No. 703,126. Patented June 24, 1902.

# R. E. FOWLER.

## METAL WIRE WINDING DEVICE.

(Application filed Aug. 10, 1900.)

(No Model.) 2 Sheets—Sheet 1.

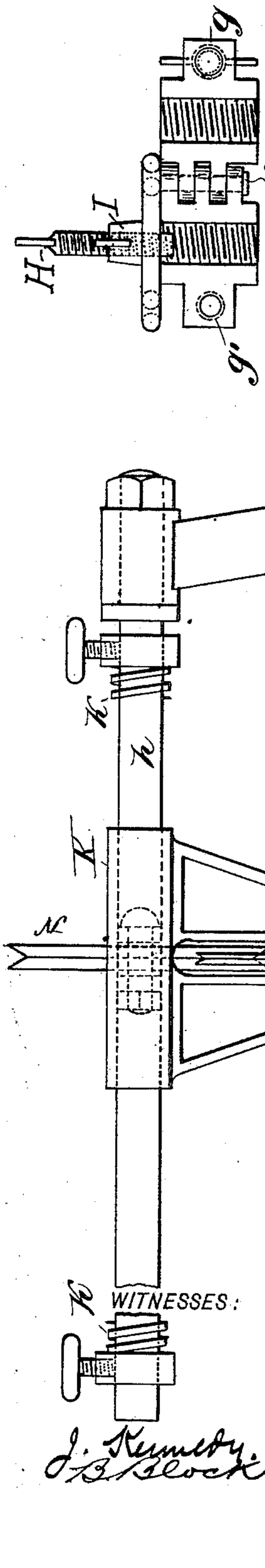

Fig. 3.

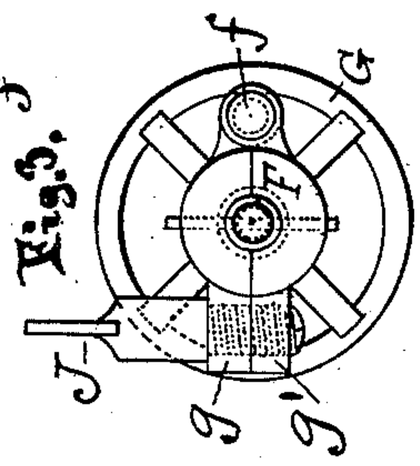

Fig. 4.

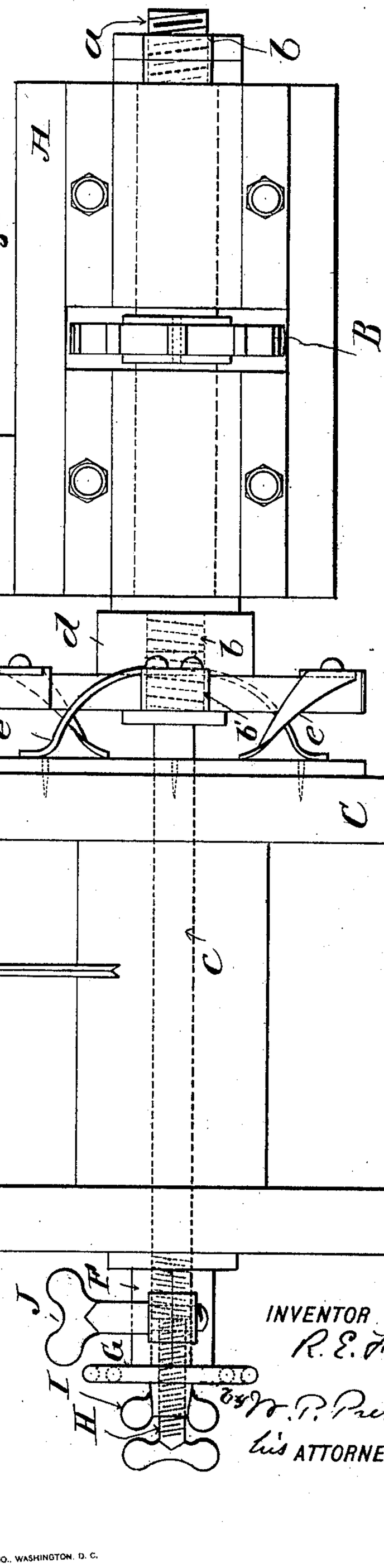

Fig. 1.

WITNESSES:

J. Kemeby.

F. B. Block.

INVENTOR

R. E. Fowler

by W. P. Preble Jr

his ATTORNEY

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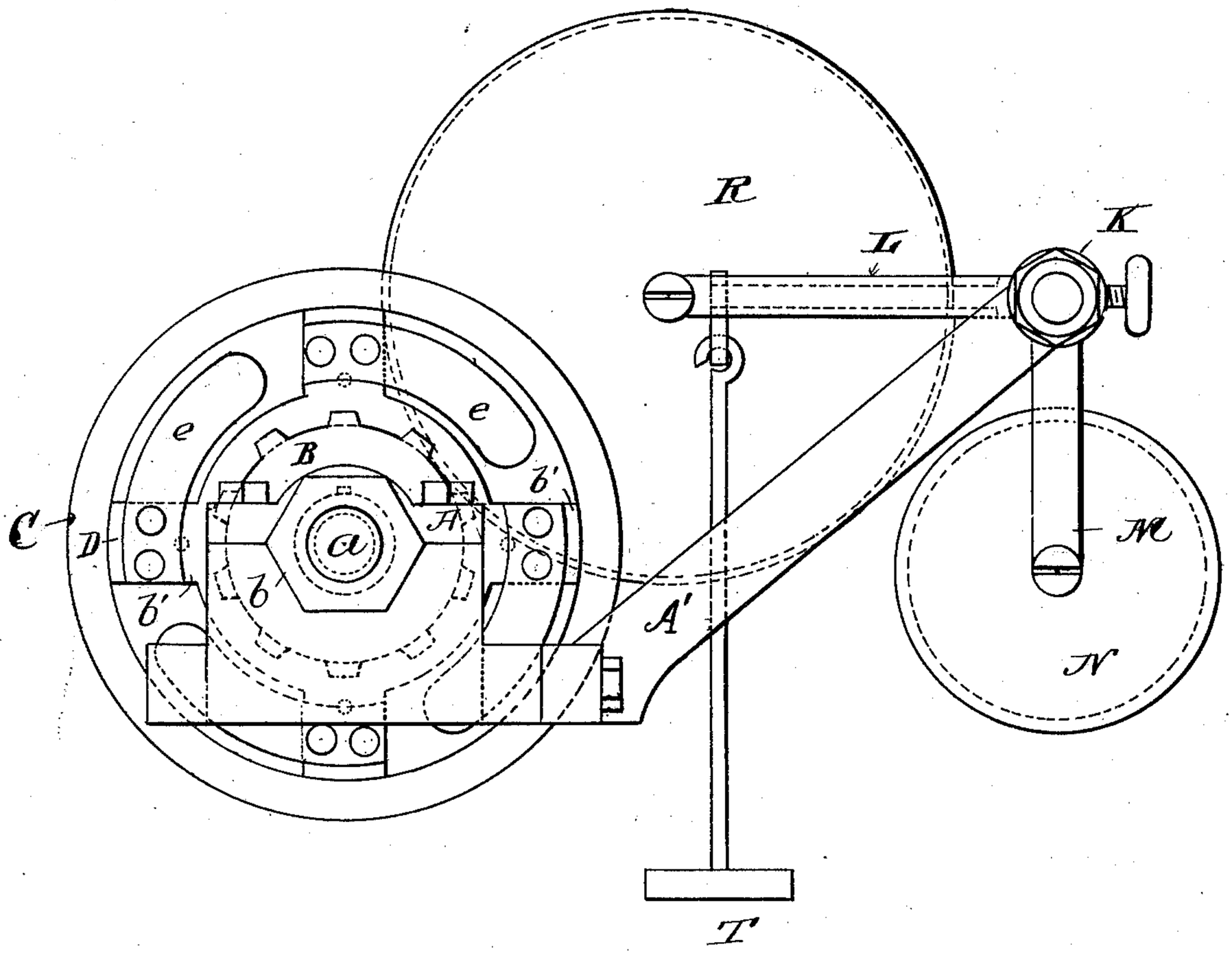


Fig. 2.

WITNESSES:
J. Kennedy.
B. Block

INVENTOR
R. E. Fowler
BY
W. P. Preble Jr
his ATTORNEY

# UNITED STATES PATENT OFFICE.

RICHARD E. FOWLER, OF NEW YORK, N. Y.

## METAL-WIRE-WINDING DEVICE.

SPECIFICATION forming part of Letters Patent No. 703,126, dated June 24, 1902.

Application filed August 10, 1900. Serial No. 26,457. (No model.)

*To all whom it may concern:*

Be it known that I, RICHARD E. FOWLER, a citizen of the United States, residing at 415 Quincy street, Brooklyn borough, New York city, in the State of New York, have invented certain new and useful Improvements in Metal-Wire-Winding Devices, of which the following is a specification.

The object of my invention is to provide a wire-winding device of simple construction which is adapted to take up covered or uncovered wire as fast as the same is manufactured and wind it uniformly upon a suitable bobbin, the device automatically adapting itself to variations in the speed of manufacture or of feeding the wire and to differences in the gage in the wire. My improved device dispenses with feeding devices and guides and causes the wire both to guide itself to the proper position on the bobbin and to feed itself uniformly along the length of the bobbin.

While more particularly intended for receiving and winding wire during the process of manufacture by the machine to which it is for that purpose attached, my improved device can also be used for rewinding or for winding loose wire, if desired.

One form of my improved device is shown in the accompanying drawings, it being understood that while I have illustrated but one specimen of the device I intend to use simultaneously in connection with any wire-producing machine as many duplicates of the device shown as will be necessary to take up and wind the different wires made simultaneously thereby.

Figure 1 is a top plan. Fig. 2 is an end view. Figs. 3 and 4 are details of the adjusting and releasing nut.

Same letters indicate similar parts in the different figures.

A is the journal-box or frame, in which the driving-shaft *a* is journaled. This frame is mounted on any suitable stationary bed or support, (not shown,) and revolution is imparted to said shaft from a source of power not shown. The shaft is preferably provided with a sprocket B, by means of which rotation is transmitted to a duplicate apparatus, if desired. The shaft *a* is threaded at one or both ends, as shown at *b*, to enable it to be connected up to the bobbin-shaft *c*, which carries the bobbin C, on which the wire is to be wound.

D is a tension-plate, the hub *d* of which is screw-threaded onto the shaft *a* and turns with it. This tension-plate carries the tension-springs *e e*, the free ends of which bear against the disk E, loosely mounted on the bobbin-shaft *c* and against which the bobbin C is pressed by the adjusting and releasing nut, as hereinafter explained. If desired, this plate or disk E may be temporarily secured to the end of the bobbin by spurs, as shown in dotted lines in Fig. 1, projecting from the face of the disk. The object of this would be to allow the disk to be removed from the device with the bobbin, which is generally of wood, and then be fastened to a fresh bobbin before inserting in the apparatus. This bobbin-shaft *c* is preferably screw-threaded into the plate D, as shown at *b'*, and is supported and rotated thereby, as shown.

The proper tension, as well as the ready removal and replacing of the bobbin, is secured by the adjusting and releasing nut F, which is shown in detail in Figs. 3 and 4 and which is preferably constructed as follows: The nut is shown open in Fig. 3 and closed in Fig. 4 and is screw-threaded upon the bobbin-shaft *c*. On the outer end of the nut is the hand-wheel G, by means of which the nut is moved along the shaft *c* to bring the desired pressure upon the bobbin by forcing the latter against the tension-springs *e e*, above described. This tension is determined according to the character of the wire to be wound, and after the nut is turned into the required position this position is marked by turning the thumb-screw H, which is threaded into the nut, until its end presses against the outer end of the shaft *c*. The jam-nut I is provided to fix the thumb-screw H in its proper marking position. The nut F is preferably made in two parts hinged together, as shown in Fig. 3, by the hinge-bolt *f* and is provided with the thumb-screw J, which passing through the perforated lug *g* of the upper part of the adjusting-nut engages with the threaded lug *g'* on the lower half of the adjusting and releasing nut. It is obvious that by this construction the nut F can be readily removed and replaced upon the bobbin-shaft without altering the adjustment of the nut, thereby

greatly facilitating the removal of the full bobbin and the insertion of an empty one.

The wire is brought to the bobbin from the main machine or other source of supply, and its proper action during the process of winding is controlled by the carrier about to be described.

The carrier-supporting arm A′ is secured to the frame A or other stationary support and carries journaled on its outer end the carrier-shaft *h*. The carrier proper consists of a sleeve K, loose upon the shaft *h* and provided with a horizontal arm L (see Fig. 2) and a vertical arm M. The latter arm preferably carries a grooved pulley N, under which the wire passes as fed toward the bobbin. The horizontal arm carries the pressure-roller R, in the groove of which the wire rests as it is drawn on the bobbin, the function of said roller being to hold the wire firmly against the bobbin as it is wound up. From the free end of the horizontal arm L depend suitable weights T, which may be varied according to the pressure desired to be exerted by the roller R.

It will be understood that as the carrier is free to slip along the shaft *h* when any tendency thereto exists, the side pressure exerted by the wire itself upon winding upon the bobbin will automatically move the carrier back and forth lengthwise of the bobbin for each layer of wire wound. As a precaution against any tendency on the part of the wire to climb upon itself at the ends of the bobbin before beginning the return-path I provide the springs *k k* at such points on the shaft *h* as will correspond to the proper ends of the winding-path, so that their pressure may aid the wire in winding back and forth on the bobbin without tendency to climb. The position of these springs is of course made adjustable to accommodate different lengths of bobbin.

I claim—

1. A metal-wire-winding device which consists of a suitable bobbin with means for rotating the same under proper tension and a carrier which consists of a sleeve loose upon a shaft, a horizontal arm for said carrier, a roller carried thereby and pressing upon the wire as laid on the bobbin, a vertical arm and a grooved pulley carried thereby; said carrier being adapted to supply wire to the bobbin and to be automatically operated by the side pressure of the wire during the winding process substantially as described.

2. The above-described carrier for metal-wire-winding machines which consists of a sleeve loosely mounted upon a shaft and provided with a horizontal arm, a pressure-roller carried thereby and means substantially as described, whereby said pressure-roller is kept in contact with the wire and holds the same down upon the bobbin during the winding process.

RICHARD E. FOWLER.

Witnesses:
W. P. PREBLE, Jr.,
J. KENNEDY.