Dec. 17, 1968 J. P. CONNER ET AL 3,416,745

WIRE PACKAGING APPARATUS

Filed April 24, 1967

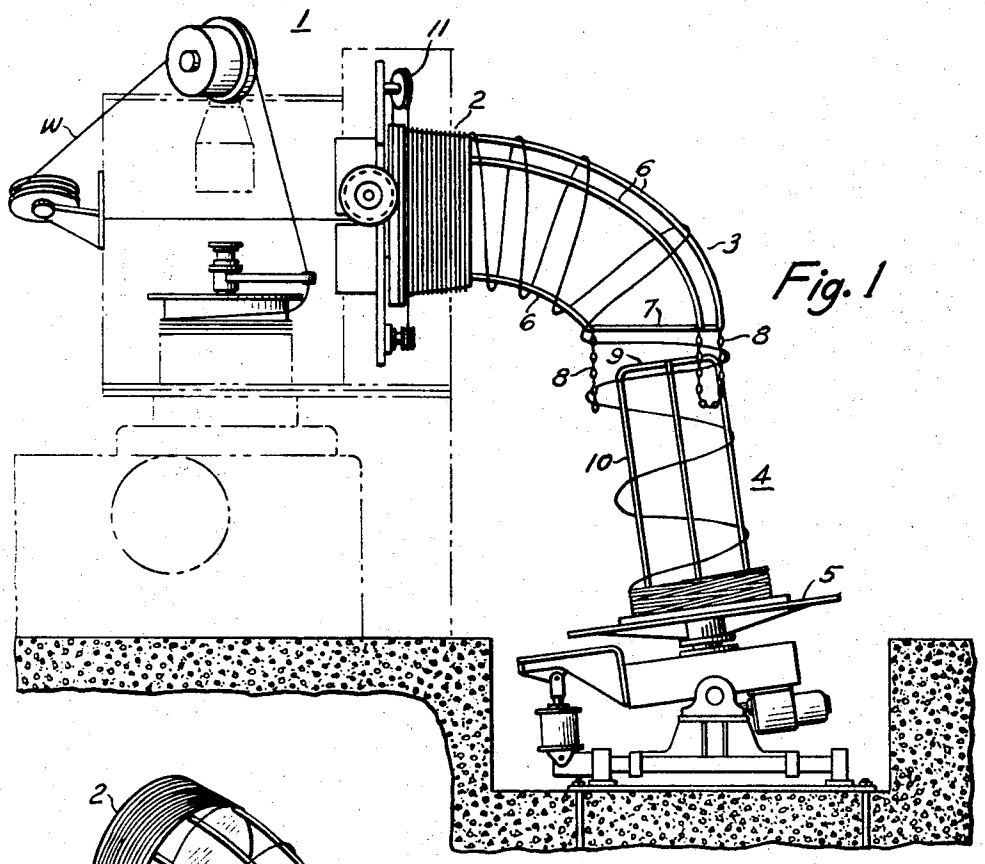


Fig. 1

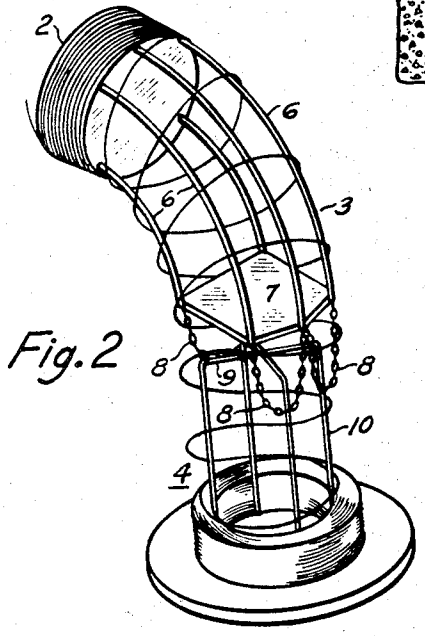


Fig. 2

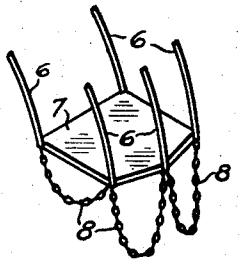


Fig. 3

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# WIRE PACKAGING APPARATUS

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## ABSTRACT OF THE DISCLOSURE

Apparatus for guiding wire loops onto a wire carrier comprising flexible means to prevent entanglement of the wire as it comes off of the coil transfer horn.


*Background of the invention*

This invention relates generally to wire processing machines and more particularly to apparatus for guiding loops of wire onto a wire carrier.

In a wire coiling device associated with a wire drawing machine the loops or turns of wire are pushed off a stationary tapered takeup block onto a coil transfer horn which directs the loops onto a wire receiving carrier. The axis of the takeup block in some operations is horizontal and the wire carrier is vertical necessitating a coil transfer horn that will direct the loops of wire coming off of the takeup block around a 90° horn to drop the loops of wire onto the vertical stem of the wire carrier. The carrier is mounted on a slowly rotating tilted turntable for circumferentially displacing the successive turns of the coil loops to form a neat, compact package.

The receiving and storing of the wire loops on a variety of wire carrier sizes produces a problem for those operators processing a wide range of orders. The use of a short carrier, for example, results in a gap or space between the bottom of the stationary horn and the top of the receiving carrier. The motion of the tilted rotating carrier stem tends to whip the wire loops coming off of the horn and the loops occasionally pass over the top of the carrier resulting in a serious entanglement which necessitates a shutdown of the machine and consequent loss of production. Occasionally the entanglement goes unnoticed, especially when the wire is being stored in a container, resulting in pay-off problems for the customer.

*Summary of the invention*

It is therefore an object of this invention to provide a simple means for guiding wire loops onto a carrier of any height.

A further object of this invention is to provide a wire packaging apparatus in which a carrier of any height can be readily replaced under the stationary block of a coiling apparatus.

The instant invention provides flexible means for guiding wire coil loops from a coiling machine onto a receiving wire carrier regardless of the size carrier used.

*Brief description of the drawings*

FIGURE 1 is a side elevation of the wire packaging apparatus of the instant invention associated with a wire processing machine.

FIGURE 2 is an isometric view showing the flexible wire loop guide means and wire carrier.

FIGURE 3 is a fragmentary isometric view of the lower portion of the coil transfer horn.

*Description of the preferred embodiment*

Referring to the drawings:

The embodiment of the invention illustrated in the drawings shows the wire packaging apparatus of the instant invention comprising, generally, wire coiling machine 1, horizontal stationary takeup block 2, rigid coil transfer horn 3 integral with said takeup block 2, and wire carrier 4 removably mounted on turntable 5.

The wire coiling block of the coiling machine 1 is adapted to receive the leading end of the wire W as it is discharged from a wire processing apparatus. The wire is directed through a winding head or flyer and temporarily anchored to the stationary block 2. The rotating winding head or flyer 11 deposits wire on the stationary takeup block as it rotates continuously therearound. Successive coils of wire push preceding coils down the tapered surface of the drum-like takeup block 2 until the leading coils pass over the rigid coil transfer horn 3 to the wire carrier 4. The coil transfer horn 3 which is integral with the takeup block 2 extends downwardly therefrom to discharge the wire laid thereon and comprises a plurality of circularly spaced rods 6, bent to a suitable radius and secured to the takeup block at one end and to a plate 7 at the other end. The lower end of said transfer horn 3 is located above a rotatable turntable 5 to which wire carrier 4 is removably engaged.

A neat and compact package is formed when the coils are deposited on the stem of the slowly rotating wire carrier in a pattern of successive circumferentially displaced coil loops. The rotating wire carrier stem 10, however, causes the wire coil loops to whip or oscillate as they come off of the lower end of coil transfer horn 3. An occasional errant coil loop thus passes over the top of the wire carrier in the space between the carrier 4 and the horn 3 and causes entanglement. The space or gap created by non-uniform size carriers is effectively eliminated by the instant invention through the provision of flexible means attached to the lower end of said coil transfer horn 3. The flexible means of the pictured embodiment comprises a plurality of chain loops 8 which hang below the uppermost portion 9 of said wire carrier 4 and effectively close the gap therebetween. It will be obvious to those skilled in the art that other flexible means would also be applicable to accomplish the purpose of this invention. The loops of chain 8 have a dampening effect on the coils as they are whipped against them. The flexible nature of the chain loops 8 also provides means for the rapid unencumbered movement and replacement of the wire carrier 4. It is clear that the flexible chain loops will not bar or hinder the removal or replacement of a wire even though the top of the carrier very nearly reaches the lower end of said transfer horn.

We claim:

1. In wire packaging apparatus having a coiling block, means for laying wire on said block, rigid coil transfer means extending from said block downwardly to discharge the wire laid thereon, a wire carrier of the type having a central spindle wherein the upper end is positioned a substantial distance below said coil transfer means to receive said wire, the improvement comprising:

flexible means attached to the lower end of said coil transfer means and extending below the top of said carrier to prevent the wire from crossing over the top of said wire carrier.

2. Apparatus according to claim 1 wherein said flexible means comprises loops of chains.


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