

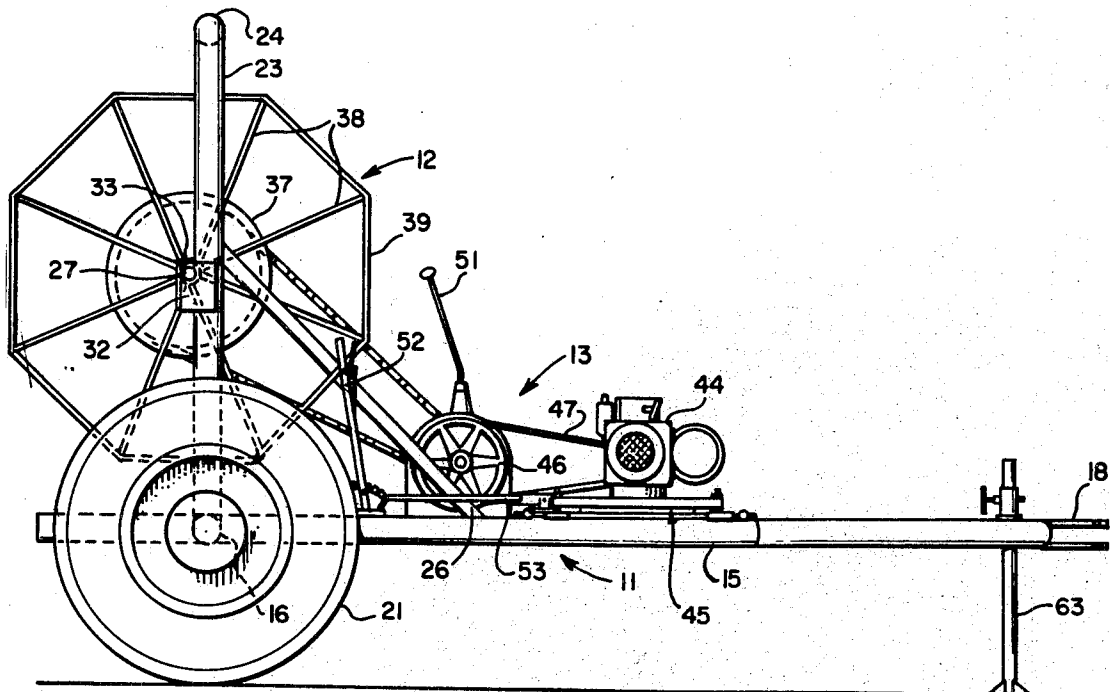
[72] Inventor **George E. White**
Winona, Kansas
 [21] Appl. No. **838,042**
 [22] Filed **June 24, 1969**
Continuation of Ser. No. 678,061, Oct. 25,
1967, abandoned.
 [45] Patented **Dec. 1, 1970**
 [73] Assignee **Johanna A. Michael doing business as**
Michael Mfg. Co.
Winona, Kansas

[56] References Cited	
UNITED STATES PATENTS	
337,119	3/1886 Bigelow..... 242/86.5
465,537	12/1891 Robinson..... 242/86.7
817,248	4/1906 Jacox..... 242/86.5X
2,956,758	10/1960 Pleiss..... 242/100.1
3,000,587	9/1961 Goode..... 242/86.5
3,000,588	9/1961 Brady..... 242/86.5
3,072,357	1/1963 Sprague et al. 242/86.5

Primary Examiner—Nathan L. Mintz
 Attorney—McGrew and Edwards

[54] **MOBILE WIRE ROLLER APPARATUS**
9 Claims, 7 Drawing Figs.
 [52] U.S. Cl..... 242/86.5
 [51] Int. Cl..... B65h 75/40
 [50] Field of Search..... 242/86.5,
 86.64, 86.7, 100.1

ABSTRACT: Wire roller apparatus inclusive of wheel-mounted body having rotary wire reel and reel drive mounted on body. Reel positively rotated by drive to wind wire on reel while standing and unwind wire from reel, and tauten wire paid out from reel during movement of body along work area. Reel sections arranged for movement lengthwise of shaft and shaft mounts on upright portions of body arranged for permitting removal of reel from body and wound wire coil from reel.



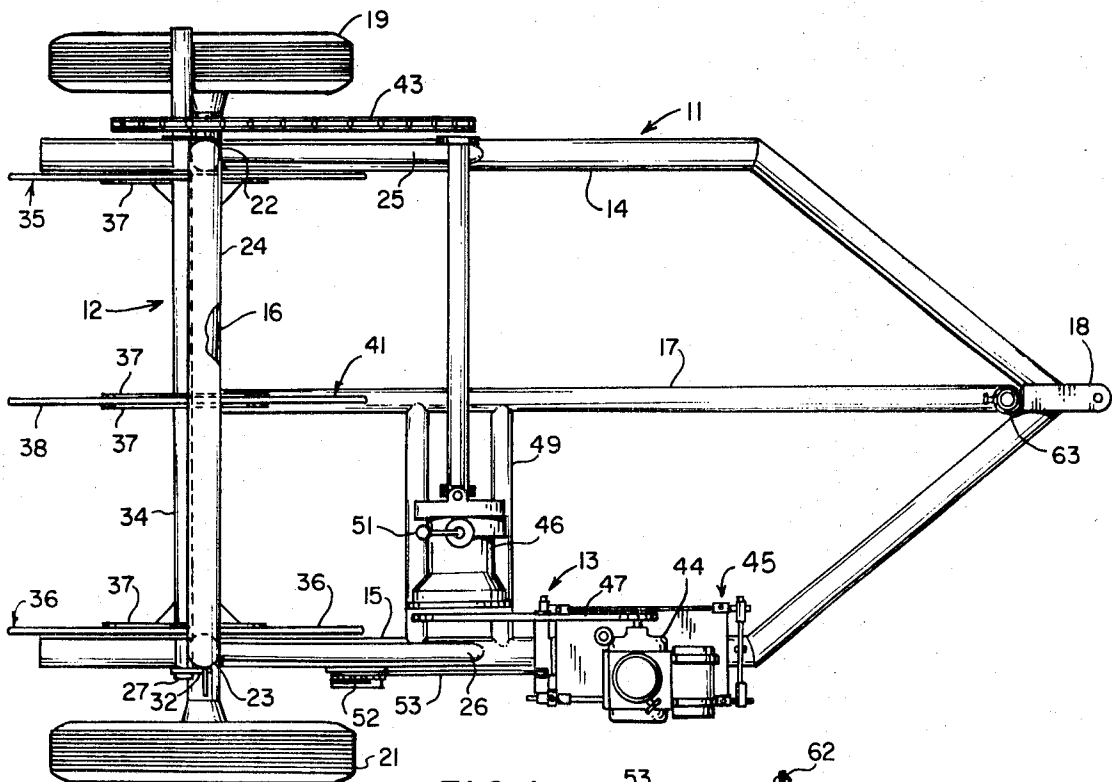


FIG. 1

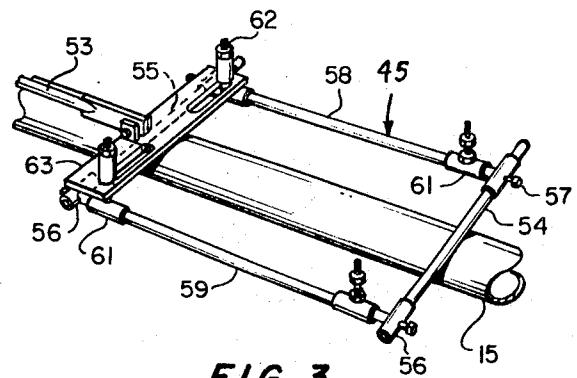


FIG. 3

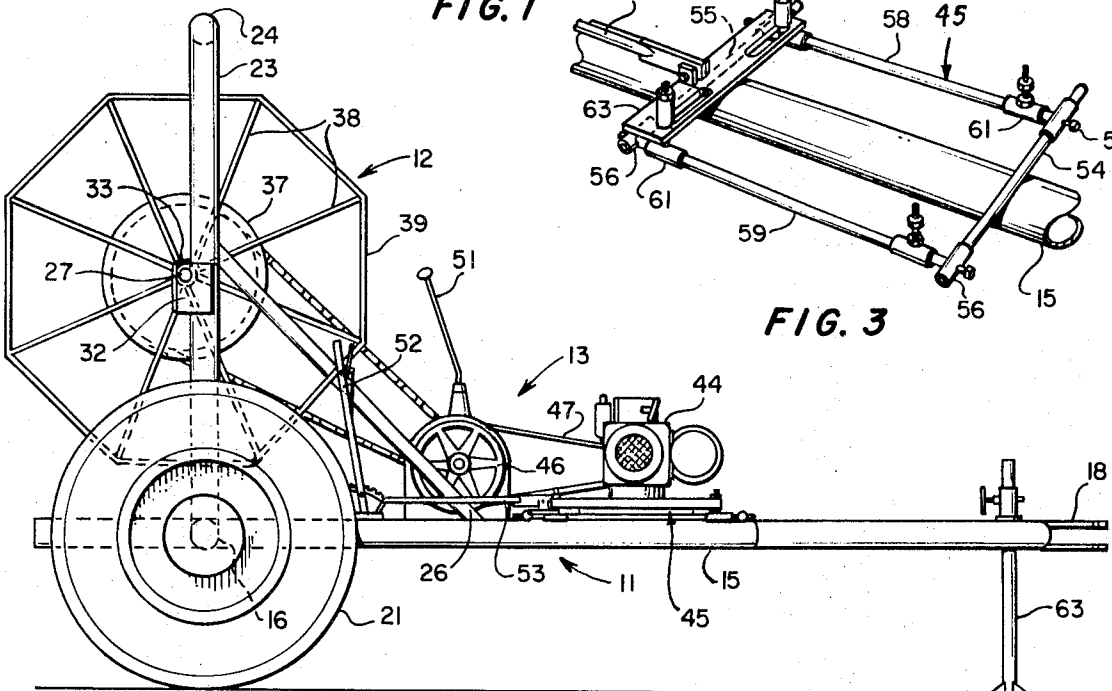


FIG. 2

INVENTOR.
GEORGE E. WHITE

BY

McGraw and Edwards
ATTORNEYS

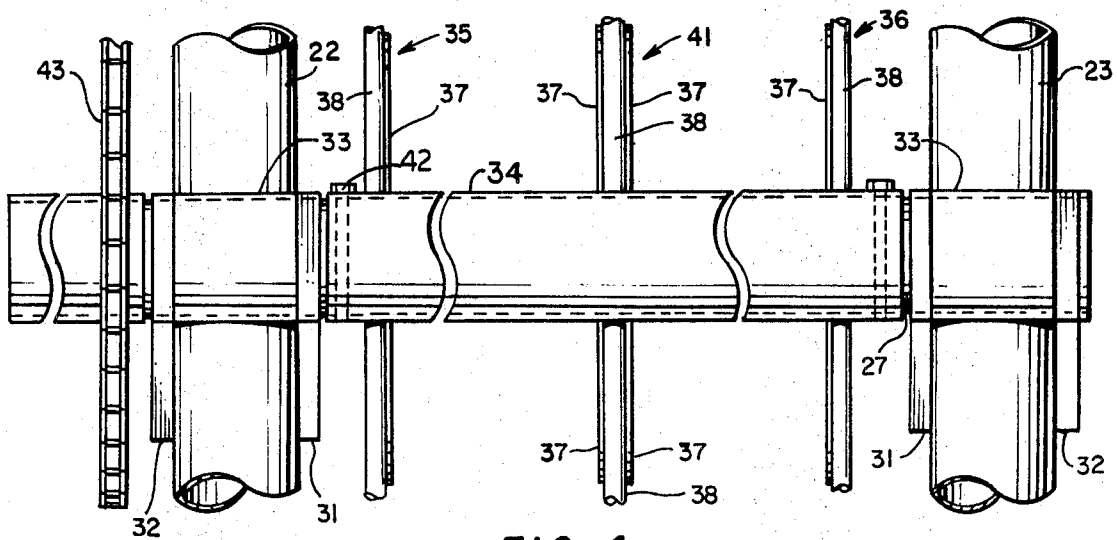


FIG. 4

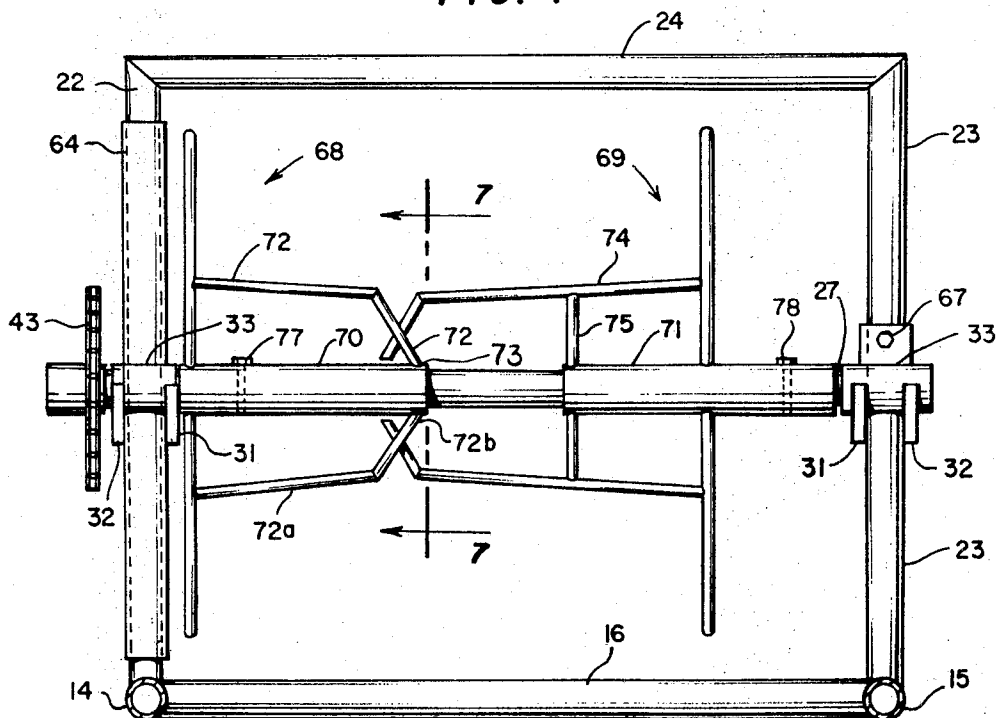


FIG. 5

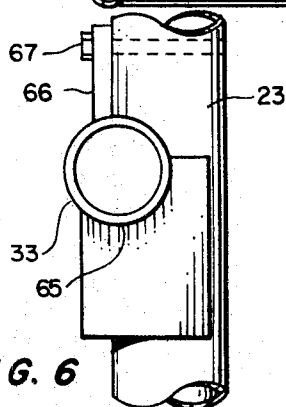


FIG. 6

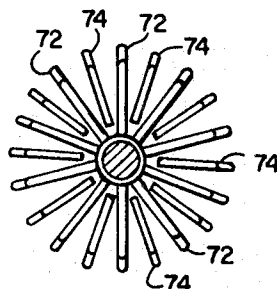


FIG. 7

INVENTOR.
GEORGE E. WHITE

BY

W. H. Edwards
ATTORNEYS

MOBILE WIRE ROLLER APPARATUS

This application is a continuation of applicant's earlier U.S. application No. 678,061, filed Oct. 25, 1967, now abandoned, for Mobile Wire Roller Apparatus.

This invention relates to apparatus for handling wire in rolled form and more particularly to mobile apparatus suitable for winding and unwinding lengths of various types of rolled wire for the construction of fences and the like.

Fences of substantial length are made to enclose large areas for various purposes such as to define property boundaries, for animal containment and for security purposes. Wire forming these fences is of various types including woven, barbed and smooth. Such wire is furnished from the supplier in rolls of standard lengths and width which are generally bulky in nature and require its unrolling or unwinding along a particular area and a tautening of the wire between support posts during installation.

Accordingly, it is an object of this invention to provide a simple and durable apparatus for handling wire of substantial lengths of the type used in the construction of fences.

Another object of this invention is to provide a novel wire roller capable of moving along a working area and progressively paying out wire between support posts and holding the wire taut while being secured to the posts.

It is further object of this invention to provide a wire roller apparatus arranged for removal of wire from the reel in a roll form.

Still a further object of this invention is to provide wire roller apparatus arranged to adjust to wire rolls of different widths.

Other objects, advantages and capabilities of the present invention will become more apparent as the description proceeds taken in conjunction with the drawings in which:

FIG. 1 is a top plan view of one form of wire roller apparatus embodying features of the present invention which is particularly suitable for handling smooth and barbed wire;

FIG. 2 is a side elevation view of the apparatus shown in FIG. 1;

FIG. 3 is a perspective view of the motor mount on the roller apparatus shown in FIG. 1 drawn to an enlarged scale;

FIG. 4 is a fragmentary rear end elevation view of the reel, shaft and side mount assembly of the apparatus shown in FIG. 1 drawn to an enlarged scale;

FIG. 5 is a rear end elevation view of another form of wire roller apparatus with the base portion and wheels removed for clarity embodying features of the present invention which is particularly suitable for woven wire of different widths;

FIG. 6 is an enlarged fragmentary side elevation view of one side mount for the shaft which permits detachment of the shaft from the upright side member for removal of the reel shown in FIG. 5; and

FIG. 7 is a sectional view taken along lines 7-7 of FIG. 5 showing the side by side relation of the circumferentially arranged rodlike wire support portions of each section of the sectional reel.

Referring now to the drawings, one form of wire roller apparatus which is particularly suitable for handling barbed and smooth wire of substantial lengths is shown in FIGS. 1-4. As shown, this apparatus in general comprises a vehicular body of frame assembly 11 in combination with a wire reel 12 mounted for rotation about a horizontal axis on the body and a reel drive 13 adapted for positively rotating reel 12 which is also mounted on the body forwardly of the reel for their vehicular movement above the ground and along the work area during the unwinding of a roll of wire and for the support of the reel during the winding of wire thereon as described more fully hereafter. Although a pull-type vehicle body of the type which is usually coupled to a tractor, truck or the like has been illustrated and is described herein, it is understood that other forms of vehicular means including self-propelled vehicles also may be used for transport purposes.

The vehicular body or frame assembly 11 includes a base portion formed of left and right side spaced side members 14

and 15 having rearward parallel portions and inclined forward portions which terminate in an apex at the front of the vehicle, a transverse member 16 extending transversely of the direction of vehicle movement and joined to the side members 14 and 15 and an intermediate member 17 extending from a central portion of the transverse member forwardly to the apex. A hitch 18 is secured at the apex. Left and right side wheels 19 and 21 are mounted on axle portions which are secured to the side members and extend outwardly of the transverse member 16 so as to support the base portion above ground. While a single wheel is shown on each side of the body, another preferred arrangement is to provide a tandem wheel assembly on each side of the body to facilitate a larger wire handling capacity.

An upright portion of the vehicular body or frame assembly includes upright members 22 and 23 extending upwardly from the side members 14 and 15, respectively, which are in adjoining relation to associated ends of the transverse member. A top or overhanging member 24 joining the tops of the upright members is provided to form with the upright members and transverse member 16 an essentially boxlike framework in which the reel or roller 12 is disposed. Inclined left and right side braces 25 and 26 are provided between the upright and horizontal side members forwardly of the upright members for added strength. A shaft 27 is mounted on the upright members between the top and transverse members for supporting the rotary reel 12. A preferred construction for the frame assembly above described is of structural metal pipe secured at adjoining ends as by welding.

Shaft 27 is supported from the upright members by similar left and right side mounts and a description of one applies to both in the form of apparatus shown in FIGS. 1-4. Each mount comprises inner and outer plates 31 and 32 on opposite sides of the upright member. The upper rearward corner is notched or cut out to receive and support a tubular member 33 which is cradled in and rigidly secured to the plates 31 and 32 as by welding. These tubular members 33 are of a length slightly greater than the width of the upright member. These shaft mounts are thus essentially a sleeve-like bearing which supports the shaft from the side members for rotation about a horizontal axis.

The wire reel 12 is formed of a tubular member 34 which fits on or telescopes over a shaft 27. Left and right side end portions 35 and 36 of the reel project radially outwardly at each end of the tubular member and terminate in spaced proximity to the top and bottom transverse frame members 24 and 16. These end portions are formed of a circular plate or disc 37 which is secured on the tubular member as by welding and extend radially outwardly therefrom combined with a plurality of radially projecting rodlike members 38 of equal length which are secured to an outer surface of the plate. Radial members 38 are joined at their outer ends by a circumferential rodlike member 39. In the preferred form of reel shown in FIGS. 1-4, the reel is divided into two sections by an intermediate partitioning member 41 of a configuration generally similar to the end portions 35 and 36 having a plurality of radial rodlike members 38 with radial plates 37 on each side thereof.

In a preferred form of rotary support for the reel, tubular member 34 is fixedly secured to the shaft 27 by fasteners 42, such as bolts at each end thereof which extend radially through the tubular member and into the shaft 27 and these fasteners are quickly detachable to separate the shaft from the reel if desired. Rotational movement is imparted to the joined shaft and reel from the reel drive assembly 13 by means of a sprocket 43 rigidly secured at the left end of the shaft.

The reel drive assembly 13 as shown comprises a motor 44 preferably of the gasoline powered type supported on a motor mount 45 secured to the frame assembly with the motor having its output shaft coupled to the input shaft of a transmission 46 by a belt 47 with suitable sprockets associated with each shaft. The output shaft of the transmission has a sprocket coupled in a driving relation by a chain 48 to the reel shaft

sprocket 43. Transmission 46 is mounted on spaced transverse frame members 49 secured to the frame members 15 and 17. This transmission is preferably of the type which has several different forward speeds and at least one speed in a reverse direction of rotation accomplished by the setting of a lever 51. Although a motor 44 mounted on the body has been shown as one preferred form of drive for the reel, another suitable arrangement contemplated is to employ the power takeoff from the tractor or similar vehicular means as the power source.

The motor mount 45 is arranged for transverse and lengthwise adjustment to accommodate motors of different mounting dimensions and is arranged for lengthwise movement toward and away from the transmission by a lever assembly inclusive of a lever arm 52 pivotally secured at its lower end to a stationary surface on the frame and a link 53 joined to the lower end of the lever arm 52 so as to couple and uncouple the motor 44 and the transmission 46 and tighten the belt 47 as required. As shown more particularly in FIG. 3, the motor mount 45 comprises a forward transverse member 54 and a rearward transverse member 55 preferably of a circular section rigidly secured to the frame member 15 and each carrying a tubular or sleeve member 56 on each end for slidable movement therealong. A setscrew 57 is provided for each tubular member 56 to lock that member at a particular position.

Inner and outer rodlike side members 58 and 59 are secured at their ends to slidable members 55 so as to move transversely therewith. Each of these side members carries a pair of tubular or sleeve members 61 which slide lengthwise thereof and each has a bolt 62 arranged to extend upwardly through the base openings of the motor. A plate 63 having transverse slotted portions fits over the upstanding rear pair of bolts 62 and these rear bolts may slide transversely in the slotted portions. The lever 53 is secured to the plate 63 so that when the motor 45 is bolted to the tubular members 61, bolts 62 and motor 44 when mounted it will slide forwardly or rearwardly over the side members 58 and 59 when the link 53 and arm 52 is moved either forwardly or rearwardly.

In a typical sequence of operation for the above described apparatus for purposes of illustration, the vehicular body 11 is disposed in a standing position for the filling of the reel with wire and will usually be disposed in a horizontal position by a suitable support 63 at its forward end or by the pulling vehicle being attached to hitch 18. The free end of a roll of wire in the form furnished by the supplier (not shown) is secured to the reel. Lever arms 51 and 52 are set and motor 44 is started. With the motor 44 running, the reel 12 is positively driven to wind wire from the supply roll onto the reel. More than one roll of wire may be wound onto the reel by splicing wire ends to provide a selected length of wire for a particular installation. After the wire has been wound on the reel, the assembly is moved to a working area and the free end of the wire is secured to a stationary support such as a fence post. The vehicle is then moved along the work area, usually along a fence line, with the reel being positively rotated in the opposite direction to pay out the wire after the lever 51 has been set for reverse rotation. The tightening of the wire may be regulated by the rotation of the reel or by locking the reel and advancing the vehicle along the ground.

The vehicular support for the other form of wire roller apparatus shown in FIGS. 5 through 7 is the same as that of the arrangement above described but is modified therefrom to permit removal of the reels and has a sectional reel particularly suitable for woven wire of various lengths. As shown, the boxlike upright frame assembly is similar to that above described and includes a transverse member 16, upright members 22 and 23 and a top member 24 mounted on the side members 15 and 16. The shaft 27 is supported for rotation from the upright members and includes a sprocket 43. The left side mount inclusive of inner and outer plates 31 and 32 and a tubular member 33 are similar to that above described but differ therefrom in that they are secured on a tubular or pipe member 64 which telescopes over the left side member 22 and

is substantially coextensive therewith. This tubular member is arranged to rotate freely on the left side member 22 about an upright axis of rotation.

The right side mount includes a tubular member 33 which sets on or is cradled in notched portions 65 (FIG. 6) of plates 31 and 32 but is not rigidly secured thereto as is the fixed arrangement of FIGS. 1—4. The tubular member 33 is provided with a flanged portion 66 which is detachably fastened to side member 23 as with a fastener 67 such as a bolt or the like which is secured to the upright member 23. Removal of the reel on the shaft in this arrangement is thus accomplished by loosening fastener 67 and pivoting the shaft 27 carrying the reel by sliding the tubular member 33 off its associated cradle portion 65. The shaft will then swing in a horizontal path to a forward position and clear the side member 23 in its pivotal movement so that the reel may be removed.

A sectional form of wire reel illustrated on shaft 27 in FIG. 5 comprises separate opposing left and right side reel sections 68 and 69 with the right side section 69 which adjoins the detachable shaft toward and away from the other section 68 to provide a reel which will adjust to wire of the woven type of different widths. Reel sections 68 and 69 include separate tubular members 70 and 71, respectively, disposed in spaced relation on the shaft as shown with the total length of both tubular members 68 and 69 being substantially less in lengthwise dimension than tubular member 34 previously described to permit a range of movement of one reel section with respect to the other lengthwise of the shaft 27.

Each reel section has an end portion similar to that of FIGS. 1 and 2 with radially projecting rodlike members 38 and a circumferential member 39 but in this form preferably having the associated plate 37 removed. The left side reel section 68 includes a cage-like wire support portion formed of a plurality of circumferentially spaced rodlike members 72, each extending from a fixed connection on a radial member 38 (FIG. 7) inwardly and axially along the tubular section where it is fixedly connected at its inner end to the inner end of its associated tubular member 70 as illustrated at 73. Each member 72 has an outer portion 72a which inclines inwardly toward the central portion of the reel at a slight inclination and an inner inclined portion 72b which inclines at a sharp angle and terminates in connection 73.

The right side reel section 69 has a cage-like support portion formed of a plurality of spaced rodlike members 74 which extend axially and inwardly along its associated tubular member 71 and beyond its inner end and terminate in its innermost end in spaced relation to the tubular member 70 of the other section. The inclination of members 74 along its lengthwise extent is generally similar to that of member 72. Radial supports 75 extend from the inner end of the tubular member outwardly and connect to the axially extending members 74 to secure them in position. The plurality of circumferentially arranged members 72 are offset in relation to members 74 so that they will be disposed in side by side relationship as shown in FIG. 7 when the right side or movable reel is moved lengthwise of the shaft to adjust the width of the reel and form a surface upon which the wire is wound and unwound.

Suitable fasteners such as bolts 77 and 78 extend through the tubular members 70 and 71 of each reel section to secure these reel sections on the shaft for rotation therewith. The right side fastener 78 is removed when it is desired to adjust the width of the reel section so that its tubular member will slide along the shaft to a desired setting.

A coil of wire which has been wound on the sectional reel may be removed from the reel by releasing the right side mount as above described and swinging the left side mount in a horizontal path about the left side upright 22 so that the right side end portion clears the upright support. The right side mount may then be slid off the shaft, followed by the right side reel section and the coil pulled from the reel.

While the present invention has been described with reference to particular structure, there is no intent to limit the spirit and scope to the precise details of construction except as defined in the appended claims.

I claim:

1. Mobile wire roller apparatus comprising a wheel-mounted body, inclusive of an elongated frame having spaced longitudinally extending side members and upright members supported from the side members and said body arranged for movement along a working area, a reel mounted for rotation about a fixed horizontal axis on upper surfaces of the upright members, partitioning means disposed intermediate the ends of the reel for establishing side-by-side reel portions, reel drive means for positively rotating said reel at selected speeds and means independently of body movement, the drive means including a reversible motor movably mounted on the body, transmission means fixedly mounted on the body and having its output shaft connected in driving relationship with the reel, a transmission belt connected between the motor and the input shaft of the transmission means, and means for selectively moving the motor on the body relative to the transmission means whereby to control the tension on the transmission belt so as to selectively control the speed the reel is driven by the drive assembly means, the driven reel being adapted to wind successive lengths of wire of a selected type in tautened arrangement on the respective adjoining reel portions during rotation in one direction when the body is standing, and said driven reel being adapted to unwind said wire from at least one reel portion during rotation in the opposite direction while the body is moved progressively along the work area so as to permit fastening of payed out portions of a selected wire on supporting means located at intervals along the work area.

2 Apparatus as set forth in claim 1, including a base portion on the body and the fixed horizontal axis at a substantial distance above said base, whereby several standard lengths of wire may be spliced and secured on one reel portion as a continuous wire having clearance with said base during reel rotation. 16

3. Apparatus as set forth in claim 1, wherein the transmission means has a plurality of forward speeds and at least one speed in the reverse direction.

4. Apparatus as set forth in claim 3, including means for manually selecting the speed and direction the transmission means drives the reel.

5. Mobile wire roller apparatus comprising a wheel-mounted body, inclusive of an elongated frame having spaced longitudinally extending side members and upright members supported from the side members and said body arranged for movement along a working area, a reel mounted for rotation about a fixed horizontal axis on upper surfaces of the upright members, two separable reel sections mounted in opposing relation for conjoint rotation on a common shaft, at least one said section arranged for movement to selective positions lengthwise of the shaft and out of facing relation to the other section so as to receive woven wire rolls of different width on the reel and for return to opposing relation with its coacting section, reel drive means for positively rotating the reel at selected speeds and directions independently of body movement, the drive means including a reversible motor movably mounted on the body, transmission means fixedly mounted on

the body and having its output shaft connected in driving relationship with the 17, reel, a transmission belt connected between the motor and the input shaft of the transmission means, and means for selectively moving the motor on the body relative to the transmission means whereby to control the tension on the transmission belt so as to selectively control the speed the reel is driven by the drive means, the driven reel being adapted to wind successive widths of wire in tautened arrangement on the adjoining reel portions during rotation in one direction when the body is standing, and said driven reel being adapted to unwind said wire during rotation in the opposite direction while the body is moved progressively along the work area so as to permit fastening of payed out portions of wire on supporting means located at intervals along the work area, and means for extending and retracting the combined length of the reel sections to accommodate different widths of woven wire. 18

6. Apparatus as set forth in claim 5, wherein each reel section includes axially extending wire support portions disposed in a spaced circumferential relation to the shaft, the support portion of one said section being in offset relation to the support portion of the other section to provide an overlapping relationship permitting axial movement of said sections.

7. Apparatus as set forth in Claim 5, wherein said reel comprises a pair of opposing sections mounted with one said section having a pivotal mount and the other section having a detachable mount so as to permit sliding movement of a woven wire coil from the reel when the shaft has been swung to a position clearing the reel from the second mount.

8. Mobile wire roller apparatus comprising a body structure mounted on wheels for movement along a working surface, reel means rotatably mounted on said body structure above said working surface, reel drive means for positively rotating said reel means selectively in forward or reverse direction whereby to, respectively, wind wire onto said reel or pay wire out therefrom, said drive means including a motor selectively operable in a forward or reverse direction mounted on said body structure, transmission means mounted on said body, a transmission belt connected between said motor and the input shaft of said transmission means, means for selectively moving said motor and transmission means relative to each other whereby to control the tension on said transmission belt so as to selectively couple said transmission means to said motor, and coupling means for coupling the output shaft of said transmission means to said reel means whereby said reel means is selectively driven by said drive assembly means whenever said transmission means is coupled to said motor.

9. The invention recited in claim 8, wherein said motor is movably mounted on said body structure, said transmission means is fixedly mounted on said body structure, and said means for selectively moving said motor and transmission means relative to each other is a movable lever means connected to said motor whereby the tension on said transmission belt is selectively controlled by operating said lever means to move said motor.

60

65

70

75