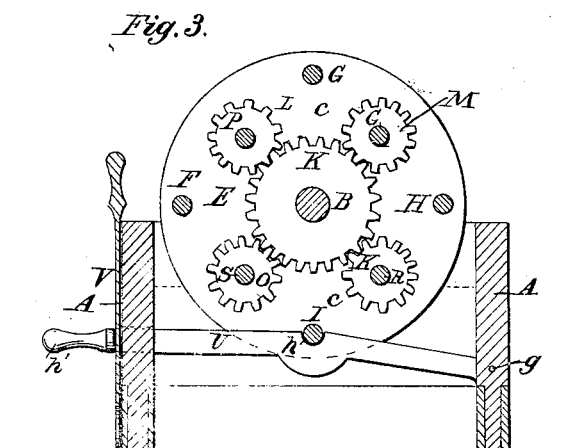
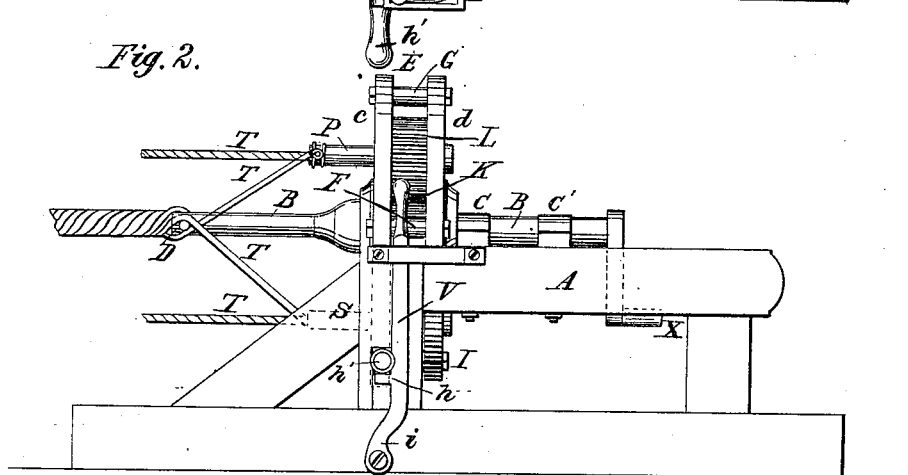
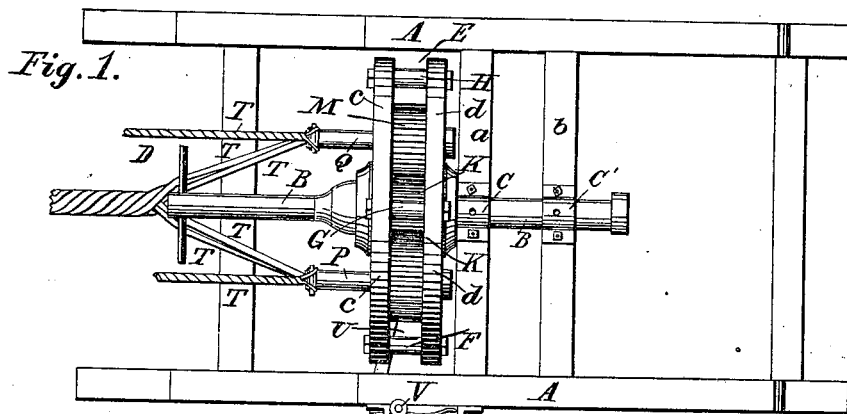


H. EVANS.
MACHINERY FOR LAYING AND TWISTING ROPES OR SHROUDING.
No. 7,664. Patented Sept. 24, 1850.



UNITED STATES PATENT OFFICE.

HENRY EVANS, OF NEW BEDFORD, MASSACHUSETTS.

MACHINE FOR MAKING ROPES.

Specification of Letters Patent No. 7,664, dated September 24, 1850.

To all whom it may concern:

Be it known that I, HENRY EVANS, of New Bedford, in the county of Bristol and State of Massachusetts, have invented an
5 Improvement in Machinery for Twisting and Laying Ropes or Shrouding; and I do hereby declare that the same is fully described and represented in the following specifications and accompanying drawings,
10 letters, figures, and references thereof.

Of the said drawings Figure 1, denotes a top view of a machine having my improvement applied to it. Fig. 2, is a side elevation of it. Fig. 3, is a vertical and transverse section of it, the same being taken
15 through the gear wheels to be hereinafter described.

My improvement consists in supporting the frame of the gears and strand spindles
20 on the main laying shaft alone, and combining with the said frame and the main frame of the machine suitable machinery whereby the said frame of the gears and strand spindles may be either clamped to the main
25 frame or so fastened as to be prevented from revolving while the main laying shaft and strand spindles are in revolution on their respective axes, or be unclamped or unfastened, as occasion may require, and for
30 the purpose of enabling the strand to be laid or twisted together, without previous removal from their spindles, as will be hereinafter more particularly explained.

In the said drawings A, represents a
35 strong wooden frame for supporting the operative machinery.

B, is the main or laying shaft, which is sustained by and revolves in boxes C, C', affixed upon transverse bars *a*, *b*, of the
40 frame A. The front end of this shaft has a belaying pin or forelock D, extending through it at right angles to the axis of the shaft, the same being used in laying the rope. On this shaft is a circular frame E,
45 composed of two metallic disks, or circular plates, *c*, *d*, placed parallel to one another, and kept at a suitable distance apart by means of four or any other suitable number of circular blocks or bars F, G, H, I, whose
50 ends are provided with shoulders, screws, and nuts, or other proper contrivances for preserving the parallelism of the plates, and their proper distance asunder. The said frame E, freely turns on the shaft B, or in
55 other words the latter should be capable of freely turning when the frame is held sta-

tionary and prevented from revolving or is clutched to the shaft B.

Between the parts *c*, *d*, and firmly keyed to the shaft B, is a driving spur gear K, 60 which engages with four smaller gears L, M, N, O, respectively fixed upon the four strand spindles P, Q, R, S, each of which turns in suitable bearings, made in the two plates *c*, *d*, and has a strand T, of the
65 shrouding or rope attached to its front end, as seen in the drawing.

Underneath the frame E, is a lever V, which turns up and down on a pin or fulcrum *g*, at one end, and has a notch *h*, in its
70 upper side, of a sufficient size to receive any one of the blocks or bars F, G, H, I. This lever extends through the front side of the main frame, and is provided with a handle
75 *n*, by means of which a person can readily raise or depress the lever. When raised up, and made to receive within its notch any one of the bars F, G, H, I, the frame E, is
stationary or prevented from revolving. The lever is kept up by means of a locking
80 lever V, which is arranged as seen in Figs. 1 and 2, turns on a fulcrum *i*, at its lower end, and has a projection *k*, extending from it, and under the lever U, when it is elevated, or over it when it is depressed; the
85 same being either to hold the lever up, or to prevent it from rising upward as occasion may require. On the main shaft B, is a crank X, or other proper contrivance by
90 means of which it may be put in revolution.

When the frame E, is locked to the frame A, and the shaft B, put in revolution, all the strand spindles will be put in movement
95 so as to put a twist into the strands. When such twisting of these has been effected to an extent sufficient for the next process, or that of laying or twisting them together or
100 into a rope, the strands are next beat down and hitched to or over the belaying pin, as represented by the red lines in Figs. 2, and 3. The lever U, being depressed so as to set
free or unlock the frame E, from the main frame A, the said frame E, is enabled to rotate freely with the laying shaft, which, being
105 put in motion in the right direction, produces the laying or twisting of the several strands into a rope.

In the machinery heretofore in use for the purpose of twisting the strands and laying
110 them together the frame E, has been a fixed or stationary one, or one so firmly fastened to the main frame as to be incapable of be-

ing revolved with the laying shaft. Under such circumstances in order to effect the laying of the strands it becomes necessary by means of tackles or some other proper contrivance to seize each strand in advance of the belaying pin of the laying shaft, and draw it toward its twist spindle in such manner as to slacken it sufficiently to enable its end to be removed from the spindle and fastened to the belaying pin of the laying shaft. Such operation usually involves the work or consumption of much labor and time, and beside the equalization of the strain on the strand is often so interrupted or removed as to seriously injure the rope, for the great desideratum in rope laying is to lay up the rope with an equal strain on each of its strands; otherwise when the rope comes to be put in use some one or more of its strands will be subjected to a greater tension than the rest, and serious consequences follow or are likely to ensue.

In the use of my improved machine the strands are not removed from their spindles. Consequently the equality of strain on them is preserved. While being twisted the frame E, must be held stationary in order to enable the main driving gear K, to actuate or revolve the smaller gears L, M, N, O, so as to cause the twist to be put into the strands.

In my improved machine the frame is made stationary only while the operation of putting in the twist is being carried on. At other times, or while the laying process is being effected, it is set free so as to revolve with the laying shaft.

The difference between my said improved machine and the old machines will be readily seen to consist in so applying the frame

E, to the main frame as to enable it either to be fastened to it so as not to revolve with the laying shaft, or set free from it, so as to revolve with said shaft, as occasion may require, the said difference producing very important results both in the manufacture of the rope and in the labor required to effect the same.

I would remark that though I have represented the laying shaft with a crank on it, it, when in use, is generally provided with a bevel gear instead of the same, which bevel gear is moved by means of another actuated by some suitable motor.

What I claim therefore as my improvement is—

To support the frame E, of the gears and strand spindles on the main laying shaft alone, and combining with the said frame E, and the main frame of the machine the lever U, or suitable machinery whereby the said frame E of the gears and strand spindles may be either clamped to the main frame or so fastened as to be prevented from revolving while the main laying shaft and strand spindles are in revolution on their respective axes, or be unclamped or unfastened therefrom as occasion may require, and for the purpose of enabling the strands to be laid or twisted together without previous removal from their spindles, as heretofore practiced and above described.

In testimony whereof I have hereto set my signature this nineteenth day of June, A. D., 1850.

HENRY EVANS.

Witnesses:

JOHN WOOD,
L. A. PLUMMER.