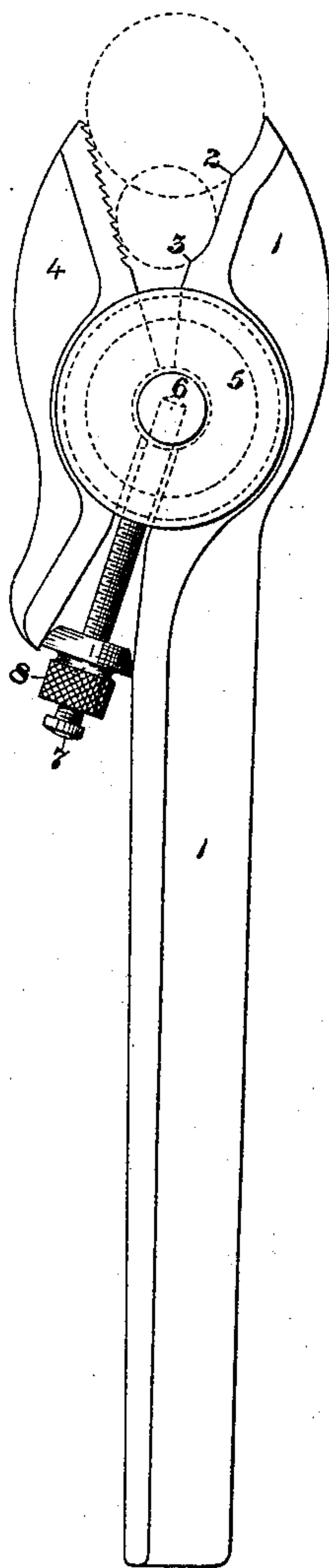


(No Model.)

E. S. BOYNTON.
PIPE WRENCH.

No. 404,770.

Patented June 4, 1889.



Witnesses.

Frank L. Estroale
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Inventor.

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UNITED STATES PATENT OFFICE.

EDWARD S. BOYNTON, OF NEW YORK, N. Y., ASSIGNOR TO THE CAMPBELL
PRINTING PRESS AND MANUFACTURING COMPANY, OF SAME PLACE.

PIPE-WRENCH.

SPECIFICATION forming part of Letters Patent No. 404,770, dated June 4, 1889.

Application filed November 26, 1888. Serial No. 291,873. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. BOYNTON, of the city of New York, in the county and State of New York, have invented a new and useful Improvement in Alligator - Wrenches, which invention is fully set forth and illustrated in the following specification and accompanying drawing.

The object of this invention is to provide an adjustable pipe-wrench operating upon the "alligator" principle, which shall avoid the tendency in such wrenches to crush the pipe under great resistance to rotation.

The invention will first be described in detail and then particularly set forth in the claim.

In the solid alligator-wrench, and such an adjustable form of it as is shown in Patent No. 364,749, issued to me June 14, 1887, one of the jaws is preferably without serrations or teeth, for the purpose of insuring a secure hold being taken on the pipe or rod by the toothed jaw through the sliding of the pipe upon the smooth jaw up into the angle formed by the two. Under severe strains, however, it is found in practice that in thus forcing the pipe into the wedge-shaped opening of the jaws there is considerable tendency to flatten or crush the pipe operated upon. To avoid this tendency, the smooth or untoothed jaw in this invention is formed with one or more steps in it of such form that, under a given adjustment of opening, the pipe may slide upon the smooth jaw until the toothed jaw has taken

a firm hold and further entrance of the pipe into the opening of the wrench be prevented by contact with one of the steps formed in the smooth jaw.

In the accompanying drawing is shown in side elevation such a wrench, for the specific construction of which reference is had to the patent, No. 364,749, above mentioned.

In said drawing, 1 indicates the stationary jaw, in which are formed steps, as at 2 and 3. 4 indicates the movable serrated jaw; 5, the washers; 6, the rivet, and 7 the screw upon which the adjusting-nut 8 works. The dotted circles resting on the steps formed in the smooth jaw at 2 and 3 show the operation of the jaws upon different sizes of pipe.

Having thus fully described my said improvement as of my invention, I claim—

In an adjustable wrench operating to rotate pipes or rods by means of a wedge-shaped opening on what is known as the "alligator" principle, the combination of a toothed or serrated jaw on one side of the angular opening, and a smooth jaw on the other side containing one or more steps or stops, as 2 3, whereby the opening between the jaws may be so adjusted that a firm hold is taken by the toothed jaw and flattening or crushing of the pipe or rod avoided, substantially as set forth.

EDWARD S. BOYNTON.

Witnesses:

JOHN TULLY,

FRANK L. ENTWISLE.