J. REMMEN & G. V. SBORIGI.

METHOD OF TREATING RODS FOR WIRE.

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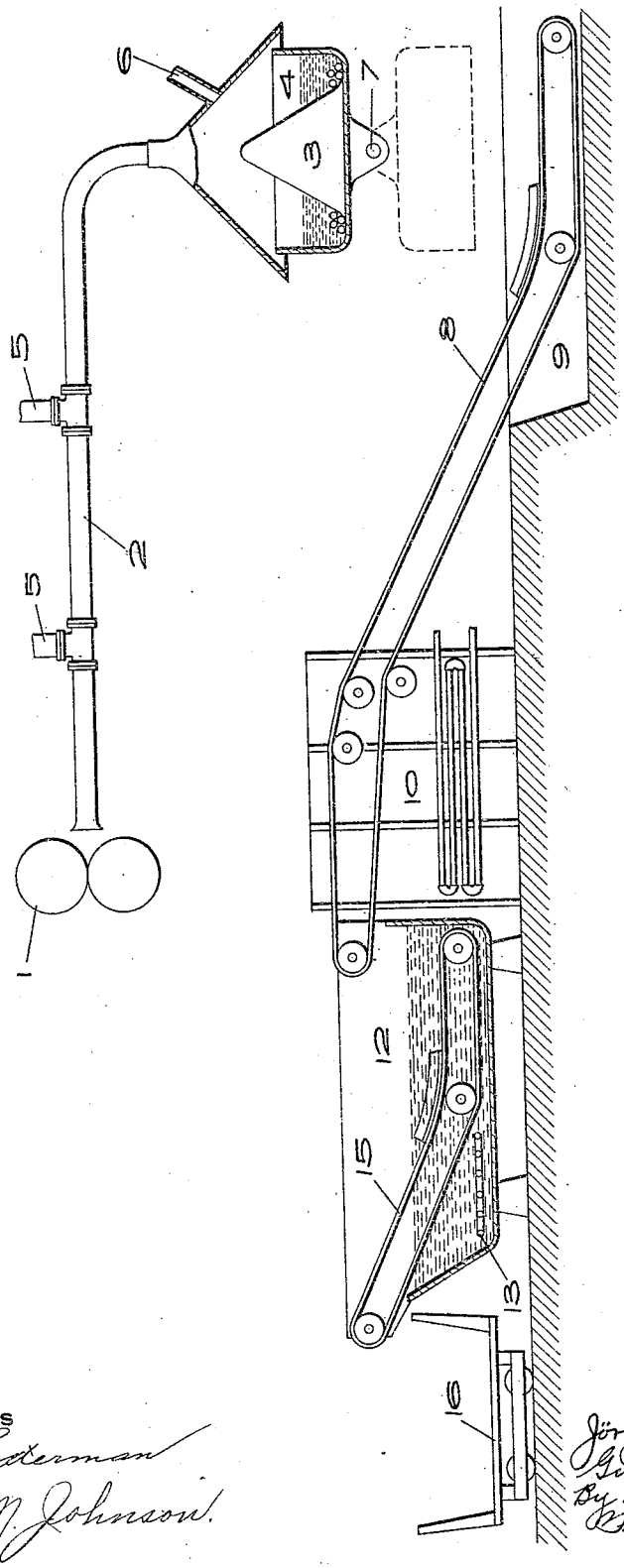
Patented Apr. 19, 1910.



WITNESSES

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JÖRGEN REMMEN AND GUIDO V. SBORIGI, OF DONORA, PENNSYLVANIA.

METHOD OF TREATING RODS FOR WIRE.

955,552. Specification of Letters Patent. Patented Apr. 19, 1910.

Application filed December 24, 1908. Serial No. 469,136.

To all whom it may concern:

Be it known that we, JÖRGEN REMMEN and GUIDO V. SBORIGI, both residents of Donora, in the county of Washington and State of Pennsylvania, have invented a new and useful Improvement in Methods of Treating Rods for Wire, of which the following is a specification.

This invention relates to a method of treating wire rods, that is, rods which are afterward drawn down to form wire.

The object of the invention is to dispense with the labor and cost of cleaning the rods preparatory to drawing, to avoid the pitting of the rods caused by the acid used in cleaning the same, to avoid the dust nuisance created by the lime with which the rods are coated after being cleaned in the acid, and also to dispense with the lubrication necessary in drawing the rod into wire.

To the accomplishment of the foregoing objects the invention comprises, generally stated, a method of treating wire rods consisting in subjecting the rods, as fast as delivered from the finishing pass of the rolling mill or the press in which formed and while still at a red heat, to the action of a cooling agent, such as water, and thereby immediately cooling the same below the point of oxidation, whereby oxidation is entirely prevented and the rod left clean, and then immediately, or at least before the rod has an opportunity to oxidize, coating the same with a substance impervious to moisture and which also will preferably act as a lubricant in drawing the wire.

The accompanying drawing illustrates diagrammatically apparatus for carrying out the method.

In the drawing the rod forming apparatus is illustrated by a finishing pair of rolls 1, although if desired the rod may be formed by pressing the metal through a die, as illustrated and described in application of Jörgen Remmen, filed Aug. 17, 1908, Serial No. 448,855. From the rod forming apparatus a conduit or guide 2 leads to the coiling apparatus 3. The latter is shown as an upright cone surrounded by a liquid tight basin 4. The cooling medium will preferably be water and this can be either introduced in the conduit 2, such as through pipe 5, or into the coiler through pipe 6. By this means the rod, as fast as it is delivered from the forming apparatus and while still in a red hot state, is submerged in water and the temperature thereby reduced below the point of oxidation. The consequence is that the rod does not scale as is the case where it is allowed to cool slowly, but on the other hand is left in a clean condition.

The coiler 3 is shown mounted on a pivot 7 so that it can be inverted to discharge the coil or bundle. The latter drops upon a conveyer 8 which may have one end located within a pit 9 which may be filled with water to further reduce the temperature of the bundle if desired, although this is hardly necessary. The conveyer carries the bundle out of the pit 9 through a drying chamber 10, in which place warm air is maintained in any suitable way for drying the rod, although this is hardly necessary as the rod will generally be warm enough to dry very rapidly without artificial means. The conveyer 8 leads to a tank 12 in which is maintained a supply of the coating material in liquid form. This tank may be provided with a steam coil 13 or other means for keeping the coating material in liquid form if necessary, depending upon the character of the coating material. In the tank is shown a conveyer 15 which conveys the bundles up out of the tank and deposits the same on a truck 16 or the like.

The coating material may be of various kinds capable of forming on the rod an unbroken coating which is impervious to moisture, and which will prevent oxidation. Various well known substances may be used, such as rosin, pitch, varnish, paraffin, or a mixture of paraffin and any neutral hydrocarbon solvent, such as benzin, or any of the well-known paraffin varnishes. Preferably the coating substance will be one which will also act as a lubricant in order to dispense with the necessity of applying grease while drawing the rod down into wire. Paraffin or paraffin varnish is desirable on this account.

According to the ordinary way of treating wire rods, they are allowed to air cool slowly after leaving the forming apparatus, and on account of their high temperature and slow cooling become covered with a thick coating of scale. These scaly rods are then cleaned by pickling, that is, subjecting the same to an acid bath in order to remove the scale, and this causes the rod to become pitted. Afterward the rods are washed with water and coated with lime in

order to neutralize the remaining acid, and then dried in the rod baker. The lime coated rods when drawn must be freely lubricated and the lime comes off in the form of dust. This lime dust in the wire mill is a nuisance, also being injurious to the health of the men. By our method these difficulties are entirely avoided. The treatment of the red hot rod with water immediately cools the latter below the point of oxidation and absolutely prevents the forming of scale. Consequently a clean rod is produced. This clean rod is coated with the substance described so that the bundles can be stored indefinitely or shipped without danger of oxidation. This entirely eliminates the labor and expense of cleaning, and furthermore dispenses with the necessity of coating with lime so that when drawing the rod into wire the lime dust nuisance is entirely avoided and the coating supplies the necessary lubrication for drawing.

While it is desirable to coat the rod immediately after subjecting it to the water treatment, we wish it understood that our invention includes the coating of the rod at any time before it oxidizes, since the clean rod might be stored for a considerable time in a dry or non-oxidizing atmosphere before being coated.

What we claim is:

1. The method of treating rods for wire, consisting in subjecting the rods as delivered from the forming apparatus and while still in a red hot state to the action of a cooling medium and thereby reducing the temperature below the point of oxidation, and before the said rod oxidizes coating the same with a substance which will resist the action of moisture.

2. The method of treating rods for wire consisting in subjecting the rod as delivered from the forming apparatus and while still in a red hot state to the action of a cooling medium and thereby reducing its temperature below the point of oxidation, and while still clean coating the same with a lubricant which is a resistant of moisture.

3. The method of treating rods for wire, consisting in subjecting the same as delivered from the forming apparatus and while still in a red hot state to the action of a cooling medium and thereby reducing its temperature below the point of oxidation, and while still clean coating the same with paraffin varnish.

4. The method of treating rods for wire, consisting in subjecting the same as delivered from the forming apparatus and while still in a red hot state to a water bath and thereby cooling the same below the point of oxidation, then drying said rod, and while still clean coating the same with a lubricant.

In testimony whereof, we have hereunto set our hands.

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Witnesses:
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