

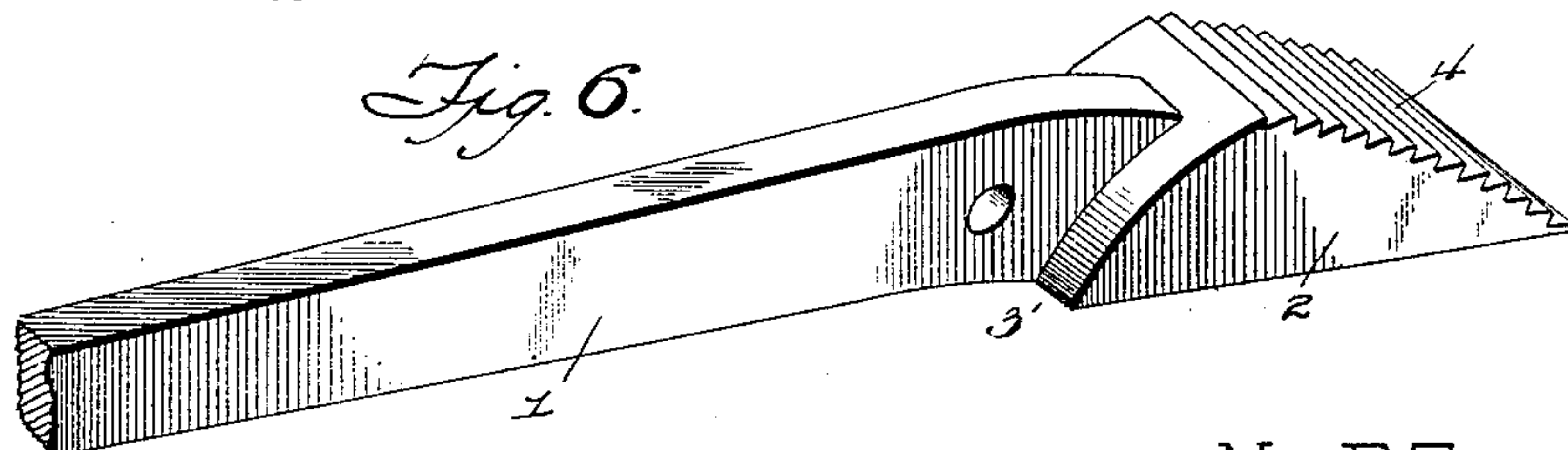
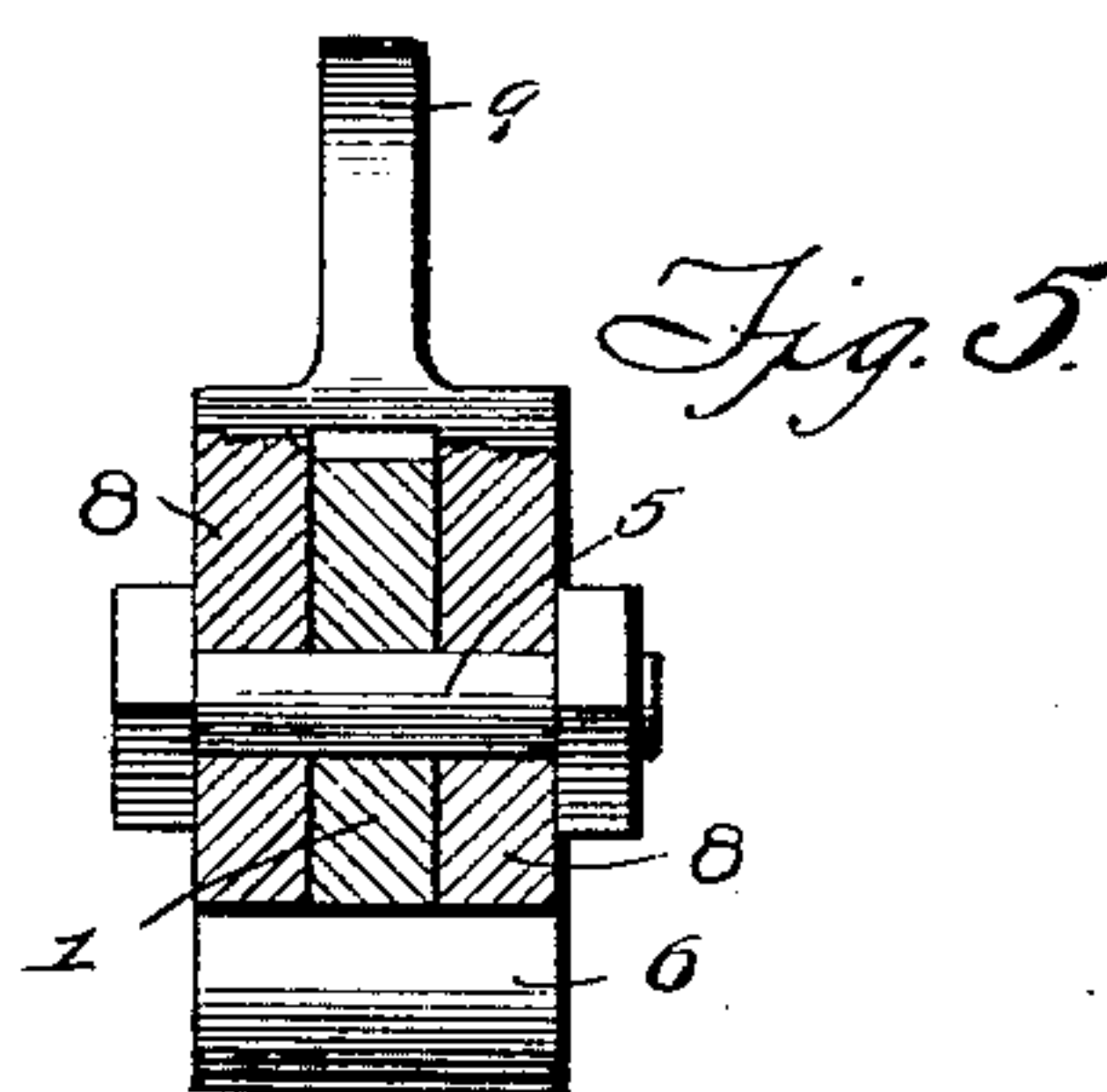
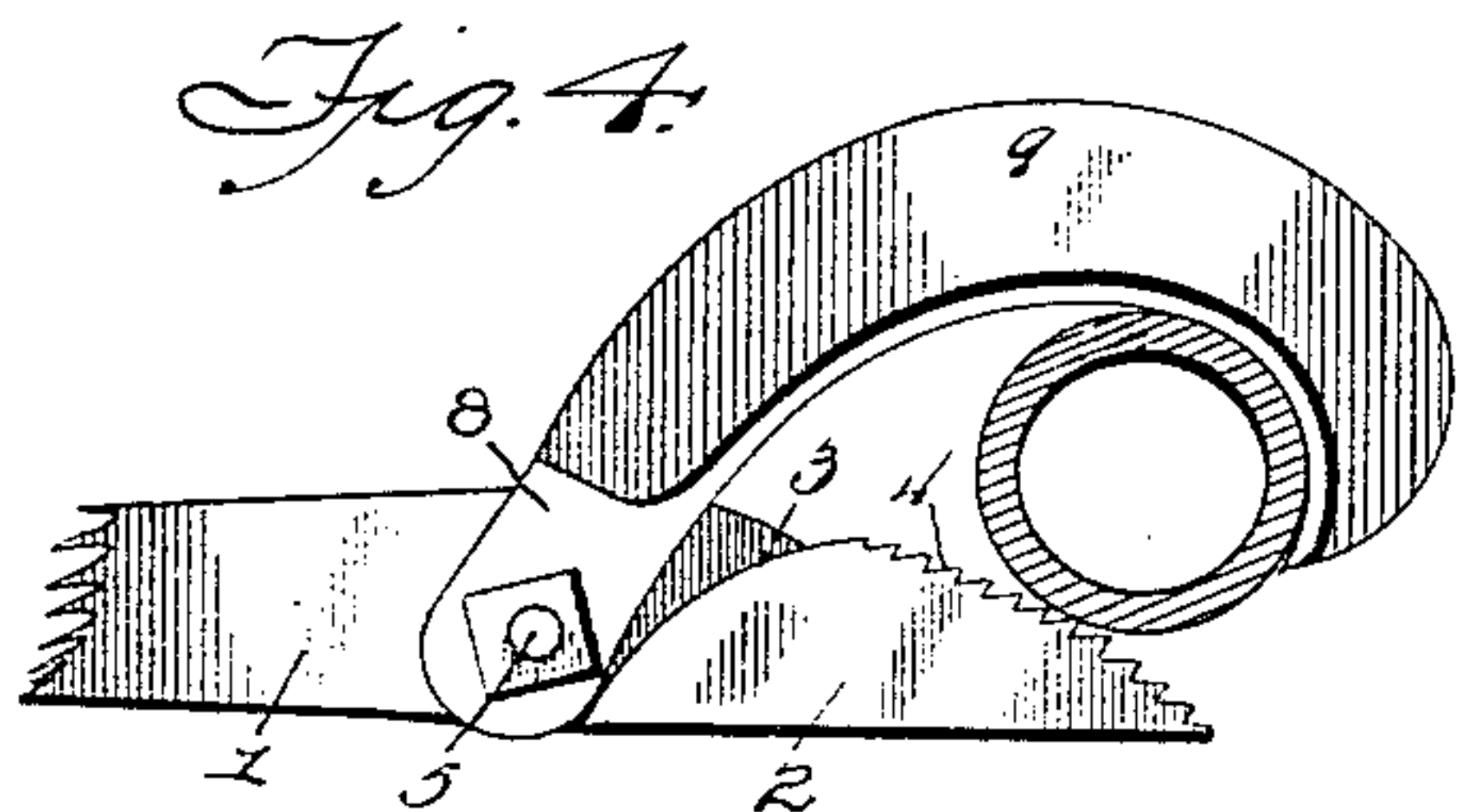
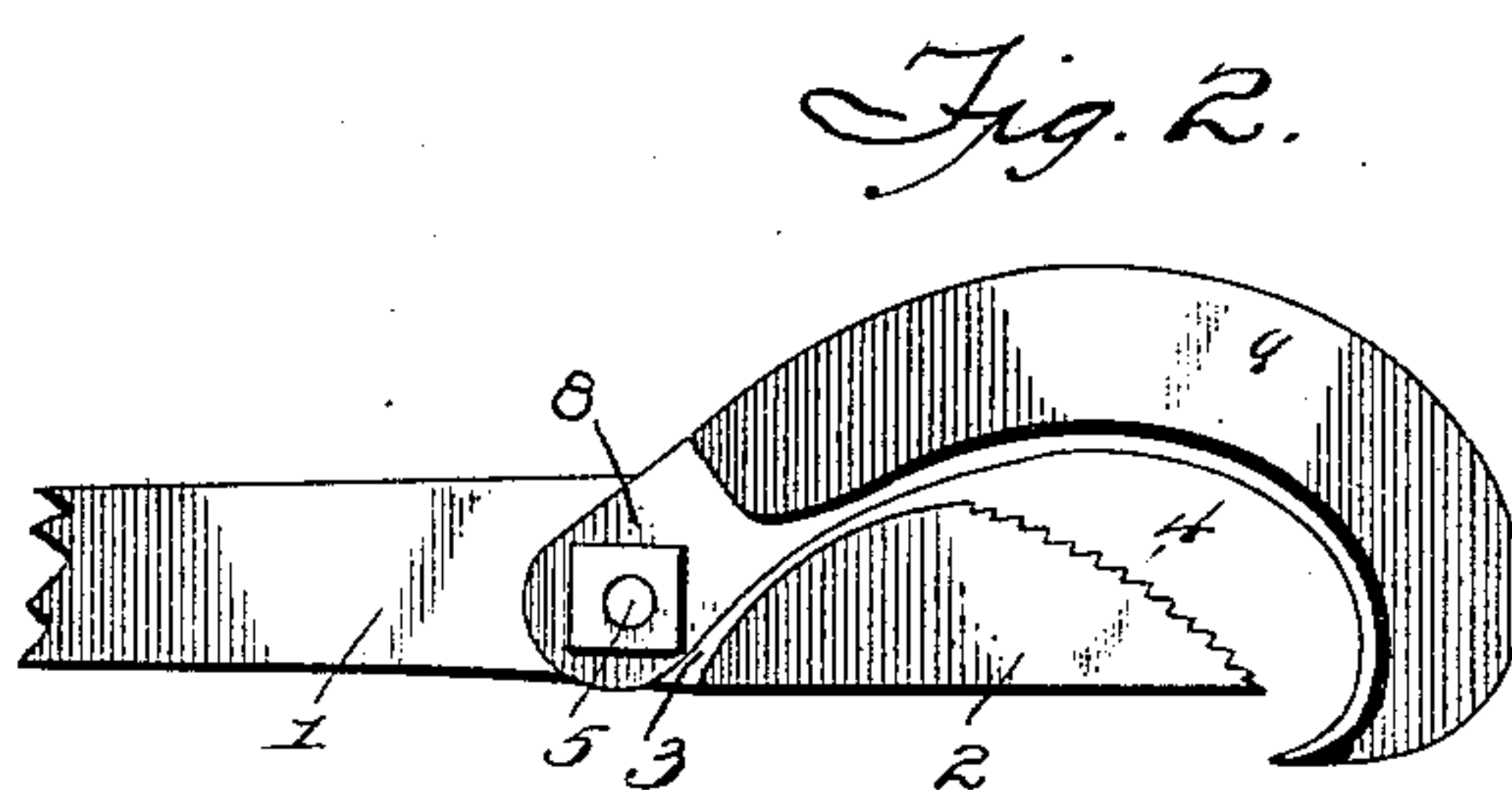
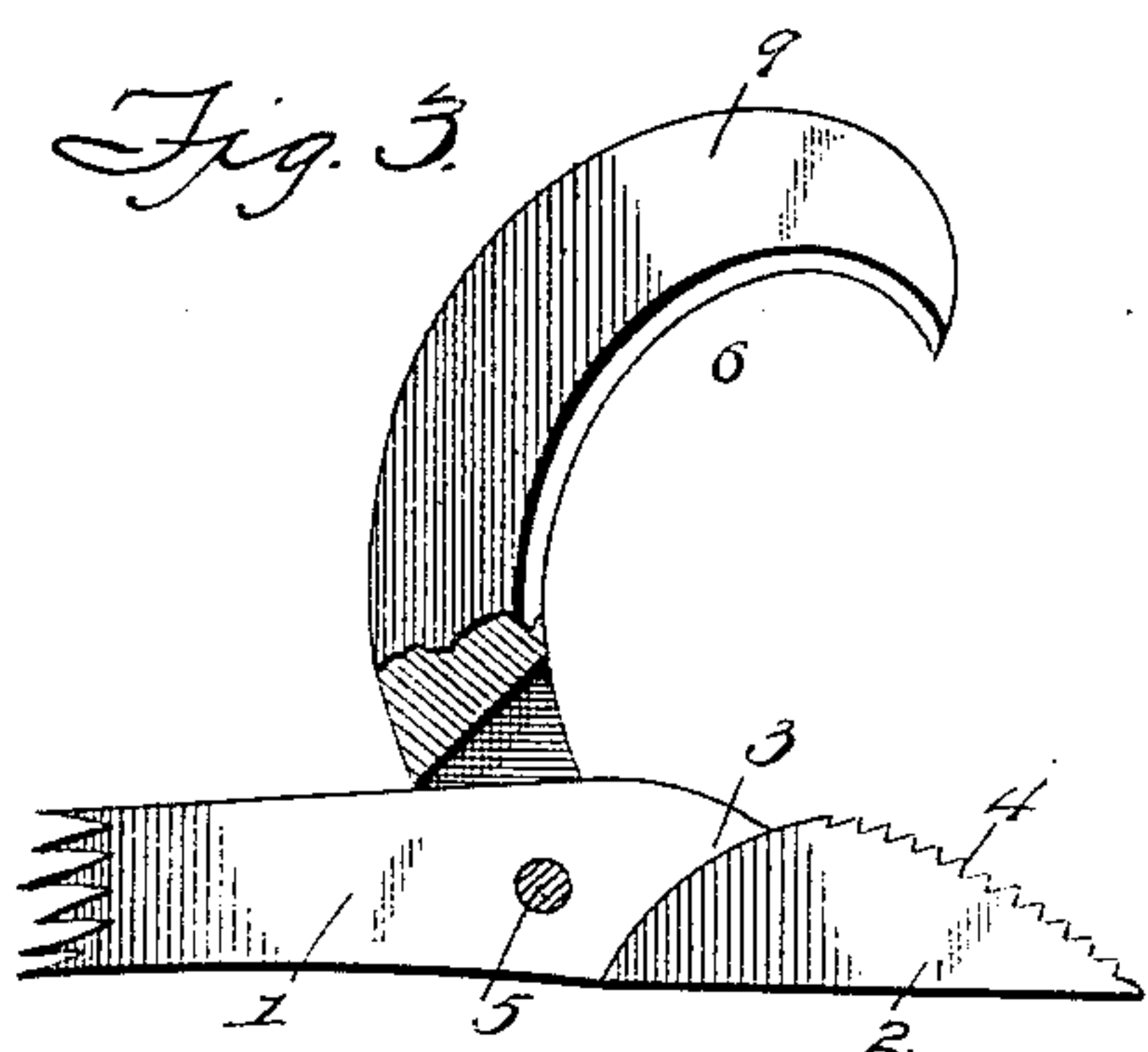
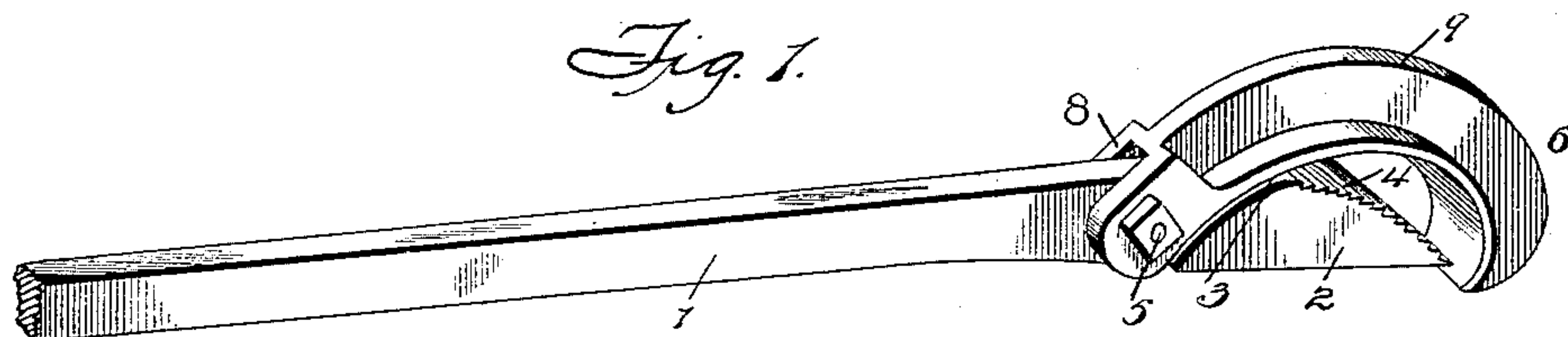
No. 618,075.

Patented Jan. 24, 1899.

N. P. EASTMAN.  
PIPE AND ROD WRENCH.

(Application filed Feb. 21, 1898.)

(No Model.)



Witnesses

*R. H. Shepard.*

*O. E. Hoyle*

By *his* Attorneys,

NEIL P. EASTMAN Inventor

*C. A. Snow & Co.*



# UNITED STATES PATENT OFFICE.

NEIL P. EASTMAN, OF BASSETT, NEBRASKA, ASSIGNOR OF ONE-HALF TO  
JAMES J. CARLIN, OF SAME PLACE.

## PIPE AND ROD WRENCH.

SPECIFICATION forming part of Letters Patent No. 618,075, dated January 24, 1899.

Application filed February 21, 1898. Serial No. 671,153. (No model.)

*To all whom it may concern:*

Be it known that I, NEIL P. EASTMAN, a citizen of the United States, residing at Bassett, in the county of Rock and State of Nebraska, have invented a new and useful Pipe and Rod Wrench, of which the following is a specification.

My invention relates to wrenches of that class particularly adapted for use in turning pipes and rods; and the object in view is to provide a wrench whereby the gripping power may be applied with the maximum efficiency and the minimum risk of crushing, superficially abrading, or otherwise injuring the article grasped.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

Figure 1 is a perspective view of a wrench constructed in accordance with my invention. Fig. 2 is a side view of the head, showing the movable jaw at the limit of its forward movement. Fig. 3 is a similar view showing the movable jaw partly in section and at the limit of its rearward movement. Fig. 4 is a similar view showing the movable jaw at an intermediate point and indicating a round object engaged thereby. Fig. 5 is a detail transverse section taken in the plane of the pivot-bolt. Fig. 6 is a detail view in perspective of the fixed jaw.

Similar reference characters indicate corresponding parts in all the figures of the drawings.

The wrench embodying my invention consists of a handle or stock 1, constituting a narrow cross-sectionally flat shank enlarged at its front end to form a fixed jaw 2, of which the rear end projects laterally from the planes of the opposite sides of the shank to form longitudinally-convexed stop-shoulders 3. This fixed jaw is flush at its under or outside with the adjacent edge of the shank, and the operative face 4, which is toothed or serrated, intersects a continuation of the convexed shoulders 3 to form an obtuse angle; which may be rounded, as illustrated, to merge into the continuation of the shoulders, whereby in longitudinal section the fixed jaw

is approximately semi-elliptical in contour. Pivotaly mounted, as by means of a bolt 5, upon the shank adjacent to and in rear of the shoulders 3 is a movable or swinging jaw 6, having its inner or operative face concaved throughout, but with the curvature increasing in abruptness or struck by radii of gradually-decreasing lengths as it approaches its extremity. At its end the operative face of the swinging jaw curves rearward or toward the pivotal point of the jaw to form a hook of which the extremity passes that of the fixed jaw at a short interval, as shown in Fig. 4. This extremity of the movable jaw is also preferably reduced to an edge which is adapted, when the jaw is extended approximately to the limit of its backward movement, as in grasping a rod or pipe of large diameter, to bear against the surface of said object at a point remote from the serrated convex face of the fixed jaw.

The width of the movable or swinging jaw is equal to that of the fixed jaw, and at its pivotal end it is bifurcated to straddle the shank, whereby the arms 8, formed by the bifurcation, are arranged in the planes of the shoulders 3 to abut against or come in contact therewith when the movable jaw is at the limit of its forward movement. Owing to the eccentric pivoting of the movable jaw with relation to the operative or toothed face of the fixed jaw the backward swinging movement of the former increases the interval between its concave face and said toothed face; but as the terminal or abruptly-curved portion of the face of the swinging jaw is arranged with its radius approximately in line with the axis of the swinging jaw, or whereby when extended the radius of said terminal curve would pass through the axis of the swinging jaw, the jaws in all relative positions present opposing convex and concave faces, with the abruptly-curved terminal portion of the swinging jaw receding from the face 4 as the interval between the jaws increases. Obviously as the swinging jaw recedes from the fixed jaw in its backward movement to bring the bearing portion of the movable jaw nearer its extremity the reduced or sharpened extremity of the swinging jaw approaches the object which is being grasped,



but always remains in the path of outward movement of an object positioned between the jaws to prevent accidental disengagement of the wrench from said object.

5 The curvature of the portion of the inner surface or face of the swinging jaw adjacent to its pivot conforms to the curvature of the shoulder 3 to lie in contact therewith when the jaws are closed, whereby the teeth or serrations of the fixed jaw are not exposed to  
10 contact with the smooth surface of the swinging jaw, and hence do not become battered or distorted. The exterior surfaces of the arms formed by the bifurcation of the swinging jaw are preferably flush with the side sur-  
15 faces of the fixed jaw, whereby the side surfaces of the cooperating jaws are in a common plane throughout. Also, the swinging jaw is preferably provided with an exterior strength-  
20 ening rib or wedge 9.

Having described my invention, what I claim is—

In a pipe-wrench, a cross-sectionally flat shank provided with a terminal enlargement  
25 forming a fixed jaw, which is substantially semi-elliptical in longitudinal section, the same projecting laterally beyond the side surfaces of the shank to form convexed stop-shoulders 3, and having its convexed portion  
30 in front of said shoulders, provided with ser-

rations, and a swinging jaw, equal in width with the fixed jaw, bifurcated at its rear end to straddle said shank adjacent to said stop-shoulders, and pivotally mounted upon the shank with said stop-shoulders in common  
35 planes with, and respectively in the paths of, arms formed by the bifurcation, the inner or operative face of the swinging jaw being smooth and concaved throughout, with the curvature increasing in abruptness as it ap-  
40 proaches the free end of the jaw, and the extremity of said swinging jaw being curved rearwardly toward the pivot, and terminating in a reduced edge, of which the path in swinging movement is adjacent to the front  
45 extremity of the fixed jaw, said abruptly-curved portion of the face of the swinging jaw being struck from a center located upon a line connecting an intermediate portion of the curve with the axis of the swinging jaw,  
50 substantially as specified.

In testimony that I claim the above-described invention I hereunto affix my signature to the above specification, in the presence of two witnesses, at Bassett, Nebraska,  
55 on this 15th day of February, 1898.

NEIL P. EASTMAN.

Witnesses:

S. S. HARRIS,  
W. H. HOLMES.