No. 708,210. Patented Sept. 2, 1902.

A. DAHL.

WRENCH.

(Application filed Apr. 30, 1902.)

(No Model.)

Fig. 1.

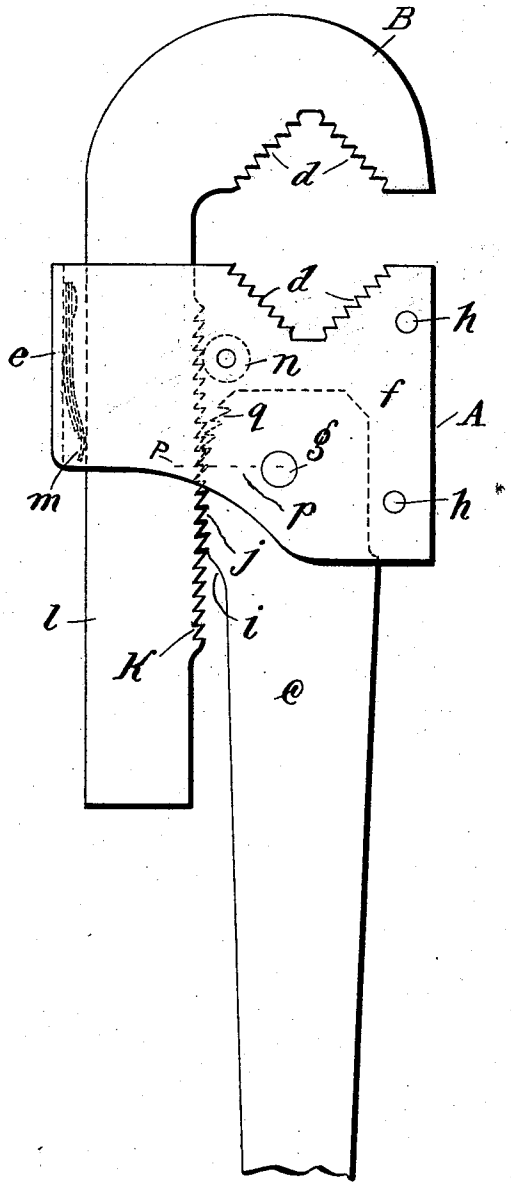


Fig. 2.

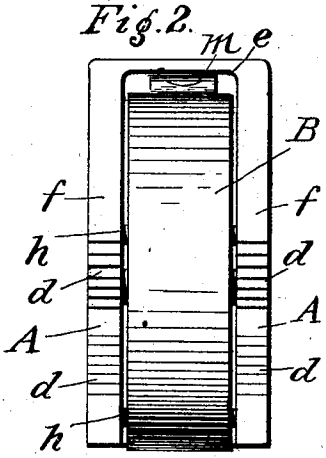
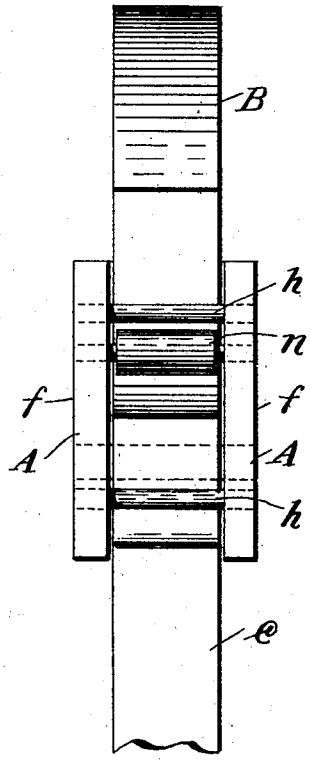


Fig. 3.



Witnesses
J. M. Howard.
C. Sedgwick.

Inventor
Dahl
By his Attorney
A. O. Hayes.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

AXEL DAHL, OF NORTH TARRYTOWN, NEW YORK.

WRENCH.

SPECIFICATION forming part of Letters Patent No. 708,210, dated September 2, 1902.

Application filed April 30, 1902. Serial No. 105,254. (No model.)

To all whom it may concern:

Be it known that I, AXEL DAHL, a citizen of the United States of America, and a resident of North Tarrytown, Westchester county, and State of New York, have invented certain new and useful Improvements in Pipe-Wrenches, of which the following is a specification.

My invention relates to pipe-wrenches, and has for its object to provide such wrenches specially adapted to avoid flattening and cracking or splitting the pipes, which is very common in the use of pipe-wrenches as now constructed; also to provide improved adjusting and clutching devices for the movable jaw, as hereinafter described, reference being made to the accompanying drawings, in which—

Figure 1 is a side view of my improved pipe-wrench. Fig. 2 is an end view as seen looking from the top of Fig. 1. Fig. 3 is an elevation as seen looking from the right hand of Fig. 1.

A and B represent the jaws, and C the lever. Both of the jaws have notched confronting faces, whereof the two sides *d* are about in right-angular relation to each other for biting effect at four equidistant points in the circumference of the pipe or thereabout, whereby the flattening or crushing effect on the pipe is reduced at least half and probably much more as compared with wrenches acting only at two opposite points. The biting-faces are serrated, as usual.

The jaw A consists of a flat bar bent at the middle *e* sidewise and nearly doubled on itself, forming two cheeks *f*, connected by the web *e*, with a space between them, wherein, near one end, the lever C is pivoted at *g*, and the shank *l* of jaw B has sliding way between said lever and web *e*. The extremities of the cheeks *f* are stayed by pins *h*, riveted or headed in to prevent them from spreading. The lever has a lateral enlargement *i* of the end portion of the side fronting the shank of jaw B, on the face of which enlargement are ratchet-teeth *j*, with which other teeth *k* on the confronting side of the shank *l* of jaw B coact to hold the jaws to the work when gripping a pipe. Between web *e* and shank *l* there is space for allowing the shifting of the shank for releasing the teeth of said shank from teeth *k* when jaw B is to be shifted, and a spring *m* is placed in the space for keeping them in engagement. Between the cheeks *f* and forward of the end of the lever a roller-bearing *n* is located for a fulcrum on which to disengage the toothed shank of jaw B from teeth *j* by pressing shank *l* outward from the notched part *i* of the lever. Such pressure can be applied to the inner end of shank *l* by the thumb of the hand grasping the lever in close proximity to the end of shank *l*, and at the same time the shank can be pushed along for opening the jaws. Pressure on the back of jaw B by one hand while holding the lever in the other hand will close the jaws. From a radius of the lever-pivot *g* (indicated by the dotted line *p*) to the extremity of the lever the toothed part *i* of the lever C is curved, as shown at *q*, or the teeth may be shortened to facilitate disengagement with less swing on the fulcrum *n*. From the line *p* in the other direction the teeth *j* are in a straight line, with which the toothed face of shank *l* is parallel when the wrench is under working stress, and thus such plurality of teeth are engaged as affords ample strength with comparatively fine teeth, affording fine adjustment of the jaws. The fulcrum *n* may of course consist of a fixed or non-rolling device; but it is manifestly better if made to roll on account of working easier.

Instead of making the jaw A of a bent flat plate with the extremities of the cheeks pinned together, a solid piece may be slotted for reception of the lever and the shank of the movable jaw, and my invention is not limited in this respect to the particular construction shown.

What I claim as my invention is—

1. In an adjustable pipe-wrench, the combination of two jaws each having a notched and serrated face formed in two parts having angular relation to each other adapting the two jaws to have biting effect at four points in the circumference of the pipe, the lever pivoted at one end in the space between the cheeks of one of said jaws, a shank of the other jaw sliding in the said space, clutching-teeth on said shank and lever respectively adapted to be unclutched for adjusting the jaws, and a spring for normally maintaining the clutched condition of the shank and lever.

2. In an adjustable pipe-wrench, the combination of two jaws each having a serrated face adapted to have biting effect on the pipe, the lever pivoted at one end in the space between the cheeks of one of the jaws, a shank of the other jaw sliding in the said space, clutching-teeth on said shank and lever respectively adapted to be unclutched for adjusting the jaws, a spring for normally maintaining the clutched condition of the shank and lever and a fulcrum for the jaw-shank located in the space between the cheeks of the jaw wherein the lever is pivoted and in advance of the pivot to facilitate unclutching said jaws.

3. In an adjustable pipe-wrench, the combination of two jaws each having a serrated face adapted to have biting effect on the pipe, the lever pivoted at one end in the space between the cheeks of one of the jaws, a shank of the other jaw sliding in said space, clutching-teeth on said shank and lever respectively adapted to be unclutched for adjusting the jaws, a spring for normally maintaining the clutched condition of the shank and lever and a fulcrum for the said shank located in the space between the cheeks of the jaw wherein the lever is pivoted and in advance of the pivot, the toothed face of the lever being reduced radially to the pivot between the transverse axial line of the lever and the fulcrum to favor unclutching the teeth.

Signed at North Tarrytown this 25th day of April, 1902.

AXEL DAHL.

Witnesses:
HARRY G. DAHL,
J. BENEDICT SEE.