No. 617,704. Patented Jan. 17, 1899.

U. D. ALEXANDER.

WIRE HANDLE FORMING MACHINE.

(Application filed May 25, 1898.)

(No Model.)

Fig. 8.

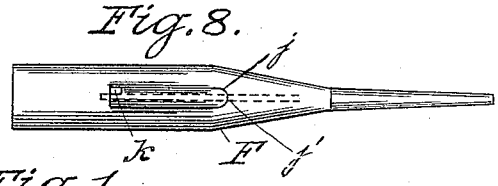


Fig. 1.

Fig. 9.

Fig. 7.

Fig. 2.

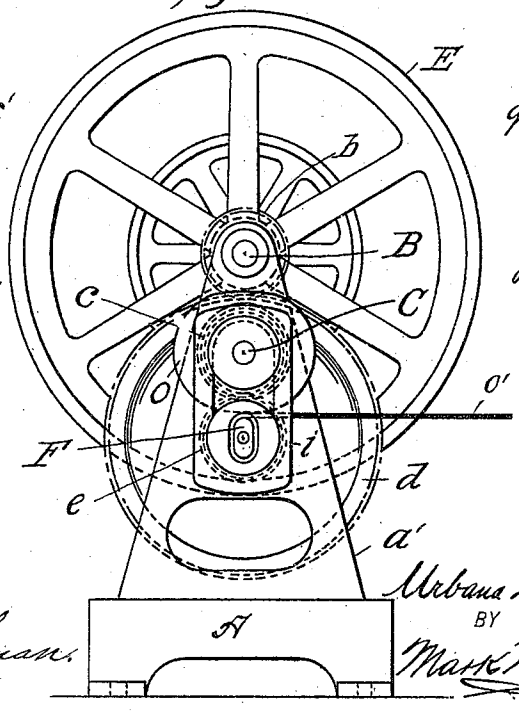


Fig. 3.

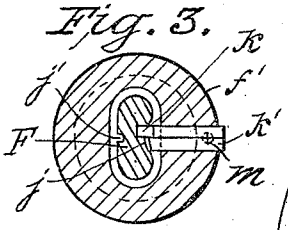


Fig. 4.

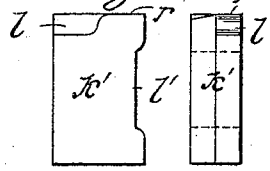


Fig. 5.

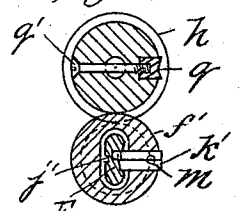
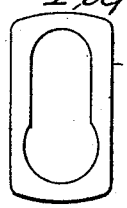


Fig. 6.



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URBANA D. ALEXANDER, OF CANNONSBURG, PENNSYLVANIA.

WIRE-HANDLE-FORMING MACHINE.

SPECIFICATION forming part of Letters Patent No. 617,704, dated January 17, 1899.

Application filed May 25, 1898. Serial No. 681,676. (No model.)

To all whom it may concern:

Be it known that I, URBANA D. ALEXANDER, a citizen of the United States, residing at Cannonsburg, in the county of Washington and State of Pennsylvania, have invented certain new and useful Improvements in Wire-Handle-Forming Machines; 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.

My invention relates to improvements in wire-handle-forming machines; and its objects are, first, to provide a machine which is adapted to form wire-handles from a continuous coil or length of wire and deliver them very rapidly and in a condition ready to be affixed to the articles for which they are adapted, and, secondly, to provide a machine which is simple in construction and positive in its working, requiring little or no attention during its operation other than to start and stop it.

The invention consists in certain novel features and details of construction, as will be more fully described hereinafter, and finally pointed out in the claim.

In the drawings, Figure 1 is a front elevation of a machine embodying my invention or improvements. Fig. 2 is an end elevation of the same. Fig. 3 is a transverse sectional view of the forming-spindle and sleeve, also showing the cutters. Fig. 4 is a side and an edge view of the cutters removed. Fig. 5 is a transverse sectional view taken on line 1 1 of Fig. 1. Fig. 6 is a side elevation in detail of the stirrup employed for preventing the shafts from springing or spreading apart. Fig. 7 is a view of a finished handle as made on my improved handle-forming machine. Fig. 8 is a plan view of the forming-spindle, showing the recess and groove on the opposite side in dotted lines; and Fig. 9 is a side elevation of the follower removed.

Similar letters of reference indicate corresponding parts in the different figures.

A represents the base of the machine, upon which are secured suitable housings or pillow-blocks *a* and *a'*, into which are journaled the main driving and auxiliary shafts B, C, and D. These shafts are geared each with the other by means of the pinions and gear *b*, *c*, *d*, and *e*. Secured on one end of the shaft B is a suitable fly or balance wheel E and a stationary pulley and an idler. The auxiliary shafts C and D carry the handle-forming mechanism, which is constructed as follows:

On or to the shaft D is secured a collar *f*, which may be cast or formed integral therewith. This collar is provided with a recess into which is secured the end of the forming-spindle F. Over this spindle is placed a sleeve *f'*, which is prevented from slipping out of place by the shoulder *g* and flange *h*. It is also prevented from dropping out of engagement with the flange (when not in use) by the stirrup *i*. The forming-spindle is of a configuration shown in Figs. 3 and 8, being obtuse elliptical and having a recess *j* on one side and a groove *j'* on the opposite side. Into the recess *j* is secured a cutter *k*, which works in conjunction with a cutter *k'* in the sleeve *f'*. The cutter *k'* may be formed, as shown, in two parts, or it may be made in one part. It is recessed, as shown at *l*, to prevent that part from engaging with the cutter *k*. It is also recessed on the back at *l'*, where it is engaged by a screw *m* for preventing it from dropping out of place when the parts are revolving. The outer end of the forming-spindle is tapered, as shown, for the purpose of readily delivering the handles therefrom.

Secured to the shaft C is a collar or shoulder *n*, to which is secured a follower *o*, preferably by means of dowel-pins. This follower is provided for the purpose of pressing the wire *o'* down closely against the forming-spindle F during the operation of forming the handles.

The follower *o* is elliptical in contour for the purpose of forming the wire closely upon the spindle and also preventing it from recoiling upon itself. By preventing the recoil of the wire it is forced off the outer end of the spindle as each revolution of the spindle winds the wire thereon from the inner end of same and is crowded off therefrom by the follower in preventing the recoil.

The dowel-pins above referred to pass entirely through the follower *o* and engage with the part *p*, which is formed with a flange *h* and terminates in an extension *p'*, which is provided for receiving the stirrup *i*. Work-

ing in the part p is an adjustable block q, which is operated by a set-screw q', the purpose of this block being to depress the cutter k when it comes in contact therewith.

The object of the cutters k and k' is to cut the wire off after it has been formed into the shape of a handle. Thus it will be seen that a handle is completely finished and delivered at every revolution of the machine.

Sufficient space is left in the sleeve f, between it and the forming-spindle F, to allow the handles to pass through and off the end of the spindle. This sleeve also serves to hold the wire in close proximity with the spindle during the process of forming the same into handles.

The particular object of the recess j in the spindle F is to allow the ends of the handle to be depressed therein after the cutting operation has taken place. The depression is caused by the shoulder r of the cutter k'.

The operation of my improved machine is as follows: The end of a wire from a continuous coil or length is inserted into the groove j of the spindle F and the machine started, which causes the wire to be wound around the spindle, which after a few coils thereon carries the wire into contact with the cutters k and k', which severs said wire, completing the formation of a handle at each and every revolution and delivering it at the end of the spindle.

The output of handles is very great, as the machine is capable of being run at a high rate of speed.

Having described my invention, what I claim is—

A wire-handle-forming machine, consisting of a spindle, a follower in connection with said spindle which is adapted to engage with the wire on said spindle for winding the same thereon and crowding it therefrom, and a sleeve for holding the wire in position, together with suitable cutters for severing the wire after it has been formed into handles, substantially as shown and described.

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