(No Model.)

E. A. SMEAD.

PIPE WRENCH AND PIPE AND BOLT CUTTER.

No. 422,257. Patented Feb. 25, 1890.

Fig. 1.

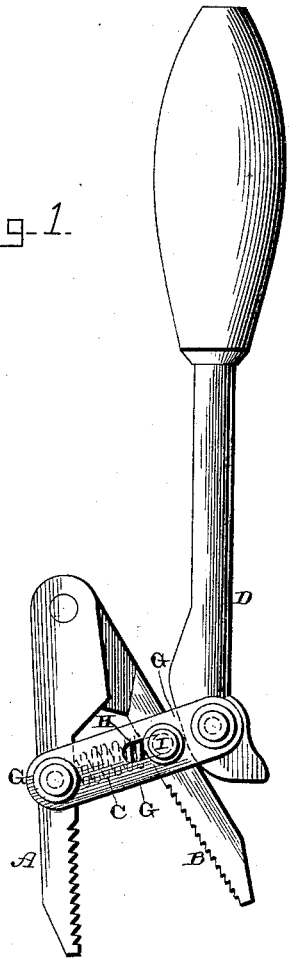
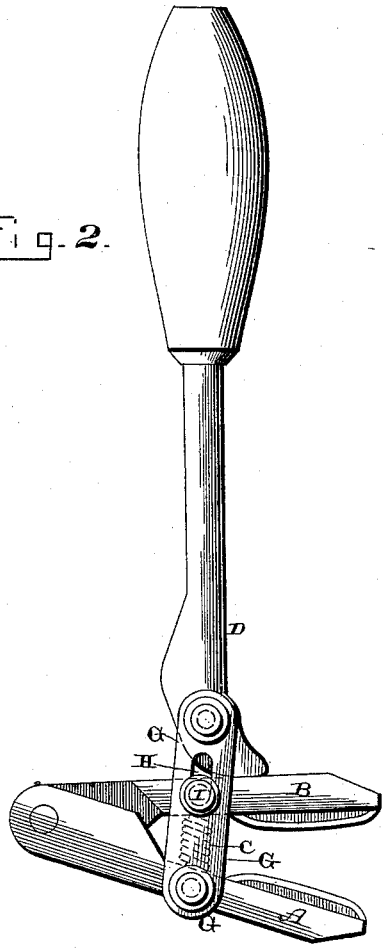


Fig. 2.



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UNITED STATES PATENT OFFICE.

EPHRAIM A. SMEAD, OF TIOGA, PENNSYLVANIA.

PIPE-WRENCH AND PIPE AND BOLT CUTTER.

SPECIFICATION forming part of Letters Patent No. 422,257, dated February 25, 1890.

Application filed December 7, 1889. Serial No. 332,893. (No model.)

To all whom it may concern:

Be it known that I, EPHRAIM A. SMEAD, of Tioga, in the county of Tioga and State of Pennsylvania, have invented certain new and useful Improvements in Pipe-Wrenches and Pipe and Bolt Cutters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in pipe-wrenches and pipe and bolt cutters; and it consists in the combination and arrangement of parts which will be more fully described hereinafter, and particularly pointed out in the claims.

The object of my invention is to provide a light, cheap, and simple pipe-wrench and pipe and bolt cutter, which is self-adjusting, and which will enable a solid hold to be taken of the pipe or bolt, and from which the wrench or cutter can be instantly detached by slightly loosening the pressure upon the operating-lever.

Figure 1 is a side elevation of a pipe-wrench ready to be applied to a pipe, and which embodies my invention, Fig. 2 shows a cutter for pipes and bolts, and which is shown in a closed position.

A B represent two jaws which are pivoted or hinged together at one end in any suitable manner, and which may be provided with serrations or ratchet-teeth upon their inner edges so as to engage with a pipe or bolt; or these inner edges may be provided with cutters for the purpose of cutting pipes and bolts, as may be preferred. The length of the jaws, their particular shape, or the manner of attaching them together may be varied without departing from the spirit of my invention, according to the particular form of construction desired. Placed in between these two jaws, at any suitable point, is a spring C, by means of which the jaws are instantly thrown apart whenever they are left free to move, and are thus always in position to receive the pipe or bolt to which they are applied. Pivoted to the outer jaw and to the inner end of the operating-lever D are the two straps or side pieces G, which serve to connect the jaws to the operating-lever, and which allow the jaws to be turned through a portion of a circle so as to allow the jaws to stand in a line with the lever when not in use, and at a right angle thereto when they are applied to a pipe, bolt, or rod. Through these two straps are formed the slots H, and through these slots and the inner jaw B is placed a bolt I, which serves as a stop to prevent the jaws approaching each other beyond a certain predetermined point. The jaws are forced apart by the spring as far as the slots will allow, and when the jaws are applied to a pipe, rod, or bolt they can be moved toward each other until the rod I strikes against the inner end of the slot, when all further movement on the part of the inner jaw ceases.

The handle or lever is pivoted between the inner ends of the straps or side pieces and has its inner end formed into a cam or eccentric of any desired shape. As here shown, the heel or inner portion of the eccentric is formed upon any desired curve so as to give the inner jaw a more or less quick action when the lever first begins to move; but the outer end or point of the cam or eccentric is comparatively flattened, so that an ordinary pressure upon the lever will cause the two jaws to approach each other and take a firm hold upon the pipe, bolt, or rod, and then all continued pressure or leverage applied to the lever or handle will cause the pipe or bolt to turn with the jaws or cause the cutters to sink into the sides of the bolt, rod, or pipe for the purpose of cutting it. As here shown, the parts are so constructed that when the toe or outer point of the cam or eccentric has been reached the rod I reaches the inner end of the slot H, so as to stop the movement of the inner jaw B, and then the continued movement of the lever causes the jaws to turn while holding the pipe, rod, or bolt between them, or, if the jaws are provided with cutters, to cause the cutters to sink into the pipe, rod, or bolt to which they are applied.

As will be seen, the jaws when in actual use stand at about a right angle to the handle or lever; and hence the slightest slackening of the power applied to the outer end of the lever will cause the jaws to instantly disengage from the pipe, rod, or bolt, and thus enable the wrench to be applied and used without

the slightest difficulty in places where the ordinary wrench will stick and cause trouble to disengage. A spring is here shown; but it is merely for a matter of convenience, and is used to cause the jaws to spring apart more quickly than they would do if no spring were used.

Having thus described my invention, I claim—

1. The combination of the jaws hinged together at one end and their opposite ends provided with longitudinal engaging-surfaces upon their inner edges, the straps pivoted to opposite sides of one of the jaws between the holding-surfaces and the hinge, and the lever pivoted between the opposite ends of straps, the lever having a cam on its inner end which extends toward the engaging-surfaces and engaging the outer surface of the adjacent jaw, whereby a continued pressure upon the lever will revolve the jaws and press them toward the object being clamped, substantially as shown and described.

2. The combination of the two jaws hinged together at one end, the slotted connecting-straps, a bolt which is attached to one of the jaws and made to pass through the slot and serving as a stop, and the lever pivoted between the inner ends of the straps and having its end formed into a cam or eccentric, substantially as set forth.

3. The combination of the two jaws hinged together at one end, the two connecting-straps provided with slots, the rod connected to one of the jaws and passing through the slots and serving as a stop, the expanding spiral spring placed between the two straps and engaging the inner sides of the jaws, whereby it is out of the way, and the lever having its inner end formed into a cam or eccentric and made to operate the inner jaw, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

E. A. SMEAD.

Witnesses:
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