J. C. HOLLAND.

PIPE THREADING MACHINE.

APPLICATION FILED MAR. 17, 1913.

1,065,528.

Patented June 24, 1913.

3 SHEETS—SHEET 1.

Fig. 1.

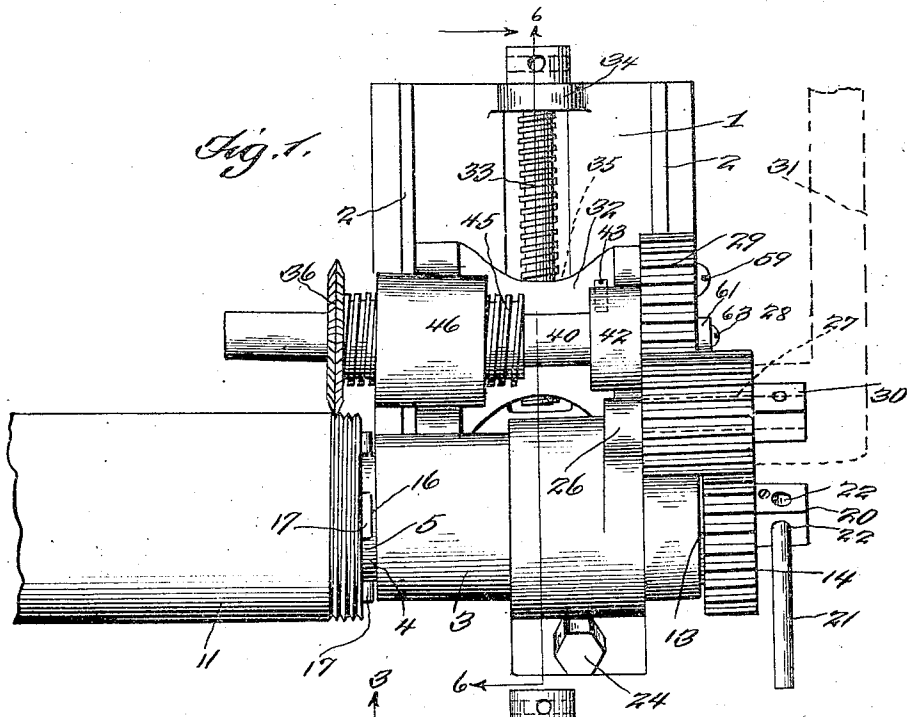
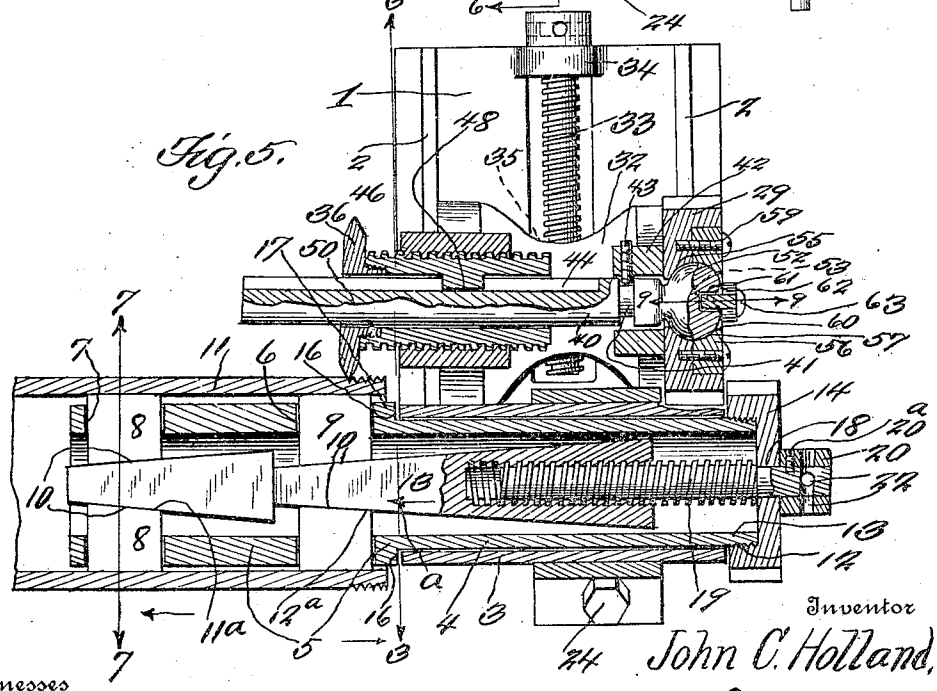


Fig. 5.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 2.

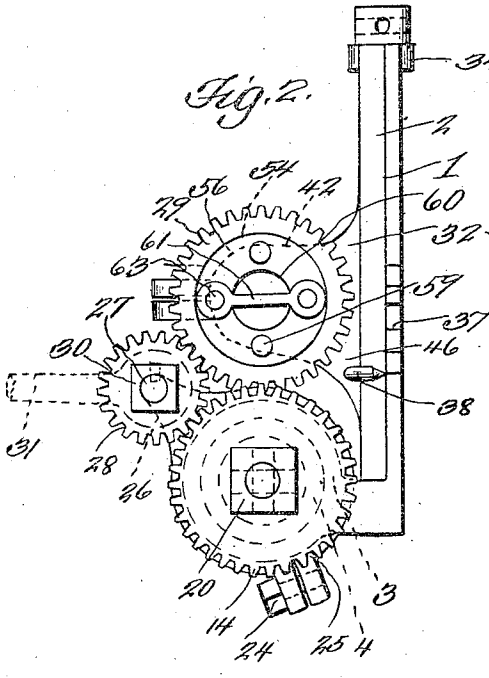


Fig. 3.

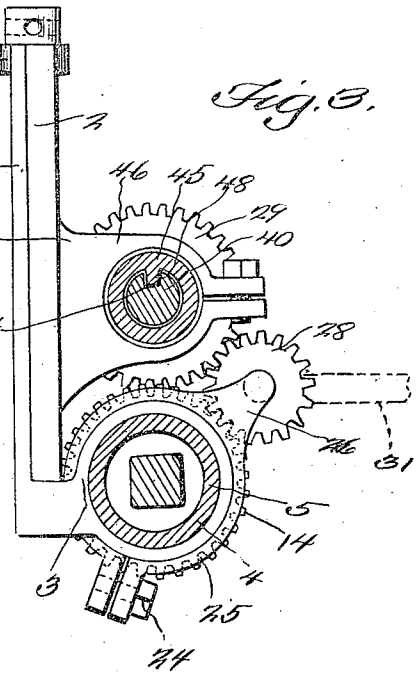
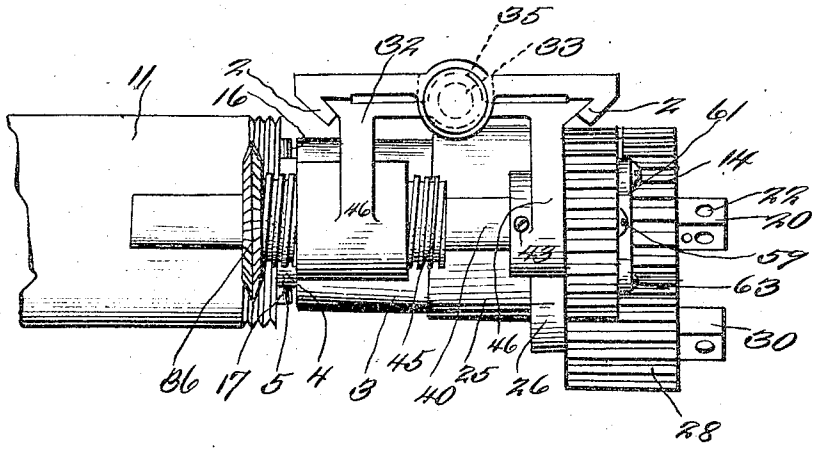


Fig. 4.



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3 SHEETS—SHEET 3.

Fig. 6.

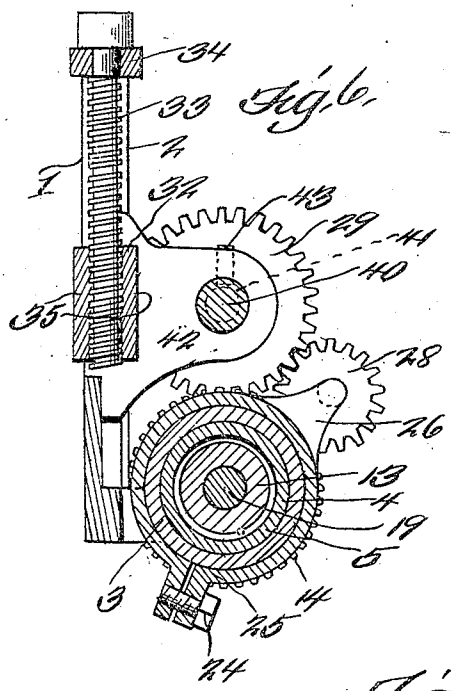


Fig. 7.

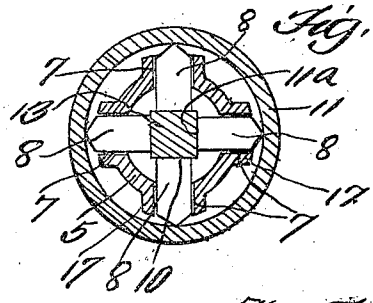


Fig. 8.

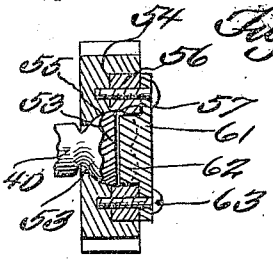


Fig. 9.

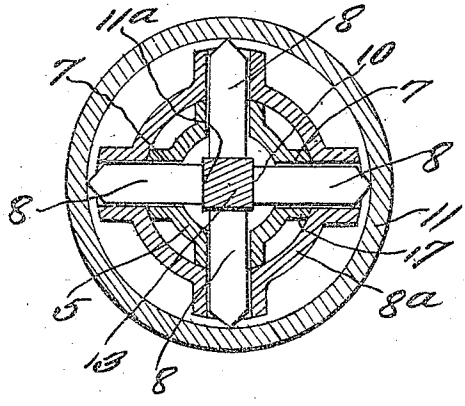
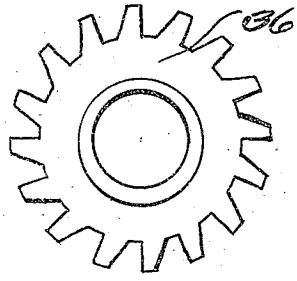


Fig. 10.



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UNITED STATES PATENT OFFICE.

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PIPE-THREADING MACHINE.

1,065,528. Specification of Letters Patent. Patented June 24, 1913.

Application filed March 17, 1913. Serial No. 754,887.

To all whom it may concern:

Be it known that I, JOHN C. HOLLAND, a citizen of the United States, residing at Henderson, in the county of Henderson and State of Kentucky, have invented a new and useful Pipe-Threading Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a new and useful pipe threading machine.

It is an object of the invention to provide a machine of this nature for chasing threads upon pipes of various diameters, for instance anywhere from one, and one and one-half inches in diameter to six inches in diameter, or to any suitable diameter over six inches.

Another object of the invention is to provide means for gradually and automatically feeding the thread cutting tool, upon each revolution of the machine about the circumference of the pipe.

Another object of the invention is to provide the machine with spreading jaw devices insertible in the pipe to clamp against its interior circumference to hold the machine to the pipe, there being a tubular member for the jaw devices, and about which tubular member the frame of the machine has a swiveled movement, in order that the thread cutting tool may chase a spiral thread on the pipe.

In practical fields it may be found necessary to subject the various details of construction of the apparatus to alterations, to which the patentee is entitled, provided the alterations fall within the scope of what is claimed.

The invention comprises further features and combination of parts, as hereinafter set forth, shown in the drawings and claimed.

In the drawings: Figure 1 is a view in side elevation, showing the application of the improved pipe threading machine. Fig. 2 is an end elevation. Fig. 3 is a sectional view on line 3—3 of Fig. 5 showing parts in elevation. Fig. 4 is a plan view. Fig. 5 is a vertical sectional view of Fig. 4 showing parts in elevation. Fig. 6 is a sectional view on line 6—6 of Fig. 1. Fig. 7 is a sectional view on line 7—7 of Fig. 5. Fig. 8 is a detail sectional view showing how a gear is attached to the feed rod to rotate therewith. Fig. 9 is a view showing the employment of an extra ring for longer jaw devices, in order to clamp a pipe of larger diameter than shown in Fig. 5. Fig. 10 is a detail view of the thread cutting tool.

Referring more especially to the drawings, 1 designates the frame having guide flanges 2, and provided with a cylindrical bearing sleeve 3, which is sleeved or telescoped upon the reduced portion 4 of the tubular member 5, which is provided with openings 6 and 7 for the reception of the jaw devices 8 and 9. These jaw devices are guided in the openings 6 and 7, and their inner ends are provided with beveled or inclined surfaces 10, with which the inclined surfaces 11^a and 12^a of the wedge 13 engage. When the wedge 13 is fed in the direction of the arrow *a*, the jaw devices 8 and 9 are forced outwardly against the interior circumference of the pipe 11 to be threaded, in order to clamp the tubular member 5 to the pipe which when being threaded is designed to be held firmly in a vise (not shown). Threaded or otherwise locked at 12 to the end 13^a of the tubular member 5 is a gear 14, between which and the shoulders 16, the bearing sleeve 3 is swiveled, so that the frame 1 may revolve around the tubular member. The shoulders 16 are formed by the provision of the radial parts 17 of the tubular member, which radial parts extend axially with the tubular member. Swiveled at 18 to the gear 14 is a screw 19 having a rectangular head 20. This screw 19 is threaded into the wedge, and by inserting a rod or other tool 21 through one of the holes 22 of the head 20, the screw 19 may be rotated, thereby feeding the wedge forwardly in order to cause the jaw devices to clamp against the interior circumference of the pipe 11.

A split sleeve is mounted upon the bearing sleeve having a cap screw 24 for drawing the split ends of the split sleeve 25 together, in order to clamp the split sleeve in annularly adjusted positions. The split sleeve 25 is provided with an arm 26 having a stud 27, on which is mounted a gear 28, adapted to mesh with the gears 14 and 29, regardless of the position the split sleeve assumes upon the bearing sleeve. The gear 28 is constructed with a rectangular head 30 to be engaged by a rectangular socket of a crank handle 31, whereby motion may be imparted to the gear 28 and thence to the gear 29, the

gear 28 traveling about the gear 14, while the frame 1 swivels about the tubular member 5.

A carriage 32 is mounted to be guided vertically between the guide flanges 2 of the frame 1, there being a screw 33 swiveled in bearings 34 of the frame 1 and threaded through an extension 35 of the carriage, whereby upon turning the screw 33 in one direction or the other, the carriage may be moved relatively to the frame 1, in order to bring the thread cutting tool 36 toward or from the pipe 11. The frame 1 is provided with graduations 37, indicating the various diameters of pipes that may be threaded, while the carriage 32 is provided with an indicator arm 38. If it is desired to thread or chase a thread upon a pipe two and one-half inches in diameter, the carriage, by manipulating the screw 33, may be adjusted to bring the indicator arm 38 opposite the graduation indicating the diameter of two and one-half inches, after which the split sleeve 25 may be adjusted, so that the gears 14, 28 and 29 all mesh, and subsequently the cap screw 24 is then tightened, thereby holding the parts as required.

A feed rod 40 having an annular groove 41 is swiveled in an arm 42 of the carriage by means of the pin 43 (which enters the groove 41). This feed rod is provided with a longitudinally extending groove 44, and extends through the feed screw 45 (which is threaded in the arm 46 of the carriage). The interior circumference of the feed screw has a lug 48 entering the longitudinally or axially extending groove 44, and as the feed rod 40 is rotated, the feed screw moves through the arm 46. Any suitable thread cutting or chasing tool 49, such as shown in Fig. 10 is connected to the feed screw by means of a left-hand threaded extension sleeve 50 of the tool. The feed screw and the tool are gradually and automatically fed forwardly all the while the frame 1 is revolving swivelly about the portion 4 of the tubular member 5, owing to the intermeshing gears 14, 28 and 29, and the feed rod 40.

The feed rod is formed with an enlarged head 52 having a transverse recess 53. Before the feed rod is inserted through the arm 42, it is first inserted through the gear 29 (one face of which is constructed with a recess 54) so that the head 52 of the rod will engage the recess 55 of the gear 29. The annular recess 54 receives a plate 56 having a recess 57 to receive the opposite portion of the head 52, thereby preventing longitudinal movement of the gear relative to the rod 40. The plate 56 is secured in place by the screws 59 and is formed with an opening 60. A plate 61 having a key flange 62 is secured to the plate 56 by the screws 63, which also enter the gear 29, thereby additionally securing the plate 56 in its recess 54. When the plate 61 is secured in place the key flange 62 enters the recess 53, thereby rendering the gear 29 revoluble with the feed rod 40.

The feed rod, it will be noted, is disposed slightly out of parallelism with the axial alinement of the tubular member 5, so that the thread cutting tool will cut a thread upon the pipe 11 on the proper incline; this is the essential reason for connecting the gear 29 in the feed rod, so that the feed rod will be permitted to have a slight universal movement relative to the gear 29.

The invention having been set forth, what is claimed as new and useful is:—

1. In a pipe threading machine, a tubular member adapted to be detachably clamped to a pipe and provided with a fixed gear at one end, a frame swiveled on the tubular member and provided with an adjustable carriage, means for adjusting the carriage toward and from the pipe in a radial direction, a feed screw mounted in one side of the carriage and provided with a cutting tool, a feed rod passing axially through the feed screw for operating the same and provided with a fixed gear at one end, said feed rod being swivelly mounted in the other side of the carriage, and an intermediate gear meshing with the first and second gear and carried by said frame.

2. In a pipe threading machine, a tubular member adapted to be detachably clamped to a pipe and provided with a fixed gear at one end, a frame swiveled on the tubular member and provided with an adjustable carriage, means for adjusting the carriage toward and from the pipe in a radial direction, a feed screw mounted in one side of the carriage and provided with a cutting tool, a feed rod passing axially through the feed screw for operating the same and provided with a fixed gear at one end, said feed rod being swivelly mounted in the other side of the carriage, and an intermediate gear meshing with the first and second gear, said frame having a bearing sleeve, a split sleeve adjustably clamped on the bearing sleeve, and upon which split sleeve the intermediate gear is mounted, and by the adjustment of the split sleeve the intermediate gear may be adjusted annularly in different positions, so that the second gear may be brought closer toward the first gear.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN C. HOLLAND.

Witnesses:
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