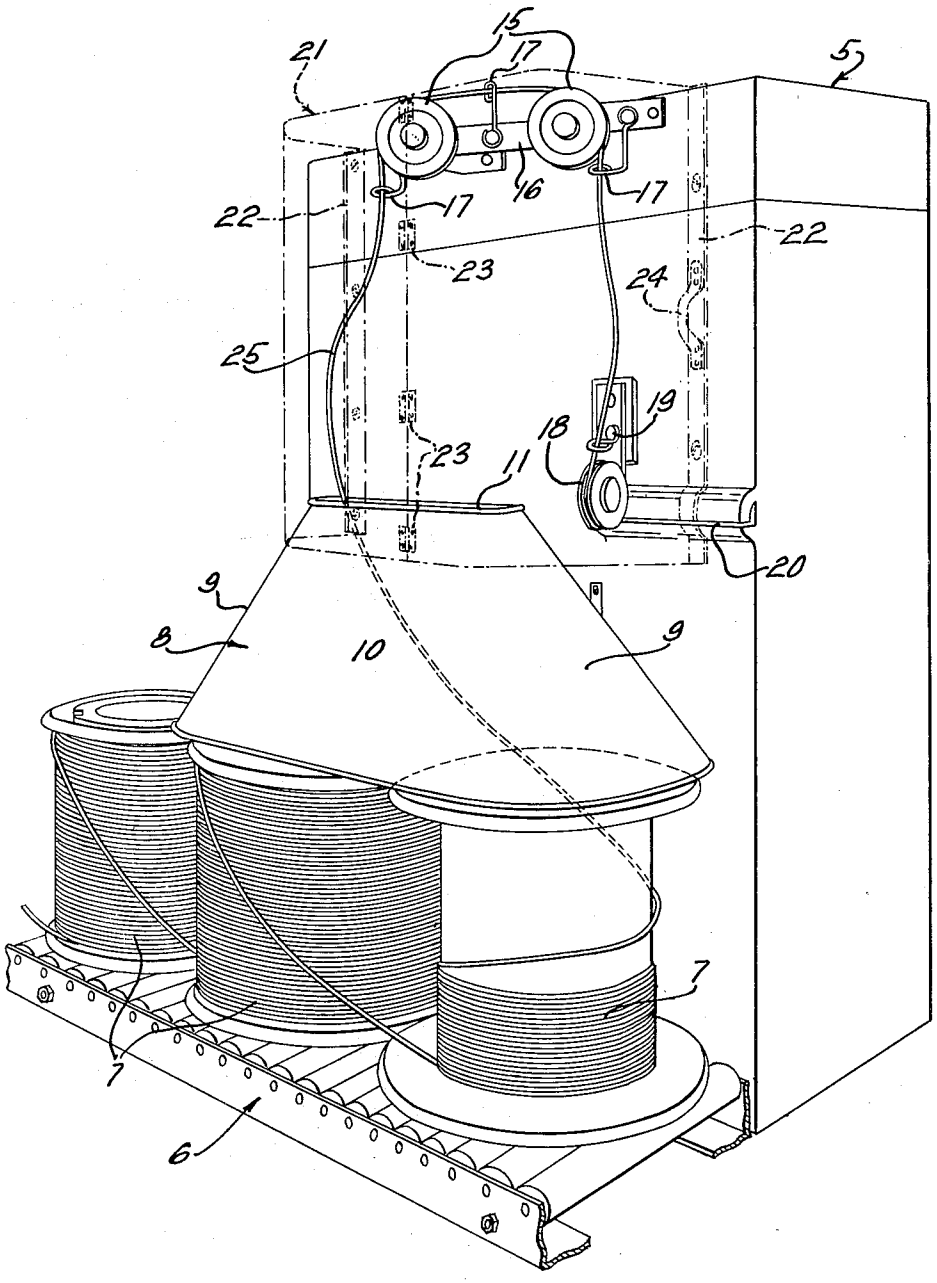
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GUARDING AND GUIDING APPARATUS

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GUARDING AND GUIDING APPARATUS

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This invention relates to guarding and guiding apparatus, and more particularly to apparatus especially adaptable to wire drawing machines for guarding and guiding wire from supply reels.

In the drawing of copper wire, the wire is advanced through a wire drawing machine which reduces the cross-section of the wire and is finally wound on a take-up reel. This reel is then transferred as a supply reel to another wire drawing machine through which the wire is likewise advanced for further reducing its cross-section, and it therefore becomes desirable to provide means for guarding and guiding the wire from such supply reels to the second machine.

The primary object of this invention is to provide simple and efficient apparatus for the proper guarding and guiding of strand material from supplies thereof.

In accordance with this object, one embodiment of the invention comprises a stationary, strand guiding metal hood which is open at the top and bottom and positioned with respect to the ends of a plurality of interconnected supplies of strand material for receiving and directing the material therefrom. Specifically, the hood is formed by conical end portions interconnected by tapered straight sides to provide top and bottom openings of different sizes, the larger bottom opening being positioned adjacent the upper ends of a pair of vertically disposed reels having the wire thereon interconnected for continuous withwithdrawal and advancement, at high speed, through a wire drawing machine. This hood considered alone or in combination with a hinged sheet metal housing or guard member which encloses a number of sheaves for directing the withdrawn wire through the hood and into the wire drawing machine, serves to prevent entanglement of and interference with the advancing wire, as well as eliminates the likelihood of injury to the operator.

A better understanding of the invention will be had from the following description of one specific embodiment thereof illustrated in the accompanying drawing disclosing a single perspective view of guarding and guiding apparatus applied to a wire drawing machine.

Referring now to the drawing, the reference numeral 5 designates generally an upright, rectangular wire drawing machine, and adjacent the base thereof there is supported upon the floor a roller conveyor 6 which may extend to other similar wire drawing machines. Three reels 7 of copper conductor or wire are supported in an upright manner with their axes in alignment with each other along the conveyor 6 which is designed to allow the reels to be pushed manually from left to right as the copper wire is consumed by the machine. Covering the upper or strand delivery ends or heads of the two rightmost reels 7 is the metal hood 8 designed to guide the copper wire or strand from the reels to the machine supported by suitable brackets secured to the wire drawing machine. This hood 8 is formed of sheet metal which is shaped to provide two frusto-conical end portions 9—9 which are connected by a pair of tapered straight sides 10—10, providing a structure with an elongated lower opening encircling the upper ends or heads of two of the reels 7, and a narrow, elongated, slot-like upper opening 11 which extends parallel to the lower opening of the hood, both openings being disposed parallel and longitudinally of the roller conveyor 6, and the lower opening being disposed over the outer edges of the rims of the reels, whereas the slot-like upper opening 11 extends around the extended axes of the two rightmost reels.

Above the hood 8 and at a sufficient distance for drawing the copper wire from the ends of the reels, and through the hood, there is mounted a pair of sheaves 15 which are both supported by a triangular bracket 16 secured to the frame of the wire drawing machine 5, and strand or wire guiding eyelets 17—17 are secured adjacent the sheaves for maintaining the copper wire in the grooves thereof. The sheaves 15 are mounted at a sufficient distance above the reels 7 so that a sufficient arc is formed in the withdrawn strand to prevent excessive stress therein as the strand leaves the reels. A third sheave 18 and a wire guiding eyelet 19 associated therewith are mounted on the frame of the machine adjacent to a slot 20 where the copper wire enters the machine. In order to enclose the sheaves 15 and 18, a sheet metal cover member or housing 21 is extended thereover down to the upper portion of the hood 8, which housing is bent inwardly at the sides toward the machine 5 where flanges 22—22 formed thereon are secured to the machine. This hood 21 is divided at the center and provided with hinges 23—23 for allowing one-half of the hood to be swung open for gaining access to the sheaves 15 and 18, a handle 24 being provided for this purpose.

In the operation of the aforedescribed guarding and guiding structure, the supply reels 7 of copper wire have the inner strand end of a preceding reel brazed or welded in a well known manner to the outer strand end of a succeeding reel

as shown in the drawing, in order that the copper wire may be drawn successively from the reels in a continuous manner without interrupting the operation of the machine by sliding the reels 7 progressively to the right as the reels become empty. A copper strand or wire 25 is withdrawn from the first reel 7 at the right hand side and passed up through the hood 8 and slot 11 thereof and through the eyelets 17—17 and over the sheaves 15 and finally down through the eyelet 19 and over the last sheave 18, and through the slot 20 into the wire drawing machine 5 which furnishes the motive power for advancing the withdrawn strand 25 from the reel. As the wire drawing machine withdraws the strand 25, it naturally uncoils over the upper head or end of the supply reel because of the fact that the sheaves 15 are positioned thereabove at a sufficient distance for this purpose, and the sloping conical end 9 and tapering straight sides 10—10 of the hood 8 guide the strand away from the reel head as it uncoils thereover, preventing entanglement of the strand coils and causing them to straighten as the strand approaches the first sheave 15. The sheet metal cover member 21 encloses the sheaves 15 and 18 and the advancing wire passing thereover to prevent a person from possibly coming in contact with these parts. In the event that the strand 25 should break, or for any other reason access must be had to the sheaves 15 and 18, the right half of the cover member 21 may be readily swung open upon the hinges 23—23 to permit the operator to examine these parts. When the copper strand is entirely removed from the first reel 7, the withdrawn strand 25 will automatically shift over to the next reel to the left due to the fact that the hood and upper slot 11 thereof extend longitudinally of the roller conveyor 6, and the strand will be continuously advanced without interruption. The two reels 7 at the left are then pushed along the conveyor 6 to the right to position them underneath the hood the same as are the two rightmost reels now shown thereunder, and the empty reel is removed and the strand end of another third reel brazed to the two left hand reels 7 to again provide three supply reels as shown in the drawing. Thus the withdrawing operation is continuously maintained and the guarding and guiding apparatus always operates with an uninterrupted advancement of the supply copper wire to the wire drawing machine which operates at a very high rate of speed. Therefore, it is believed to be apparent that the aforedescribed apparatus efficiently conducts the copper wire into the wire drawing machine, and serves the purpose for which it was designed.

Although one specific embodiment of the invention has here been described in detail it will, of course, be understood that the invention is not to be limited thereto, but is to be limited only by the scope of the appended claims.

What is claimed is:

1. In apparatus for guarding and guiding strand material from supply reels thereof into a wire drawing machine, a roller conveyor along which a plurality of upright reels having the supplies thereof interconnected may be advanced, a tapered metal hood slotted at the top and covering the ends of a pair of the reels for guiding the copper wire away from the reels in succession and over their ends, a plurality of sheaves for conducting the copper wire from the hood into the wire drawing machine, and a hinged sheet metal housing for enclosing and guarding the sheaves and the portion of wire passing thereover.

2. In apparatus for guarding and guiding strand material from supply reels thereof into a wire drawing machine, a roller conveyor along which a plurality of upright reels having the supplies thereof interconnected may be advanced, and permanently stationary means covering the ends of a pair of the reels for guiding the wire over the ends of the reels and for permitting withdrawal of wire from the reels successively without alteration of their relative positions.

3. In apparatus for guarding and guiding strand material from supply reels thereof into a wire drawing machine, a roller conveyor along which a plurality of upright reels having the supplies thereof interconnected may be advanced, and a tapered metal hood slotted at the top and covering the ends of a pair of the reels for guiding the wire away from the reels in succession and over their ends.

4. In a strand working machine having external strand guiding means, means to withdraw a strand from a supply thereof, and means to permit the advance of a sequence of interconnected vertically disposed strand supply reels, the combination therewith of stationary guard means to cover the strand delivery ends of a plurality of strand supply reels when in delivery position as well as to cover also the said external strand guiding means.

5. In a strand working machine having external strand guiding means, means to withdraw a strand from a supply thereof, and means to permit the advance of a sequence of interconnected vertically disposed strand supply reels, the combination therewith of stationary guard means to cover the strand delivery ends of a plurality of strand supply reels when in delivery position, the said guard means comprising a horizontally elongated and vertically tapered shield.

6. In a strand working machine having external strand guiding means, means to withdraw a strand from a supply thereof, and means to permit the advance of a sequence of interconnected vertically disposed strand supply reels, the combination therewith of stationary guard means to cover the strand delivery ends of a plurality of strand supply reels when in delivery position as well as to cover also the said external strand guiding means, the said guard means comprising a horizontally elongated and vertically tapered shield positioned over the strand supply reels and associated therewith and extending partially thereover a second shield to house the said external strand guiding means.

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