

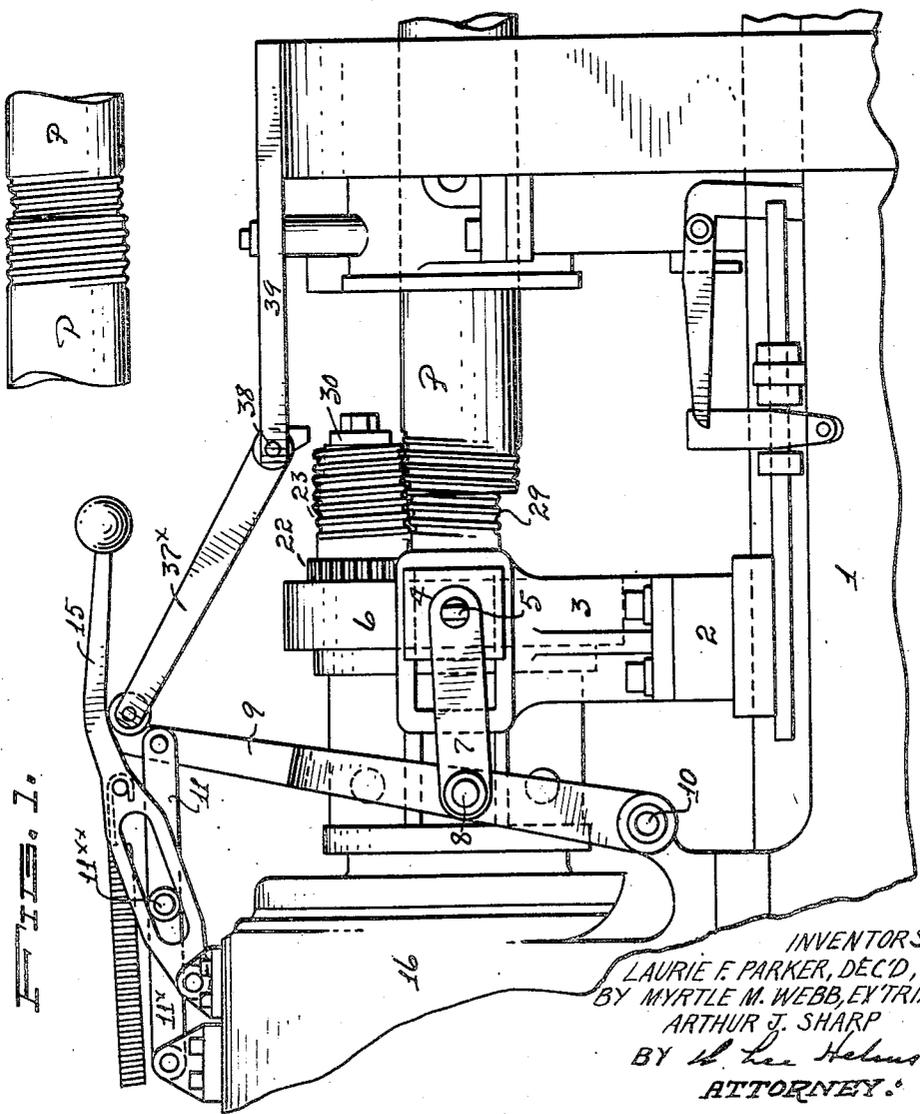
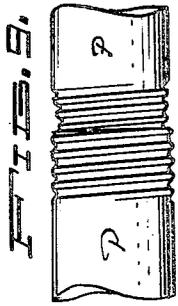
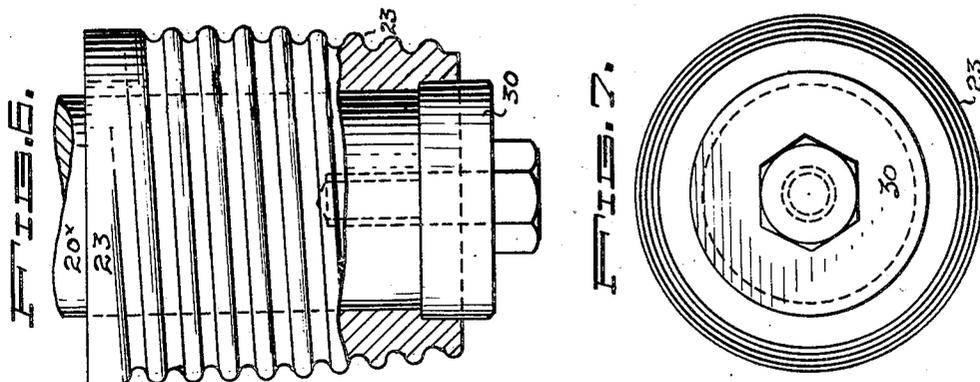
April 10, 1951

L. F. PARKER ET AL  
THREAD ROLLING MACHINE FOR PIPES

2,548,444

Filed Sept. 28, 1948

3 Sheets-Sheet 1



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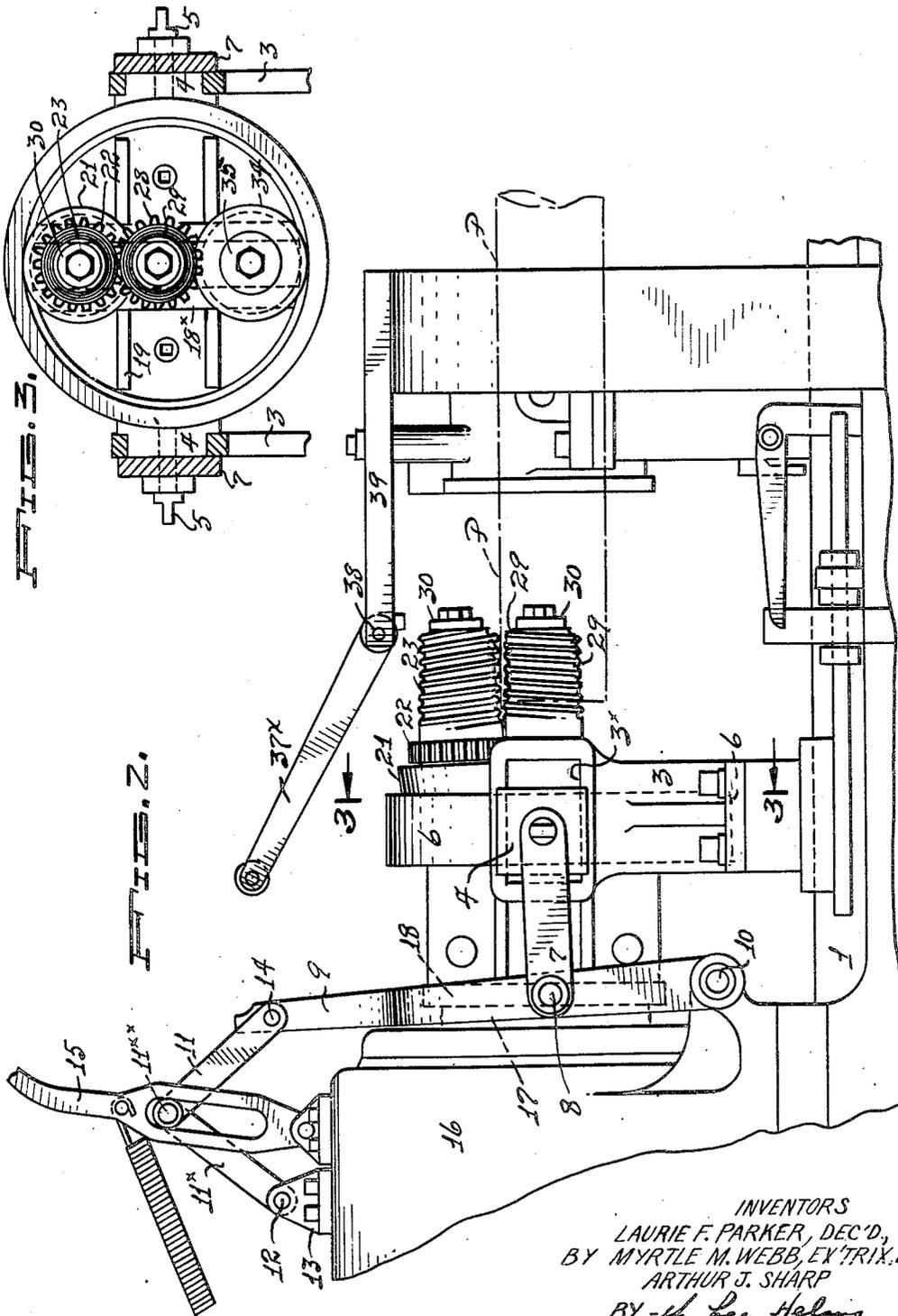
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3 Sheets-Sheet 2



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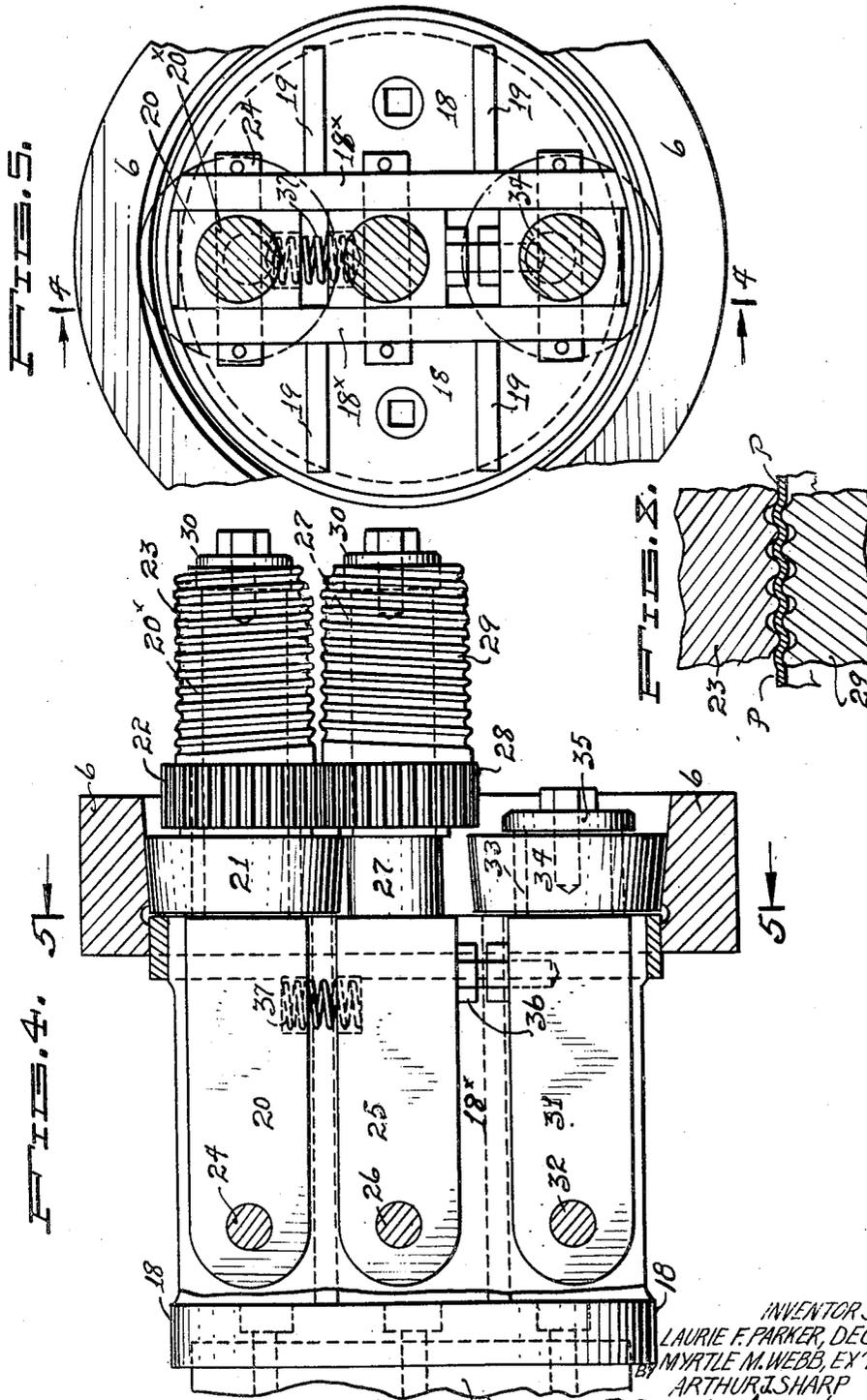
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THREAD ROLLING MACHINE FOR PIPES

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3 Sheets-Sheet 3



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## UNITED STATES PATENT OFFICE

2,548,444

## THREAD ROLLING MACHINE FOR PIPES

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5 Claims. (Cl. 153—71)

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The object of the present invention is to provide a simple and inexpensive thread rolling machine adapted for metallic pipes and cylinders and by means of which the necessary lateral pressure on the pipe wall of the threading rolls may be effected by a manually operated cylindrical cam, the threading roll thus being inter-gearred and mounted for pivotal movement in addition to their rotational movements.

The invention will be described with reference to the accompanying drawing, in which

Fig. 1 is a view in elevation illustrating an embodiment of the invention, certain elements being broken away, and a pipe being shown in position for a continued threading operation.

Fig. 2 is a view similar to Fig. 1 showing the position of the elements with the upper threading roll partly raised preceding withdrawal of the pipe, the latter being shown in dotted lines.

Fig. 3 is a fragmentary vertical section on the line 3—3, Fig. 2.

Fig. 4 is a vertical section taken generally at the line 4—4, Fig. 5.

Fig. 5 is a vertical section taken at the line 5—5, Fig. 4.

Fig. 6 is a detail view partly broken away showing a threading roll and its mounting.

Fig. 7 is an end view of the structure shown in Fig. 6.

Fig. 8 is a schematic section through a pipe area having threads produced therein and showing opposed roll sections abutting the pipe wall.

Fig. 9 is a schematic view showing an expanded male pipe end and a female pipe end threaded therein.

Referring to the drawings we have indicated at 1 a horizontal frame from which rises a seat member 2. On the seat member is bolted a bracket 3 which is slotted to provide a guideway 3x for a slide-block 4. Through the slide-block extends a stud 5 connecting the block with a cam ring 6. It will be understood that at the opposite side of the cam ring a duplication of the aforesaid bracket, slide-block and stud arrangements will be provided for balance support of the cam ring.

The studs 5 on alternate sides of the cam ring 6 are connected to links 7, one of the links being shown in Fig. 1, and each link is pivoted at 8 to the yoke arm of a yoke lever 9 which is pivoted to a member of the frame 1, one of the pivotal points which is indicated at Fig. 1 at 10.

Yoke 9 is connected at the top to a toggle consisting of the two links 11 and 11x, the latter being pivoted at 12 on a fixed bracket 13 and link 11 being pivoted at 14 to the yoke lever.

A toggle operating lever is provided. To this end the pivotal connection 11xx between the toggle links carries a roller which enters the elongated slot of toggle operating lever 15. By such

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means the cam ring may be given positive forward and backward movements with adequate force, and the closing of the toggle in forward movement of the cam ring will hold the latter in such adjusted position.

Supported on the base 1 is an electric motor 16 the spindle of which will be connected to a driving head, the latter being indicated at 17, Fig. 4. Bolted to the driving head 17 is a thread-rolling head 18 which is provided with a vertical channel way in the position of the parts shown in Figs. 4 and 5 through the use of forwardly projecting webs 18x, and laterally of webs 18x are reinforcing ribs 19. Pivoted in the channel way provided by ribs 18x is a forwardly projecting bar 20 which is formed with a shaft 20x at its forward end. This shaft extension 20x has rotationally mounted thereon a unitary assembly consisting of a tapered friction wheel 21, a gear 22, and a spirally ribbed threading roll 23. A pivot pin 24 permits swinging movement of bar 20 and the members carried thereby.

The channel way carries a central assembly similar to that described. It consists of a bar 25 pivoted at 26, the bar carrying shaft-like extension 27 on which is mounted integral assembly of gear 28 and spirally ribbed threading roller 29. Bolted cap plates 30 are employed at the ends of shafts 20x and 27 in each case to hold the assembly of gear and threading roll on the appropriate shaft.

Within the channel way provided by ribs 18x is a third bar 31 pivoted at 32 and carrying a short shaft extension 33 on which is mounted a tapered friction wheel 34 which friction wheel is held for rotation on the shaft by cap-plate 35.

When cam ring 4 is moved to the right from its position in Fig. 4 it will move the tapered friction wheels and the members carried thereby inwardly. Bar 31 is provided with an abutment to contact with bar 25 and force the same toward bar 20 which carries spirally ribbed threading roll 23. In the drawings this abutment is shown as a headed stud 36 which is threaded in bar 31. Normally, and when the cam ring is retracted, a spring 37 acts to separate the threading rollers 23 and 29 sufficiently to enable insertion of the pipe for the threading operation. Such a pipe is indicated at P in the drawings.

As shown in Fig. 1, and also in Fig. 2, a pivoted stop member may be employed for abutment by the toggle operating lever 15 and/or yoke lever 9 when the cam ring is moved to threading position of the elements. Such a stop member is shown at 37x, it being pivoted at 38 on a bracket arm 39 secured to a fixed member of the machine frame.

The rolling action on a pipe is performed by a progressive upsetting and deformation of the pipe wall similar to a drawing action and it will

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be understood that the female end of a pipe into which a second pipe is to be threaded, will be suitably expanded to permit such action. For receiving the threads at one end a pipe may be placed upon the forward area of the roll 39, while said pipe is supported, which support can be given manually or provided by any suitable support so as to be slidable by or with the support or independently of the support. In other words the pipe is given axial movement relatively to the threading rollers.

It will be understood that various modifications may be made in the form and arrangement of the elements constituting the embodiment of the invention illustrated in the drawings, without departing from the spirit of the invention.

Having described our invention what we claim as new and desire to secure by Letters Patent, is as follows:

1. A thread rolling machine comprising a pair of spirally ribbed threading rollers, a pair of members upon which said rollers are mounted for rotation, a support, means pivotally mounting said members to said support, driving means for bodily rotating said support and thereby the rollers, means for moving said threading rollers toward each other for operative compressive movement upon the wall of a pipe, and means for holding the threaded rollers in offset relationship with respect to the axis of rotation of the support.

2. A thread rolling machine for a pipe comprising a pair of spirally ribbed threading rollers, a pivoted carrier upon which each threading roller is rotatable, gears interconnecting the threading rollers, a third pivoted carrier, tapered bearing rollers carried by one of the threading rollers and by the third pivoted carrier and positioned for mutual engagement, a rotatable support common to all of said pivoted carriers, means for rotating said support, a cam ring engaging said tapered bearing rollers, means for bodily moving said cam ring, and means on the third carrier for maintaining the other carriers and their rollers in a proper predetermined relative position with respect to each other.

3. A thread rolling machine for pipe consisting of a rotatable support and means for rotating

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the same, a group of three parallel adjacent pivoted carriers mounted on the support said carriers including a central carrier formed with a shaft-like end and rotationally supporting a gear-carrying spirally ribbed threading roller, the assembly of carriers including an outermost carrier having a shaft-like end on which is rotationally mounted an assembly consisting of a spirally ribbed threading roller, a gear meshing with the first named gear and a tapered friction roller, the third carrier having a shaft-like end rotationally supporting a tapered friction roller, a cam ring encircling said tapered rollers and manually operable means for shifting said cam ring, and means on the second outer carrier for maintaining the central carrier in proper position between the outer carriers.

4. A thread rolling machine for pipe constructed in accordance with claim 3 in combination with an adjustable abutment intermediate the second outer carrier and the central carrier and means for yieldingly exerting separating pressure between the first outer carrier and the central carrier.

5. A thread rolling machine for pipe constructed in accordance with claim 3 in combination with a support for the cam ring consisting of slide blocks a lever and link connection for at least one of said slide blocks, a toggle connected to the said lever, and a slotted manually operable lever arm receiving in its slot a stud at the connection of the toggle links, as and for the purpose described.

MYRTLE M. WEBB.

Executrix of the Last Will and Testament of Laurie F. Parker, Deceased.

ARTHUR J. SHARP.

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The following references are of record in the file of this patent:

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