forth in the specification.

The invention will be fully understood from the following description taken in connection with the accompanying drawings, and the novel features are pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 shows in side elevation a pair of pincers embodying the invention. Fig. 2 is a section on line 2—2, Fig. 1. Fig. 3 is a view in perspective of one of the lever members. Fig. 4 is a similar view of the other lever member. Fig. 5 is a detail view of the toothed or serrated block forming the upper jaw. Fig. 6 is a detail view of the toothed or serrated block forming the under jaw. Fig. 7 is a detail view of the bushing. Fig. 8 is a detail view of the pivot pin.

Having reference to the drawings,—1 and 2 represent the two lever like members of the pincers, the said two members being pivotally joined together by means of the pin or rivet 3. The lever member 1 is formed with a curved jaw portion 11 and the lever member 2 is formed with a cooperating jaw portion 12. The lever member 1 is formed with a slot 9 extending through the cheek or pivot bearing portion thereof forming two cheeks 13 and 14. The lever member 2 is formed with a neck portion 15 which lies between the two cheeks 13 and 14. The two cheeks 13 and 14 are formed with pivot holes 15 and 17 through which the pivot 3 passes and the neck portion 15 of the lever member 2 is also formed with a pivot hole 18 in alinement with the pivot holes 16 and 17 of the cheeks 13 and 14 but of considerably larger diameter than the pivot holes of the cheeks 13 and 14. The member 2, as shown in detail in Fig. 4, is not in that form before assembling the parts, but the lever member 2 is shown in Fig. 4 with the other parts omitted merely for the purpose of more clearly showing the form of lever member 2 in its final form.

Before assembling the two lever members, the lever member 2 is throughout the handle portion thereof substantially as narrow as the neck portion 15 to enable it to be inserted through the opening 9 so as to bring the neck 15 into the opening. After the parts are assembled, the lever member 2 is flattened down forming the shoulders on the opposite sides of the neck 15 as shown in Fig. 4.

Within the pivot hole 18 is a bushing 8 of hardened metal such as hard steel through which the pivot pin 3 passes. The interior diameter of the bushing 8 is sufficiently large to be loose upon the pivot 3 so that the wearing action is reduced. The pivot pin 3 is made fast in the cheeks 13 and 14 of the lever member 1 by riveting the ends or by making it sufficiently tight fitting in the holes 16 and 17. The pivot pin 3 is formed of very hard material such as steel. The contacting surfaces of the loose, hard bushing 8 and of the pin or rivet 3 constitute enduring bearings which will wear very much longer than a tightly fitting bushing.

The coöperating serrated jaws 5 and 6 are formed independently of the jaw portions 11 and 12 of specially hardened steel and are welded to the jaw portions 11 and 12. These independently formed jaws 5 and 6 are blocks or plates suitably curved to fit the inner faces of said jaw portions 11 and 12 of the lever members, one being convexedly curved and the other concaved on its serrated face. The serrations or teeth of the jaws 5 and 6 and the curve of the jaws are such that when the jaws are closed together as shown in Fig. 1 the teeth of each jaw will be bottomed in the depressions between the teeth of the coöperating jaw.

The teeth are of pronounced ratchet form, having one long face and one short face, the teeth of the upper jaw 5 pointing forward, and the teeth of the lower jaw pointing rearward, but they are complementary to each other so as to bottom when closed. This form of the teeth gives them greater gripping hold than if the front and back faces were of the same angle. The blocks or plates composing the jaws 5 and 6 in consequence of being formed separately from the lever members may be given a much greater degree of hardness than would be feasible if the corresponding portions of the jaws were made integral with the jaw portions 11 and 12 of the lever members. This greater hardness decreases the tendency of the teeth to wear and become dull thereby lessening the frequency with which they need to be sharpened. By being welded to the jaw portions 11 and 12, the jaws are held just as firm for all practical purposes as if they were made integral with the lever members.

Attached to the under side of the jaw portion of the lever member 2 is a hammer head 4 which not only serves as a hammer but also serves as a fulcrum in connection with the shoe being operated upon or with some other convenient rest or support upon which the pincers may be rocked or turned in straining the material that is grasped by the jaws. This hammer head is not in itself a feature of the invention. The handle portion of one of the lever members 2, for convenience, is formed with a recurved extremity 22 as indicated in side elevation in Fig. 1 and this extremity is formed with V-shaped notches 23 as shown in Fig. 4 to adapt the tool to be used in pulling tacks.

What we claim is:—

1. Lasting pincers having two lever members pivoted together, one of said lever members being formed with a slot through the pivot portion thereof at right angles with the axis of the pivot and forming cheeks between which the other lever member passes, said other lever member being formed with a neck which lies in said slot between said cheeks, said cheeks of said first lever and the embraced neck portion of the other lever being formed with pivot holes in alinement with each other transversely through the same, the pivot hole of the embraced neck being of larger diameter than the pivot holes of the embracing cheeks, a hard metal bushing inserted in the pivot hole of said embraced neck and a pivot pin passing through the pivot holes in said cheeks and through the intermediate bushing of said neck, said pivot being fast to the cheeks of said first lever member and said bushing being loose upon said pivot.

2. Lasting pincers having two lever members pivoted together and formed with two coöperating jaw-holding portions, an independently formed jaw of specially hard metal formed to fit the inner face of each jaw-holding portion and welded thereto, each of said independently formed jaws being formed with ratchet teeth extending transversely across the operative face thereof, the teeth of the upper jaw being formed with a short front face and a long sloping back and the teeth of the lower jaw being formed with a long slope of the front face and a short back face, the angle of the teeth and the depth of the grooves in the two jaws being such that when the jaws are closed the teeth of one jaw will be bottomed in the grooves of the other jaw, one of said lever members being formed with a slot through the pivot portion thereof at right angles with the axis of the pivot and forming cheeks between which the other lever member passes, said other lever member being formed with a neck which lies in said slot between said cheeks, said cheeks of said first lever and the embraced neck portion of the other lever being formed with pivot holes in

alinement with each other transversely through the same, the pivot hole of the embraced neck being of larger diameter than the pivot holes of the embracing cheeks, a hard metal bushing inserted in the pivot hole of said embraced neck and a pivot pin passing through the pivot holes in said cheeks and through the intermediate bushing of said neck, said pivot being fast to the cheeks of said first lever member and said bushing being loose upon said pivot.

In testimony whereof we affix our signatures, in presence of two witnesses.

ROBERT N. JOHNSON.
EMIL NEWBERG.

Witnesses:
CHARLES O. RYBERG,
HARRY W. WHITE.