Sept. 19, 1961 W. G. PATTERSON 3,000,589

WIRE COIL CARRIER

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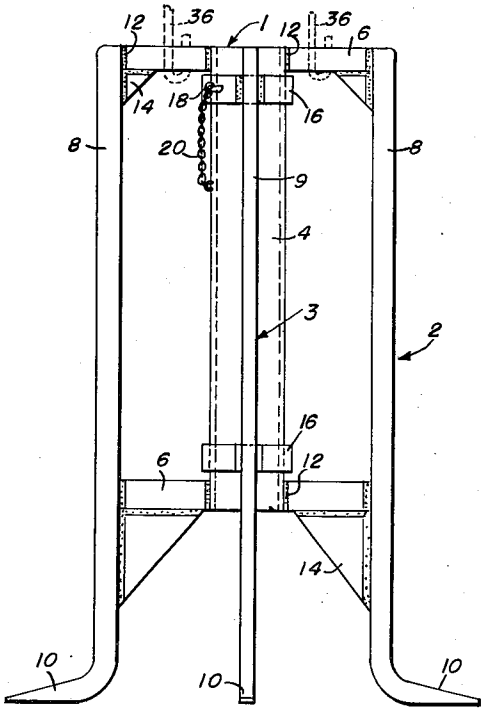



FIG. 1

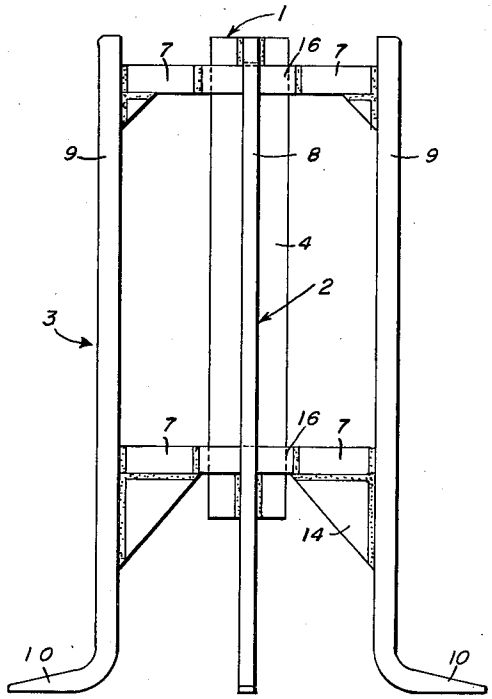



FIG. 4

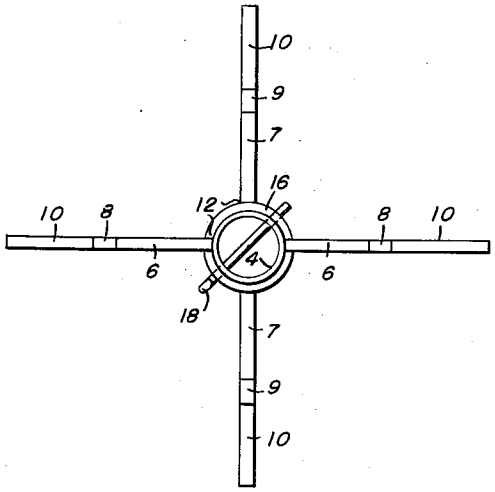



FIG. 2

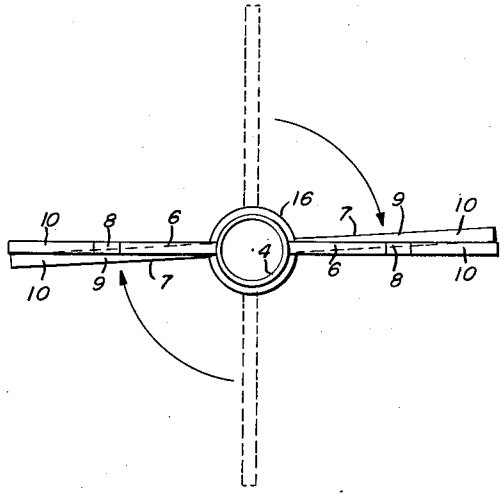



FIG. 3

INVENTOR

WALTER G. PATTERSON

BY John Gibson Semmes

ATTORNEY

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FIG.5

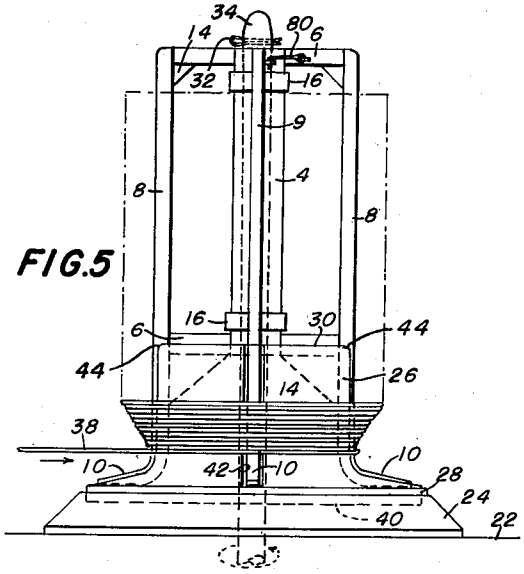



FIG.7

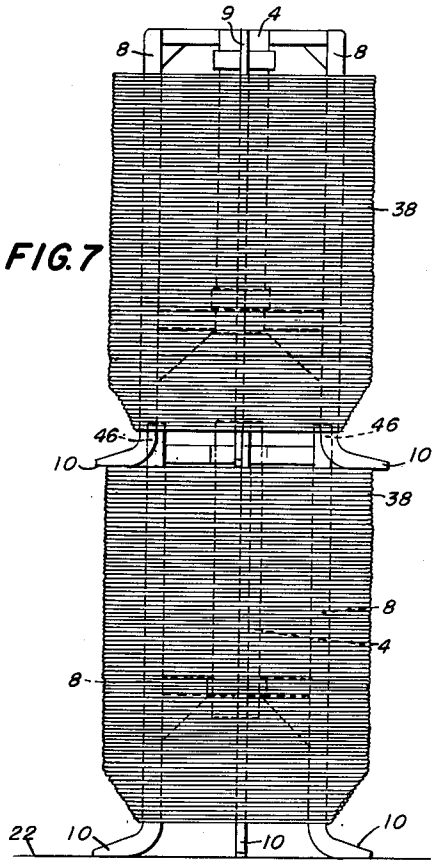



FIG.6

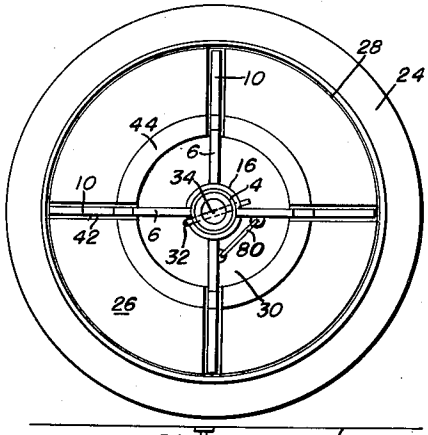



FIG.8

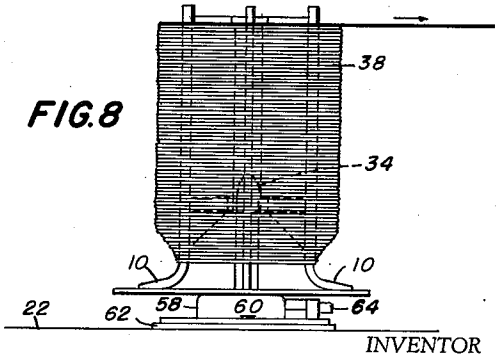
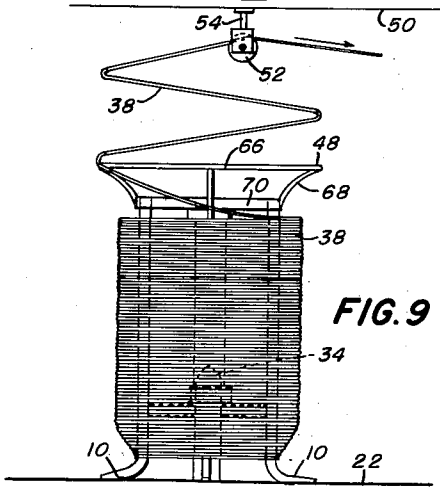



FIG.9




INVENTOR

WALTER G. PATTERSON

BY John Gibson Semmes

ATTORNEY

United States Patent Office

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# WIRE COIL CARRIER

Walter G. Patterson, Atlanta, Ga., assignor to Atlantic Steel Company, Atlanta, Ga., a corporation of Delaware

Filed Mar. 3, 1958, Ser. No. 719,468
3 Claims. (Cl. 242—115)

This invention relates to improvements in means for coiling, carrying and unwinding of wire; particularly the invention is directed to a collapsible coil carrier or pallet which is universally adaptable to various coiling and unwinding operations in a wire mill. My wire coil carrier is also adaptable to the shipping and storing of finished wire, and because of its collapsibility may be conveniently returned to the wire mill for reuse.

Every wire mill processing operation, except that of cleaning and pickling, begins and ends on a block or reel, the former term being used in the trade. There are two basic types of blocks, viz. live blocks which are rotatable and dead blocks which do not rotate. Blocks are further described as "pay-off," if used at the beginning of an operation, and "take-up" if they are used at the end of an operation to collect processed wire. Wire drawing machines, commonly called benches, are generally equipped with a finishing take-up block having a sloped flange, which comprises a tapered drum having longitudinal slots in its sides to allow the stripping of wire wound on the block. When the block is full, the machine is stopped and the wire stripped. To gain increased continuity of operation, these blocks are commonly fitted with four upright stakes, one stake being fitted in each slot and acting as a block extension which allows the drawing of more wire between machine stoppages. When full, the wire is stripped from the block by use of a device with hinged arms which may be locked against the inside of the coil during handling. Coils of wire thus produced are called "catch-weight" in the trade and may be of varying weights and lengths. Formerly, without the use of block extension stakes catchweight were about 100 pounds and using block extension stakes the catchweight were approximately 200 pounds. My device permits the processing and handling of approximately 2,000 pounds catch-weight. Through the years there has been an increasing realization of the economies to be gained through the use of larger coils in both processing and handling of wire. This is borne out by the several patents which have issued for a live take-up blocks fashioned to receive several catchweight coils of varying inside diameters as well as devices for the stacking and transporting of a multiplicity of catch weight coils. In these latter devices, usually the finishing end of one coil is joined by welding to the starting end of the next, so that the whole becomes one continuous coil. However, large coils made up by welding smaller catchweight or coils have a tendency to knot and snarl when paid off, especially from dead blocks. This condition can only be corrected by rewinding after welding at additional expense. Bell Patent No. 2,703,686 for an Hydraulically Operated Let-Down and Release for Wire Layers embodies a light weight frame or pallet which permits the coiling of a greater amount of wire. Here the frame comprises two U-shaped rods invertedly mounted on a wooden platform and welded together at their intersection. The Bell device allows the wire to be led directly from the finishing block of the wire drawing machine, the finishing block acting as a capstan to draw the wire through the finishing dye. The revolving coil of the finishing block is converted to a stationary coil by means of a revolving arm and the wire is chuted continuously to the pallet placed to receive it, the pallet being removable from the chute by hydraulic means. Contrariwise, my device may be mounted directly on the finishing block



of a wire drawing machine and thus achieves the same result as Bell's device without elaborate chuting and hydraulic equipment. Additionally, my device is constructed so that the carriers or pallets may be stacked one upon the other during storage or shipment and after use may be collapsed for return to the wire mill.

Accordingly, it is a principal object of invention to provide a portable wire coil carrier which has greatly increased capacity for coiling wire and which may be mounted on the finishing block of a wire drawing machine.

Another object of invention is to provide a portable wire coil carrier which is adaptable to every wire mill use and, accordingly, may be mounted on live block or dead block pay-off and take-up means.

Yet another object of invention is to provide a wire coil carrier which is selectively collapsible for return shipment and storage while not in use.

Yet, another object of invention is to provide a wire coil carrier which has a central core or centre post which may be adapted for vertically engaging a keeper shaft of a wire mill block, as well as revolving arms which are sometimes used in the pay-off of wire from a coil.

These as well as additional objects of invention will appear as the following specification proceeds with reference to the accompanying drawings wherein:

FIGURE 1 is an elevational view, showing the primary frame member;

FIGURE 2 is a top plan view showing intersecting primary and secondary frame members in position for use.

FIGURE 3 is a top plan view of my device, showing the carrier collapsed with frame members in substantial parallel;

FIGURE 4 is an elevational view, showing the secondary frame member;

FIGURE 5 is an elevational view, illustrating my wire coil carrier mounted on a live take-up block;

FIGURE 6 is a top plan view of my carrier mounted on a live take-up block, showing the carrier core partially in section;

FIGURE 7 is an elevational view, showing my carriers stacked one upon the other;

FIGURE 8 is an end elevational view, showing my carrier mounted on a live pay-off block;

FIGURE 9 is an elevational view showing my carrier mounted on a wire mill floor and employing top-hat means during pay-off.

In the embodiment of invention shown I employ a wire coil carrier or pallet comprising a primary frame member 2 having vertical portions 8 and horizontal portions 6 supporting a cylindrical core 4. The vertical portions 8 may be constructed of angle bars or the like and thus are provided at their base with arcuate, interiorally channeled foot portions 10 which enable self balance of the coil and stacking of carriers upon each other, as shown in FIGURE 7. The vertical and horizontal portions may be joined by means of welds 12 which are supported by welded gussets 14. In FIGURE 4 there is illustrated my secondary frame member 3 which intersects with said primary frame member and embodies vertical portions 9, adjoining horizontal portions 7 and supporting collar means 16 which circumferentially encompass the core 4 of the primary frame. As illustrated in FIGURE 1 a locking pin 18, secured to the core 4 by means of chain 20 may be provided for transversing the collar 16 and core 9, thus locking the frames at a right angle intersection. Upon removal of the locking pin 18 the frame members may be collapsed or folded into a substantially parallel position as illustrated in FIGURE 3, thus enabling economical storage or return shipment of my wire coil carrier. In FIGURE 1 hoist hooks 36 are shown

hooking horizontal portions 6 for carrying of wire coil carrier.

In FIGURE 5 my carrier is shown; wire 38 being wound upon my carrier which is mounted upon a conventional live take-up block comprising a base member 24, a cradle 40, and a rotating take-up or finishing block 26 having top 30, beveled shoulder 44, base 28 and longitudinal slots 42 for receiving foot portions 10 of vertical frame members 8 and 9. A take-up or finishing block adaptable for use with the instant wire coil carrier is described in applicant's co-pending application Serial Number 774,742 for Wire Take-Up Block filed November 18, 1958. In this use a pilot shaft 34 may be constructed to extend beyond the top of pallet frame 1 and thus vertically and entirely engage core 4. In this connection, keeper pin 32 traverses pilot shaft 34 thus vertically locking the carrier to the finishing block. A somewhat shortened keeper shaft 34 is shown in modified use without keeper pin in FIGURES 8 and 9. In FIGURES 5 and 6 a latch and eye device 80 is used for the carrier in open position in lieu of the cocking pin 18 and chain 20 employed as shown in FIGURES 1 and 2. The use of latch and eye 80 at the top of the carrier permits accessibility for release when the carrier is enveloped with wire.

In FIGURE 7 there is illustrated the carriers stacked one upon the other by means of vertical frame elements 8 and 9, respectfully of the primary frame member 2 and secondary frame member 3, fitting into each other as at 46, the top portions of one carrier fitting into an interior channel portion of the arcuate foot 10 of another carrier.

In FIGURE 8 my carrier is shown seated upon a pay-off block 58 employing a conventional brake drum 60 and brake actuating means 64 which are seated on metal base 62 and are actuable to slow or stop pay-off of wire 38 from the carrier.

FIGURE 9 illustrates my carrier positioned upon a mill floor 22 and having attached at its top portion a "top-hat" fixture 48 having a circular top 66 and circular base 70 fitting about the tops of vertical elements 8 and 9, said base 70 and top 66 being joined by arcuate struts 68. Thus wire 38 pays off through pulley 52 held in bracket 54 which may be attached to a mill ceiling 50, pay-off being facilitated by circumferential movement of wire 38 about top 70. As will be apparent, revolving pay-off arms, which are sometimes employed in lieu of "top-hat" fixtures may be rotatably mounted in the top of core 4.

Thus, the universality of my device for the wire milling industry having been indicated, I now claim as my invention:

1. A wire coil carrier comprising an upright primary frame member having vertically disposed side members terminating in outwardly directed foot portions adapted to support a wire coil, horizontally disposed end members and a cylindrical core supported in said end members, said side members being parallel to and of greater length than said core; an upright secondary frame member having vertically disposed side members, horizontally disposed end members, and centrally disposed collar means supported in said end members of said secondary frame member and surrounding said core, said side members of said secondary frame member being parallel to and of greater length than said core; said frame members intersecting about an axis defined by said core and said collar means in rotatable engagement therewith and said secondary frame member being foldable about said core to collapsed substantially parallel position with respect to said primary frame member.

2. A wire coil carrier comprising a primary frame member having vertically disposed side members terminating in outwardly directed arcuate, interiorly channeled foot portions adapted to support a wire coil, horizontal end members and a cylindrical core parallel to the said side members and supported in said end members; a secondary frame member having vertical side members terminating in outwardly disposed arcuate, interiorly channeled foot portions, horizontal end members and centrally disposed collar means supported in said end members of said secondary frame member, said primary and secondary frame members intersecting each other through rotatable engagement of said collar means with said core and said secondary frame member being foldable about said core to collapsed substantially parallel position with respect to said primary frame member, and means locking said collar to said core.

3. A wire coil carrier as in claim 1, said cylindrical core of said primary frame member having an inner channel adapted for receiving during winding of wire a vertical keeper shaft of a winding machine finishing block and keeper pin means extending transversely through said core, said keeper pin means locking said keeper shaft into a position of vertical engagement with said core and thereby locking said wire coil carrier into vertical engagement with the winding machine finishing block.




**References Cited** in the file of this patent

UNITED STATES PATENTS

| | | |
|---|---|---|
| 987,411 | Spencer | Mar. 21, 1911 |
| 1,430,165 | Heindrich et al. | Sept. 26, 1922 |
| 2,153,420 | Huttinger | Apr. 4, 1939 |
| 2,630,980 | Weaver | Mar. 10, 1953 |
| 2,635,822 | Burman | Apr. 21, 1953 |
| 2,706,609 | Sullivan | Apr. 19, 1955 |

FOREIGN PATENTS

| | | |
|---|---|---|
| 1,085,398 | France | July 28, 1954 |