No. 747,612. PATENTED DEC. 22, 1903.

R. C. JONES.

PIPE AND TUBING TONGS.

APPLICATION FILED JUNE 27, 1903.

NO MODEL.

Fig. 1.

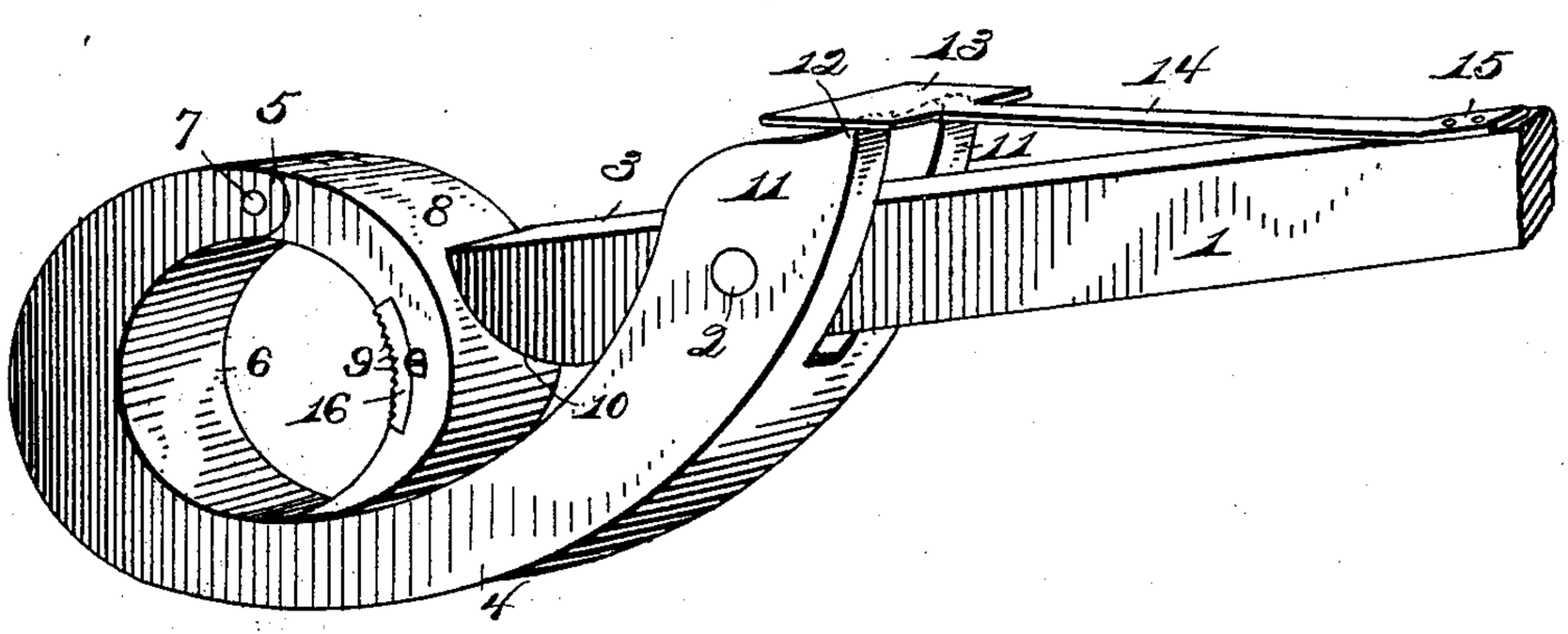


Fig. 2.

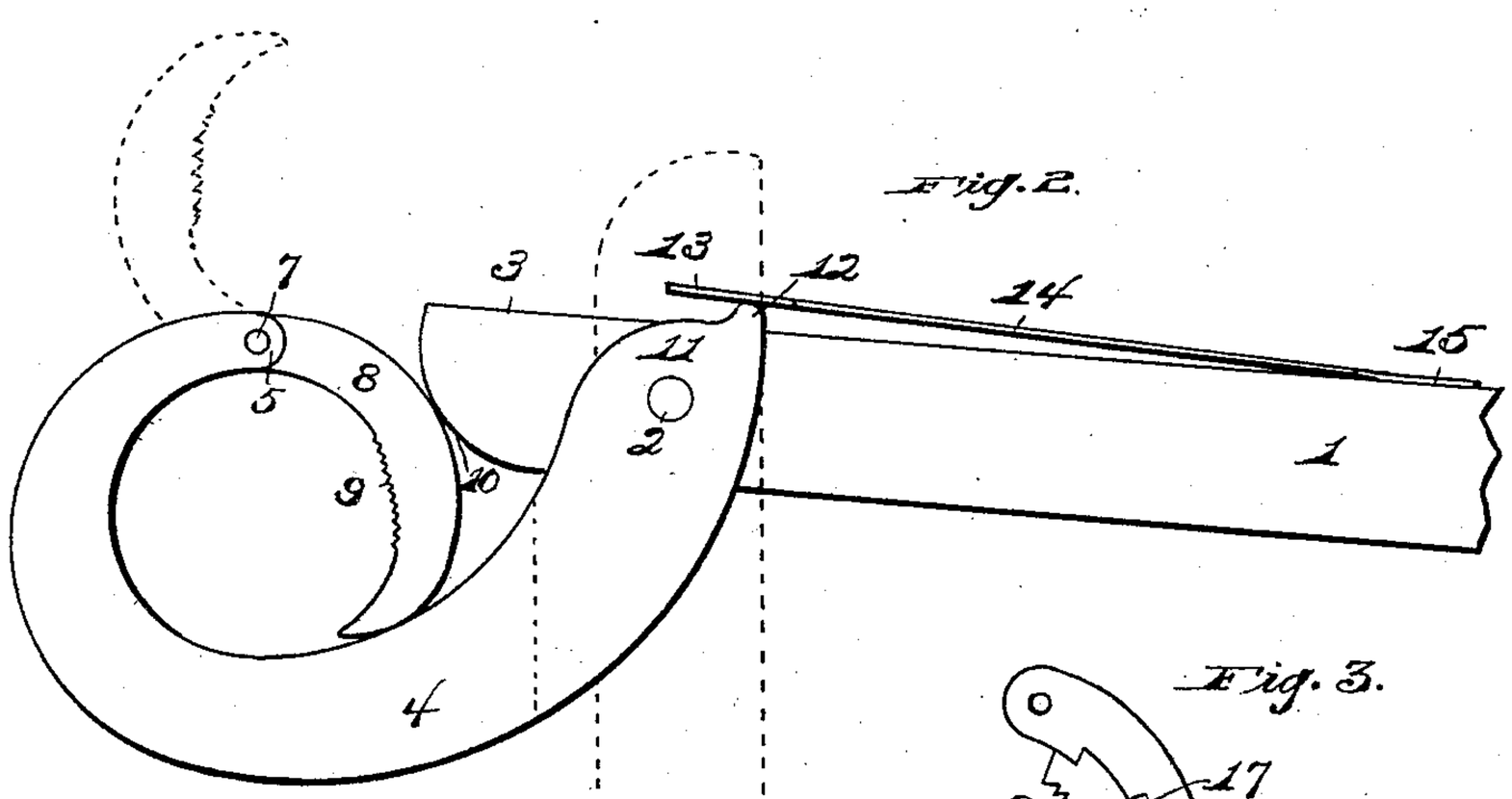
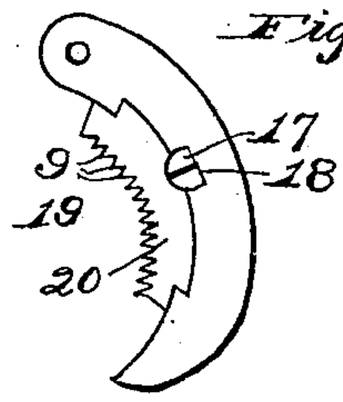


Fig. 3.



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No. 747,612. Patented December 22, 1903.

UNITED STATES PATENT OFFICE.

ROBERT C. JONES, OF BELLAIRE, OHIO.

PIPE AND TUBING TONGS.

SPECIFICATION forming part of Letters Patent No. 747,612, dated December 22, 1903.

Application filed June 27, 1903. Serial No. 163,397. (No model.)

To all whom it may concern:

Be it known that I, ROBERT C. JONES, a citizen of the United States of America, and a resident of Bellaire, county of Belmont, and State of Ohio, have invented certain new and useful Improvements in Pipe and Tubing Tongs, of which the following is a specification.

My invention relates to new and useful improvements in pipe and tubing tongs or wrenches, and more particularly to an adjustable wrench or tongs specially adapted for use on oil-well tubing; and it consists in the particular construction, arrangement, and combination of parts which will hereinafter be fully described, and specifically pointed out in the claims hereto appended.

The chief object of the invention is to provide a pair of tongs which are particularly adapted for use on oil-well casing or tubing when withdrawing said tubing or casing from the well and also for use on other pipe and tubing which requires careful handling to prevent the indentation thereof.

A further object of the invention is to provide a wrench or tongs for pipe and tubing which is automatically adjustable to different sizes and in which a most powerful grip or leverage is attained with a minimum of power applied.

Further objects of the invention will be made apparent as further progress is made in this specification.

In describing my invention in detail reference is herein had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a perspective view of the invention. Fig. 2 is a side elevation of the same, and Fig. 3 is a side elevation of a separable extension-die.

In said drawings like reference-numerals designate like parts throughout the several views.

Referring to said drawings, 1 indicates a handle or lever to which is hinged at 2, a distance in the rear of its point 3, a concavely-curved and elongated jaw 4. The said jaw 4 is curved, as shown, with its point 5 projecting backward toward its hinge 2 and substantially describes with its inner face at the furthermost point thereof from said hinge 2—that is, at the pipe-engaging portion 6—a semicircle. Said jaw 4 is therefore adapted to embrace a pipe of a diameter equal to that of the circle the half of which is described, as above mentioned, for nearly, if not quite, one-half its peripheral circumference. To the point 5 of said elongated jaw 4 at 7 is hinged a concavely-curved jaw 8, which is plain and smooth upon its outer or convex surface and which is preferably provided with teeth or corrugations 9 on its inner or concave face or surface. Said jaw 8 is constructed of such a size and shape that it will when swung inward toward the pipe-engaging portion 6 of the jaw 4 substantially complete the circle the half of which is described by the inner face of said pipe-engaging portion 6, as hereinbefore mentioned.

The point 3 of the lever 1 is provided with a convex bearing portion 10, which is formed by making a gradual taper or bevel from the under face of said point to the upper face thereof. This bearing portion 10 is adapted to be brought into engagement or bearing contact with the convex outer face or surface of the jaw 8 when said lever is raised, thus forcing said jaw forward toward the pipe-engaging portion 6 of the jaw 4.

At the hinge 2 the jaw 4 is bifurcated and the members 11, formed by said bifurcation, straddle the lever 1. The ends of said members 11 preferably project upward beyond the upper face of the lever 1 and form rounded projections 12, on which rests a plate or extension 13 on the end of a spring 14, which has its opposite end secured at 15 upon the upper face of the lever 1. As is obvious, when the jaw 4 is swung forward into the position shown in Fig. 1 said spring 14 will hold said jaw against retraction on its hinge 2.

A separable toothed jaw or die 16 is preferably used in the jaw 8, said die being held in place in any suitable or desirable manner, but preferably as shown—that is, by fitting within a suitable recess in the jaw 8 and employing a screw 17 with a flat side 18 on its head to firmly hold it within said recess.

If it is desired to apply my invention to a size of pipe or tubing which is too small to be gripped by the jaws of the tongs used, an extension toothed die 19, as illustrated in Fig. 3, may be employed. In said die the body 20

thereof is extended so as to project beyond the inner face of the jaw 8 when fitted therein, and thus make its reach greater.

In operation the jaw 8 is swung back upon its hinge 7, as indicated in dotted lines in Fig. 2, and the jaw 4 is made to clasp the pipe or tubing on one side thereof. The jaw 8 is then swung forward against the opposite face of said pipe, the lever being held in substantially the position indicated in dotted lines in Fig. 2. The said lever is then raised, so that the convex bearing portion 10 thereof will come in bearing contact with the convex surface of the jaw 8. As is obvious, the greater the power applied on the lever 1 the greater will be the pressure or grip of the jaws upon the pipe, since the raising of said lever forces said jaw 8 forward toward the pipe-engaging portion 6 of the jaw 4.

I am aware that various other patents have issued upon wrenches and tongs having jaws which are somewhat similar in construction to that which I show, among which patents is one to Baker, September 28, 1897, No. 590,562; one to Abbe, August 20, 1867, No. 67,937, and one to Anderson, March 8, 1887, No. 359,197; but in none of these patents is a construction shown which admits of the direct application of the power on the jaw which corresponds to the jaw 8 shown in the herein-described invention. To illustrate, the power applied to the lever 1 in my invention is communicated directly to the jaw 8 thereof at a point near its center and directly opposite the pipe-engaging portion 6 of the jaw 4, thus giving the greatest possible grip with the power applied, while with the devices shown in the above-mentioned patents the power applied on the lever is communicated to the bearing-surface of the hinged jaw near the point thereof, and therefore at an angle to its direct bite or grip. In other words, in these the construction is such that the full extent of the power applied is not received in the bite or grip upon the pipe or tubing.

As hereinbefore stated, the chief object of my invention is to provide a device for use upon oil-well tubing, of which there are but few different sizes, and it is therefore my intention to construct my tongs in different sizes to correspond with said different sizes of tubing. Being so constructed, when a pair of tongs of the proper size is used upon a tubing said tubing will be closely embraced by said tongs at all points in its peripheral circumference, and the possibility of indenting the tubing, a thing which is especially to be guarded against with oil-well tubing, is consequently reduced to a minimum. As is apparent, however, my invention may be applied, if desired, to different sizes of pipes or tubing, it being automatically adjustable to quite a range of sizes.

It will be seen that I have described my invention more or less in detail and also that various minor changes may be made in the construction and arrangement of some of its parts without departing from the spirit or scope thereof. Hence I do not desire to limit myself to the precise construction and arrangement shown.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a pipe and tubing tongs, a lever having its front end or point provided with a convex bearing portion, an elongated concavely-curved jaw hinged to said lever in the rear of said point, a second concavely-curved jaw hinged to the point of said elongated jaw, said second jaw adapted to be engaged upon its outer or convex surface near the middle thereof by the convex bearing portion of the point of the lever, projections on said elongated jaw, and a spring in engagement with said projections, substantially as described.

2. In a pipe and tubing tongs, a lever having a convex point, an elongated concavely-curved jaw hinged to said lever at the rear of its point, said jaw substantially describing a semicircle with its inner surface at the part thereof farthest from its hinge, a second curved jaw hinged to the point of said elongated jaw and adapted for substantially completing the circle commenced thereby, the point of said lever adapted for sliding engagement with the convex outer surface of said second jaw, projections on said elongated jaw, and a spring in engagement with said projections for holding said jaw in an extended position, substantially as described.

3. In a pipe and tubing tongs, a lever, an elongated concavely-curved jaw hinged to said lever at the rear of its point, said jaw substantially describing a semicircle with its inner surface at the part thereof farthest from its hinge, a projection carried by the hinged end of said jaw, a spring in engagement with said projection for holding said jaw against movement or retraction on its hinge, and a second curved jaw hinged to the point of said elongated jaw and adapted for substantially completing the circle commenced thereby.

4. In a pipe and tubing tongs, a lever, an elongated concavely-curved jaw hinged to said lever at the rear of its point, said jaw having a substantially semicircular pipe-engaging portion at the furthermost point therein from its hinge, and having its point projecting rearwardly toward said hinge, a toothed curved jaw hinged to the point of said elongated jaw and adapted for substantially completing the circle commenced by the pipe-engaging portion of said elongated jaw, said toothed jaw adapted to be engaged by the point of the lever and forced forward as said lever is raised, rounded projections carried by the hinged end of the elongated jaw, and a spring in engagement with said projections for holding the jaws against retraction, substantially as described.

5. In a pipe and tubing tongs, a lever hav-

ing its point provided with a convex forwardly and upwardly extending bearing portion, an elongated concavely-curved jaw hinged upon said lever at the rear of said point, the point of said jaw projecting rearwardly toward said hinge, a toothed concavely-curved jaw hinged to the said point of the elongated jaw and presenting a convex bearing-surface adapted to be engaged by the convex bearing portion of the point of the lever, projections carried by the hinged end of the elongated jaw, and a spring in engagement with said projections for holding said elongated jaw in a forward position substantially in line with said lever, substantially as described.

Signed by me at Wheeling, West Virginia, in the presence of two subscribing witnesses.

ROBERT C. JONES.

Witnesses:

H. E. DUNLAP,

I. P. KLEIN.