2 Sheets--Sheet 1.

T. TEBOW.

Machine for Finishing Cordage, Rope, &c.

No. 163,280. Patented May 11, 1875.

Fig. 1

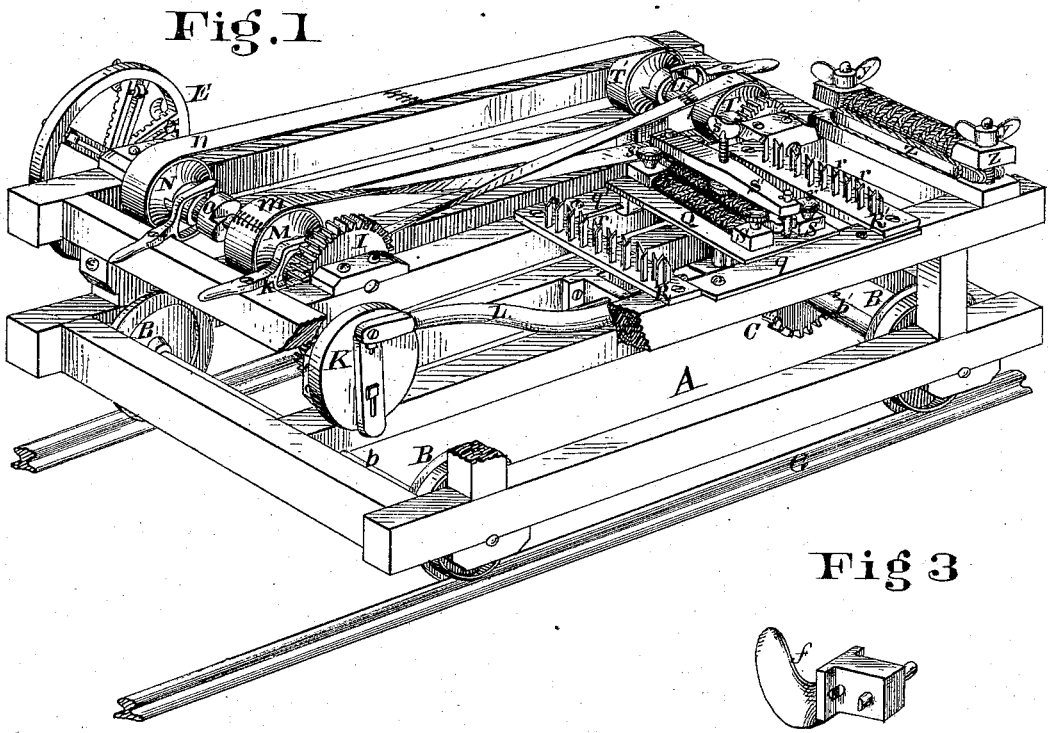
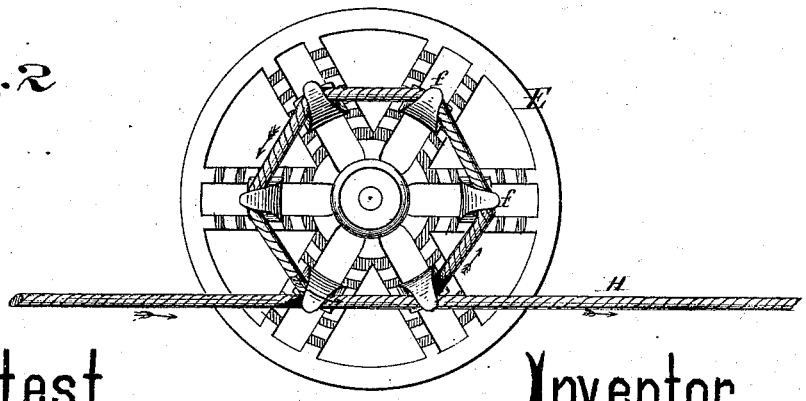


Fig 3

Fig. 2



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2 Sheets--Sheet 2.

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Fig. 4

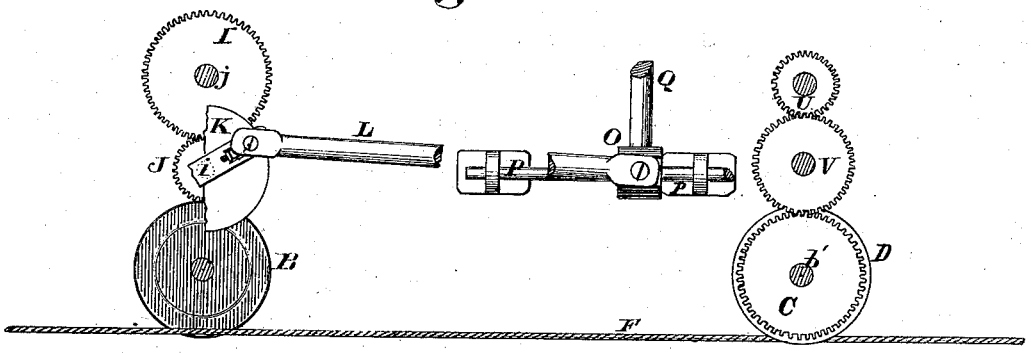


Fig. 5

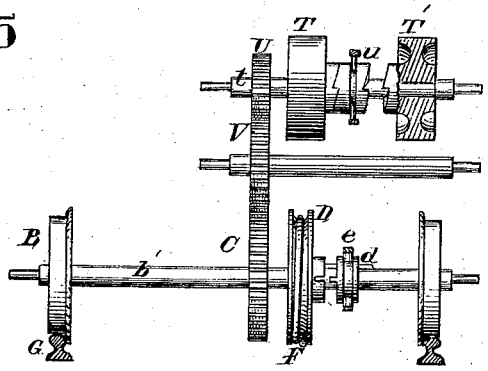


Fig. 6

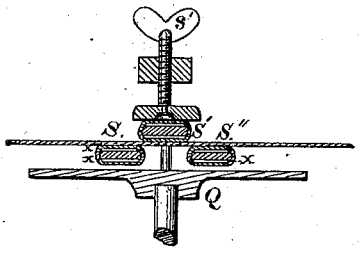
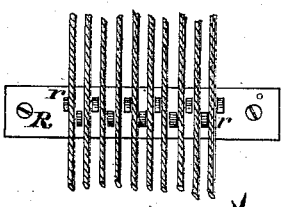


Fig. 7



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UNITED STATES PATENT OFFICE.

THEODORE TEBOW, OF LEXINGTON, KENTUCKY.

IMPROVEMENT IN MACHINES FOR FINISHING CORDAGE, ROPE, &c.

Specification forming part of Letters Patent No. **163,280**, dated May 11, 1875; application filed March 6, 1873.

To all whom it may concern:

Be it known that I, THEODORE TEBOW, of Lexington, in the county of Fayette and State of Kentucky, have invented a certain new and useful Improvement in Machines for Rubbing and Smoothing Cordage, Rope, and Twine, of which the following is a specification:

My invention relates to a machine for finishing cordage, operated either by being connected by a belt or its equivalent with steam or other power driving machinery, or by a crank moved by hand, in place of the ordinary method of rubbing said cordage by means of a rubber worked directly by hand, securing by this means rapidity and uniformity of motion and effect. My invention consists of certain devices by which this mechanism is made to travel automatically to and fro upon the track of an ordinary rope-walk, so that, having traversed its length or that of the cordage stretched upon it, the action of the mechanism may be reversed and the rubbers made to move automatically back upon the same track to the place of starting, and may be made, at will, either to repeat the rubbing upon the whole length as during the first motion, or, by means of a shifting-clutch, the principal rubbers may be so detached as merely to slide loosely over the cordage. My invention also consists in the peculiar construction of the rubbers.

Figure 1 is a perspective view of a machine embodying my invention, the frame being partially broken away at the upper left-hand corner, to show the crank head and pitman. Fig. 2 is an elevation of an extensible sheave-pulley, from which power is communicated for working the rubbers and moving the frame. Fig. 3 is an enlarged perspective view of one of the adjustable wings or hooks of said pulley. Fig. 4 is a partially sectional longitudinal elevation of part of the driving-shaft, crank-head, pitman and traveling-truck, of one form of my invention. Fig. 5 is a lateral elevation of the same, partly in section. Fig. 6 is a cross-section of the rubber with its adjusting-screw, showing its position upon the cordage. Fig. 7 is a plan of the upright separating-pins for keeping the different lengths of cordage apart.

A is a wooden frame or carriage partly broken away at the left-hand upper corner to show the interior parts. It is mounted upon two pairs of flanged car-wheels, B B B B, connected by axles or shafts *b b'*, one of which, *b'*, carries a gear-wheel, C, near its middle, and a loose sheave-pulley, D, which, by means of a feather, *d*, upon the shaft, and a sliding clutch, *e*, may be thrown into or out of use, as required. Around this pulley passes the ground rope F, which governs the motion of the carriage upon the track G, preventing any backward or forward slip of the wheels B. The driving-pulley E, which is rendered extensible by means of the sheave hooks or wings, Figs. 2 and 3, *f*, capable of adjustment on the radial arms of the pulley, may be driven by the belt rope H communicating with steam-power, or may be fitted with a crank and turned by hand. It may be mounted directly on the main shaft *i*, or, as is shown in the drawing, on an auxiliary shaft, *j*, connected with the main shaft by the multiplying-gear I and pinion J for the purpose of giving a more rapid motion to the rubbers. This auxiliary shaft is furnished with two loose pulleys, M N, carrying belts *m n*, between which pulleys is a sliding double clutch, *o*, enabling either to be used at will. Another sliding clutch, *k*, enables the multiplying-gear to be disconnected, so that the carriage may travel along the track without working the rubbers. The lower or driving-shaft *i* has at its end a crank-head, K, to which is attached a pitman, L, whose other extremity connects with the cross-head O moving upon a horizontal slide, P, and attached to the frame of the rubber Q, to which it gives a reciprocating motion upon the slide *q q'* attached to the top of the frame, the rapidity of which motion may be regulated by modifications of the multiplying-gear or of the diameter of the extensible sheave-pulley E. At both ends of the rubber slides are cross-bars R R', which are furnished with a number of upright teeth or pins, *r*, of metal, for the purpose of separating the different lengths of cord or twine which are stretched between them during the process of rubbing, and of which from twenty-four to forty, according to the size of the cord, are stretched and rubbed at a time. The rubbing device, Fig. 6, consists of three cross-bars, S S' S'', on

each side of which are placed strips of gum-elastic *x x'*, and these bars are so arranged in the frame Q as to be adjusted by clamp-screws *s s' s''* to give the proper degree of pressure, and are closely wrapped in a direction parallel to their motion with small cordage spun from hair. At the end of the frame opposite the driving-shaft is attached a stationary rubber consisting of two bars, *z z'*, having similar gum-elastic cushions on each side, and similar adjusting-screws, but the upper wrapped parallel to the motion of the carriage while the lower bar is wrapped longitudinally or at right angles to the upper one. This rubber is only used during the reverse motion of the carriage.

The belts *m n* passing around the pulleys M N pass around two similar pulleys T T' on a shaft, *t*, at the other end of the carriage, the belt *m* being crossed so as to give a reverse motion. The pulleys T T' have between them a double sliding clutch, *u*, for throwing them in or out of gear. The shaft *t* also carries a gear-wheel, U, which, by means of an auxiliary gear, V, drives the gear-wheel C upon the axle *b'* and the sheave-pulley D, around which passes the ground rope F, and propels the carriage both by the revolution of the wheels B B and that of the pulley when held by the clutch *e*.

The carriage A being upon the track G at the end near the windlass by which the cordage to be rubbed is stretched, the latter is placed between the pins *r* and the rubber bars S S' S'' and *z z'*, the latter is opened by its screws *y* to allow the cords to slide freely through it, and the movable rubber adjusted to give the proper pressure. By means of the clutches the pulleys M T, the gears I J, and the sheave-pulley D, are put in action, and, power being applied to the pulley E, the carriage is propelled along the track by the rotation of the wheels and motion of the pulley D and ground rope, F, which prevents any slipping of the wheels B B, while the rubber Q S S' S'' driven by the pitman L, moves with a rapid reciprocating motion upon the stretched cordage, rubbing and polishing its surface and removing all loose fibers.

Arriving at the farther end of the track, which is usually some hundred yards more or less in length, the action of the driving-shaft is reversed by means of the clutches *o u*, and the carriage is moved back to the place of starting. The clutch *k* enables the crank-head and pitman to be detached, and the motion of the rubber Q stopped if desired. The upper bar S' may be raised by its screw, and the cordage relieved from its pressure, and the top bar *z* of the stationary rubber tightened down so as to give the cordage a final polishing as it slides through. The clutch *k* enables the carriages to be moved along the track at will without any action of the rubber, and by means of the clutch *u* the pulley D may be disconnected, so that the rubber may act while the carriage is stationary.

During the process of rubbing, the gum-elastic cushions or springs on the cross-bars of the rubbers serve to equalize the pressure upon the cord, permitting the free passage of knots or lumps, which otherwise would occasion trouble, and securing equal rubbing upon occasional spots where the cord may be deficient in its dimensions.

While the action of the stationary rubbers can be and usually is dispensed with during the first passage over the cord, yet they form an indispensable element of the machine during the finishing passage; for the reciprocating rubbers will of necessity leave a slight ridge of sizing on the cord at the end of each rearward stroke. To remove these ridges and give the finishing polish to the cord is the office of the stationary rubbers, and it is simply impossible to turn out perfect work by a machine of this kind unless the stationary rubbers are used to coact with the reciprocating rubbers in the manner stated.

In a cordage-slicking machine I claim the following, viz:

1. The combination of the wheeled carriage A B, driving-shaft *i*, driven either immediately or by means of auxiliary shaft *j*, crank K, pitman L, reciprocating-rubber frame Q loose pulleys M N, clutches *o k*, direct and cross-belts *m n*, pulley T T', shaft *t*, clutches *u e*, gear-wheels U V C, and detachable sheave-pulley D, for giving the direct and reversed motion to the carriage A B, the whole being arranged and operating substantially as and for the purpose specified.

2. A rubber, either reciprocating or stationary, composed of a block or blocks provided with elastic cushions and wound with hair cordage, as and for the purpose described.

In testimony of which invention I hereunto set my hand.

THEODORE TEBOW.

Witnesses:

FRANK MILLWARD,

J. L. WARTMANN.