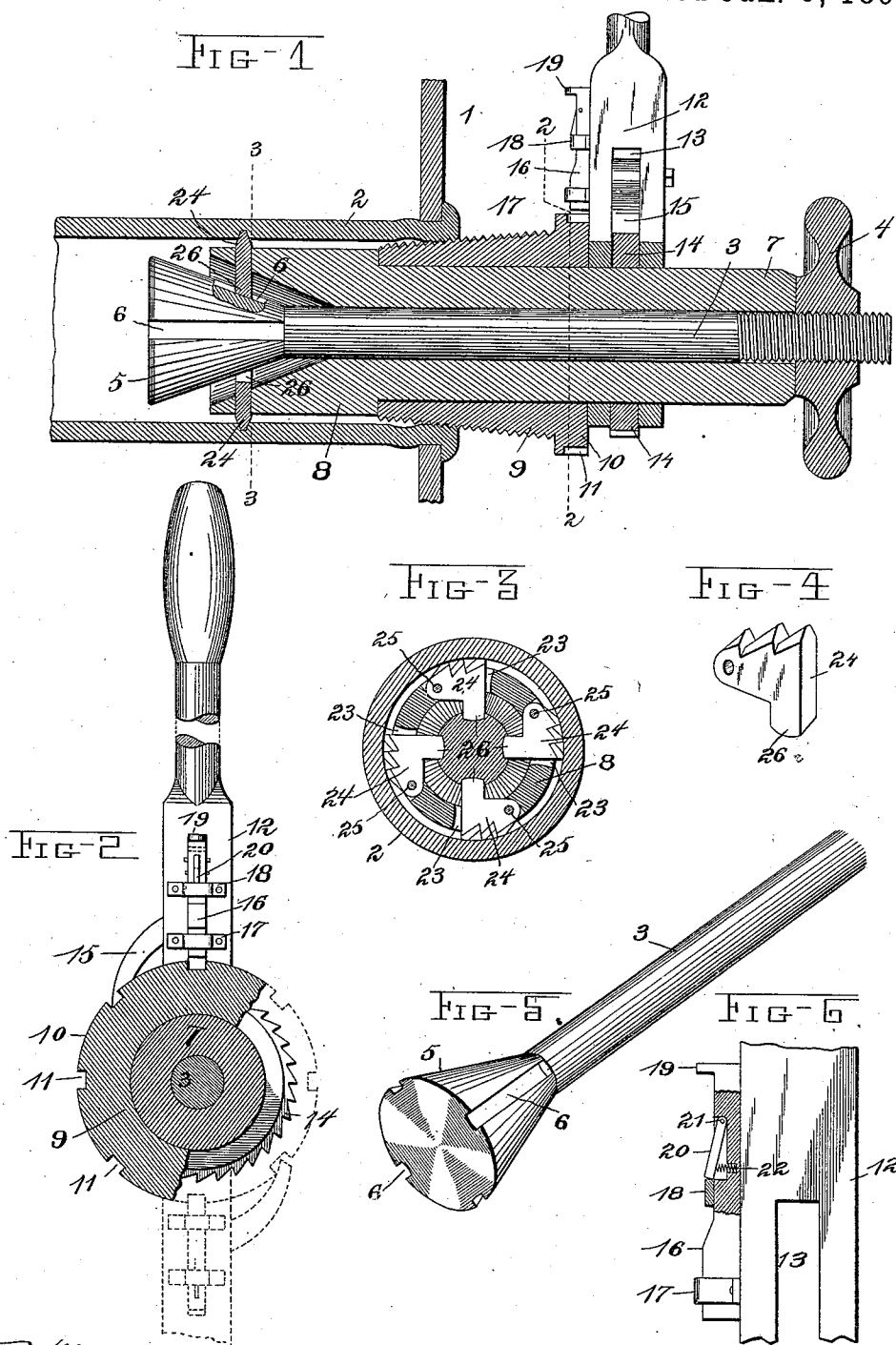


(No Model.)

C. O. THIEME.
DEVICE FOR CUTTING BOILER TUBES.

No. 512,631.

Patented Jan. 9, 1894.



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UNITED STATES PATENT OFFICE.

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DEVICE FOR CUTTING BOILER-TUBES.

SPECIFICATION forming part of Letters Patent No. 512,631, dated January 9, 1894.

Application filed July 24, 1893. Serial No. 481,308. (No model.)

To all whom it may concern:

Be it known that I, CARL OTTO THIEME, of the city of St. Louis and State of Missouri, have invented certain new and useful Improvements in Devices for Cutting Boiler-Tubes, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to an improvement in a "device for cutting boiler tubes," and consists in the novel construction, combination and arrangements of parts as will be more fully hereinafter described and designated in the claims.

In the drawings: Figure 1 is a longitudinal central section of my invention showing its connection with a boiler tube. Fig. 2 is a sectional view through the line 2—2 of Fig. 1. Fig. 3 is a section through the line 3—3 of Fig. 1. Fig. 4 is a perspective view of a cutter which I use in carrying out my invention. Fig. 5 is a perspective view of a detail which I use in carrying out my invention. Fig. 6 is a side elevation of a locking device with parts broken away to more clearly exhibit the same. 1 indicates a flue-sheet and 2 a boiler-tube which is of common construction.

3 indicates a shaft which is screw-threaded on one end and is provided with a hand nut 4. Mounted on the opposite end of the shaft 3 from the screw threads is a conical enlargement 5, the small end of which is formed on or fixed to the shaft 3.

Formed in the enlarged portion 5 are guide-ways 6 for the purpose hereinafter mentioned. 7 indicates a cylindrical casting.

The end adjacent to the boiler flue is provided with an enlarged portion 8. The interior of the enlarged portion 8 is conical in shape to admit the enlarged portion 5 to be inserted therein.

Mounted upon the cylindrical casting 7 and screw threaded upon its outer periphery is a sleeve or casting 9; said casting is tapered so that it is somewhat larger on its outer end for the purpose hereinafter mentioned.

Formed on the outer end of the casting 9 is an annular flange 10.

Formed in the outer edge of the flange 10 are notches 11.

Mounted on the cylindrical casting 7 adja-

jacent to the outer end of the casting 9 is a handle 12; that portion of the handle 12 which engages the casting 7 is provided with a slot or opening 13.

Mounted in the slot 13 and connecting the casting 7 to the handle 12 is a ratchet-wheel 14 and a pawl 15; said pawl 15 is adapted to engage the ratchet-wheel 14 for the purpose hereinafter mentioned.

Mounted on the side of the handle 12 adjacent to the casting 9 is a bolt 16, the bolt 16 being held in engagement with said handle by means of straps 17 and 18. The upper end of the bolt 16 is provided with a projection or lift 19.

Mounted in the bolt 16 is a pawl 20 which is pivoted at 21.

Directly back of the pawl 20 adjacent to its lower end is a coiled spring 22 for the purpose of holding the pawl in its outward position as shown in Fig. 6.

Formed in the enlarged portion 8 of the casting 7 are slots or openings 23.

Mounted in the openings 23 are cutters 24; these cutters are pivoted at 25.

26 indicate lugs formed on the inner edge of the cutters 24 to engage the guide-ways 6 in the conical or enlarged portion 5 on the end of the shaft 3.

The operation is as follows: When it is desired to apply my improved cutter to a boiler-tube, the operator pushes the pawl in out of engagement with the strap 18 and pushes the bolt 16 down in engagement with the notch 11, as shown in dotted lines in Fig. 2. Then the operator draws the handle down in position as shown in dotted lines in Fig. 2, which allows the pawl 15 to fall out of engagement with the ratchet-wheel 14. When the pawl is out of engagement with said ratchet-wheel, the handle may be turned loosely on the casting 7, and the screw-threaded casting 9 and said handle being locked together by said bolt, said casting 9 can be screwed into the tube 2 by manipulating said handle, and the tube cutter will thereby be held securely in position ready for use in cutting the tube, as shown in Fig. 1. When this is done the operator releases the bolt 16 from the notch 11 and brings the handle back in position as shown in Fig. 1, and when the handle is in said position the pawl 15 will drop down in

engagement with the ratchet-wheel 14. When the cutter is placed in the tube as here shown, the operator turns on the hand nut 4 the required direction to screw it on the shaft 3. By so doing it draws the enlarged portion 5 inwardly. The projection 26 of the cutter 24 being in engagement with the guide-ways 6 presses them outwardly and brings them in engagement with the inner surface of the flue 2. The ratchet wheel 14 and the cutters 24 being connected to the casting 7 when the ratchet wheel 14 is turned in the required direction it will also turn the cutters. The pawl 15 being connected to the handle 12 and in engagement with the ratchet wheel 14 when the handle 12 is oscillated it will turn said ratchet wheel. When the cutters begin to cut into the tube the operator turns the hand nut 4 in the required direction, thus keeping the cutters 24 pressed against the flue.

From the above description, it will be seen that I have provided a tube cutter with a stock and laterally movable cutters, means for securely locking the stock in position upon the interior of the tube to be cut, means for rotating the cutters to cut the tubes, and means for simultaneously feeding said cutters laterally.

What I claim is—

1. In a tube cutter, the combination with the stock and laterally movable cutters, of a tapered integral sleeve threaded upon its outer surface, means whereby said sleeve may be rotated to securely clamp said stock and said cutters in position within the tube to be cut,

means for rotating the cutters to cut the tube and means for simultaneously feeding them laterally, substantially as herein specified.

2. In a device for cutting boiler tubes, the combination of a cylindrical casting 7, an enlarged portion 8 formed on one end of said casting, a shaft 3 mounted in said cylindrical casting 7, an enlarged or conical portion 5 mounted on said shaft 3, guideways 6 formed in the enlarged or conical portion, cutters 24 mounted in the enlarged portion 8 of the casting 7, projections 26 on said cutters in engagement with the guideways 6 formed in the enlarged or conical end 5 of the shaft 3, a casting 9 screw threaded on its outer periphery, an annular flange 10 on one end of said casting, notches 11 formed in said flange, a handle mounted on said casting 7, a slot 13 formed in said handle, a ratchet-wheel 14 placed in said slot, and a pawl 15 connected to said handle and constructed to engage said ratchet-wheel, substantially as set forth.

3. In a device for cutting boiler-tubes, a handle 12, straps 17 and 18 connected to said handle, a bolt mounted in said straps, a pawl 20 mounted in said bolt, and a spring 22 for retaining the pawl in its outward position, substantially as set forth.

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

CARL OTTO THIEME.

Witnesses:

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