To all whom it may concern:

Be it known that I, JOHN M. HARGRAVE, a citizen of the United States, and residing at Hyde Park, Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Work-Holding Jaws, of which the following specification is a full disclosure.

My invention relates to a work clamp of a type comprising a relatively smooth surface bar, a fixed jaw and an adjustable jaw automatically retained in its adjusted positions.

The object of the invention is to provide an adjustable work engaging jaw with a single detachable element for automatically retaining the jaw in its adjusted positions on the bar.

Another object is to provide a single element having a toothed bar gripping surface and a spring tensioned extension, retained within the jaw without the use of screws, rivets or pins.

Another object is to provide an adjustable jaw with a single element for automatically gripping the bar, said element consisting of a leaf spring having a non-elastic toothed bar gripping portion, and an elastic portion cooperating with the bar to function the gripping portion.

The features of the invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which:

Figure 1 is a side elevation. Fig. 2 is a top plan view of the adjustable clamp jaw on line 2—2, Fig. 1.

The bar 1 is of ordinary construction and having the end jaw 2 fixed thereto. The adjustable jaw is a casting comprising the collar 3, loosely fitting and slideable on bar 1, and having a bracket arm 4, carrying the usual clamp screw 5. A portion 6 of said arm opposite which the sides edge of bar 1, is housings interveningly between opposite jaw and bar surfaces, said insert longitudinally subdivided into a roughened

the spring insert is straight or flat and has teeth 13 for engaging the bar 1. Beyond the toothed portion the insert has the bent portion 14, acting as a fulcrum on the medial portion of the bearing or seating surface of the clamp arm 4. The end of said insert beyond said fulcrum 14 is curved inwardly toward the bar forming a tension or elastic portion 15, which acts to always urge the teeth 13 into engagement with the bar. When the work between the jaws is clamped by the action of the screw 8, this biting engagement is intensified proportionately to the applied clamping strains. The teeth 13 exert a biting action on the bar 1, when pressure is applied to the arm 4, in a direction away from the fixed jaw 2, but are so formed as to permit any easy movement toward said jaw. To move the arm 4 away from the fixed jaw 2, it is necessary to rock the arm 4 using the elastic end 15 of the insert as a fulcrum, thereby raising the teeth 13 out of engagement with the bar, this being possible by reason of the engagement of the hooked end 10 of the insert with the projection 11. This construction provides a simple and cheap insert having the double function of gripping the bar and of automatically retaining the teeth in such gripping engagement at all times until manually released to permit a reverse movement of the movable jaw. It is also of importance that the insert is retained in position relative to the arm 4, without the use of screws, pins or other fastening means.

1. In a work clamp comprising a bar and a relatively fixed clamp jaw, a coating adjustable clamp jaw, having a collar portion slidably engaging the bar, and a projected portion, providing an elongated seating or bearing surface on the adjustable jaw extending approximately parallel to the bar, and a spring insert having a bar gripping surface, said insert being loosely retained relative to said seat, when the jaws are on the bar, and being freely removable endwise from said seat when the jaw is taken off of the bar.

2. In a work clamp, a bar having a relatively fixed clamp jaw, a coating clamp jaw having a collar portion embracing the bar and adjustable thereon, and an insert retainingly housed interveningly between opposite jaw and bar surfaces, said insert longitudinally subdivided into a roughened
bar-gripping surface portion and an elastic portion coacting with said jaw and bar to influence the gripping action of its other portion.

3. In a work clamp comprising a bar and a relatively fixed jaw, an adjustable jaw having a collar portion for slidably holding the jaw on the bar, and having an elongated bearing surface extending substantially parallel to the bar, a spring member having a bar-gripping surface, a fulcrum and a tension portion, and bent ends, said member being inserted between the collar and bar and held loosely on the said bearing surface when the jaw is on the bar, and being readily removable endwise from the collar when the jaw is off of the bar.

4. In a work clamp comprising a bar and a relatively fixed clamp jaw, a coacting adjustable clamp jaw formed with an elongated insert-seat adjacent the bar, a leaf insert positioned between said adjustable jaw and said bar, and having in relation to said seat an elastic and a non-elastic portion, the non-elastic portion having a bar-gripping surface, and the elastic portion coacting with said seat and bar to influence the gripping action of the non-elastic portion.

In witness whereof, I hereunto subscribe my name, as attested by the two subscribing witnesses.

JOHN M. HARGRAVE.

Witnesses:

CLARENCE B. FOSTER,
L. A. BECK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."