(No Model.)

C. H. EVERSON.

TIE YARN MACHINE.

No. 412,880. Patented Oct. 15, 1889.

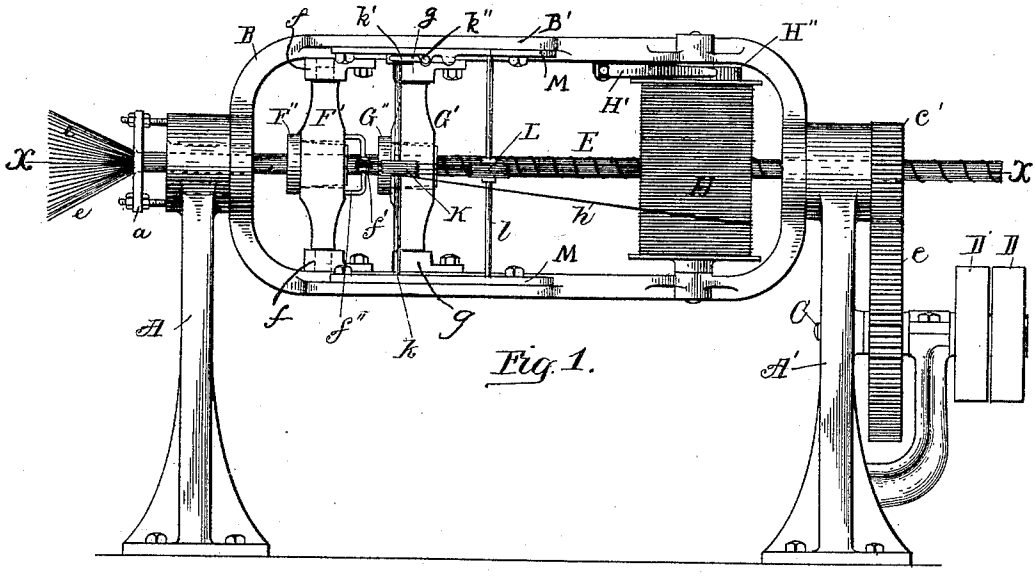


Fig. 1.

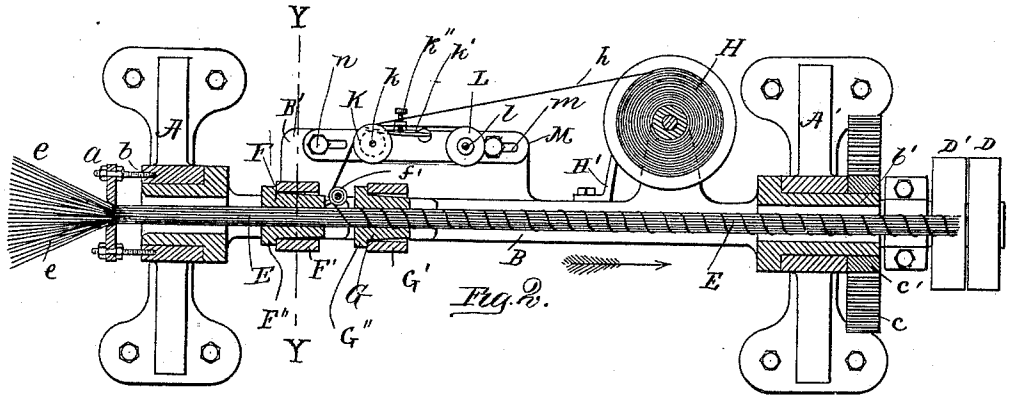


Fig. 2.

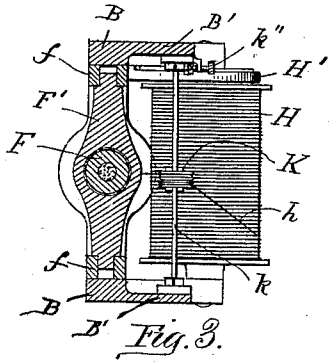


Fig. 3.

Witnesses
Geo. W. White
Martha J. Jackson

Inventor.
Charles H. Everson.
by Munn & Andrew. his attys.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

CHARLES H. EVERSON, OF PLYMOUTH, MASSACHUSETTS, ASSIGNOR TO THE PLYMOUTH CORDAGE COMPANY, OF MASSACHUSETTS.

TIE-YARN MACHINE.

SPECIFICATION forming part of Letters Patent No. 412,880, dated October 15, 1889.

Application filed August 10, 1889. Serial No. 320,333. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. EVERSON, a citizen of the United States, and a resident of Plymouth, in the county of Plymouth and State of Massachusetts, have invented new and useful Improvements in Tie-Yarn Machines, of which the following, taken in connection with the accompanying drawings, is a specification.

This invention relates to improvements in tie-yarn machines, and it is carried out as follows, reference being had to the accompanying drawings, wherein—

Figure 1 represents a side elevation of the machine. Fig. 2 represents a longitudinal section on the line X X, shown in Fig. 1, and Fig. 3 represents a cross-section on the line Y Y, shown in Figs. 1 and 2.

Similar letters refer to similar parts wherever they occur on the different parts of the drawings.

For the purpose of tying laths, staves, shingles, or grain, &c., are used what are termed in the trade "tie-yarns" or "lath-yarns." Heretofore a number of such yarns have been twisted together in the form of a rope, which has afterward been cut off in lengths of about four feet, more or less, and the yarns separated from such rope from time to time when needed. This manner of making tie-yarns is objectionable for two reasons, namely: When the twisted rope is cut off, it is found that the outer yarns are longer than those nearer to or in the center of the rope, and consequently a uniform length of the yarns is not obtained; also, it requires unnecessary time and labor to separate the yarns from the twisted rope; and to avoid these objections I construct a tie-yarn machine by means of which a number of yarns are laid parallel with each other and surrounded by a spirally-wound yarn or thread for holding the tie-yarns or lath-yarns temporarily together until needed for use.

This my improved tie-yarn machine is constructed as follows: It consists of a suitable frame or bearings A A′, in the upper ends of which are journaled the hollow cylindrical ends *b b′* of the rotary flier B, as shown. The said flier is set in quick rotary motion by means of any suitable or well-known mechanism. In the drawings I have shown for this purpose a pinion *c′*, secured to the flier end *b′*, the teeth of which mesh in the teeth of the gear *c*, secured to the shaft C, the latter being journaled in bearings and provided with a pulley D, to which a rotary motion is conveyed by a belt, as is common in various machines.

D′ is a loose pulley on said shaft C, on which the belt is shipped when it is desired to stop the flier B.

e e e represent the tie-yarns leading from bobbins on a bobbin-frame of usual construction. Said yarns are made to pass through a perforated stationary plate or ring *a*, secured in a detachable manner to the outer end of the frame A, and in so doing the yarns are laid side by side in parallel rows in the form of a strand E, as shown in the drawings, which strand passes loosely through the spindle-bearings *b b′*, and after passing out through the spindle-bearing *b′* the strand is wound upon a suitable reel, as usual, such reel being, however, not shown in the drawings.

As the strand E is fed onward through the flier it is made to pass through the eyes or tubes F and G, arranged centrally in a line with the axis of rotation of the flier. Said tubes are preferably made slightly tapering on their outsides and fitted loosely in the respective perforated cross-bars F′ and G′ of the flier, as shown in the drawings. The ends of the said bars F′ and G′ are cylindrical, and they are journaled in the respective bearings *f f* and *g g*, secured to the flier B, as shown. The object of having the bars F′ and G′ journaled in said bearings is for the purpose of inserting the tubes F and G in the perforations in said bars and removing them therefrom as may be needed in using tubes of various sizes, according to the size of the tie-yarn strand that is being made. When a strand is not in the flier, and it is desired to remove the said tubes, all that it is necessary to do is to swing the bars F′ G′ a quarter of a revolution in their bearings, after which the said tubes may be removed and replaced by others having larger or smaller perforations, as the case may be.

F″ G″ are flanges at the receiving ends of the respective tubes F and G, which flanges

are adapted to rest against the forward sides of said respective bars F′ and G′, as shown.

In combination with the above-described apparatus I use a binder-yarn and devices for guiding such yarn to the strand passing through the flier, which devices are constructed as follows: *h* is the said binder-yarn contained on a spool or reel H, having its shaft loosely journaled in perforated ears, brackets, or projections on the flier B, as shown. I prefer to provide said spool or reel with a suitable tension device, which may be of any suitable or well-known construction, the one shown in the drawings consisting of a spring H′, secured in one end to the flier and having its free end pressing on a hub or disk H″, secured to or forming part of the spool or reel H, as shown in Figs. 1 and 2. The binder-yarn *h*, after leaving the reel H, passes around the grooved rollers K and L, having each one or more grooves, as shown, and from the roller K it is guided by the small guide-roller *f′* onto the strand E, causing such binder-yarn to be wound spirally around said strand, as shown in the right-hand portions of Figs. 1 and 2. The grooved roller L is preferably loosely journaled on a shaft *l*, the ends of which are secured to plates M M, that are longitudinally adjustable on ribs B′ B′, secured to or forming parts of the flier B, as shown. The grooved roller K is preferably secured to a shaft *k*, the ends of which are journaled in the said adjustable plates M M, and in connection with said shaft *k*, I use a suitable tension device of any well-known form, the one shown in the drawings consisting of a spring *k′*, secured in one end to one of the adjustable plates M, and having its free end bearing against the shaft *k* or a disk or cylindrical hub thereon. The pressure on said shaft *k* is preferably made adjustable by means of a set-screw *k″*, screwed through a projection on one of the plates M and bearing against the spring *k′*, as shown in the drawings. The plates M M are preferably provided with slots *m m* and adjustably secured to the flier projections B′ B′ by means of set-screws *n n*, passing loosely through such slots and screwed into the flier projections B′ B′, as shown.

The small guide-roller *f′* is preferably loosely journaled on a pin or shaft *f″*, on which it is free to slide in the direction of its axis, so as to be automatically adjustable relative to the strand E and variations of the same.

By adjusting the plates M M and their connections forward or back on the flier the tension on the binder-yarn *h* can be regulated to a nicety to suit requirements, as may be desired.

By having the guide-roller *f′* arranged in the narrow space between the tubes F and G it will be seen that the binder-yarn *h* is caused to be wound on the strand E at a place properly supported by the said tubes during the quick rotation of the flier B.

If so desired, the tube F may be arranged within the cylindrical end *b* of the flier B and the tube G arranged at a proportionate distance from it without departing from the spirit of my invention.

The operation of the machine is as follows: The tie-yarns *e e e*, fed from a bobbin-frame and bobbins, pass through the perforated plate *a*, through the perforated flier end *b*, tubes F G, and flier end *b′*, and are wound upon a suitable reel, as described, and the flier B set in a rotary motion, causing the binder-yarn *h* to be wound spirally around the strand E, composed of yarns *e e*, laid parallel with each other, for the purpose as stated.

Having thus fully described the nature, construction, and operation of my invention, I wish to secure by Letters Patent, and claim—

1. The tie-yarn machine as described, consisting of the frame A A′ and the rotary flier B, journaled therein, combined with a perforated guide *a*, tubes F G, binder-yarn reel H, tension-rollers K L, and guide-roller *f′*, substantially as and for the purpose set forth.

2. In a tie-yarn machine, the rotary flier B and the arms or cross-bars F′ G′, journaled thereon, and having detachable tubes F G, as described, combined with the reel H, the longitudinally-adjustable rollers K L, and guide-roller *f′*, for conducting the binder-yarn *h* from the reel H to the strand E, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 3d day of August, A. D. 1889.

CHARLES H. EVERSON.

Witnesses:
ROBERT A. BROWN,
LOUIS I. SEYMOUR.