Nov. 22, 1966 S. JUNTA ET AL 3,286,499

APPARATUS FOR COILING WIRE

Filed Nov. 12, 1963 2 Sheets-Sheet 1

FIG. 4

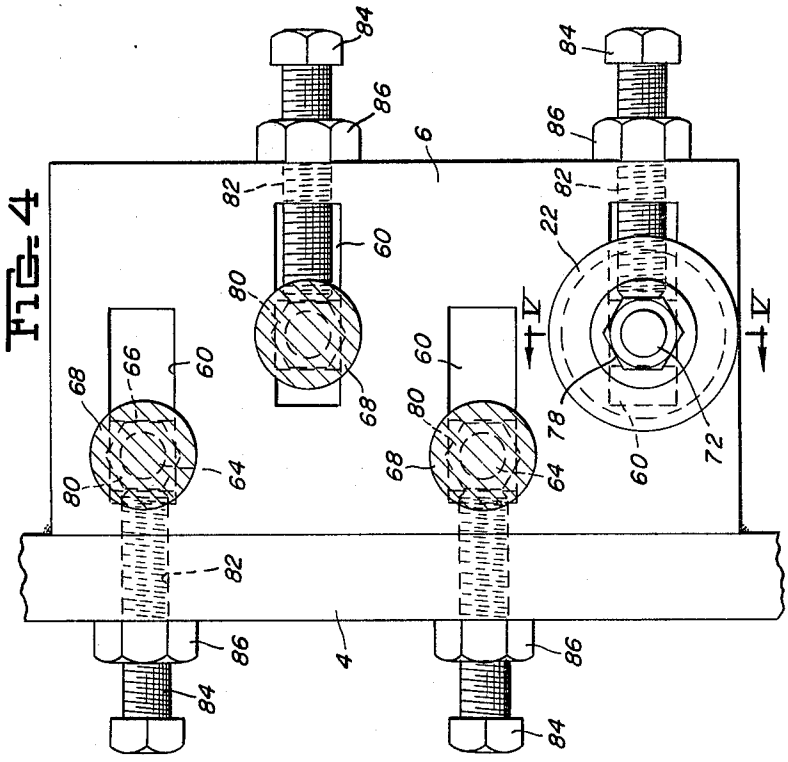


FIG. 5

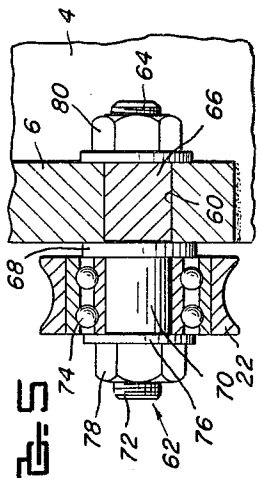
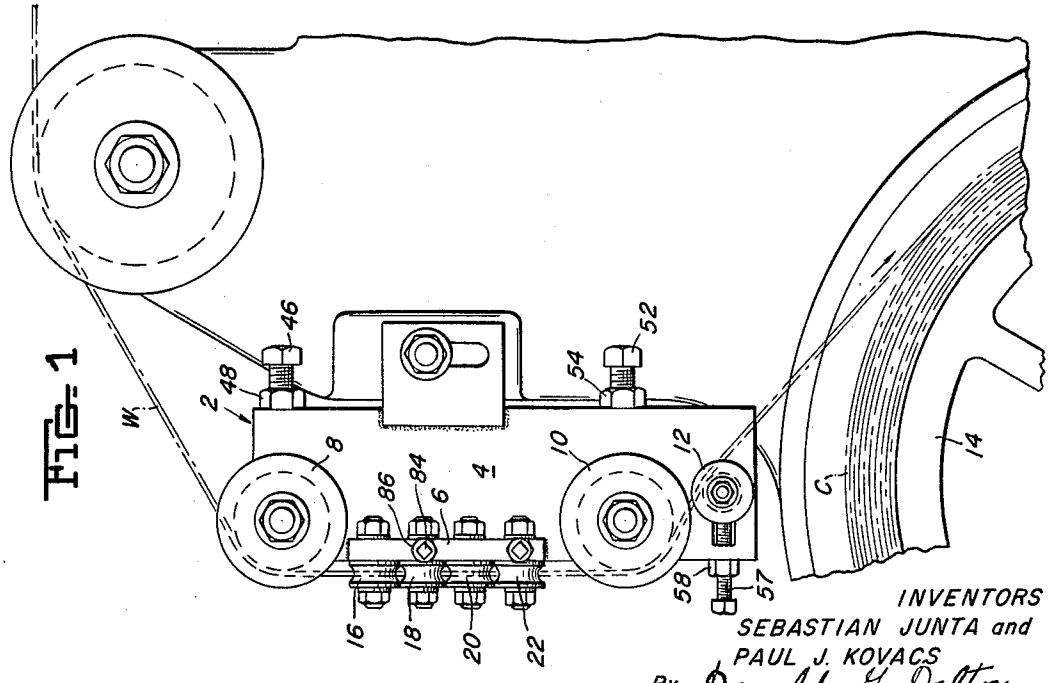


FIG. 1



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Filed Nov. 12, 1963 2 Sheets-Sheet 2

FIG. 3

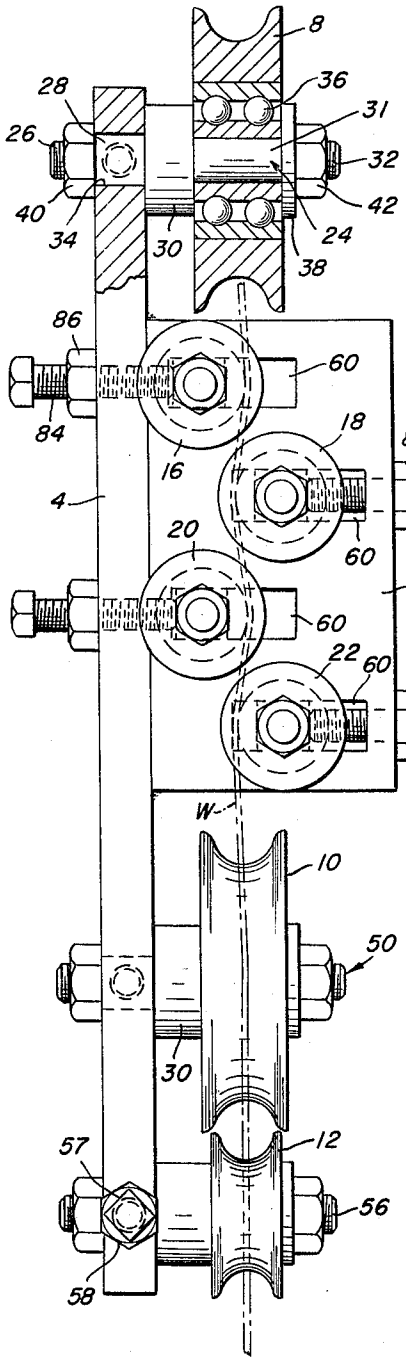
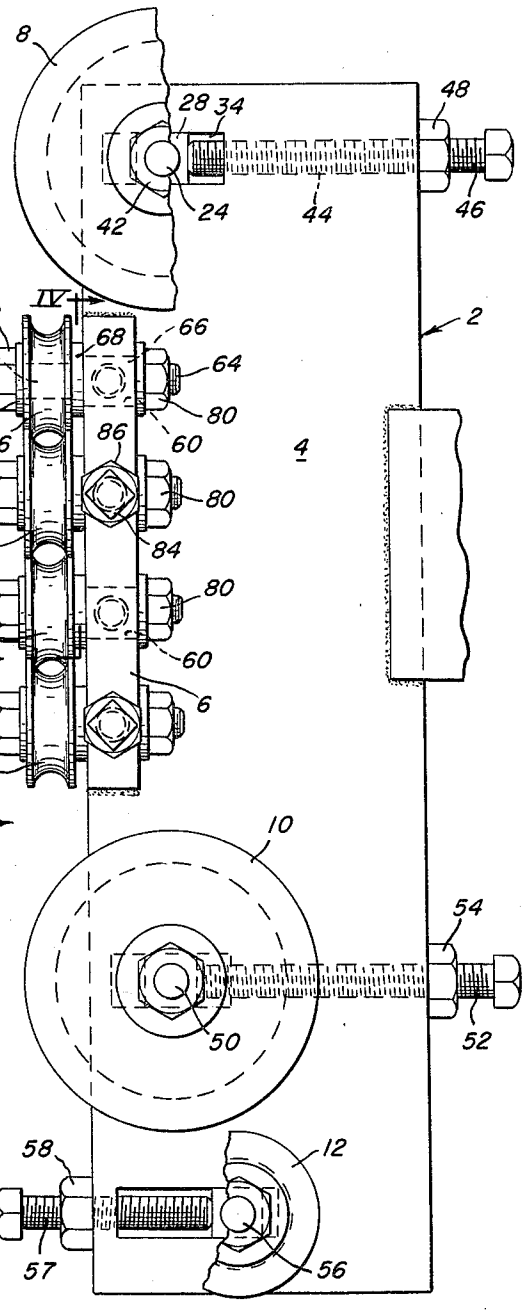


FIG. 2



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APPARATUS FOR COILING WIRE

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Filed Nov. 12, 1963, Ser. No. 322,957
6 Claims. (Cl. 72—161)

This invention relates to apparatus for coiling wire and more particularly to coiling medium to high carbon galvanized steel wire No. 16 gauge or finer. Frequently the wire fails to wrap properly on the take-up due to its springiness and lack of uniformity in cast. This wild wire causes stoppage of the reeling and hence requires a stoppage or slowdown of the processing line. There is also a danger of the equipment being damaged or of injury to the workmen. The quality of the coils of the wire may also be decreased. While wire casters have been used, to the best of our knowledge, none of those in use will operate satisfactorily on medium and high carbon galvanized steel wire No. 16 gauge or finer.

It is therefore an object of our invention to provide apparatus for coiling wire in which a dead cast is provided in the wire being coiled.

This and other objects will be more apparent after referring to the following specification and attached drawings, in which:

FIGURE 1 is an assembly view of the apparatus of my invention;

FIGURE 2 is an enlarged view, partly in section, of the apparatus of FIGURE 1;

FIGURE 3 is a view, partly in section, taken at right angles to FIGURE 2;

FIGURE 4 is an enlarged view taken on the line IV—IV of FIGURE 2; and

FIGURE 5 is an enlarged view taken on the line V—V of FIGURE 4.

Referring more particularly to the drawings, reference numeral **2** indicates a roller housing having a main leg **4** and a secondary leg **6** extending at right angles thereto. The housing **2** is located at the exit end of the wire processing line, not shown, such as a glavanizing line. Two large rollers or sheaves **8** and **10** are mounted on the main leg **4** with their axes parallel with each other and perpendicular to the leg **4**. A smaller roller or sheave **12** is also mounted on the leg **4** with its axis parallel to the axes of rollers **8** and **10**. The roller **12** is located between the roller **10** and a driven take-up block **14**. Four rollers or sheaves **16**, **18**, **20** and **22** are mounted on the leg **6** between the rollers **8** and **10** with their axes parallel to one another, but perpendicular to the axes of rollers **8** and **10**. The roller **8** is mounted on a shaft **24** which has a threaded portion **26**, a square section **28** adjacent the head, a cylindrical collar **30**, a cylindrical bearing portion **31** and a threaded portion **32**. The leg **4** has a slot **34** therein which receives the square portion **28**. A ball bearing **36** is mounted on the cylindrical portion **31** between the collar **30** which bears against the leg **4** and a washer **38**. The roller **8** is mounted for rotation on the bearing **36**. The roller assembly is held in place by means of nuts **40** and **42**. A threaded opening **44** is provided in the leg **4** in alignment with the slot **34** and perpendicular to the axis of shaft **24**. A cap screw **46** is threaded into the opening **44** and held in adjusted position by means of a nut **48**. The roller **10** is mounted on a shaft **50** which is identical to the shaft **24**. Since the mounting and arrangement of the roller **10** is the same as that of roller **8** it will not be described in detail. The position of the roller **10** is adjusted by means of a cap screw **52** and nut **54** in the same manner as roller **8**. The roller **12** is mounted on a shaft **56** which, except for dimensions, is the same as shaft **24**. Since the mounting of the roller **12** is the same as that of roller **8** it will not be described in detail. The position of the roller **12** is adjusted by means of a cap screw **57** and nut **58** in the same manner as rollers **8** and **10**.

Four slots **60** are arranged in the leg **6**, one for each of the rollers **16**, **18**, **20** and **22**. Since the supports for the rollers **16**, **18**, **20** and **22** are all the same only one will be described in detail. The roller **16** is mounted on a shaft **62** having a threaded portion **64**, a square portion **66** which is received in the slot **60**, a collar **68**, a cylindrical portion **70** and a threaded portion **72**. A roller bearing **74** is mounted on the cylindrical portion **70** with one end bearing against the collar **68** and the other end against a washer **76** which is held in place by a nut **78** threaded on portion **72**. The roller **16** is mounted on the roller bearing **74**. A nut **80** threaded on portion **64** holds the parts in assembled relationship. A threaded hole **82** is provided in the housing **2** in alignment with the slot **60** and a cap screw **84** threaded therein and held in adjusted position by means of the nut **86**.

In operation, wire W coming from the galvanizing line passes around roller **8** and is fed between rollers **16**, **18**, **20** and **22** as best shown in FIGURE 1. Wire W is then threaded around roller **10** and hence around roller **12** and the end attached to the take-up block **14** in the usual manner. The position of the rollers **8**, **10**, **16**, **18**, **20** and **22** is adjusted by means of cap screws **46**, **52** and **84** to suit the particular wire being processed. It will be seen that the wire W contacts all of these rollers in such a manner as to urge their supporting shafts against the adjusting cap screws and since the wire is under tension the shafts will be contacting the cap screws during operation. The position of the roller **12** is adjusted according to the wire being processed to impart a cast in the wire such that it will wind uniformly around the rotating take-up lock **14** so as to provide a uniform coil of wire C. It will be seen that the roller **12** moves the wire W away from a line tangent to the take-up block **14** and roller **10**.

While one embodiment of our invention has been shown and described it will be apparent that other adaptations and modifications may be made without departing from the scope of the following claims.

We claim:

1. Apparatus for coiling wire from a wire processor onto a rotating take-up block comprising a first rotatable roller adjacent the wire processor over which the wire from the processor passes, a second rotatable roller spaced from said first roller toward the take-up block, the axes of said rollers and take-up block being parallel to one another, a plurality of rollers arranged between said first and second rollers and bearing on opposite sides of the wire passing over the first and second rollers, said plurality of rollers directing the wire in a tortuous path, the axes of said plurality of rollers being parallel to one another and perpendicular to the axes of said first and second rollers, a small roller arranged between the second roller and the take-up block with its axis parallel to the axis of said take-up block, said small roller being arranged to contact said wire and direct it away from a line tangent to said take-up block and said second roller, and means for moving said small roller toward and away from said wire passing thereover.

2. Apparatus for coiling wire from a wire processor onto a rotating take-up block according to claim **1** in which the plurality of rollers include four rollers with alternate rollers being arranged on opposite sides of the wire.

3. Apparatus for coiling wire from a wire processor onto a rotating take-up block according to claim **2** including means for moving each of the rollers toward and away from said wire passing thereover.

4. Apparatus for coiling wire from a wire processor onto a rotating take-up block comprising a first rotatable roller adjacent the wire processor over which the wire from the processor passes, a second rotatable roller located below said first roller and above the take-up block, the axes of said first and second rollers being horizontal and parallel to the axis of the take-up block, said wire passing over said rollers in a line to one side of the axis of the take-up block, means for moving said rollers horizontally toward and away from said wire passing thereover, four spaced apart rollers arranged between the first and second rollers with their axes parallel to each other and perpendicular to the axes of said pair of rollers, alternate rollers of said four spaced apart rollers being arranged on opposite sides of the wire with the wire passing thereover in a tortuous path, means for moving said four spaced apart rollers horizontally toward and away from said wire passing thereover, a small roller arranged between the said second roller and said take-up block with its axis parallel to the axis of said take-up block, said small roller being arranged to contact said wire and direct it away from a line tangent to said take-up block and said second roller, and means for moving said small roller horizontally toward and away from said wire passing thereover.

5. Apparatus according to claim 1 including a roller housing having a main leg and a secondary leg extending at a right angle thereto, means mounting said first and second rollers on said main leg, means mounting said small roller on said main leg, a shaft for each of said plurality of rollers, said shaft including a rectangular portion, said secondary leg having a plurality of elongated slots therein one for receiving each of said rectangular portions, each of said shafts having a threaded end, a nut threaded on said threaded end for holding the associated

shaft and roller in adjusted position, said housing having a plurality of threaded openings one associated with each slot and extending in the same direction as the length of the slot, adjacent threaded openings extending in opposite directions from the associated slot, and a screw threaded into each opening with its end bearing against the associated shaft.

6. Apparatus according to claim 4 including a roller housing having a main vertical leg and a secondary leg extending horizontally from the bottom of said main leg, means mounting said first and second rollers on said main leg, means mounting said small roller on said main leg, a shaft for each of said four rollers, each shaft including a rectangular portion, said secondary leg having four elongated slots therein one for receiving each of said rectangular portions, each of said shafts having a threaded end, a nut threaded on said threaded end for holding the associated shaft and roller in adjusted position, said housing having four threaded openings one associated with each slot and extending in the same direction as the length of the slot, adjacent threaded openings extending in opposite directions from the associated slot, and a screw threaded into each opening with its end bearing against the associated shaft.

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