(No Model.)

C. H. HARD.

WIRE COILER.

No. 554,929. Patented Feb. 18, 1896.

Fig. 1

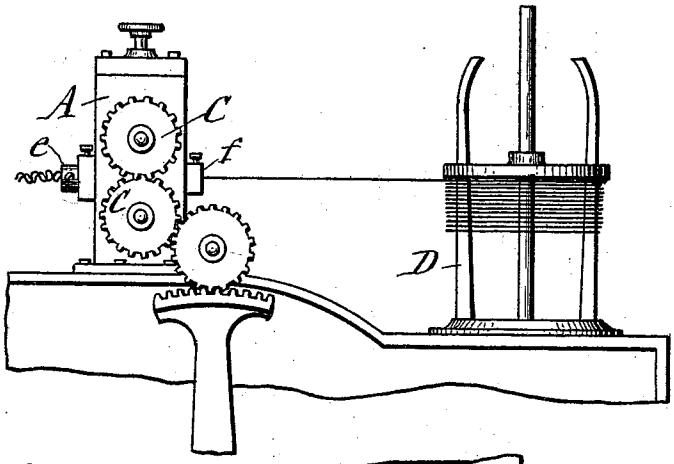
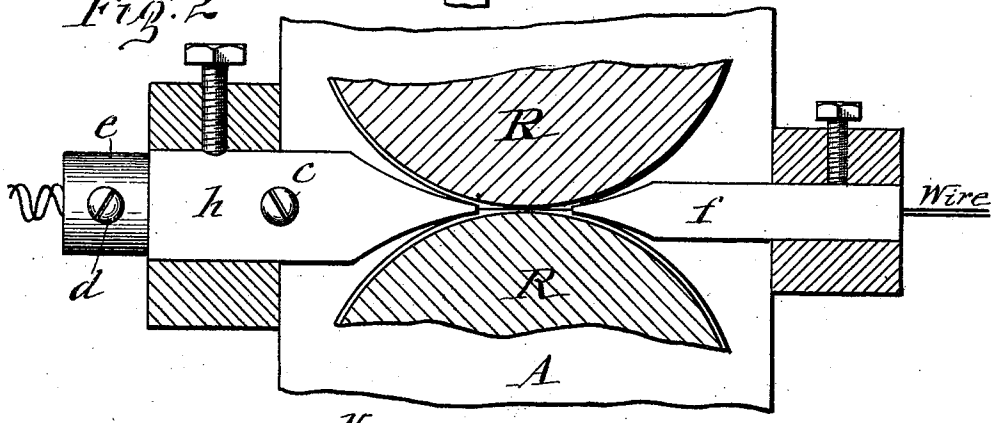


Fig. 2



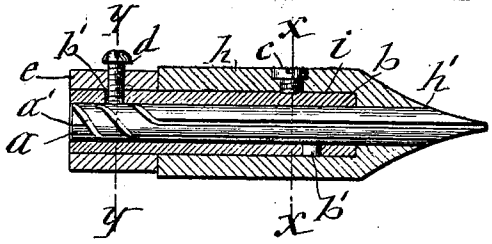


Fig. 3

Fig. 5

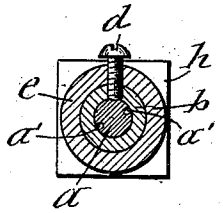
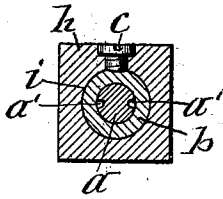


Fig. 4



WITNESSES:

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UNITED STATES PATENT OFFICE.

CHARLES H. HARD, OF ONEIDA, NEW YORK, ASSIGNOR TO THE HARD MANUFACTURING COMPANY, OF SAME PLACE.

WIRE-COILER.

SPECIFICATION forming part of Letters Patent No. 554,929, dated February 18, 1896.

Application filed November 16, 1895. Serial No. 569,173. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HARD, of Oneida, in the county of Madison, in the State of New York, have invented new and useful Improvements in Wire-Coilers, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to the class of wire-coilers which are employed in machines for weaving wire mattresses.

In the operation of said machines it is found that the holder of the coiling-mandrel requires frequent repairs or removal owing to the wear and abrasion of the interior of said holder by frictional contact with the wire during the process of coiling the same, and thus causes considerable loss of time and incurs frequent expense.

The object of this invention is to obviate said defects; and to that end the invention consists, essentially, in the combination, with the coiling-arbor and its holder, of a sleeve or bushing interposed between said parts to receive the wear from the wire in process of being coiled; and the invention also consists in a novel construction of its component parts, which are adjustable in relation to each other, so as to greatly prolong the life of the aforesaid sleeve or bushing, all as hereinafter fully described, and specifically set forth in the claims.

In the annexed drawings, Figure 1 is a side elevation of that part of a wire-coiling machine to which my invention pertains. Fig. 2 is an enlarged side view of the wire-coiler with parts of the feed-rollers which force the wire through the coiler. Fig. 3 is an enlarged detached longitudinal section of wire-coiler embodying my invention, and Figs. 4 and 5 are transverse sections respectively on lines X X and Y Y in Fig. 3.

Similar letters of reference indicate corresponding parts.

a represents the coiling-arbor, which is provided with the usual spiral groove *a'*, through which the wire is forced longitudinally, and is thus coiled into a prolonged spiral. Said arbor is sustained stationary in the holder *h*, which is rigidly secured to the pillow-blocks A, in which are journaled the feed-rollers R R, which force the wire through the coiler. Said rollers receive rotary motion from intermeshing gears C C, fastened to the shafts of the rollers and driven by suitable mechanism, not necessary to be shown in this case.

D denotes the reel upon which is wound the wire and from which it passes through the guide *f* to the feed-rollers R R, as shown in Fig. 1 of the drawings.

The holder *h* is provided with the passage *h'* for the end of the arbor *a* adjacent to the rollers R R. From said passage to the opposite end of the holder is a cylindrical socket *i*, formed inside of said holder, and in said socket is seated the sleeve *b*, which projects from the end of the holder and receives through its entire length the coiling-arbor *a*, which it loosely embraces. Said sleeve serves to protect the holder *h* from wear from the wire in process of being coiled, and it is formed with a smooth cylindrical bore to allow it to be turned and adjusted on the arbor, so as to cause different portions of the bore to receive the frictional contact of the wire, thus greatly prolonging the life of the sleeve. A set-screw C passes through the side of the holder and bears on the sleeve *b*, so as to fasten the latter in its aforesaid adjusted position.

On the protruding end of the sleeve is mounted a collar *e*, which abuts against the end of the holder *h* and is provided with a radial orifice which is screw-threaded and receives through it the screw-threaded portion of the set-screw *d*, the inner end of which passes through a hole *b'* in the side of the sleeve *b* and engages the arbor *a*, so as to confine the same in the sleeve. In order to allow the sleeve to be reversed end for end and thus change its position in relation to the wire-coiling groove *a*, as hereinafter described, I provide the sleeve with two holes *b'*, respectively, in opposite end portions thereof, as shown in Fig. 3 of the drawings.

It will be observed that the sleeve *b* relieves the main portion of the holder *h* from wear and abrasion from the wire passing through the coiling-groove *a'*, and inasmuch as said sleeve is detachable from the holder and from

the arbor it is readily removed for repairs or renewal without requiring any repairs of the holder *h*.

The advantages of the use of the sleeve *b* are greatly enhanced by its adjustability in relation to the coiling-arbor *a*, one of which adjustments is effected by simply loosening the set-screws *c* and *d*, then turning the arbor so as to bring the groove *a'* into a different position in the sleeve *b'* and then securing it in said position by tightening the set-screw *d*, and, after turning the sleeve with the arbor fastened thereto so as to bring the wire-receiving end of the arbor in proper position on the holder *h*, tightening the set-screw *c*.

Inasmuch as it requires only a slight turning of the arbor in the sleeve to effect the aforesaid adjustment, it is obvious that it admits of numerous adjustments of that kind. However, the degree of adjustment is still further extended by reversing the sleeve *b* end for end, for which purpose said sleeve is provided with the two holes *b' b'* in opposite end portions for the reception of the set-screw *d*, as hereinbefore described.

What I claim as my invention is—

1. The combination of the holder *h* provided with the passage *h'* and cylindrical socket *i*, the sleeve *b* seated in said socket and projecting from the end thereof, the coiling-arbor *a* extending through said sleeve, the set-screw *c* confining the sleeve adjustably in the holder, and the set-screw *d* holding the arbor adjustably in the sleeve, as set forth.

2. The combination of the holder *h* provided with the passage *h'* and cylindrical socket *i*, the sleeve *b* seated in said socket and projecting from the end thereof and provided with the holes *b' b'* in the sides of both end portions thereof, the arbor *a* extending through said sleeve, the set-screw *c* fastening the sleeve adjustably in the holder, and the set-screw *d* passing through one of the aforesaid holes in the sleeve and engaging the arbor, substantially as set forth and shown.

3. The combination of the holder *h* provided with the passage *h'* and socket *i*, the sleeve *b* seated in said socket and projecting from the end thereof, the coiling-arbor *a* extending through the sleeve, the collar *e* mounted on the protruding end of the sleeve and abutting against the end of the holder, the set-screw *c* fastening the sleeve adjustably in the holder, and the set-screw *d* passing through the side of the aforesaid collar and sleeve and engaging the arbor, substantially as described and shown.

In testimony whereof I have hereunto signed my name this 4th day of November, 1895.

CHARLES H. HARD. [L. S.]

Witnesses:
R. B. DOWNING,
H. H. DOUGLASS.