United States Patent

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[54] WIRE-HANDLING APPARATUS

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[30] **Foreign Application Priority Data**

Feb. 17, 1969 Great Britain 8,530/69

[52] **U.S. Cl.** **242/83**

[51] **Int. Cl.** **B21c 47/02**, B21c 47/14

[58] **Field of Search** 242/82, 83, 78, 79, 78.1

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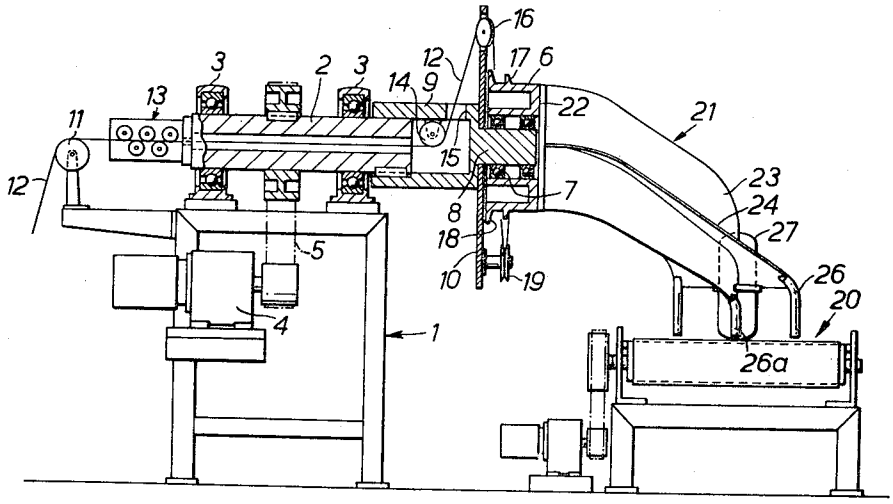
[57] **ABSTRACT**

Dead block wire-coiling apparatus in which the rotor device for coiling the wire about the block is mounted at the upstream side of the block and an elongate carrier for the coiled wire is secured to the downstream side of the block to lead the coiled wire away, and including means for preventing rotation of the block from rotating in the form of interengaging holding means, e.g., a pair of rollers, one mounted on the carrier and the other mounted from a fixed structure and so arranged that the coiled wire passes between the holding means during operation, the latter being driven at a speed similar to the speed of the wire so as not to obstruct its movement.

16 Claims, 10 Drawing Figures



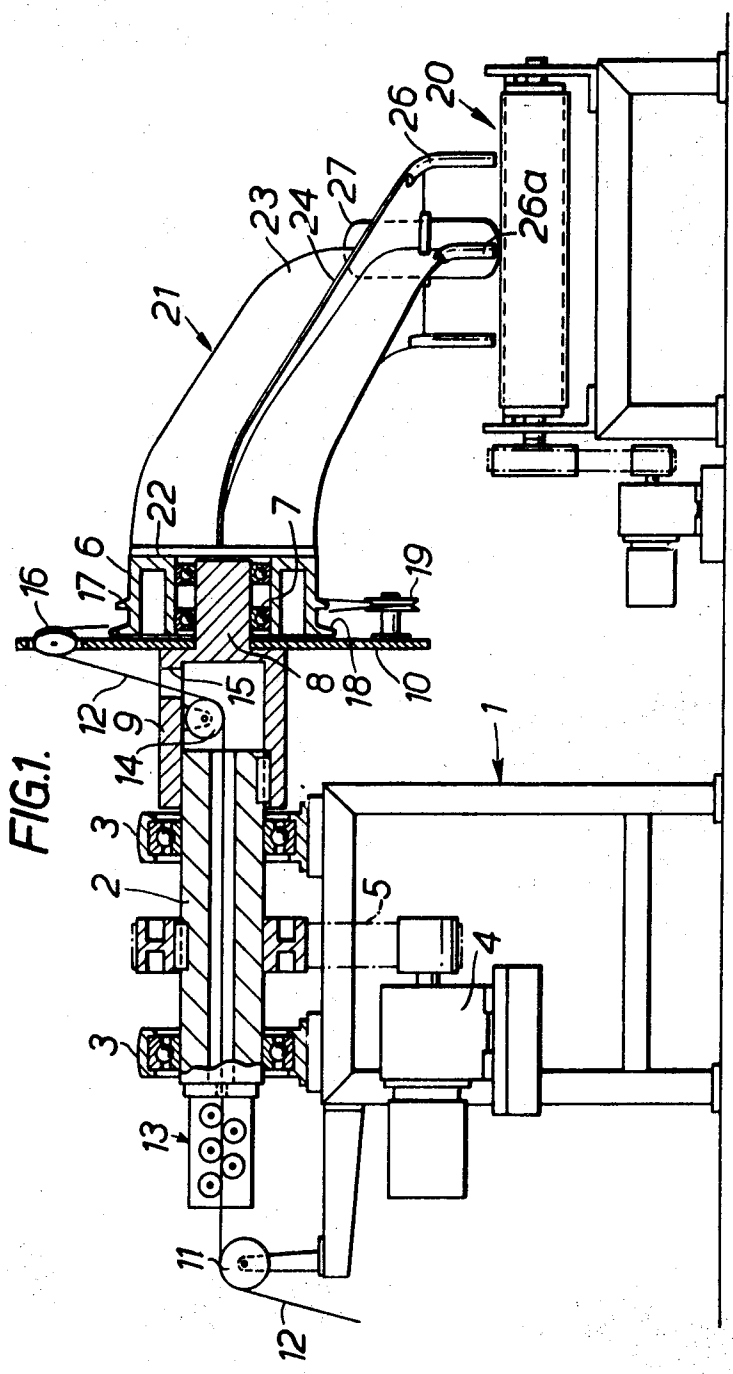


FIG. 1.

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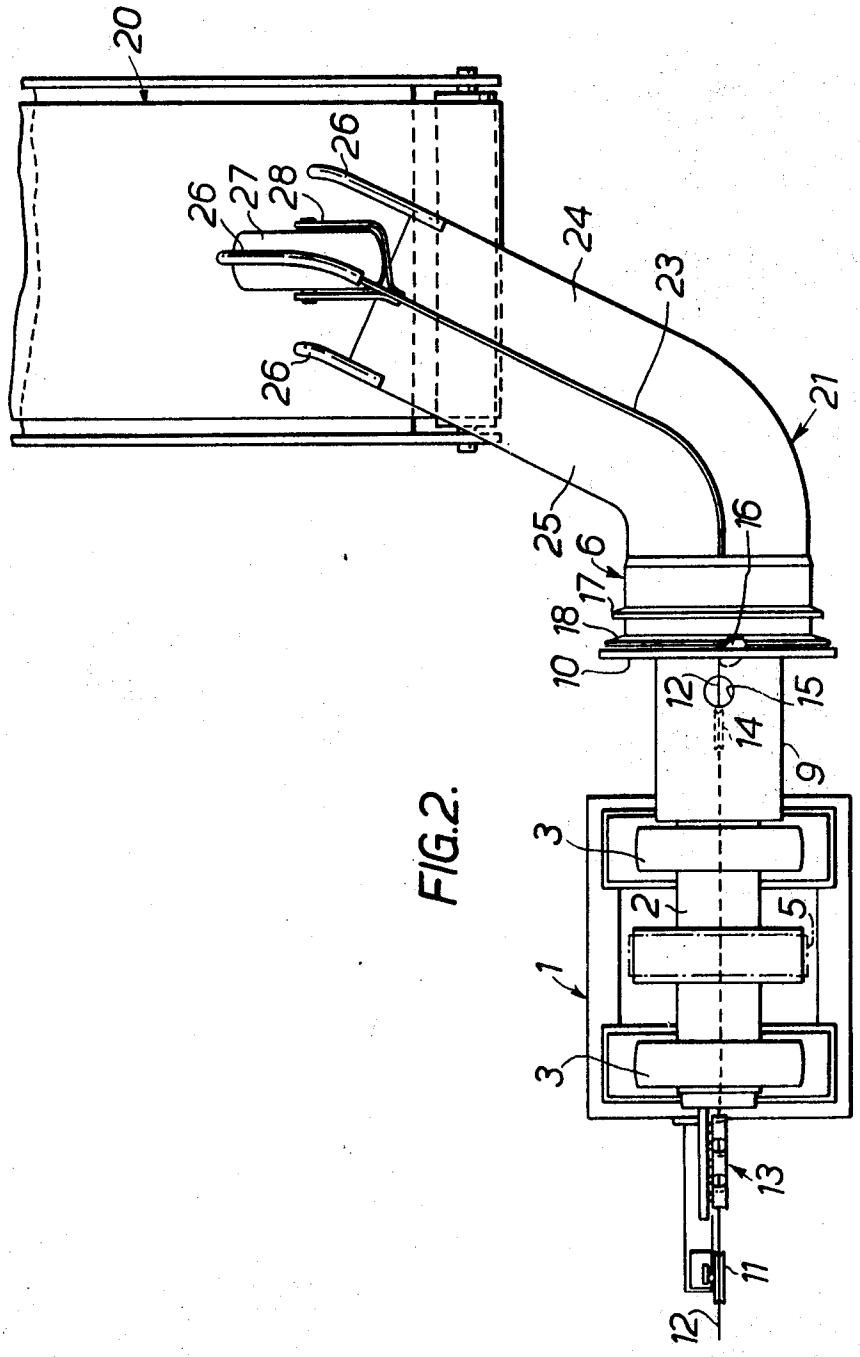

FIG.2.

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FIG. 3.

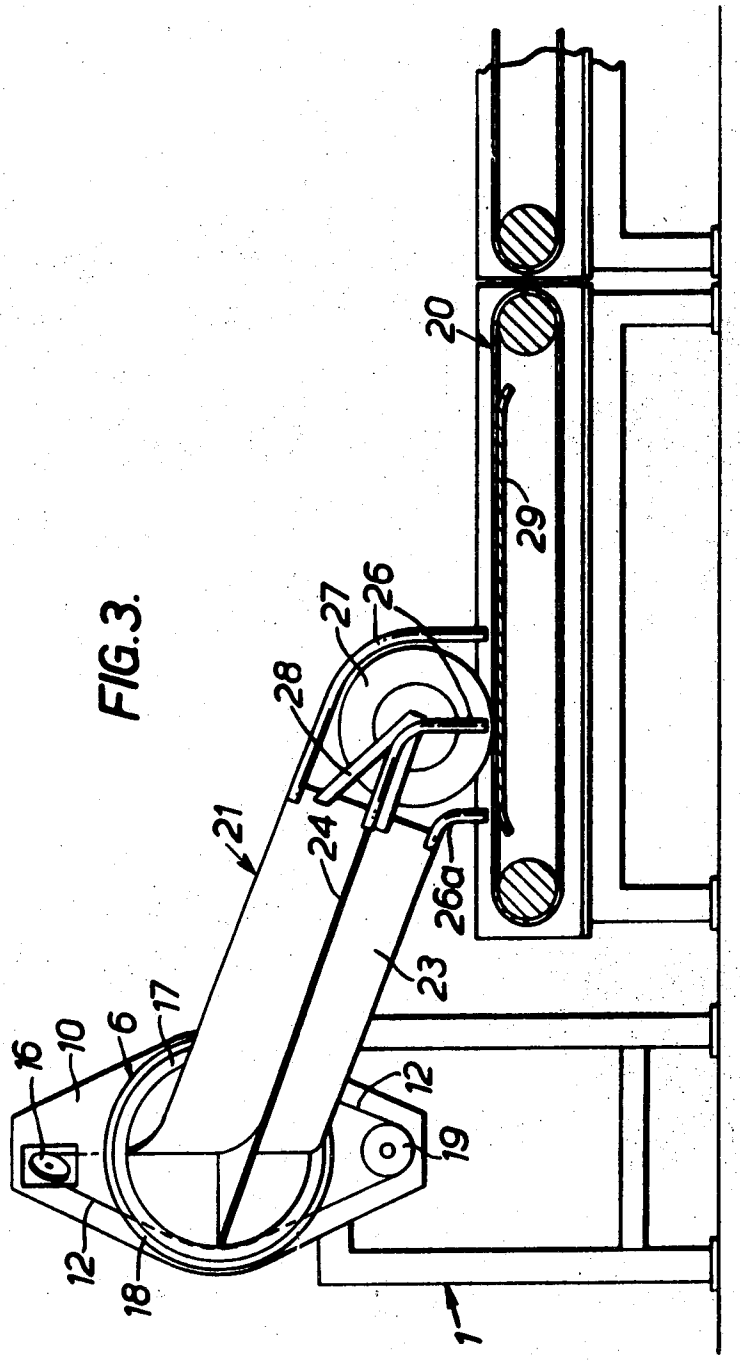

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FIG.4.

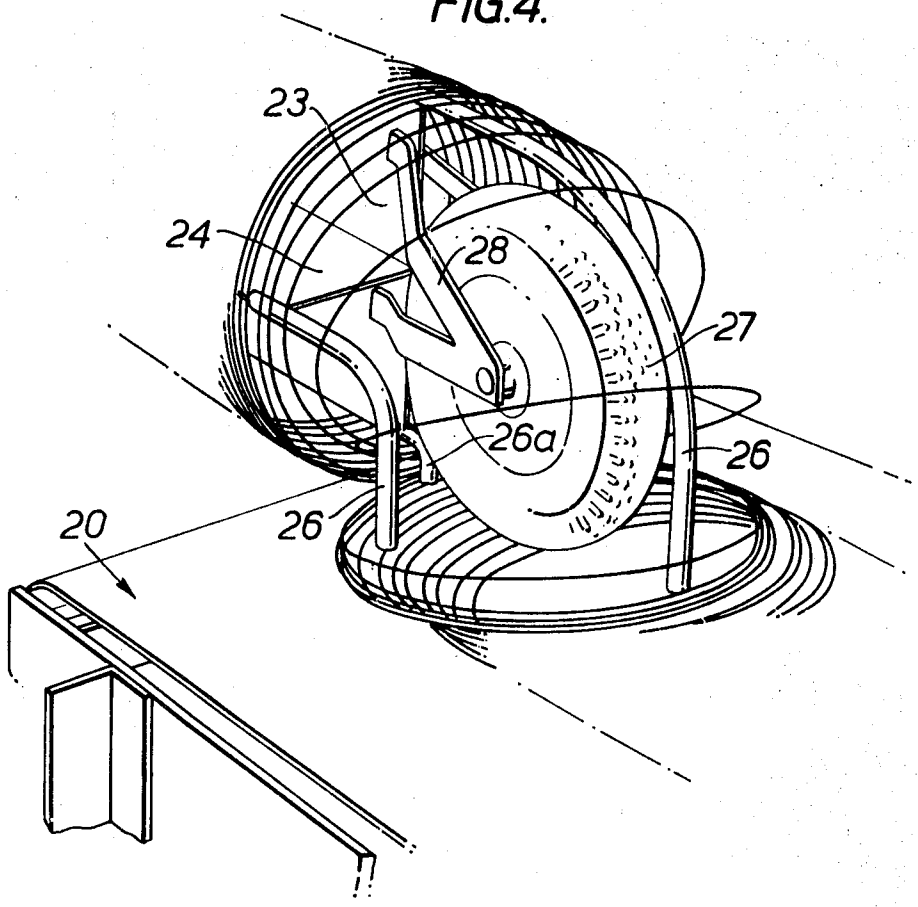

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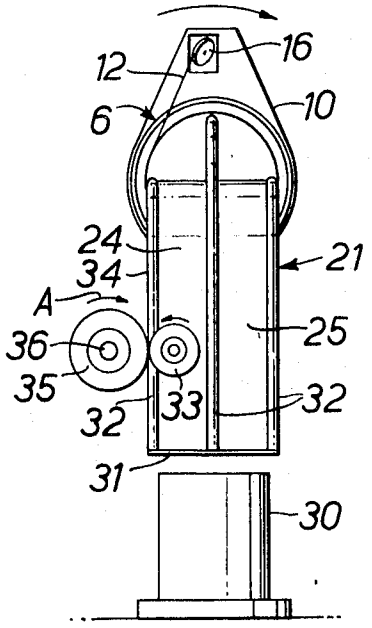
FIG.5.



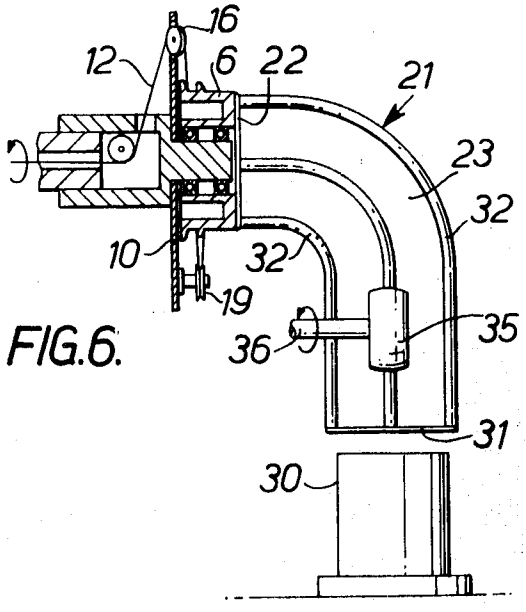


FIG.6.

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FIG.7.

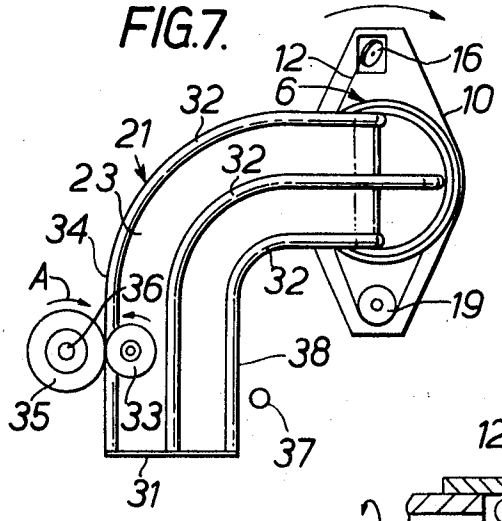


FIG.8.

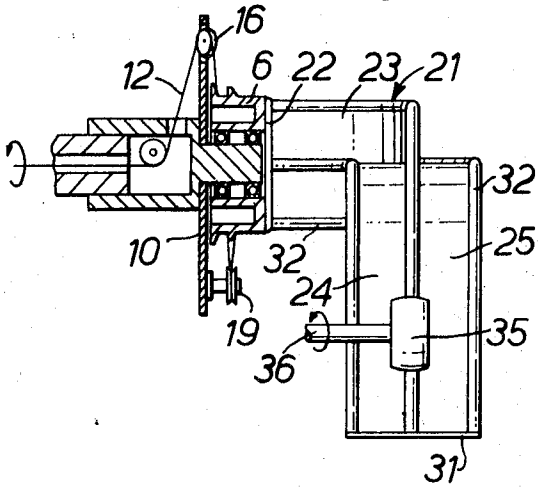


FIG.9.

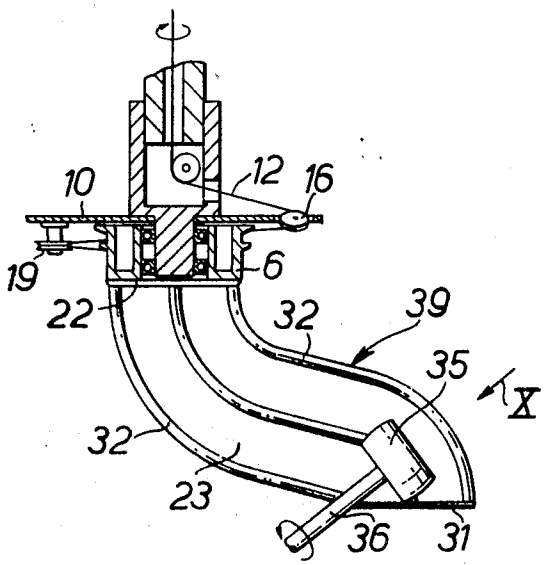
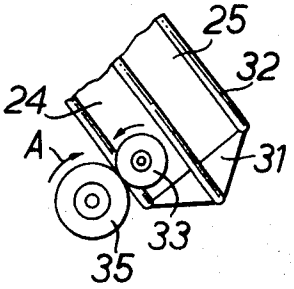


FIG.10.



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WIRE-HANDLING APPARATUS

This invention relates to wire-coiling apparatus of the kind comprising a dead block, i.e., a block which does not rotate in operation, and a rotor device (commonly known as a rotor plate) mounted adjacent the block for coiling wire onto the same. Such apparatus will often, although not always, comprise the last part of a wiredrawing machine.

Apparatus of this kind is known in which the rotor plate is mounted at the downstream side of the block relative to the general direction of wire travel through the apparatus and the block is fixedly secured to a supporting frame via its upstream end; with such an arrangement, however, an undesirable limitation is placed on the maximum speed of coiling by the need to avoid the rotor plate striking the coils of wire coming off the block. This disadvantage may be overcome by mounting the rotor plate at the upstream side of the block, but this placing of the rotor plate leads to difficulty in securing the block so that it is held against rotation under the influence of coiling torque during operation; arrangements of internal gearing for preventing block rotation in these circumstances are known, but these are complicated and expensive.

Viewed from one aspect the present invention provides wire-coiling apparatus comprising a dead block, a rotor device mounted at the upstream side of the block for coiling wire onto the block, elongate coil carrier means secured to the said block to receive coiled wire from the downstream end thereof and to guide the coiled wire away from the block, and first and second interengageable holding means mounted respectively on and separately from the said coil carrier means and arranged, by virtue of their interengagement, to hold the coil carrier means and thus the block against rotation under the influence of coiling torque during operation, the arrangement of said first and second holding means being such that the coiled wire will pass between them during operation and the holding means being adapted for driven movement with the coiled wire passing therebetween so as not substantially to obstruct its movement.

Thus in apparatus according to the invention the block is held against rotation under the influence of coiling torque by holding means whose effect is transmitted via the coil carrier means to the downstream end of the block, whereby the previous difficulties involved in holding the block from its upstream end while bypassing the rotor plate are avoided. It will be appreciated that the said second holding means (separate from the coil guide means) will be stationarily mounted and will serve to provide a reaction counterbalancing the tendency of the coil carrier means and block to rotate under the influence of coiling torque.

The said coil carrier means may take any of a number of forms depending on the desired destination of the coiled wire coming off the block. Usually the carrier means will be arranged to guide the wire either directly to storage means therefor, e.g., a drum in which the coiled wire is laid or a pillarlike former about which it is laid, or to transfer means e.g., an endless conveyor for carrying the wire on to some further treatment step.

It will be appreciated that for the said holding means by their interengagement to apply a torque to the block via the coil carrier means such as to balance the coiling torque, whilst still be so situated that the coils moving along the carrier means pass between them, the said first holding means (on the coil carrier means) must be mounted on a part of the latter which is laterally displaced from the block axis. This does not present any problems, however; indeed in many applications, particularly when the block axis is horizontal, it is desired so to arrange the coil carrier means as to guide the wire to a location laterally displaced from the axis of the block.

Conceivably a drive to the said second holding means could be carried thereto along the coil carrier means, e.g., in the form of a rotary cable drive. Preferably and more simply, however, the second holding means is adapted to be directly driven and to drive the said first holding means by frictional engagement therewith.

So as to reduce as much as possible the pressure between the said holding means when interengaged, the said first holding means is preferably mounted at or adjacent a part of the coil carrier means which is furthest laterally displaced from the block axis.

The interengageable holding means may take any of a number of forms, such as wheels, rollers or endless belts for example. So as to avoid damage to the coiled wire passing therebetween, at least one and preferably both of the interengageable surfaces of the holding means is resilient.

In one form of the invention the said second holding mans (separate from the coil carrier means) comprises a small wheel, roller or endless belt mounted from the same supporting structure as the block and the said first holding means is mounted adjacent a side edge of the said coil carrier means. In another embodiment, however, the said second holding means comprises an endless conveyor on which the coiled wire is laid from the downstream end of the coil carrier means, and in this case the first holding means comprises a wheel or roller mounted at the end of the coil guide means so as to rest on the said conveyor and to ride over the coiled wire laid on the conveyor from the carrier means.

Where the arrangement of the apparatus is such that in operation the coiling torque tends to lift the coil carrier means and thereby to bring about interengagement of the said holding means, the apparatus may include a stop arranged to support the coil carrier means in a position in which the said holding means are disengaged from one another.

The basic structure of the coil carrier means may be of any convenient kind, of which many examples are already known. In a preferred embodiment of the invention at least a major part of the carrier means is formed by an assembly of flat metal plates welded together into the form of a cross when viewed in cross section so that the outer edges of the plates lie on an imaginary cylinder of slightly smaller diameter than the anticipated diameter of the wire coils. The said first holding means may then be mounted from the face of one of such plates. Alternatively tubular trunking may be employed, preferably provided with longitudinally extending wear strips on its surface.

The lateral displacement of part of the length of the coil carrier means from the block axis may be achieved, for example, by constructing it with an upstream part extending substantially coaxially away from the block, a central part arranged at a substantial angle to such upstream portion so as to extend laterally away from the axis of the block, and a downstream part which is turned downwardly to deposit the coils of wire on an associated receiving means, the said first holding means being mounted on the said downstream part. In one embodiment in which the carrier means is shaped in this manner, its upstream part and central part are formed by a cruciform assembly of metal plates as aforesaid whilst its downstream end part is formed by an assembly of four metal rods which form extensions of the edges of the arms of the cruciform assembly and which rods turn downwardly between their ends so as to guide the coils of wire into positions in which their axes are substantially vertical for the coils to drop on to receiving means.

The scope of the invention also extends to coil carrier means for use in apparatus as set forth above, such coil carrier means being elongate and being adapted to be secured to a dead block to receive coiled wire from the downstream end thereof and to guide the coiled wire away from the block, the coil carrier means having holding means mounted thereon and arranged to be engageable, in operation, with second holding means mounted separately from the coil carrier means so as to hold the coil carrier means, and thus the said block, against rotation under the influence of coiling torque, the arrangement of said holding means being such that the coiled wire will pass between it and said second holding means during operation and the holding means being adapted for driven movement with the coiled wire passing between it and said second holding means so as not substantially to obstruct the move-

ment of the wire. Such carrier means and the associated holding means may of course incorporate any of the further preferred or alternative features already mentioned.

In order that the invention may be more readily understood, one embodiment of a dead block wire-coiling apparatus according to the invention, together with some modifications thereof, will now be described by way of example and with reference to the accompanying drawings, in which:

FIG. 1 is a side elevation of the whole apparatus, partly in vertical cross section;

FIG. 2 is a plan view of the apparatus;

FIG. 3 is a view of the apparatus in front elevation;

FIG. 4 is a perspective view of the downstream end of the coiled wire carrier means, showing the way in which the coiled wire is laid on a conveyor in operation;

FIGS. 5 and 6 are front and side views respectively of the block and the coil carrier means of a modified form of the apparatus;

FIGS. 7 and 8 are views similar to FIGS. 5 and 6 but of a second modification;

FIG. 9 is a front view of a third modification; and

FIG. 10 is a view looking in the direction of the arrow X in FIG. 9.

The conventional parts of the coiling apparatus will first be described with particular reference to FIG. 1. Thus the apparatus includes a main supporting framework 1 in which is carried a horizontal hollow rotor shaft 2 mounted in bearings 3 and adapted to be driven in rotation by a motor 4 via a belt drive 5. A dead block 6 is mounted on bearings 7 at one end of the shaft 2 so that the end 8 of a sleeve 9 keyed on the shaft can rotate within the block in operation, and a rotor device in the form of a rotor plate 10 is rigidly attached to the sleeve 9 immediately upstream of the block and perpendicular to the axis to the shaft, for coiling the wire about the block 6.

Adjacent the end of the shaft 2 remote from the block 6, a lead-in pulley 11 is mounted on the framework 1, over which wire 12 passes as it enters the apparatus. A set of tensioning rolls 13 is mounted on this end of the rotor shaft, aligned with the lead-in pulley 11, so that the wire passes first through the tensioning rolls before entering the hollow rotor shaft. Having passed through the main body of the rotor shaft the wire passes over a guide pulley 14 mounted within the rotor shaft and then out through an opening 15 in the shaft wall immediately upstream of the rotor plate 10, and over a further guide pulley 16 near to the edge of the latter. From the guide pulley on the rotor plate the wire passes onto the dead block 6; if the apparatus is to include a drawing step a die box may be mounted on the rotor plate 10 for the wire to pass through it between the guide pulley 16 and its arrival on the block.

The circumferential surface of the block 6 is divided into upstream and downstream portions by an outwardly extending annular flange 17, whilst a sloping annular shoulder 18 is formed on the block at the upstream end of its upstream portion, immediately adjacent the rotor plate 10, to guide the wire on to the upstream portion of the block. Having described several turns about the upstream portion of the block the wire is led (usually via a set of helix casting rolls) over another guide pulley 19 mounted on the rotor plate substantially diametrically opposite that already mentioned and then back (usually via a set of diameter casting rolls) to the block, then to describe several turns about the downstream portion of the block.

As the rotor plate is rotated in operation the wire is pulled through the apparatus, wound around the upstream portion of the block adjacent the rotor plate, unwound therefrom, and rewound around the downstream portion of the block. By virtue of the tension in the wire where it contacts the downstream portion of the block, and the action of the flange 17 between the two block portions, the coiled wire is pushed axially along the downstream portion of the block in a direction away from the flange 17 as further coils are would onto such block portion. The coiled wire thus forms a continuous helix which is fed from the downstream end of the block.

The winding of the wire on the block in the manner described above causes a torque to be applied to the block in a sense urging it to rotate clockwise as seen in FIG. 3, and this coiling torque is greatly increased if a drawing step is included in the passage of the wire between the guide pulley 16 and the block. Rotation of the block under the influence of this torque must of course be prevented, and the manner of achieving this in accordance with the invention will be explained below.

Wire carrier means, generally indicated at 21, is provided for leading the coiled wire away from the downstream end of the block 6 and depositing it at a desired location, which location is in this case the horizontal surface of a conveyor 20. The carrier means 21 is of elongate form and is secured at its upstream end to the downstream end face 22 of the block.

The main body of the coil carrier means is formed by three metal plates 23 to 25 welded together to form a cross when viewed in cross section; i.e., two of the arms of the cross are formed by one such plate 23, and the other two arms by the plates 24 and 25 which are half of the width of the plate 23 and are welded to the opposite sides of the latter at right angles thereto. It will thus be understood that the outer longitudinal edges of the plates of such assembly lie on an imaginary cylinder, and the arrangement is such that the diameter of this cylinder at its upstream end is the same as the diameter of the block. Preferably the plates forming the carrier means are slightly tapered in the downstream direction so as to promote movement of the coiled wire therealong.

The coil carrier means is secured at its upstream end to the downstream face of the block 6 so that the imaginary cylinder on which the edges of the body of the carrier means lie is a continuation of the circumferential surface of the block and is able to receive the coiled wire therefrom. The body of the carrier means is then so formed that the cylinder on which its edges lie extends coaxially away from the block for a short distance, e.g., about 1 foot in the case of a block 18 inches in diameter, and then curves sideways through an angle of about 70° and somewhat downwardly (i.e., at about 15° to the horizontal) so that the carrier means now extends laterally away from a vertical plane containing the rotary axis of the block. It will be noted that this lateral displacement of the guide means is in a direction such that the weight of the guide means will act in concert with the tendency of the block to rotate under the coiling torque (and the drawing torque where a die box is provided on the rotor plate as previously mentioned).

The coil carrier means 21 has its downstream end part formed by four metal rods 26 which form respective continuations of the edges of the arms of the cruciform body. The rods 26 are each curved downwardly through about 75° between their ends so as to terminate with their axes substantially vertical and the downstream end of the carrier means thus points directly downwardly so as to guide the coiled wire thereon into positions in which the axes of the coils are substantially vertical. In this embodiment the rods are so arranged that one of them 26*a* defines a heel of the carrier means which assists in turning the coils about the last curve thereof; in an alternative arrangement, however, this rod may be omitted and only three such rods provided at 90° spacings around one half of the circumference of the imaginary curved cylinder.

In this embodiment the interengageable holding means for holding the coil carrier means, and thus the block, against rotation under the influence of the coiling torque comprises first holding means in the form of a wheel 27 having a pneumatic tire and mounted by a bracket 28 from the downstream end of the plate 23 of the body of the carrier means, so that the wheel 27 is situated in the space defined within the rods 26 forming the downstream end part of the carrier means. The wheel is mounted for rotation about a horizontal axis and it extends somewhat below the lower ends of the rods 26 so that when the wheel rests on the surface of the conveyor 20 the ends of the rods are spaced a few inches above such surface. The second of the said interengageable holding means, mounted separately from the carrier means as aforesaid, is in

this embodiment constituted by the endless conveyor **20**. Interengagement of the wheel **27** and the conveyor **20** prevents clockwise rotation of the carrier means, and thus of the block, beyond the position illustrated in the drawings.

The wheel **27** could if desired be mounted so that the position of its axis can be adjusted upwardly and downwardly relative to the downstream end part of the guide means; as the height of the wheel axis above the conveyor surface is substantially constant, this facility permits adjustment of the alignment of the carrier means itself so as to obtain optimum conditions for movement of the coiled wire along the carrier means in operation.

The wheel could also if desired be mounted for pivotal adjustment of its axis in a horizontal plane so that the position of the vertical plane of rotation of the wheel can be adjusted to align the wheel with the length of a conveyor; the latter facility for adjustment enables the wheel to be aligned with a conveyor running in any of a wide range of directions.

The driven conveyor **20** is equipped with a skid plate **29** (FIG. **3**) beneath its conveying surface, as the force applied to the conveyor resulting from the weight of the carrier means and the coiling torque will usually be too great to be supported by the conveyor belt alone. As an alternative to the provision of a skid plate beneath the conveyor surface, one or more back up rollers could be used to support the conveyor beneath the wheel **27**. Such a back up roller or rollers may either be idle or be driven from the conveyor drive means at such a speed as to ensure that slippage between it or them and the top run of the conveyor belt does not occur.

The drive to the conveyor **20** may be taken from the coiling mechanism if desired. It should be understood that the apparatus can be used to deposit coiled wire continuously on an upwardly or downwardly sloping conveyor instead of a horizontal one.

In operation of the above described apparatus the coiled wire **12** fed from the downstream end of the block **6** will travel along the carrier means **21**, first being turned through about 70° laterally away from the vertical plane containing the block axis and somewhat downwardly, and then led to the downstream end of the carrier means where the coils are turned downwardly through a further angle of about 75° so as to drop on to the surface of the conveyor **20** with the axes of the coils substantially vertical. Then as the coils of wire move away on the conveyor the wheel **27** will ride over the rearward part of each coil (see FIG. **4**) without interfering with the movement of the coil, the wheel being driven in rotation by the conveyor so that its surface moves with the wire; the wire thus passes between the two interengageable holding means constituted by the wheel **27** and the conveyor **20**. It will be appreciated that no part of the downstream end of the carrier means will interfere with the dropping of the coils of wire on to the conveyor, or with their movement away on the latter, as the wheel **27** is positioned entirely within the circumferential boundary of the carrier means and the downstream ends of the rods **26** forming the termination of the latter are substantially spaced above the conveyor surface.

An arresting or retarding device may be fitted to the carrier means to promote even flow of the coiled wire therealong. Such a device may be fitted inside the carrier means or mounted externally of the apparatus and would operate by contacting the coils of wire as they move along the carrier means.

Further, if desired, conveying means for maintaining regulating the movement of the coiled wire along the carrier means may be provided; such means could be mounted within the carrier means and driven by an independent drive, e.g., an electric motor and gearing, or alternatively by a flexible or articulated shaft connected to the end of the rotor shaft.

Such conveying means could alternatively be mounted outside of the carrier means, and still be provided with its own drive means or be driven from the coiling apparatus. In forms of the invention now to be described, which are illustrated in FIGS. **5** to **10**, conveying means of this kind constitutes the second of the said interengageable holding means for holding the block against rotation under the influence of coiling torque.

In all of the embodiments of the invention now to be described the coiling apparatus is of a kind which may be used to deliver the coiled wire to receiving means in the form of an endless conveyor or to receiving means of other kinds, e.g., to a storage device in the form of a drum or in the form of a pillar about which the coiled wire is laid; an example of the latter is shown at **30** in FIGS. **5** and **6**.

Referring first to FIGS. **5** and **6**, in this apparatus (and in the apparatus of FIGS. **7** to **10**) the mechanism as far as the downstream end face **22** of the block **6** is identical with that of FIGS. **1** to **4** and will not be described again. The carrier means **21** for the coiled wire is again in the form of interconnected flat plates **23** to **25** so as to be of cruciform cross section and in this case the the whole of the body of the carrier means is constructed in this way, the rods **26** which formed the downstream end part of the carrier means in the embodiment of FIGS. **1** to **4** being omitted. Instead, the carrier means terminates in a plate **31** of square shape welded to the ends of the plates **23** to **25**. In this embodiment, and in those of FIGS. **7** to **10**, tubular cylindrical bars **32** are secured along the outer edge of the plates **23** to **25** to form rubbing strips for the coiled wire passing along the carrier means.

The carrier means **21** in this embodiment does not extend away, at any part of its length, to one side or the other of a vertical plane containing the axis of the block **6**, but simply curves downwardly away from the block as may clearly be seen from FIG. **6**. Thus, as with the embodiment of FIGS. **1** to **4**, the downstream end part of the carrier means is vertical so that coiled wire will fall from the carrier means with the axes of its coils vertical.

The first holding means of this apparatus, i.e., that one of the interengageable holding means which is mounted on the carrier means, comprises a freely rotatable resiliently surfaced roller **33** mounted from the face of the plate **24** of the carrier means in such manner that the edge **34** of the carrier is substantially tangential to the surface of the roller **33** (although of course the roller is displaced slightly forwardly from the plate **24**).

The second holding means of the apparatus comprises a further resiliently surfaced roller **35** which is mounted from the supporting structure **1** of the coiling apparatus, at the end of a drive shaft **36** supported and journaled in the structure **1** whereby the roller is drivable during operation in the direction indicated by the arrow A.

The rollers **33** and **35** are positioned to engage one another in the manner shown, so that the roller **33** will be driven in rotation by its frictional engagement with the roller **35**.

As in the embodiment of FIGS. **1** to **4**, the arrangement of this apparatus is such that the coiling torque tends to rotate the block **6** in the clockwise direction as seen in FIGS. **5**, so that the consequent tendency of the carrier means **21** to rotate in the same direction causes the two rollers **33** and **35** to be pressed together. The position of the roller **35** being fixed relative to the supporting structure of the apparatus, the interengagement of the two rollers prevents rotation of the carrier means **21**, and thus of the block **6**, beyond the position shown in the drawings. Thus rotation of the block under the influence of coiling torque is prevented.

The embodiment of the invention illustrated in FIGS. **7** and **8** is similar to that of FIGS. **5** and **6** except in the configuration of the carrier means **21**. Thus in this embodiment the carrier means is of substantially the same shape as that of the embodiment of FIGS. **1** to **4** except that it extends away to the opposite side of the vertical plane containing the block axis as compared with FIGS. **1** to **4**. The arrangement of the coiling apparatus is such that the block **6** is again urged by the coiling torque to rotate in the clockwise sense (as seen in FIG. **7**) with the result that the tendency is for the carrier means **21** to lift under the influence of the coiling torque rather than being urged downwardly as it is in the embodiment of FIGS. **1** to **4**.

First and second holding means in the form of rollers 33 and 35, of which the roller 35 is again a driven roller mounted and journaled in the supporting structure 1, are again provided and are arranged in the same manner as in the apparatus of FIGS. 5 and 6 so as to prevent rotation of the carrier means, and thus of the block, under the influence of the coiling torque in operation.

It will be appreciated that in this arrangement, if the coiling torque on the block should cease for any reason in operation (because of wire breakage for example) the carrier means 21 will drop under the influence of gravity towards whatever mechanism is provided for receiving the coiled wire, As it may be undesirable for the carrier means to drop into engagement with such mechanism, e.g., to come into contact with the moving surface of a conveyor, a stop 37 is provided for limiting the movement of the carrier means in the clockwise direction. The stop 37 simply comprises a bar mounted from the supporting structure 1 so as to be engageable with the edge 38 of the carrier means. It will thus be seen that the carrier means has a rest position in which it engages the stop 37, from which position it will be lifted when coiling torque takes effect so as to bring about interengagement of the rollers 33 and 35 to prevent further clockwise movement of the carrier means, and thus of the block, under the influence of the coiling torque.

The apparatus of FIGS. 9 and 10 differs from those previously described in that the coiling apparatus is one which is arranged to operate about a vertical axis. In this embodiment the configuration of the carrier means 21 is such that it extends laterally away from the vertical axis of the block over its central region 39 and then, as in the previous embodiments, is turned downwardly so that the coiled wire is deposited on some suitable receiving means with the axes of the coils vertical. In this arrangement the drive shaft 36 for the second holding means, in the form of driven roller 35, is journaled in a suitable supporting structure and drivable in operation so as to drive the first holding means in the form of the roller 33 (FIG. 10) by frictional engagement therewith so that as in the previous embodiments the rollers 33 and 35 move with the coiled wire as the wire passes between them. In this embodiment the arrangement is such that the coiling torque urges the block 6 and carrier means 21 to rotate in the anticlockwise direction as seen from below the apparatus, so that the interengagement of the rollers 33 and 35 prevents such rotation. Here again, any desired means may be provided for receiving the coiled wire from the lower end of the carrier means, e.g., in the form of an endless conveyor or suitable storage means for the coiled wire.

It will thus be seen that the invention provides wire coiling apparatus, and wire carrier means for use therein, in which rotation of the dead block in operation under the influence of coiling torque is effectively prevented in a simple and efficient manner which is such as to avoid the difficulties previously encountered in holding the block by means of mechanism extending from its upstream side.

I claim:

1. Wire-coiling apparatus comprising a rotatably mounted dead block, a rotor device mounted at the upstream side of the block for coiling wire on to the block, elongate coil carrier means secured to the said block to receive coiled wire from the downstream end thereof and to guide the coiled wire away from the block, first holding means mounted on said coil carrier means, second holding means, separate from said carrier and positioned, to be engaged by said first holding means to hold the coil carrier means and thus the block against rotation under the influence of coiling torque during operation, the said first and second holding means being separable whereby the coiled wire may pass between them during operation, and means driving the holding means in wire-conveying movement with the coiled wire passing therebetween so as not substantially to obstruct its movement.

2. Apparatus as claimed in claim 1, wherein the said second holding means is directly driven and drives the said first holding means by frictional engagement therewith.

3. Apparatus as claimed in claim 1, wherein the said first holding means is mounted at a part of the coil carrier means which is laterally displaced from the block rotary axis.

4. Apparatus as claimed in claim 1, wherein the surface of at least one of said holding means, engageable with the other holding means, is resilient.

5. Apparatus as claimed in claim 1, wherein at least one of said holding means comprises a wheellike rotary member.

6. Apparatus as claimed in claim 1, wherein at least one of said holding means comprises a rubber surfaced wheellike member.

7. Apparatus as claimed in claim 1, wherein at least one of said holding means includes an endless belt.

8. Apparatus as claimed in claim 1, wherein the said second holding means is mounted from the same supporting structure as is the said block and the said first holding means is mounted adjacent a side edge of the said coil carrier means.

9. Apparatus as claimed in claim 1, wherein the coil carrier means is arranged to be lifted by coiling torque to bring about interengagement of said holding means, and including a stop arranged to support the coil carrier means in a position in which the said holding means are disengaged from one another.

10. Apparatus as claimed in claim 1, including an endless conveyor on whose surface the said coil carrier means is arranged to lay the coiled wire.

11. Apparatus as claimed in claim 10, wherein the downstream end of the coil carrier means is urged by coiling torque towards the said endless conveyor and the latter constitutes the said second holding means, the said first holding means comprising a rotary member mounted at the downstream end of the said coil carrier means so as to support the latter by engagement with the conveyor surface and, in operation, to ride over coiled wire laid thereon.

12. Carrier means for coiled wire for use in apparatus as claimed in claim 11, such coil carrier means being elongate and having means for securing it to a rotatably mounted dead block to receive coiled wire from the downstream end thereof and to guide the coiled wire away from the block, the coil carrier means having first holding means mounted thereon and movable, in operation, into engagement with second holding means mounted separately from the coil carrier means so as to hold the coil carrier means, and thus the said block, against rotation under the influence of coiling torque, the said holding means being arranged for the coiled wire to pass between it and said second holding means during operation and means for driving the holding means for wire-moving movement with the coiled wire passing between it and second holding means so as not substantially to obstruct the movement of the wire.

13. Apparatus as claimed in claim 12, wherein the first holding means is a freely rotatable member adapted to be driven by frictional engagement with said second holding means.

14. Apparatus as claimed in claim 13, wherein said first holding means is a rubber surfaced wheellike member.

15. Apparatus as claimed in claim 28, wherein the first holding means is mounted adjacent a side edge of the said coil carrier means for engagement, in use, with said second holding means, which is mounted from the same supporting structure as is the said block.

16. Apparatus as claimed in claim 12, wherein the first holding means is mounted at the downstream end of the coil carrier means for engagement with said second holding means, said second holding means being in the form of an endless conveyor and so as, in use, to ride over coiled wire laid on such conveyor by the coil carrier means.

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