No. 782,585. PATENTED FEB. 14, 1905.

J. M. SWEET.

WIRE CLAMP AND TIGHTENING DEVICE.

APPLICATION FILED MAR. 7, 1904.

Fig. 1.

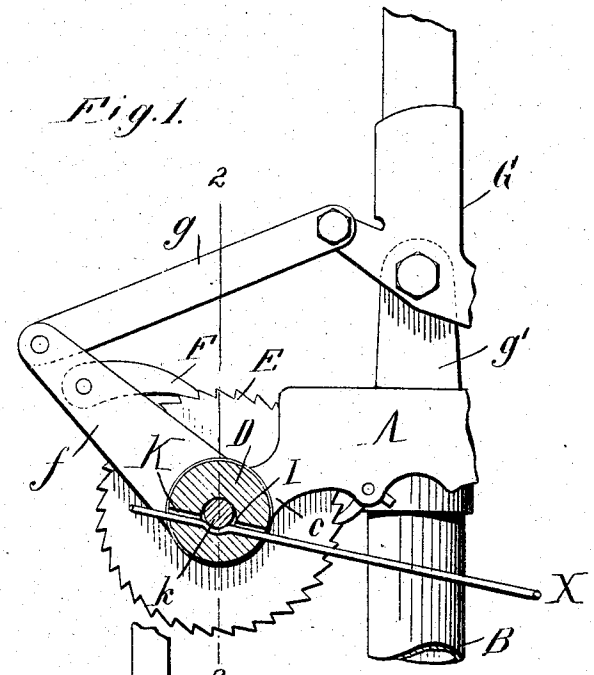


Fig. 2.

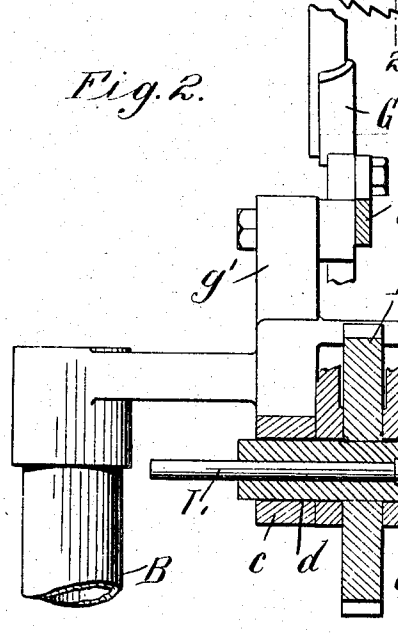
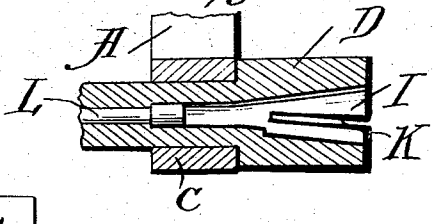


Fig. 4.



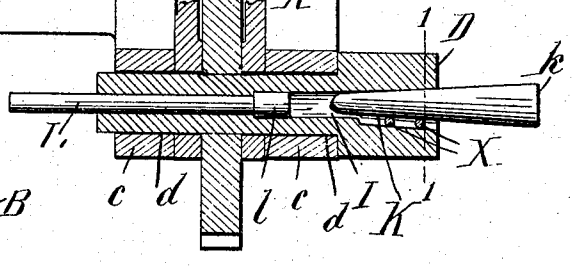
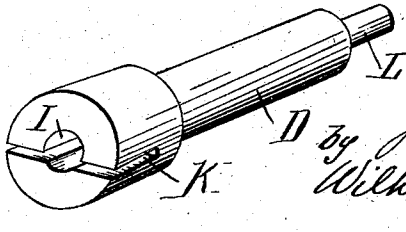


Fig. 3.



Witnesses:-

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No. 782,585. Patented February 14, 1905.

UNITED STATES PATENT OFFICE.

JOHN M. SWEET, OF BATAVIA, NEW YORK, ASSIGNOR TO SWEET TIRE & RUBBER COMPANY, OF BATAVIA, NEW YORK.

WIRE CLAMP AND TIGHTENING DEVICE.

SPECIFICATION forming part of Letters Patent No. 782,585, dated February 14, 1905.

Application filed March 7, 1904. Serial No. 196,792.

To all whom it may concern:

Be it known that I, JOHN M. SWEET, a citizen of the United States, residing at Batavia, in the county of Genesee and State of New York, have invented new and useful Improvements in Wire Clamps and Tightening Devices, of which the following is a specification.

This invention relates more particularly to a wire or band clamp and tightening device for machines for setting or applying elastic tires of that kind which are retained in the channel wheel-rim by one or more retaining wires or bands passing circumferentially around the wheel through longitudinal holes in the rubber or elastic tire. A machine of this character is disclosed in my application for United States Letters Patent, Serial No. 165,958, filed July 17, 1903, and the present invention is especially applicable to a machine of this character, but is also adapted for uses where it is desirable to clamp and stretch or tighten wires or other similar bands or strips. In the machine described in said application the opposite ends of the retaining wire or wires are secured to rotatable spindles which are turned to wind the wire or wires thereon, and thus draw the same taut around the wheel to press and securely hold the rubber or elastic tire in the channel-rim.

The object of the invention is to provide a wire, band, or strip clamp and tightening device of exceedingly simple construction in which one or more wires, bands, or strips can be quickly and securely held and from which they can be readily removed.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, in line 1 1, Fig. 2, of a wire or band clamp and tightening device embodying the invention. Fig. 2 is a side elevation, partly in section, thereof in line 2 2, Fig. 1. Fig. 3 is a perspective view of the winding-spindle detached. Fig. 4 is a fragmentary section of the winding-spindle detached.

Like letters of reference refer to like parts in the several figures.

A represents a bearing-bracket which is secured to a suitable standard or support B and is preferably provided with two separated lateral bearing-arms *c*, having alined bearing-holes *d* for a rotatable wire or band clamp and spindle.

D represents the rotatable winding-spindle for the wires or bands. It is preferably provided with a reduced shank or journal which bears and is free to rotate in the holes in the arms of the bearing-bracket and with an enlarged head or end constituting a winding-drum. In the construction shown in the drawings a ratchet-wheel E is secured to the shank of the spindle between its two bearing-arms and is intermittently rotated by a pawl F, pivoted to a pawl-lever *f*, having separated arms which straddle the ratchet-wheel and are pivoted to oscillate on the shank of the spindle. The outer end of the pawl-lever is connected by a link *g* with one arm of a hand operating-lever G, which is pivoted on a suitable stationary standard or fulcrum-post *g'*, rising from the bearing-bracket. By reciprocating the hand-lever the pawl-lever is oscillated and the ratchet-wheel and spindle intermittently rotated. The particular manner of journaling and rotating the spindle does not constitute an essential part of the invention, and the spindle may be journaled and rotated in any other convenient manner. The enlarged end or head of the spindle is provided with an axial or longitudinal tapering or frusto-conical bore or hole I and with a wire or band receiving slot K, disposed transversely of the spindle and intersecting the tapering bore I. The wire-receiving slot is open-ended and is located adjacent to and is parallel with one of the inclined sides of the tapering bore, as clearly shown in Fig. 4. The wires or bands K are inserted sidewise into the wire-receiving slot through the open end thereof, and a tapering or frusto-conical clamping wedge, pin, or key *k* is driven into the tapering hole of the spindle by a light blow or two with a hammer or other device, thereby wedging it securely in the hole and firmly binding or clamping the wires or bands between one side of the wedge and the adjacent side of the bore or slot in the spindle. The outer wall of the wire-receiving slot could be made coincident with the adjacent side of

the tapering bore, if preferred; but the construction shown, in which the outer wall of the slot is offset relative to the adjacent side of the tapering bore, is preferred. The wedge will then kink or bend the wires or bands, as shown in Fig. 1, and more securely hold them. The device is adapted to hold one or more wires or bands, and as the wire-receiving slot is parallel to the adjacent side of the tapering key and tapering bore in the spindle the inclined face of the pin or key bears with equal force on all of the wires or bands and absolutely prevents the slipping of either wire or band. As the clamping key or pin projects centrally from the end of the spindle, it does not in any way interfere with the winding or coiling of the wire around the spindle when the latter is rotated, and as the key or pin extends transversely of the wires the strain on the latter cannot loosen it. To release the wires or bands from the spindle, it is only necessary to knock the clamping pin or key out of the hole or bore of the spindle. To facilitate the removal of the pin or key, an ejecting-rod L is arranged to slide in a longitudinal hole in the shank of the spindle forming a continuation of the tapering hole or bore. By striking the rear end of the ejecting-rod, which projects out of the spindle, it is forced into contact with the inner end of the clamping pin or key and releases and ejects the latter from the tapering hole or bore of the spindle. The inner end of the ejecting-rod preferably has an enlargement or head *l*, which coöperates with an internal shoulder in the spindle to prevent the ejecting-rod from being moved rearwardly out of the hole in the spindle.

I claim as my invention—

1. The combination of a bearing, a spindle journaled to rotate in said bearing and having a projecting free end provided with a longitudinal hole and a transverse wire-slot which intersects said hole, a clamping-key which is inserted longitudinally in said hole in the spindle and binds the wire or wires between the same and a part of said spindle, said key and hole having parallel wire-engaging faces, and means for rotating said spindle, substantially as set forth.

2. The combination of a spindle, means for rotatably supporting and turning the same, said spindle having a longitudinal tapering hole, and a transverse wire-slot which intersects said hole and is open at the end of the spindle to receive a wire or wires, and a tapering clamping-key which is inserted in said tapering hole for engaging and holding the wire or wires in said slot, said hole and clamping-key having parallel wire-engaging faces, substantially as set forth.

3. The combination of a spindle provided with a tapering longitudinal hole, and a transverse wire-receiving slot which intersects said hole and is parallel with one side thereof, and a tapering pin or key which is inserted in said tapering hole and binds the wire or wires between itself and one side of said tapering hole, substantially as set forth.

4. The combination of a spindle having in one end a longitudinal hole, and a transverse wire-slot which intersects said hole and is open at the end of the spindle to receive a wire or wires, and a tapering clamping-key which is inserted in said longitudinal hole and has a wire-engaing face parallel with said slot, substantially as set forth.

Witness my hand this 29th day of February, 1904.

JOHN M. SWEET.

Witnesses:
FRANK RICHARDSON,
BLANCHE LOWE.