Sept. 14, 1937. G. G. GREENE 2,092,840

STRAND STRAIGHTENER

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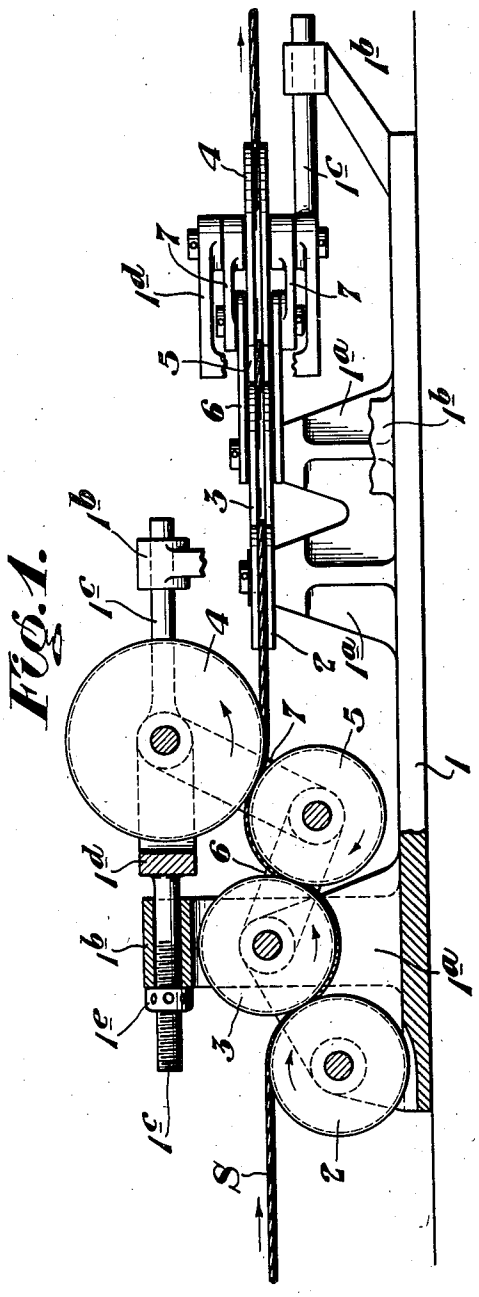


Fig. 1.

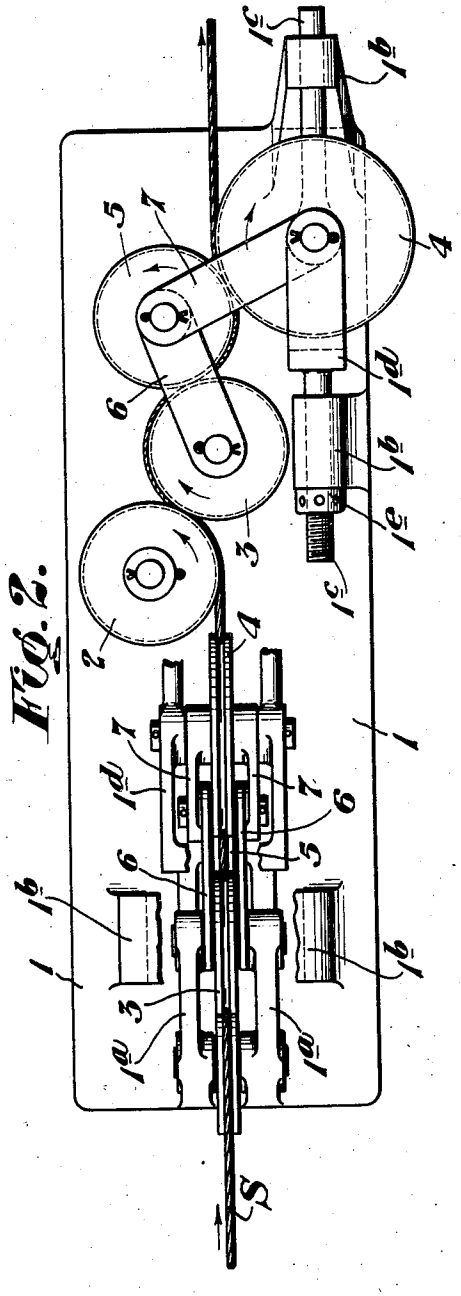


Fig. 2.

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STRAND STRAIGHTENER

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5 Claims. (Cl. 140—148)

This invention is a wire strand roll straightener, one of the objects being to straighten wire strands of reverse lay without incidental untwisting. Another object is to simplify the complicated procedure involved in the adjustment of the usual roll straightener. Other objects may be inferred.

An example of the roll straightener is illustrated by the accompanying drawing, Figure 1 showing the side of the machine and Figure 2 the top.

The machine includes a base 1 which mounts the straightening rolls in two groups. The rolls in the first group are parallel and horizontal, while those in the second group are parallel and vertical. They all alternately oppositely engage and bend the strand to be straightened, which is marked S, and all but the last of each group are of diameters sufficiently small to distort the strand beyond its elastic limit.

Since both groups are similar, excepting their positioning, it is only necessary to describe the construction and operation of one to effect a full disclosure of the straightener. Therefore, only the first group will be discussed, similar numbers being used to indicate the similar parts of the second group.

Base standards 1^a mount the first and second rolls 2 and 3 in fixed positions with their peripheries spaced distances equaling the diameter of the strands, while base standards 1^b horizontally position a sliding bar 1^c to which a mounting 1^d is fixed, the latter, in turn, mounting the last roll 4 of the group for adjustment in a direction paralleling the traveling direction of the strand S. The third roll 5, which is the one between the rolls 3 and 4, is mounted by links 6 and 7 so that these three rolls are also peripherally spaced distances equaling the diameter of the strand S. The bar 1^c is shown as being threaded to provide for easy adjustment, the threaded portion being engaged by a suitable nut 1^e fixed to one of the standards 1^b.

As mentioned, all the rolls are arranged in such relationship as to effect opposite bending of the strand. The close spacing of all the rolls prevents straight strand portions therebetween, this having proved a good feature in that it prevents or retards untwisting of reversely laid strand. The strand arcs over the various rolls are constant excepting in the case of the last roll, the arc in that case depending on the adjustment of that roll. This adjustment is necessary since the ultimate straightness of the strand depends on its final bending. To reduce the sensitivity of this roll to adjustment, it is illustrated as being larger in diameter than the others.

It is to be noted that this adjustment does not affect the other rolls because the links 6 and 7 are responsive to movement of the roll 4 to maintain the peripheral spacing of the others. Other means having a similar function might be developed, but the simplicity and ruggedness of the links is in their favor. Also, it is conceivable that more rolls might precede the movable ones, or that a fixed round surface having the proper radius might be substituted for the roll 2. Such alterations or substitutions are intended to be covered by the following claims.

I claim:

1. A wire strand roll straightener including at least three parallel straightening rolls, means for fixedly mounting the first of said rolls, means for mounting the last of said rolls for adjustment respecting the traveling direction of the strand to be straightened, and links interconnecting said three rolls so that their respective strand contacting peripheries are spaced distances equaling the diameter of said strand.

2. A strand straightener including a group of at least three strand straightening rolls, means for mounting the last two rolls of said group so that their angular association may be adjusted and means for mounting all the rolls of said group so that the strand contacting peripheries of succeeding rolls are spaced from the strand contacting peripheries of preceding rolls distances at least substantially equaling the diameter of the strand to be straightened, the last named means being operative throughout a range of adjustment of the angular relation of said last two rolls.

3. A strand straightener including a group of at least three strand straightening rolls, means for mounting the last two rolls of said group so that their angular association may be adjusted and means for mounting all the rolls of said group so that the strand contacting peripheries of succeeding rolls are spaced from the strand contacting peripheries of preceding rolls distances at least substantially equaling the diameter of the strand to be straightened, the last named means being operative throughout a range of adjustment of the angular relation of said last two rolls, and being automatically responsive to changes in said adjustment.

4. A strand straightener including a group of at least three strand straightening rolls, means for mounting the last two rolls of said group so that their angular association may be adjusted and means for mounting all the rolls of said group so that the strand contacting peripheries of succeeding rolls are spaced from the strand contacting

peripheries of preceding rolls distances at least substantially equaling the diameter of the strand to be straightened, the last named means being operative throughout a range of adjustment of the angular relation of said last two rolls, the last roll of said group being of larger diameter than the others.

5. A strand straightener including a group of at least three strand straightening rolls, means for mounting the last two rolls of said group so that their angular association may be adjusted and means for mounting all the rolls of said group so that the strand contacting peripheries of succeeding rolls are spaced from the strand contacting peripheries of preceding rolls distances at least substantially equaling the diameter of the strand to be straightened, the last named means being operative throughout a range of adjustment of the angular relation of said last two rolls, and being automatically responsive to changes in said adjustment, the last roll of said group being of larger diameter than the others.

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