No. 639,409. Patented Dec. 19, 1899.

C. M. LAMB.

FEED MECHANISM FOR WIRE FABRIC MACHINES.

(Application filed May 22, 1899.)

(No Model.)

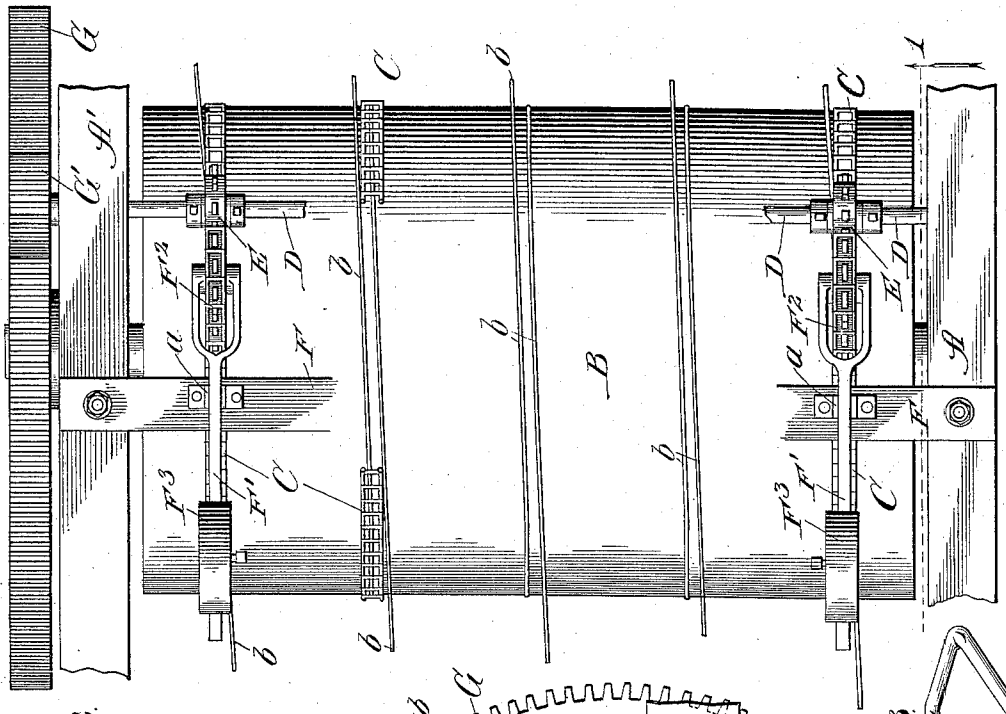


Fig. 2.

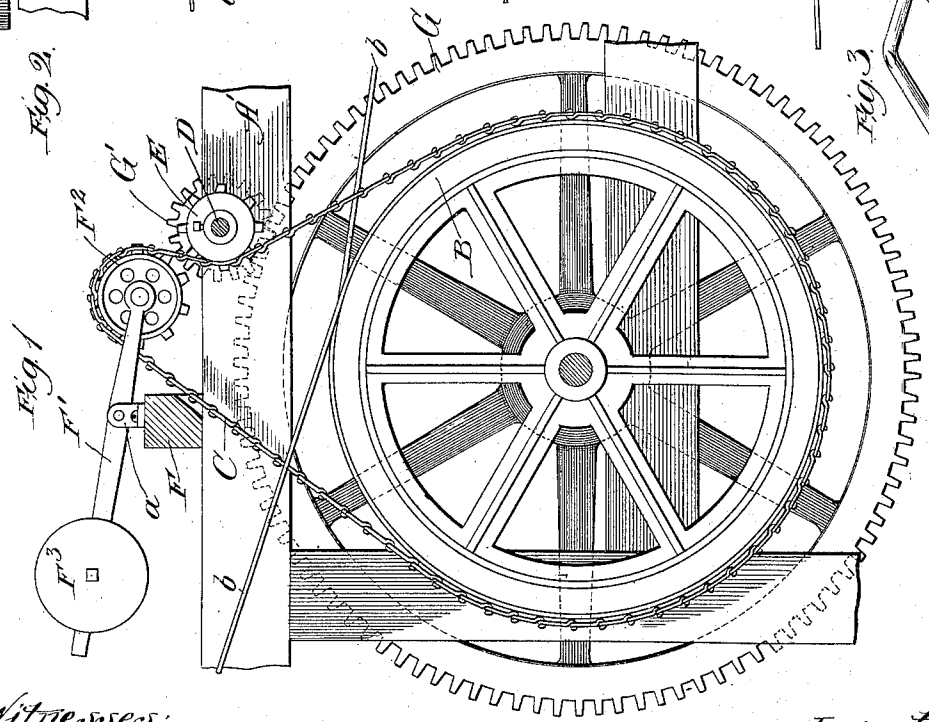


Fig. 1.

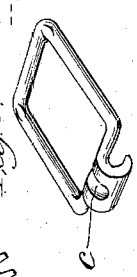


Fig. 3.

Witnesses:
Chas. E. Gaylord.
Luther D. Sellers.

Inventor:
Charles M. Lamb,
By Dyrenforth & Dyrenforth,
Attys.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES M. LAMB, OF ADRIAN, MICHIGAN, ASSIGNOR TO THE PAGE WOVEN WIRE FENCE COMPANY, OF SAME PLACE.

FEED MECHANISM FOR WIRE-FABRIC MACHINES.

SPECIFICATION forming part of Letters Patent No. 639,409, dated December 19, 1899.

Application filed May 22, 1899. Serial No. 717,806. (No model.)

To all whom it may concern:

Be it known that I, CHARLES M. LAMB, a citizen of the United States, residing at Adrian, in the county of Lenawee and State of Michigan, have invented a new and useful Improvement in Feed Mechanism for Wire-Fabric Machines, of which the following is a specification.

My invention relates particularly to an improvement in the automatically-acting clamping means heretofore in use in fence-making machines for preventing slipping of the warp-wires of the fence on the rotatory feed and measuring drum or member, about which said wires pass from the supply-spools in their course through the machine.

My object is to supply a substitute automatically-acting clamp for the purpose, preferably in the form of a positively-driven endless chain or belt passing, under tension, about said feed and measuring member and over a suitable gear or pulley and bearing upon the warp-wire throughout a portion of a circumference as the wire passes about said feed and measuring member.

In the accompanying drawings the improved clamping means is shown in connection with the feed and measuring drum of a fence-making machine and in the form of a sprocket-chain which is driven at the same speed as the surface of said drum. It is understood, of course, that a chain is supplied for each warp-wire and that the feed and measuring member may take other form than that of a drum.

In the drawings, Figure 1 is a broken vertical section parallel to a side of the machine-frame and showing the drum in end elevation and equipped with my improvements, the section being taken as indicated at line 1 of Fig. 2; Fig. 2, a plan view of the drum and showing fragments of the side frames of the machine and of the clamping equipment of the drum, and Fig. 3 a view in perspective of a link of one of the clamping-chains.

A A′ represent portions of the side frames of the machine; B, the feed and measuring drum journaled therein; C C, the sprocket-driven clamping-chains employed; D, a shaft on which are fixed a series of sprocket-wheels E; F, a cross-piece of the frame supplied with standards *a*, on which are pivoted a series of levers F′, each provided at one end with a yoke, in which is journaled an idler F^2, and at the opposite end with an adjustable counterweight F^3, and G G′ are intermeshing gears concentric and rigid with the drum B and shaft D, respectively. Motion may be imparted to the system at the drum or at the shaft, as desired. In any case the gears bear the same ratio of diameters as do the sprocket-wheels E and drum B, so that the chains are positively driven at the speed of the surface of the drum.

The chains or belts C are spaced to correspond with the warp-wires *b* of the fence. Each chain preferably encircles the drum and is in contact for more than a half-circumference with the warp-wire which it clamps to the drum. At the upper side of the drum the chains depart from its surface and pass over the idlers F^2 and in engagement with the sprocket-wheels E. Each warp-wire preferably passes to the drum on one side of its appropriate clamping-chain and leaves it at the opposite side thereof.

In the drawings the wires are represented as coming from the supply-spools, (not shown,) which are supposed to be located above and in the rear of the drum B. From the drum the wires pass to the mechanism for fixing the woof-wires in place, and thence to the take-up drum, as is well understood. The wires are properly guided through the machine and may be guided in their course about the drum by grooves *c* at the inner surface of each link, as indicated at Fig. 3, or by circumferential grooves in the drum-surface, or by both these means. The grooves should not be of sufficient depth, however, to relieve the wires from pressure.

It is readily understood that since the shaft D and drum B are geared together and the parts properly proportioned to give the same speed to the chains as is possessed by the drum-surface and since the chains are positively driven there can be no possible slipping of the chains upon the drum-surface. Tests have shown that a moderate slightly-yielding tension on the chains, such as may be applied by the counterweights shown, develops sufficient friction to prevent the wires

from slipping beneath their chains even under a much greater force than is ordinarily applied in fence-making. Thus it appears that each chain is virtually a self-acting clamp practically continuous throughout the arc to which it is applied, without motion relative to the surface beneath its arc of action, and peculiarly simple and effective in operation.

As indicated, the rotatory member B may take other form than that of a drum, and the endless chains or belts C may be arranged in any suitable manner, the essential feature being that of clamping contact with the warp-wires through a certain arc. Certain of the parts may be duplicated, if desired.

The operation is apparent from the above description. The warp-wires pass about the drum B in the manner explained in Patent No. 414,844, dated November 12, 1889. The chain belts C move at the same speed as the drum-surface and clamp the wires against slipping on said surface, as already described. The tension of the chains is readily adjusted by means of the counterweights on the fulcrumed levers, in which are journaled the idlers F^2. The chains in passing about the idlers pass also through the bifurcated heads of the levers in which the idlers are journaled.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine of the character mentioned, the combination with a rotatory feed member about which the warp-wires pass in their course through the machine, of an endless belt passing about an arc of said rotatory member, and means for holding said belt in firm contact with the warp-wire to which it is applied to clamp the wire to said feed member, substantially as and for the purpose set forth.

2. In a machine of the character mentioned, the combination with a rotatory feed member about which the warp-wires pass in their course through the machine, of an endless belt passing about an arc of said rotatory member, and yielding tension means for said belt, substantially as and for the purpose set forth.

3. In a machine of the character mentioned, the combination with a rotatory feed member about which the warp-wires pass in their course through the machine, of an endless belt passing about an arc of said rotatory member, a gear engaging said belt, a lever in which said gear is journaled, and means connected with the lever for applying tension to the belt, substantially as and for the purpose set forth.

4. The combination with the rotatory feed member of a wire-fabric machine, of positively-driven belts for clamping the warp-wires to said member at the arc of action of the belts, and means for applying tension to said belts, substantially as and for the purpose set forth.

5. The combination with the rotatory feed member of a wire-fabric machine, of a shaft geared thereto, a sprocket-wheel on said shaft, a clampingly-acting sprocket-chain engaging said sprocket-wheel and passing about an arc of the surface of said feed member, and means for applying tension to said chain, substantially as and for the purpose set forth.

6. The combination with the rotatory feed and measuring drum of a wire-fence machine, of a shaft geared thereto, sprocket-wheels on said shaft, clampingly-acting chains in engagement with said sprocket-wheels and passing about an arc of the surface of said drum to bear on the warp-wires of the fence, pivoted levers, idlers journaled in said levers, and counterweights connected with the levers for applying tension, substantially as and for the purpose set forth.

7. The combination with the rotatory feed and measuring member of a wire-fence machine, of clampingly-acting sprocket-chains passing about an arc of its circumference, pivoted levers provided with yokes through which said chains pass, idlers journaled in said yokes, and counterweights for applying tension through the medium of the levers, substantially as and for the purpose set forth.

CHARLES M. LAMB.

In presence of—
GEO. L. BENNETT,
CHAS. H. CARR.