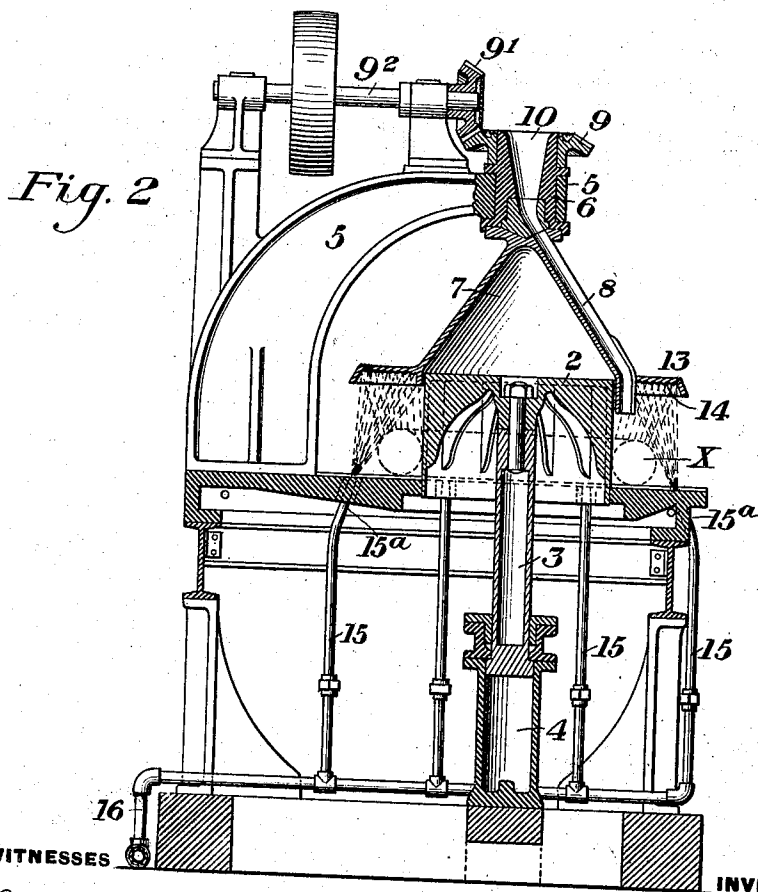
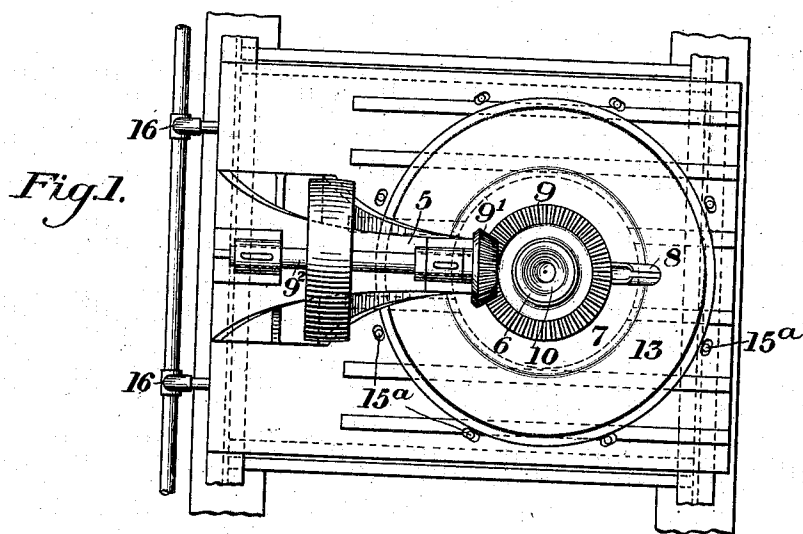


No. 854,809.

PATENTED MAY 28, 1907.

F. H. DANIELS.
WIRE COILING APPARATUS.
APPLICATION FILED AUG. 3, 1906.



WITNESSES

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UNITED STATES PATENT OFFICE.

FRED H. DANIELS, OF WORCESTER, MASSACHUSETTS.

WIRE-COILING APPARATUS.

No. 854,809.

Specification of Letters Patent.

Patented May 28, 1907.

Application filed August 3, 1906. Serial No. 328,994.

To all whom it may concern:

Be it known that I, FRED H. DANIELS, of Worcester, county of Worcester, and State of Massachusetts, have invented a new and useful Wire-Coiling Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a plan view, and Fig. 2 is a central vertical section of a wire coiling apparatus embodying my invention.

This invention relates to certain improvements in wire coiling machines.

In the manufacture of wire rods, it is customary to lead the finished rod from the finishing roll to an automatic reel which forms it into a bundle or coil while it is still at a dull red heat, the bundle or coil being afterward cooled. If the rods be allowed to cool in contact with the air, the action of the air upon the hot metal forms a heavy coating of oxid or scale upon its outer surfaces, which must be thoroughly cleaned off before the material can be satisfactorily drawn into wire.

The object of my invention is to provide means for cooling wire rods while they are being coiled so that scaling or oxidation is prevented, thereby effecting a large saving in the amount of time and material required in subsequently cleaning the rods.

To this end my invention consists in the provision of means whereby the coiling of the rods is effected in a shower or spray of water or other suitable fluid, and the present apparatus is designed to carry out the method claimed in my application, Serial No. 328,995, filed of even date herewith, entitled Method for the manufacture of wire rods, and is also additional to the apparatuses illustrated, described and claimed in my earlier applications, Serial Nos. 211,306 and 211,307, for Treatment of wire rods, filed June 6, 1904.

My invention also consists in the novel construction, arrangement and combination of parts all substantially as hereinafter described and pointed out in the appended claims.

In the drawings, 2 designates a fixed drum or reel which is carried by the shaft or post 3 adjustably mounted in the supporting cylinder 4.

5 is an overhanging arm which is formed with a bearing for the shaft or journal 6 of a rotary cone-shaped coiling device 7 having the wire guide 8. The shaft 6 is driven by

the gears 9 and 9' from the shaft 9² and is formed with a vertical opening 10 which communicates with the wire guide 8.

13 is a flanged deflecting plate which forms a horizontal extension of the lower end of the cone 7 and which is preferably formed on its under surface with corrugations such as indicated at 14.

15 designates a series of vertical water pipes which are arranged in a circular series with their upper end portions 15^a bent slightly inwardly and underneath the plate 14 in a position to direct jets of water against the under side of said plate.

16 is a supply pipe for the pipes 15.

The operation is as follows:—The wire rod as it comes from the finishing roll, and while still at a dull red heat is guided into the opening 10 and guide 8, and is reeled around the drum 2 to form a coil such as indicated at X. During this operation the water is spouted from the pipes 15 against the under-side of the deflecting plate 14 which converts it into a spray and reflects such spray downwardly upon the coil X, the roughened surface of the plate causing the water to spray over every part of the coil. The coil is therefore formed in this atmosphere of spray, so that it is uniformly cooled.

The advantages of my invention consist in the simplicity of the apparatus and in the provision of means whereby the water or other cooling fluid is deflected about the coil in the form of a spray, whereby a uniform distribution of the cooling effect is obtained.

Various changes may be made in the construction of the apparatus without departing from the spirit and scope of my invention, since

What I claim is:—

1. Apparatus for coiling wire rods, having a coiling reel or drum, a rotary rod coiler, a deflecting plate and a circular series of water pipes arranged to direct jets of water against said plate; substantially as described.

2. In apparatus for coiling wire rods, a coiling reel or drum, and a deflecting plate adjacent thereto and having a roughened or corrugated deflecting surface; substantially as described.

3. A wire coiling apparatus having a coiling reel or drum, a rotary coiler having a hollow journal, and a deflecting plate carried by the coiler; substantially as described.

4. In apparatus for coiling wire rods, a

coiling reel or drum, a coiling device having a cone portion, a deflecting plate at the base of the cone and through which the wire guide extends, and means for directing jets of cooling fluid against the under side of said plate; substantially as described.

5 5. In apparatus for coiling wire rods, a coiling reel or drum having an overhanging deflecting plate, and means for directing jets
10 of cooling fluid against said plate; substantially as described.

6. In apparatus for coiling wire rods, a coiling reel or drum having a deflecting plate surrounding the same above its coiling surface, and means for directing jets of water
15 against the plate; substantially as described.

In testimony whereof, I have hereunto set my hand.

FRED H. DANIELS.

Witnesses:

GEO. SIEURIN,

WM. A. BACON.