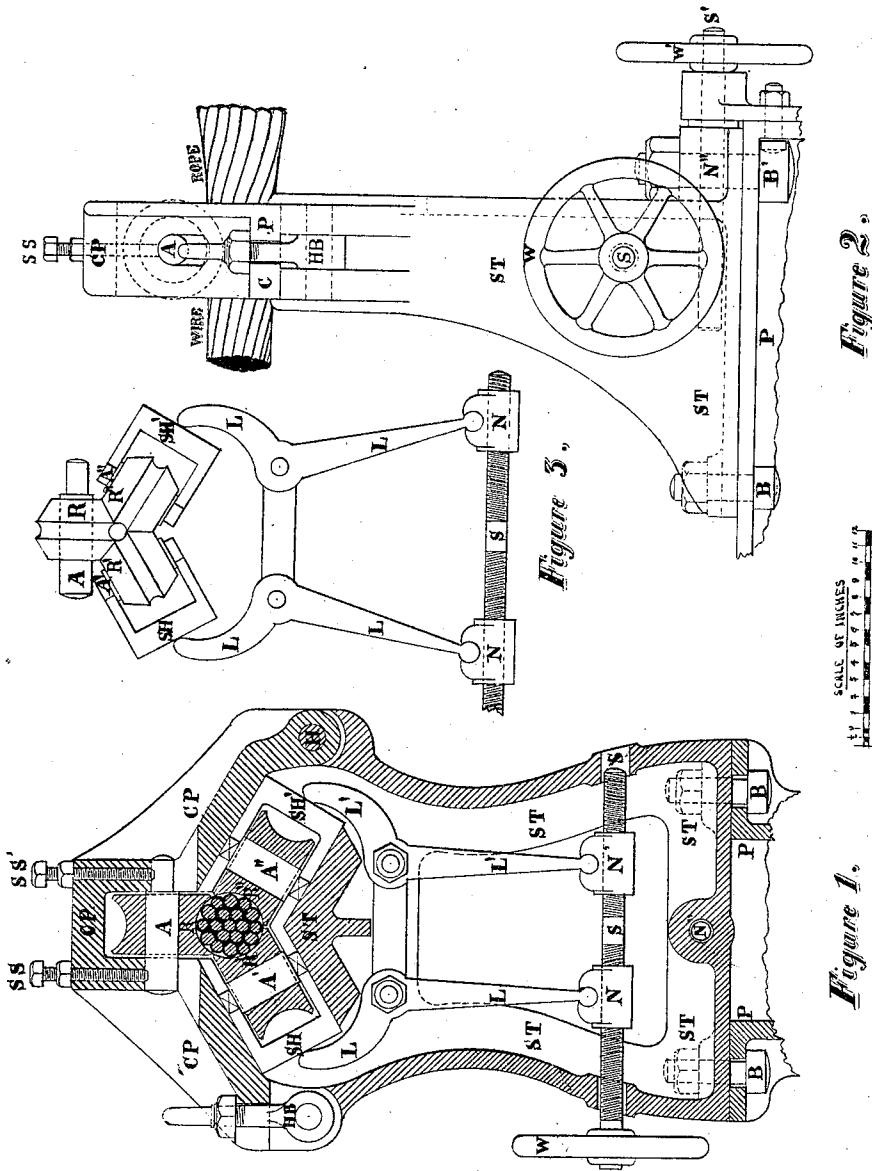


R. P. ROTHWELL.

Improvement in Machines for Compacting Wire-Rope.

No. 133,059.

Patented Nov. 12, 1872.



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Inventor: R. P. Rothwell

UNITED STATES PATENT OFFICE.

RICHARD P. ROTHWELL, OF WILKESBARRE, PENNSYLVANIA.

IMPROVEMENT IN MACHINES FOR COMPACTING WIRE-ROPE.

Specification forming part of Letters Patent No. 133,059, dated November 12, 1872.

To all whom it may concern:

Be it known that I, RICHARD P. ROTHWELL, of Wilkesbarre, in the county of Luzerne and State of Pennsylvania, have invented certain Improvements in Wire-Rope Machines, of which the following is a specification:

My invention relates to that part of wire-rope machines known as the centering or laying machine, by which the different wires or strands of the rope being made are held from turning and pressed into a compact rope. The first part of my invention relates to the combination of rotary rollers, levers, and screws in such a manner that the said rotary rollers shall be capable of closing and opening by means of the said levers and screws; the object of this part of my invention being to press the wires or strands of the rope together to any desirable degree of solidity without flattening or changing the cylindrical form of the rope or injuring the wires or strands. The second part of my invention relates to the combination, with rotary rollers, and the levers and screws, hereinbefore mentioned, of a movable or hinged cap or top piece to the stand or frame of the centering-machine, in such a manner that the said cap shall be capable of being sufficiently removed to give free access to adjust or remove the rope or rotary rollers. The third part of my invention relates to the combination, with the parts hereinbefore mentioned, and the stand or frame of the machine, of a screw-nut, hand-wheel, and bolts, in such a manner that the said stand shall be capable of being moved forward and backward along its pedestal or supporting frame from the apex of the rope-machine proper, so as to change the distance to suit the size and lay of the strand or rope to be made.

Figure 1 is a front sectional elevation of a machine embodying my invention. Fig. 2 is a side elevation of the same. Fig. 3 is an elevation, showing the rotary rollers and the levers and screw for operating them.

S T is the stand or frame of the machine, to which is attached, by a hinge, H, and a hinge-bolt, H B, the cap or top piece C P, in which is secured the top rotary roller R on the axle A, capable of being raised or lowered by the set-screws S S and S S'. R' and R'' are rotary rollers, same as R, on their axles A' and A'',

which, together with the sliding heads S H and S H', slide to and fro in slots of the stand S T and cap C P, when operated by the hand-wheel W turning the right-and-left-hand screw S, which separates or brings together the nuts N and N', and with them the ends of the levers L and L' jointed to them, thus causing the opposite ends to move in opposite direction, and they, being in contact with the sliding-heads, will operate the rollers R' and R'', as desired. W' is a hand-wheel for turning the screw S', which, working in the nut N'', causes the stand S T to slide along the pedestal or supporting frame P. B and B' are bolts for securing the stand to the pedestal when moved to its proper position. The rotary rollers R, R', and R'', shown in Fig. 1, are for making large ropes or cables, and those shown in Fig. 3 are of a size for making small ropes or single strands. These rollers are usually made of steel, hardened, and in sets, with the grooves of such sizes or radii as to make, when together, a circle of the same diameter as that of the strand or rope to be made; usually the edges of the rollers are not quite together when they form the circle required, so that they may still have room to close and pinch the rope or strand tighter, if required. The levers L and L' are usually made of steel, and tempered so as to be somewhat elastic, and allow any small swell or other inequality in the wire or strand to pass through without injury to the machine or rope and still under nearly the same pressure, making a rope or strand of uniform density.

The nut on hinge-bolt H B being unscrewed and the bolt turned down, the cap P may be turned back on its hinge H out of the way, and the strand or rope to be made commenced in the usual way; then, by placing a set of the rotary rollers of the proper size to make the strand or rope required on their axles in the machine, and bringing the cap P back to its place and securing it by the hinge-bolt H B; then, by operating the hand-wheel W' and the screw S', placing the stand S T in its proper position for the lay and that size strand or rope, and lowering the top roller R to its proper position by the set-screws S S and S S', and turning the hand-wheel W so that the right-and-left-hand screw S will cause the nuts N

and N' and lower ends of levers L and L' to separate, thus causing the upper ends of the levers to move toward each other, they will push the sliding heads S H and S H', and, with them, the axles A' and A'' and rollers R' and R'', until they come in contact with the strand or rope. They may then be tightened to any degree desired, and the machine will be in proper working order, and will make a very compact round strand or rope without injury to the wires or strands, at the same time requiring less power than the means usually employed, namely, of using two semicircular steel dies with the front edges or mouth funneled, so as to avoid cutting the wires and allowing the strand or rope to slide through and clamping them closer together whenever it is desirable to make a more compact strand or rope; but in so doing there is a tendency to flatten and not make a round strand or rope, the pressure being almost entirely on the top and bottom sides; and, as these dies are perfectly rigid, any slight inequality in the size of the strands or wires will cause an increase or decrease in the pressure they are subjected to, and consequently a more compact or loose strand or rope, as the case may be, which, together with the friction of this method, makes

it impracticable to form the same round, uniform, and compact strand or rope as can be made by using the invention hereinbefore described.

In this machine I have used but three rotary rollers at an angle of one hundred and twenty degrees, but do not confine myself to that number; and

I claim as my invention—

1. The combination of the rotary rollers R, R', and R'', and sliding heads S H and S H', and axles A, A', and A'', and elastic levers L and L', and nuts N and N', and the screw S, substantially as and for the purpose hereinbefore set forth.

2. The combination of the cap C P, and stand S T, hinge H, and hinge-bolt H B, and set-screws S S and S S', and rollers R, R', and R'', substantially as and for the purpose hereinbefore set forth.

3. The combination of the hand-wheel W', and screws S', and nut N'', and bolts B and B', and stand S T, and pedestal P, with the parts hereinbefore claimed, substantially as and for the purpose hereinbefore set forth.

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