(No Model.)

F. PURDY.

MACHINE FOR WINDING METAL STRIPS.

No. 553,935. Patented Feb. 4, 1896.

FIG. 1.

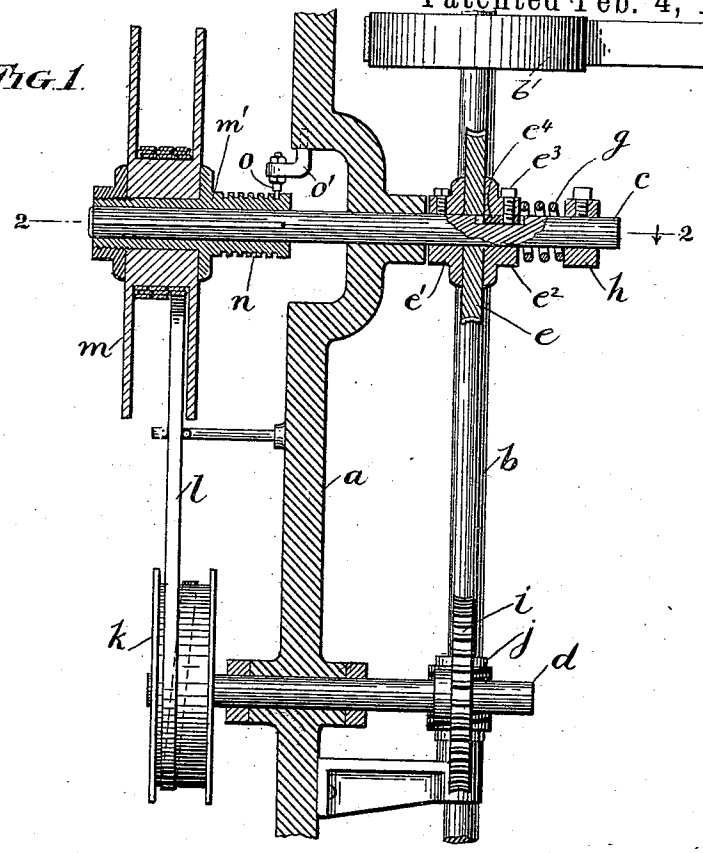
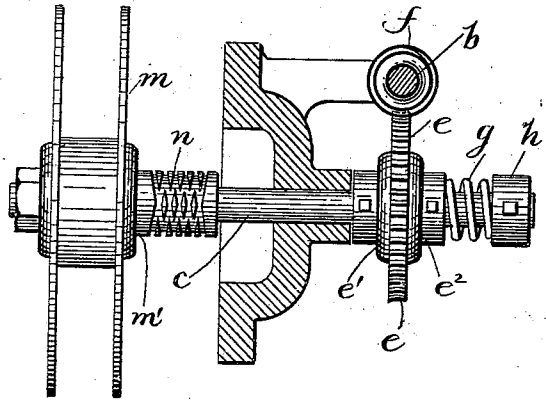


FIG. 2.



Witnesses:
J. Halpenny
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UNITED STATES PATENT OFFICE.

FRED PURDY, OF CHICAGO, ILLINOIS.

MACHINE FOR WINDING METAL STRIPS.

SPECIFICATION forming part of Letters Patent No. 553,935, dated February 4, 1896.

Application filed November 20, 1894. Serial No. 529,422. (No model.)

To all whom it may concern:

Be it known that I, FRED PURDY, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Winding Metal Strips, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in which corresponding letters of reference in both figures indicate like parts.

The object of my invention is to so construct a winding-machine for winding sheet-metal strips or wire during the time the same is undergoing an operation—such, for example, as polishing or winding—that the spool may conform in speed of rotation to the speed of the wire or strip fed thereto, while at the same time a lateral movement may be automatically imparted either to the spool or wire, so as to uniformly distribute the wire upon the spool, said automatic movement being controlled by and caused to conform to the variable speed of the winding-spool.

To these ends my invention consists in the combination of elements hereinafter more particularly described and claimed.

In the drawings, Figure 1 is a plan view, partly in section, of my improved winding-machine; and Fig. 2 is a view taken upon the line 2 2, Fig. 1, viewed in the direction of the arrow there shown.

Referring to the drawings, *a* represents the frame of my improved winding-machine, in which is secured in suitable bearings a driving-shaft *b*, having a driving-pulley *b'* thereon. Shafts *c d*, respectively, are also mounted in proper bearings in said framework at right angles to the driving-shaft. The shaft *c* is the spool-shaft, and is driven by means of a worm-gear *e*, which is adjusted to engage with a worm *f*, Fig. 2, upon the main driving-shaft. The worm-gear *e* is mounted loosely upon the shaft *c* and abuts against a rigid collar *e'*, which is secured to the shaft by means of a set-screw, as shown. A similar collar e^2 is loosely mounted upon said shaft, but caused to rotate therewith by means of a set-screw e^3, which projects loosely into a slot e^4 in the shaft. The collar, therefore, is adapted to be moved longitudinally upon the shaft while it is caused to rotate therewith. A spiral spring *g* is interposed between the collar e^2 and a collar *h*, which is rigidly attached to the shaft. It will thus be seen that the worm-gear *e* is held by frictional contact between the two collars *e'* e^2 and is free to slip whenever the resistance of the shaft *c* is greater than the friction of said collars.

The shaft *d* is driven by means of a worm-gear *i*, which is rigidly mounted thereon and is in engagement with a worm *j*, which is, in turn, rigidly attached to the shaft *b*. A drum *k* is secured rigidly to the shaft *d*, around which the strip *l*, of metal, is wound for the purpose of being drawn through a muffle in the process of tempering, or an edging, polishing, or other machine in the process of finishing. From the drum *k* the strip is wound upon a spool *m*, the hub *m'* of which is preferably splined upon the shaft *c*, so as to cause the spool to rotate therewith while it is free to be moved longitudinally thereon.

The hub of the spool *m* is elongated and the extended portion thereof is provided with right and left handed spiral grooves *n*, into which is projected a pin *o*, Fig. 1, which is attached to a rigid arm *o'*, secured to the frame, said pin having the usual reversing-wing to engage the groove. It is obvious, therefore, that as the shaft *c* is rotated the spool *m* is caused to reciprocate laterally in proportion to the speed of the spool, thus causing the strip *l* to be evenly distributed thereon.

It will be observed that the speed of the spool *m* is variable, the same decreasing in proportion as the coil thereon enlarges. This variation is permitted by means of the friction-collar which engages the worm-gear *e*.

The variable speed imparted to the winding-spool enables the strip or wire to undergo any contemporaneous operation desired—such, for example, as the tempering or finishing of the metal strip or otherwise. It is especially applicable to wire in the process of winding or covering for insulating or other purposes, and avoids the necessity of a separate operation after the process of tempering, finishing, or covering is completed. Moreover, the lateral movement of the spool enables longer strips to be used than can be employed where the spool is only the width of the strip, as has been the case heretofore.

Having thus described my invention, I claim—

In a machine of the class described, the combination of a feeding-drum and winding-spool mounted upon separate shafts, a driving-shaft, a source of power, means for positively connecting said driving-shaft with said feeding-drum shaft, means for connecting the same with said spool-winding shaft by frictional contact and a grooved hub upon said winding-spool in operative connection with a shifting device for imparting a reciprocatory lateral movement thereto as the spool is rotated, substantially as described.

In testimony whereof I have signed this specification, in the presence of two subscribing witnesses, this 12th day of September, 1894.

FRED PURDY.

Witnesses:
D. H. FLETCHER,
EDWARD F. HASLER.