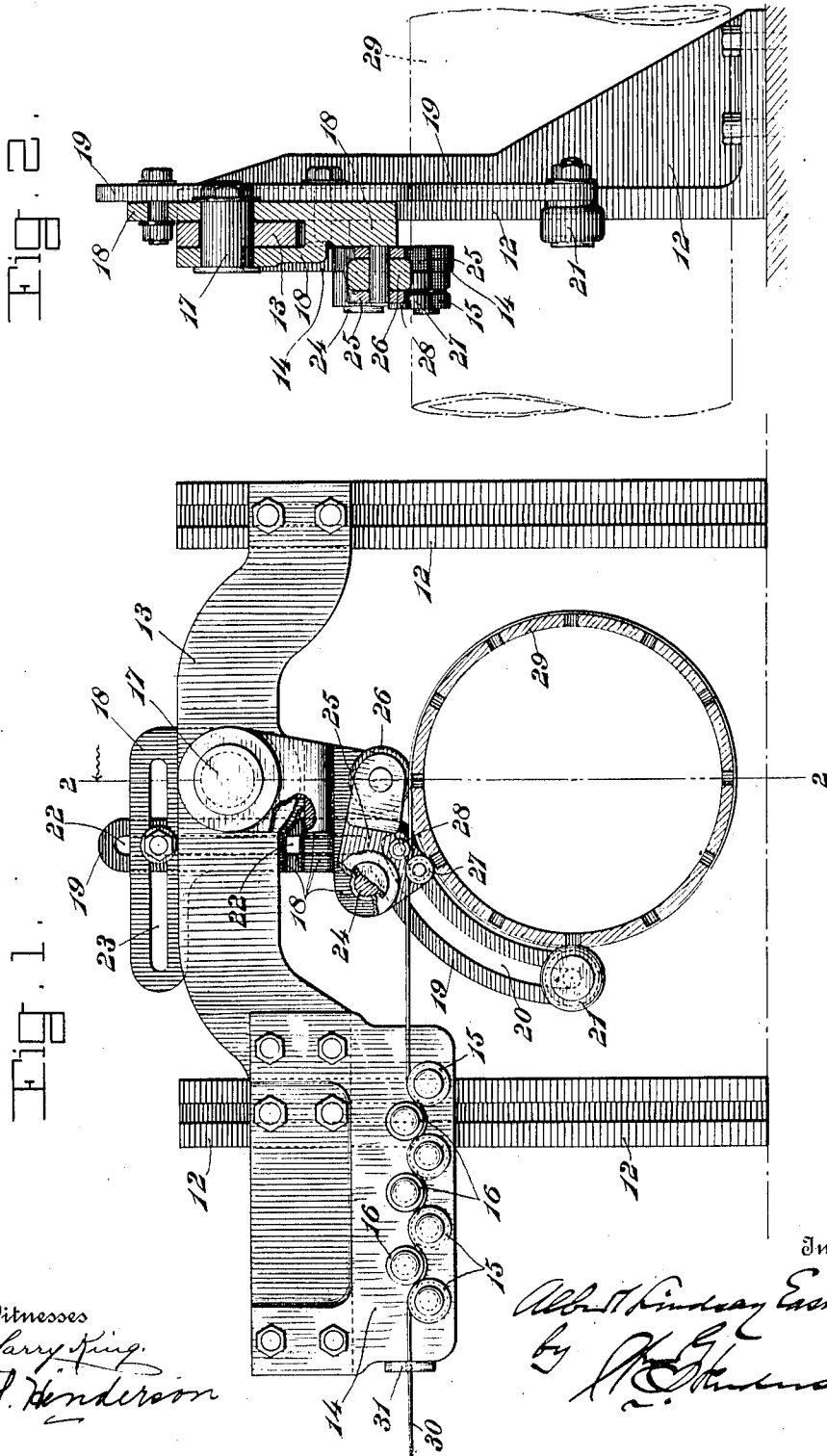


A. L. EASTHAM.
WIRE WINDING MACHINE.
APPLICATION FILED SEPT. 5, 1911.

1,035,867.

Patented Aug. 20, 1912.



Witnesses
Harry King
S. J. Henderson

Inventor
Albert Lindsay Eastham,
by *[Signature]*
Attorney

UNITED STATES PATENT OFFICE.

ALBERT LINDSAY EASTHAM, OF BEAUMONT, TEXAS, ASSIGNOR TO JAMES A. WIGGS,
OF CHATTANOOGA, TENNESSEE.

WIRE-WINDING MACHINE.

1,035,867.

Specification of Letters Patent.

Patented Aug. 20, 1912.

Application filed September 5, 1911. Serial No. 647,538.

To all whom it may concern:

Be it known that I, ALBERT LINDSAY EASTHAM, a citizen of the United States, residing at Beaumont, in the county of Jefferson and State of Texas, have invented certain new and useful Improvements in Wire-Winding Machines; and I do 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an improved machine for use in winding wire around perforated pipes in making well screens or strainers, such as are used in oil wells or Artesian water wells. These screens or strainers serve to exclude sand, or other foreign materials, from the liquids to flow or to be pumped from the wells, and it is therefore necessary that the convolutions of wire should be laid on the perforated pipes with exactness. The perforated pipes which are used in the formation of these screens or strainers are usually of considerable length, and are also usually of wrought steel. As they are always more or less crooked or uneven they will wobble more or less as they are rotated in the lathe for the winding operation, and it is therefore necessary that the wire-presenting and holding device should be of such a character that it may move freely, in different planes, so that it may accommodate itself to the irregularities or wobbling movements of the crooked or uneven pipes.

In carrying the present invention into effect the wire guiding device comprises certain guiding rollers or devices which are carried by pivoted parts so that the guiding devices will be free to vibrate or oscillate in different planes, and thus accommodate themselves to the irregularities in the pipes.

In the accompanying drawings Figure 1 is a side view of a preferred form of the present invention, with the perforated pipe being wound represented in cross section. Fig. 2 is a cross section of the improved wire

winding device on line 2—2, looking in the direction of the arrows adjacent to said line.

Referring to the drawings, 12 denotes standards which are to be secured to the lathe carriage which will, in practice, be fed along, to space the turns or convolutions of the wire, by the usual lathe feed screw. Bolted to the standards 12, in such a manner that it may be adjusted vertically on said standards, is a bar or plate 13 to which is rigidly secured an offset plate 14 carrying a series of wire guiding tension rollers 15, 16. The lower rollers 15 are preferably grooved, and the upper rollers 16 plain.

Pivotally secured to the bar or plate 13, by means of a fulcrum stud 17, is an oscillating block or plate 18 to the rear side of which, as the parts are represented in Fig. 1, is adjustably attached an arm or bar 19 having a curved lower end which is provided with a curved slot 20. On the said curved lower end of the arm or bar 19 is mounted a roller 21 which may be adjusted to different positions on the said arm, by virtue of the said curved slot 20; and the said arm or bar 19 may be adjusted to different vertical positions relative to the said block or plate 18 by virtue of the slot 22 with which the straight upper part of said arm or bar 19 is provided. Also the slot 23 in the plate or block 18 permits the upper end of said arm or bar 19 to be adjusted lengthwise of said slot; and furthermore permits it to be tilted to various positions, for a purpose which will be hereinafter explained.

Pivotally mounted on the plate or block 18, by means of the stud 24, is an oscillation plate or block 25 carrying at its free end a guiding roller 26; and mounted on the lower part of the said oscillating plate or block 25 are two wire guiding rollers 27 and 28. The roller 27 is preferably provided with a wire guiding groove in its periphery, as more clearly shown in Fig. 2, and the roller 28 is or may be a plain roller.

From the foregoing it will be understood that the plate or block 18, with which is connected the steadying roller 21, will be free to oscillate or swing on its fulcrum stud

- 17; while the plate or block 25, mounted on the fulcrum stud 24 supported by the said plate or block 18, will be free to vibrate vertically or up and down, these different movements of the parts permitting the wire guiding devices to accommodate themselves to the irregularities of a rotating perforated pipe, as 29, on which the wire is being wound in closely spaced convolutions.
- 10 In the operation of this wire winding machine the wire 30 passes through a tension block 31 to the guiding tension rollers 15 and 16, and thence to the guiding rollers 27, 28 and 26, which present it in proper position to the rotating pipe 29; and as the wire winding device is fed along by the usual feed screw of the lathe the wire will be laid upon the perforated pipe in closely spaced convolutions, as hereinbefore stated.
- 20 In the use of the machine for winding pipes of different sizes or diameters certain adjustments of the parts will be necessary, in order to accommodate such different sized pipes. This is provided for by the adjustable arm or bar 19 and the adjustable mounting of the roller 21 therein, as the said roller may be moved to different vertical positions on the lower portion of said arm or bar by virtue of the curved slot 20 in the lower part thereof; and the said arm or bar may be adjusted to different vertical positions, by virtue of the slot 22 in the upper part thereof; or the said arm or bar may be tilted to various positions, as hereinbefore indicated, by virtue of the said slot 22 therein and the slot 23 in the block or plate 18.

Having thus described my invention I claim and desire to secure by Letters Patent:

- 40 1. In a wire winding machine, the combination with a fixed support or frame adapted to be mounted on or secured to the carriage of a lathe, of a block or plate pivotally mounted on said support or frame, so that it will be free to vibrate or oscillate thereon, a second block or plate pivotally mounted on the first-named block or plate, so that it will be free to vibrate or oscillate up and down, wire guiding devices carried by the last named block or plate, and suitable guiding and tension devices through which the wire passes to the said wire guiding devices.
- 55 2. In a wire winding machine, the combination with a fixed support or frame adapted to be mounted on or secured to the carriage of a lathe, of a block or plate pivotally mounted on said support or frame, so that it will be free to vibrate or oscillate thereon, a second block or plate pivotally mounted on the first-named block or plate, so that it will be free to vibrate or oscillate up and down, wire guiding devices carried by the last named block or plate, and suitable guiding

and tension devices through which the wire passes to the said wire guiding devices, said first-named plate being provided with an arm or bar carrying an adjustably mounted guiding roller to bear against the side of the pipe being wound.

3. In a wire winding machine the combination with a support or frame adapted to be mounted on or secured to the carriage of a lathe, of a member pivotally mounted on said support or frame and carrying wire guiding devices free to rise and fall, and an arm or bar adjustable vertically and laterally relatively to said pivotally mounted member and carrying a guiding device to bear against the side of the pipe being wound.

4. In a wire winding machine the combination with a support or frame adapted to be mounted on or secured to the carriage of a lathe, of a member oscillatingly mounted on said support or frame and carrying wire guiding devices free to rise and fall, and an arm or bar connected with said oscillatingly mounted member to be adjustable in two directions relatively thereto and having its lower portion deflected and carrying a guiding device to bear against the side of the pipe being wound, said deflected portion being slotted for adjustment of said guiding device therein.

5. In a wire-winding apparatus for forming screens or strainers by winding spaced turns of wire on a rotating perforated pipe, the combination with a fixed horizontal support, as bar 13, of a two-part wire-guiding carriage the parts of which are movable independently of each other and one of which parts is free to move in a direction transverse to the axis of the pipe being wound and adapted to bear against one side of the pipe, and the other part of which is free to move vertically relative to said first-named part, and a wire-guiding device mounted on said carriage.

6. In a wire-winding apparatus for forming screens or strainers by winding spaced turns of wire on a rotating perforated pipe, the combination with a fixed horizontal support, as bar 13, of a two-part wire-guiding carriage both parts of which are carried by said support, one part of the carriage being arranged to bear against the side of the pipe being wound and having a vertical lateral adjustment relative to said support and free to move in a direction transverse to the pipe, and the other part of the carriage free to move vertically relative to the first-named part, and a wire-winding device mounted on said carriage.

7. In a wire guiding apparatus for forming screens or strainers by winding spaced turns of wire on a rotating perforated pipe, the combination with a fixed horizontal sup-

port of a two-part wire-guiding carriage
one part of which is free for lateral move-
ment on said support in a direction trans-
verse to the coil being laid, and the other
5 part of which is free to move vertically rela-
tive to said first-named part, and a wire-
guiding device mounted on said carriage.

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

ALBERT LINDSAY EASTHAM.

Witnesses:

NELLIE LIDSTONE MACNAMARA,
JOHN M. COOLEY.