No. 865,553. PATENTED SEPT. 10, 1907.

G. C. WINSLOW.

PIPE WRENCH.

APPLICATION FILED JUNE 23, 1906.

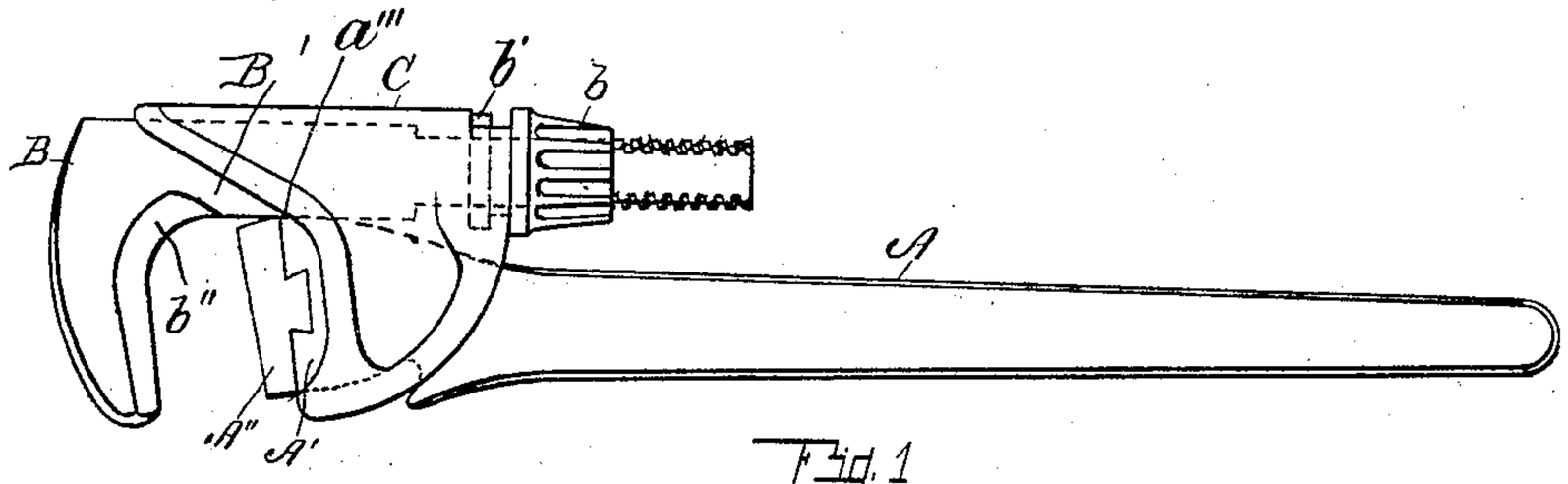

Fig. 1

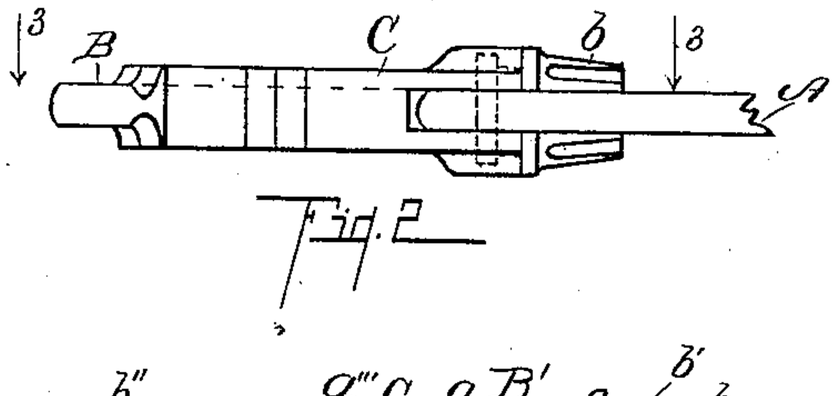

Fig. 2

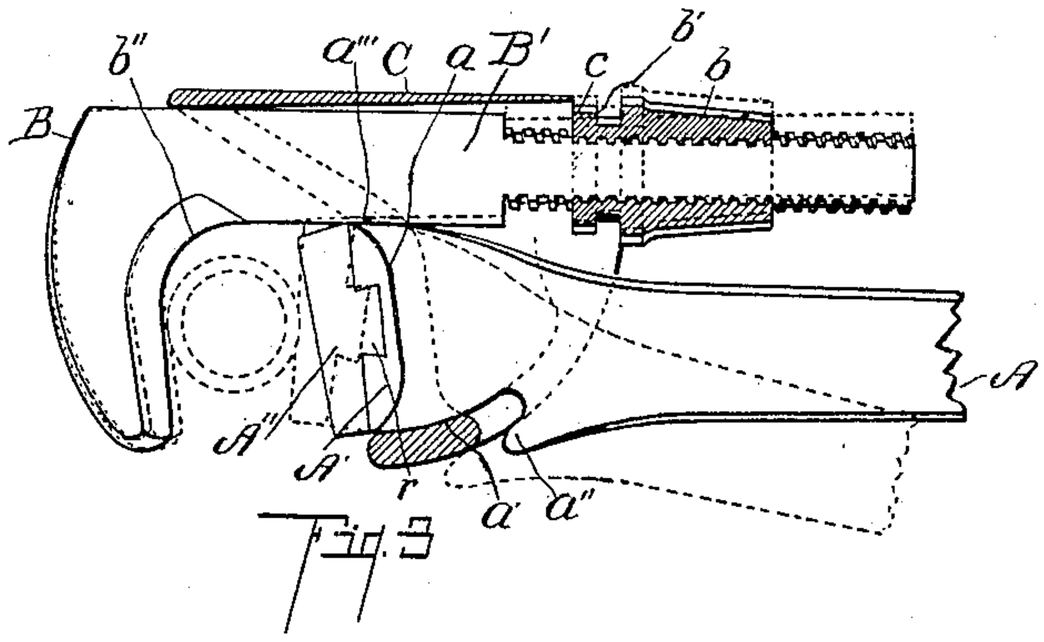

Fig. 3

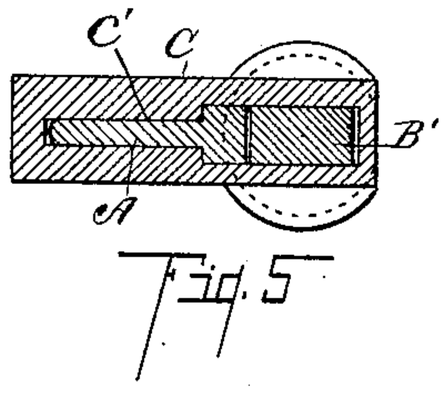

Fig. 5

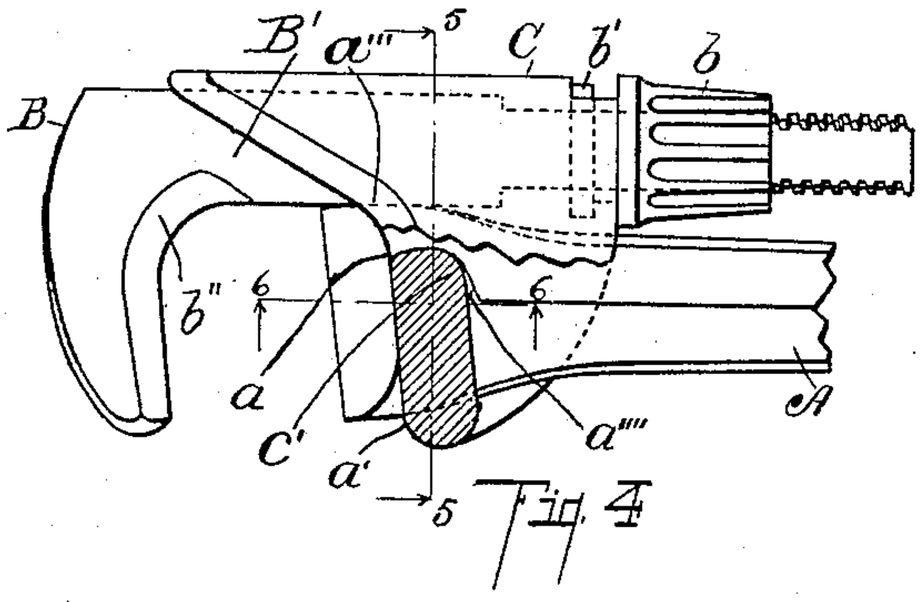

Fig. 4

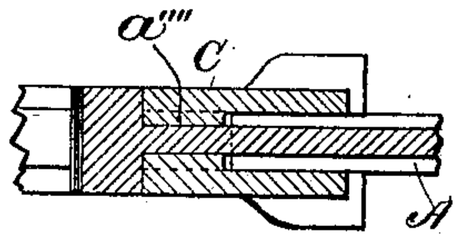

Fig. 6

Witnesses

Lulu G. Grunfield

A. F. Lamb

Inventor

George C. Winslow

By Chappell & Earl

Attorneys.

UNITED STATES PATENT OFFICE.

GEORGE C. WINSLOW, OF ALBION, MICHIGAN.

PIPE-WRENCH.

No. 865,553. Specification of Letters Patent. Patented Sept. 10, 1907.

Application filed June 23, 1906. Serial No. 323,085.

To all whom it may concern:

Be it known that I, GEORGE C. WINSLOW, a citizen of the United States, residing at Albion, in the county of Calhoun and State of Michigan, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

This invention relates to improvements in wrenches.

My improved wrench is particularly designed for a pipe wrench although it is adapted for other uses.

The objects of my invention are, first, to provide an improved wrench which may be very quickly adjusted to any object within its scope, and also one which may be quickly released from an object. Second, to provide an improved wrench in which the parts are so arranged that there is no liability of their binding or becoming wedged upon each other so but that they can be easily released from an object. Third, to provide an improved wrench, which is very strong and durable and at the same time very simple in construction, having very few parts, and those simple in form and assembled without pivots, bolts, or the like.

Further objects, and objects relating to structural details will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification.

The invention is clearly defined and pointed out in the claims.

A structure embodying the features of my invention is clearly illustrated in the accompanying drawing forming a part of this specification, in which—

Figure 1 is a side elevation of my improved wrench. Fig. 2 is a detail front view of the same. Fig. 3 is an enlarged detail, partially in longitudinal section, on a line corresponding to line 3—3 of Fig. 2, the relative position of the parts in gripping a pipe being indicated by dotted lines. Fig. 4 is an enlarged detail, partially in longitudinal section, of a modified construction. Fig. 5 is a detail cross-sectional view taken on a line corresponding to line 5—5 of Fig. 4. Fig. 6 is a longitudinal detail section taken on a line corresponding to line 6—6 of Fig. 4.

In the drawing, the sectional views are taken looking in the direction of the little arrows at the ends of the section lines, and similar letters of reference refer to similar parts throughout the several views.

Referring to the drawing, I provide a lever-like handle A having a head A′ on its forward end. The head A′ is provided with a fixed jaw A″. The adjustable jaw B is carried by the shank B′, the jaw and the shank being formed integral, the jaw projecting like a hook. The shank B′ is arranged through the loop-like link C and is threaded at its rear end to receive the adjusting nut *b*. The adjusting nut is provided at its inner end with an annular flange *b′*, which is arranged in the grooves *c* provided therefor in the link. These grooves are open at the top, so that the nut may be dropped into them and the shank inserted. The handle is provided on its front edge with a curved bearing *a′* for the link C, and the head A′ projects at each side and is formed into curved bearing shoulders *a* for the forward edge of the link. The head is also provided with a curved bearing surface as *a‴* for the inner edge of the shank B′ of the movable jaw. The shank is also provided with a bearing surface on its rear edge for the link. The link is provided with a forwardly-projecting overhanging portion arranged to engage the bearing surface on the rear edge of the shank at a point in advance of the bearing point of the shank on the head. This secures a clamping action of the movable jaw when in use in addition to its threaded nut adjustment.

On the inner edge of the handle A is a forwardly-projecting retaining lug *a″* for the link. This prevents the link from slipping back upon the handle, and at the same time it allows the parts to be freely disassembled, as, by removing the nut *b* the shank B′ is free to be drawn from the link, which allows it to be slipped over the lug.

In the modified construction shown in Fig. 5, the head of the lever-like handle is provided with a shoulder-like stop or lug *a″* which engages the thickened portion *c′* of the link C when the link is in position on the handle.

The jaw B is provided with a rib *b″* which extends well around the curve of the jaw, onto the shank so that it is strengthened at this point. The overhanging link C, supports the shank to a point beyond this rib, so that a structure comparatively light possesses very great strength, the weakest portions being strengthened and relieved of strain.

The jaw A″ is preferably held in the head A′ by a dove-tail rib running transverse thereto. This rib *r* is somewhat dovetailed in shape and is adapted to be driven into a transverse dove-tail slot formed in the head. This holds the jaw so that there is no liability of its being loosened by the strain or use and at the same time is can be readily removed when it is desired to renew it.

In operation, the movable jaw B is drawn up against the object. Accurate or tight adjustment is not required, as the jaws have a tendency to close together when the power is applied the parts being illustrated by dotted lines in their gripping position in Fig. 3. When pressure is applied to the handle or lever A, the link rocks on its bearings until the jaws are tight upon the work. The greater the power applied, the greater the holding or gripping force of the jaws. The link C engaging the shank of the movable jaw at a point well in advance of its pivot point, prevents any tendency it may have to tilt back.

By arranging the link as I have described, I do

away with pivot pins, so that the parts are not weakened by boring or forming holes therethrough, and there are no parts to shear off as where pivot pins are used, and I also provide a structure which is very durable. When it is desired to release my improved wrench, it is only necessary to reverse the lever A, which effectively disengages the jaws or frees them so that the nut *b* can be easily manipulated. The nut *b* is in position so that it can be readily grasped by the operator and can be much more rapidly adjusted than where it is necessary to manipulate the same with the finger and thumb, as is the case where the nut is placed between parts.

By arranging the threaded part of the shank and nut as I have shown them, there is no danger of the threads becoming worn or the nut becoming wedged so that it cannot be readily turned.

The parts of my improved wrench are very simple in construction and can be readily assembled. As before remarked, the parts subject to strain are reinforced and protected so that although made comparatively light in weight, it possesses very great strength.

I have illustrated and described my improved wrench in detail in the form preferred by me on account of its simplicity and economy of manufacture. I am, however, aware that it can be varied considerably in structural details without departing from my invention.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end, said shank and jaw being formed integral and having ribs *b''* thereon extending from the jaw rearwardly onto the shank; a loop-like link adapted to receive said shank arranged on said handle, said link having a forwardly projecting portion overhanging the said fixed jaw and having vertical grooves therein at its rear end; curved bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank having an annular flange on its forward end arranged in said grooves in said link; and an outwardly and forwardly projecting retaining lug for said link on the inner edge of said handle; substantially as and for the purpose set forth.

2. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end; a loop-like link adapted to receive said shank arranged on said handle, said link having a forwardly projecting portion overhanging the said fixed jaw and having vertical grooves therein at its rear end; curved bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank having an annular flange on its forward end arranged in said grooves in said link; and an outwardly and forwardly projecting retaining lug for said link on the inner edge of said handle, substantially as and for the purpose set forth.

3. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end; a loop-like link adapted to receive said shank arranged on said handle, said link having a forwardly projecting portion overhanging the said fixed jaw and having vertical grooves therein at its rear end; curved bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank having an annular flange on its forward end arranged in said grooves in said link, substantially as and for the purpose set forth.

4. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end, said shank and jaw being formed integral and having ribs *b''* thereon extending from the jaw rearwardly onto the shank; a loop-like link adapted to receive said shank arranged on said handle, said link having a forwardly portion overhanging the said fixed jaw; curved bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank; and an outwardly and forwardly projecting retaining lug for said link on the inner edge of said handle, substantially as and for the purpose set forth.

5. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end; a loop-like link adapted to receive said shank arranged on said handle, said link having a forwardly projecting portion overhanging the said fixed jaw; curved bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank; and an outwardly and forwardly projecting retaining lug for said link on the inner edge of said handle, substantially as and for the purpose set forth.

6. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end, said shank and jaw being formed integral and having ribs *b''* thereon extending from the jaw rearwardly onto the shank; a loop-like link adapted to receive said shank arranged on said handle, said link having vertical grooves therein at its rear end; curved bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank, having an annular flange on its forward end arranged in said grooves in said link; and an outwardly and forwardly projecting retaining lug for said link on the inner edge of said handle, substantially as and for the purpose set forth.

7. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end, said shank and jaw being formed integral and having ribs *b''* thereon extending from the jaw rearwardly onto the shank; a loop-like link adapted to receive said shank arranged on said handle; curved bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank; and an outwardly and forwardly projecting retaining lug for said link on the inner edge of said handle; substantially as and for the purpose set forth.

8. In a wrench, the combination of the handle having a head on its forward end; a fixed jaw on said head; a movable jaw; a shank therefor having a threaded portion at its rear end; a loop-like link adapted to receive said shank arranged on said handle; bearings on said head for the forward edge and inner end of said link; a nut on the rear end of the shank; and an outwardly and forwardly projecting retaining lug for said link on the inner edge of said handle, substantially as and for the purpose set forth.

9. The combination with a handle having a head at its forward end and a curved bearing on its front edge, said head projecting at each side of said handle to form curved bearing shoulders, said head also having a curved bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head, said shank also having a bearing surface on its rear edge; a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, the said link being provided with a forwardly projecting or overhanging portion arranged to engage the bearing surface on the rear edge of said shank at a point in advance of the bearing point of said shank on said head, said link being provided with vertical grooves at its rear end; and an adjusting nut threaded upon the rear end of said shank, said nut having an annular flange at its forward end arranged in said grooves in said link, whereby a rocking movement of said shank in said link is permitted, coacting for the purpose specified.

10. The combination with a handle having a head at its forward end and a bearing on its front edge, said head projecting at each side of said handle to form bearing

shoulders, said head also having a bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head, said shank also having a bearing surface on its rear edge; a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, the said link being provided with a forwardly projecting or overhanging portion arranged to engage the bearing surface on the rear edge of said shank at a point in advance of the bearing point of said shank on said head, said link being provided with vertical grooves at its rear end; and an adjusting nut threaded upon the rear end of said shank, said nut having an annular flange at its forward end arranged in said grooves in said link, whereby a rocking movement of said shank in said link is permitted, coacting for the purpose specified.

11. The combination with a handle having a head at its forward end and a curved bearing on its front edge, said head projecting at each side of said handle to form curved bearing shoulders, said head also having a curved bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head, said shank also having a bearing surface on its rear edge; a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, the said link being provided with a forwardly projecting or overhanging portion arranged to engage the bearing surface on the rear edge of said shank at a point in advance of the bearing point of said shank on said head, and means for adjustably securing said shank in said link, coacting for the purpose specified.

12. The combination with a handle having a head at its forward end and a bearing on its front edge, said head projecting at each side of said handle to form bearing shoulders, said head also having a bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head, said shank also having a bearing surface on its rear edge; a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, the said link being provided with a forwardly projecting or overhanging portion arranged to engage the bearing surface on the rear edge of said shank at a point in advance of the bearing point of said shank on said head, and means for adjustably securing said shank in said link, coacting for the purpose specified.

13. The combination with a handle having a head at its forward end and a curved bearing on its front edge, said head projecting at each side of said handle to form curved bearing shoulders, said head also having a curved bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head, said shank also having a bearing surface on its rear edge; a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, the said link being provided with a forwardly projecting or overhanging portion arranged to engage the bearing surface on the rear edge of said shank at a point in advance of the bearing point of said shank on said head, coacting for the purpose specified.

14. The combination with a handle having a head at its forward end and a bearing on its front edge, said head projecting at each side of said handle to form bearing shoulders, said head also having a bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head, said shank also having a bearing surface on its rear edge; and a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, the said link being provided with a forwardly projecting or overhanging portion arranged to engage the bearing surface on the rear edge of said shank at a point in advance of the bearing point of said shank on said head, coacting for the purpose specified.

15. The combination with a handle having a head at its forward end and a bearing on its front edge, said head projecting at each side of said handle to form bearing shoulders, said head also having a bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head; a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, said link being provided with vertical grooves at its rear end; and an adjusting nut threaded upon the rear end of said shank, said nut having an annular flange at its forward end arranged in said grooves in said link, whereby a rocking movement of said shank is permitted, coacting for the purpose specified.

16. The combination with a handle having a head at its forward end and a bearing on its front edge, said head projecting at each side of said handle to form bearing shoulders, said head also having a bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head; a loop-like link adapted to receive said shank, arranged on said handle to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact; and means for adjustably securing said shank in said link, coacting for the purpose specified.

17. The combination with a handle having a head at its forward end and a bearing on its front edge, said head projecting at each side of said handle to form bearing shoulders, said head also having a bearing surface on its rear edge or back; a fixed jaw on said head; a movable jaw; a shank for said movable jaw having a bearing surface on its front edge adapted to rest on the bearing surface on the back of said head; and a loop-like link adapted to embrace the same, said link being adapted to engage said bearing shoulders on said head with a sliding and rocking contact and said bearing on the front edge of said handle with a sliding contact, coacting for the purpose specified.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

GEORGE C. WINSLOW. [L. S.]

Witnesses:
A. J. ALBER,
OTIS A. EARL.