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PATENTED JAN. 31, 1905.

A. B. LEGNARD.

ART OR PROCESS OF REMOVING SCALE FROM WIRES, RODS, &c.

APPLICATION FILED JULY 15, 1903.

Fig. 1

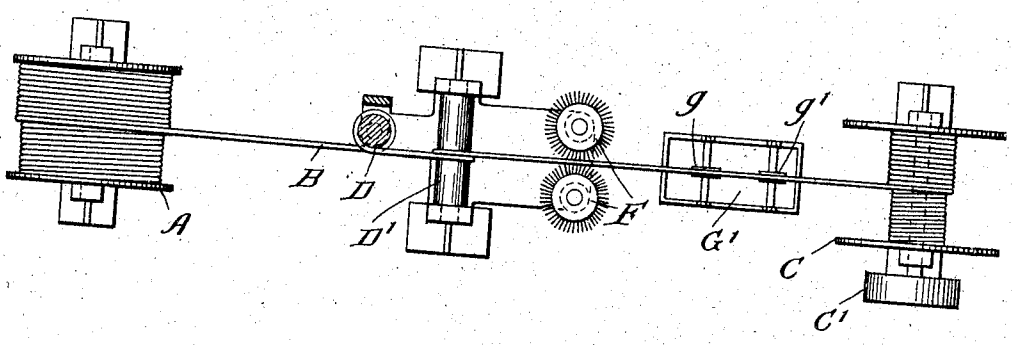
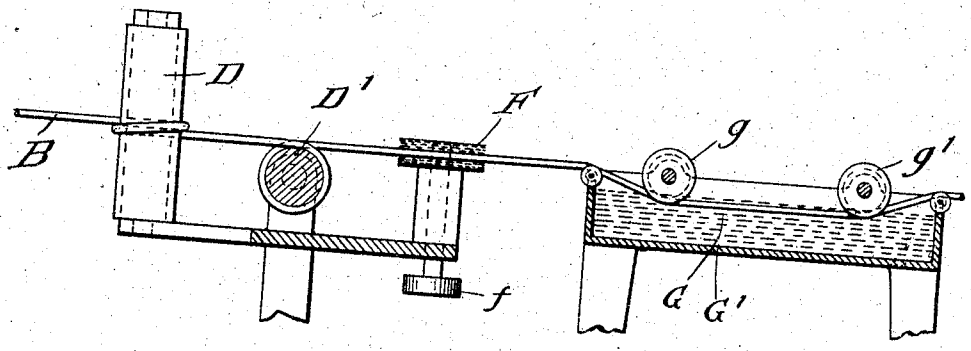


Fig. 2



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UNITED STATES PATENT OFFICE.

ARCHIBALD B. LEGNARD, OF WAUKEGAN, ILLINOIS.

ART OR PROCESS OF REMOVING SCALE FROM WIRES, RODS, &c.

SPECIFICATION forming part of Letters Patent No. 781,078, dated January 31, 1905.

Application filed July 15, 1903. Serial No. 165,567.

To all whom it may concern:

Be it known that I, ARCHIBALD B. LEGNARD, a citizen of the United States, residing in Waukegan, in the county of Lake and State of Illinois, have invented a new and useful Improvement in the Art or Process of Removing Scale from Wires, Rods, &c., of which the following is a specification.

My invention relates to improvements in the art or process of removing scale from wire, rods, and other steel or iron articles.

Heretofore in wiredrawing-mills it has been customary to remove the scale from the wire rods preparatory to the drawing operation by immersing the coils or bundles of wire rods in dilute sulfuric acid, the process requiring a comparatively strong solution of the acid and considerable time and expense, accompanied as it is with subsequent washing and drying.

The object of my invention is to provide a simple and efficient process or method of removing the scale and by which it may be continuously, rapidly, and cheaply done.

My improved process or method of removing scale consists in subjecting the wire, rod, or other article from which the scale is to be removed to a sharp or short bending operation, which crinkles and loosens the coating of scale on the surface of the rod or wire. This short or sharp bending of the rod or wire may be most conveniently effected as the rod or wire is drawn continuously along from one reel or spool to another by passing it over, around, or between one or more rolls of small diameter. In operating upon ordinary wire rod used in wiredrawing I ordinarily prefer to pass the wire rod around a small roll, preferably about an inch and a half in diameter, although its size may be varied. In operating upon rods of larger diameter or of different cross-section than round or circular the sharp or short bending and crinkling operation may be most conveniently effected by passing it between two, three, or more rolls placed close together, so that the rod or other article is given sharp or short bends as it passes between them.

Although my invention may be successfully practiced and the scale removed or loosened around the whole circumference of the rod or wire by passing it around or between a roll or rolls whose axis or axes are in a horizontal or same plane, the operation is rendered somewhat more effective and complete by also causing the rod or wire to pass around or between a second roll or set of rolls whose axis or axes are in a vertical or different plane from the rolls around or about which it is first bent. This insures the crinkling and loosening of the scale at all points of the circumference of the rod or wire, and is specially desirable in operating upon rods, wires, or other articles with a square or other cross-section than round. After the coating of scale on the surface of the rod or wire has thus been crinkled and loosened by subjecting the rod or wire to short sharp bendings in one or more different planes the rod or wire is subjected to a brushing operation which leaves the surface bright and clean. The rod or wire as it is drawn along may then pass through a weak solution of dilute sulfuric acid to still further brighten and clean it and perfect the operation.

In the accompanying drawings, forming a part of this specification, I have, to enable my invention to be more readily and clearly understood by those skilled in the art, illustrated an apparatus suitable for use in practicing my invention.

In said drawings, Figure 1 is a plan view of such apparatus. Fig. 2 is a detail elevation, partly in vertical section.

In the drawings, A represents a drum or reel upon which the rod or wire B to be operated upon is placed, and C is the take-up drum or reel furnished with a driving gear or pulley C′ for revolving the same and drawing the rod or wire along continuously.

D and D′ are small rolls, preferably arranged at right angles to each other, one horizontal and the other vertical, around which the wire or rod B passes as it is drawn or fed forward from the drum A to the drum C and by which the rod or wire is subjected to short or sharp bends in two different planes and the coating of scale thereon crinkled and loosened by the short or sharp bends produced in the rod or wire as it passes around these rolls. This sharp bending or crinkling operation loosens

the scale and causes it to drop off or to be readily removed by the rotating brushes F F, which are preferably wire-bristle brushes. These brushes are driven or rotated through the pulleys *f*. The bending or crinkling rolls D D′ may simply be idlers and are caused to rotate by the rod or wire passing around them as it is drawn forward from the feed-drum A to the take-up drum C. After being acted upon by the brushes F F the rod or wire, which is now substantially bright and clean and free from scale, may be passed through a weak solution of dilute sulfuric acid G in the tank or vat G′, in which the rod or wire is immersed as it passes continually forward by the deflecting-rolls *g g′*.

I claim—

1. The method or process of removing scale from wires or rods consisting in coiling the same around a roll of small diameter as it passes continuously from one spool or reel to another and thereby subjecting it to short sharp bendings and crinkling and loosening the scale from the surface of the wire or rod, substantially as specified.

2. The method or process of removing scale from wire or rods consisting in coiling the same around a roll of small diameter and around a second roll of small diameter in a different plane, and thereby subjecting it to short sharp bendings and crinkling and loosening the scale from the surface of the wire or rod, substantially as specified.

3. The method or process of removing scale from wires or rods consisting in coiling the same around a roll of small diameter as it passes continuously from one spool or reel to another and thereby subjecting it to short sharp bendings and crinkling and loosening the scale from the surface of the wire or rod, and then subjecting the wire or rod to a brushing operation, substantially as specified.

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