Dec. 18, 1962 R. E. HIRT 3,069,107

REEL PLAY-OFF STAND

Filed Dec. 1, 1958 2 Sheets-Sheet 1

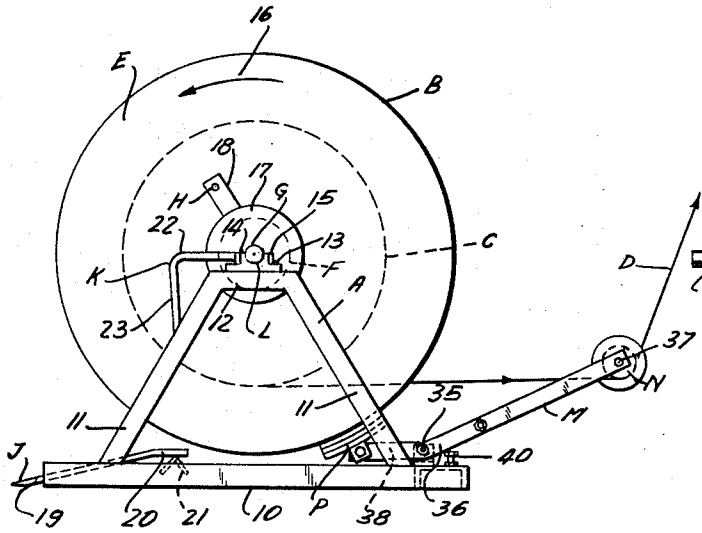

FIG. 1

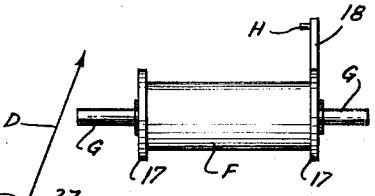

FIG. 2

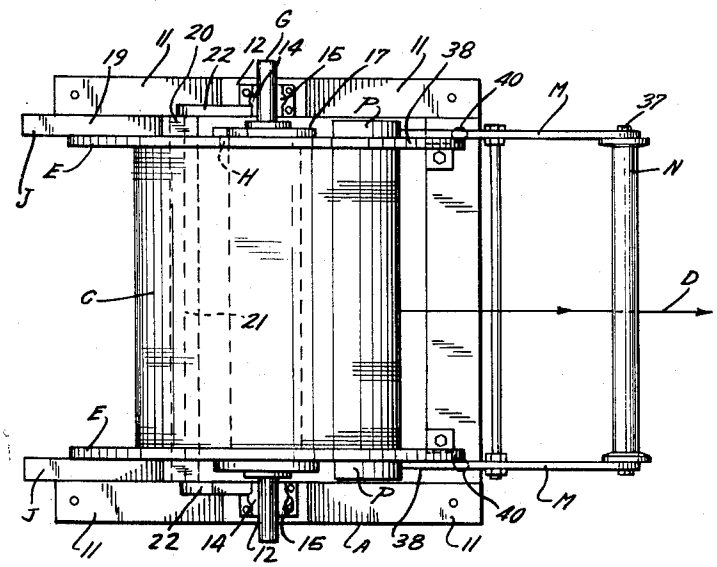

FIG. 3

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Dec. 18, 1962 R. E. HIRT 3,069,107

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Filed Dec. 1, 1958 2 Sheets-Sheet 2

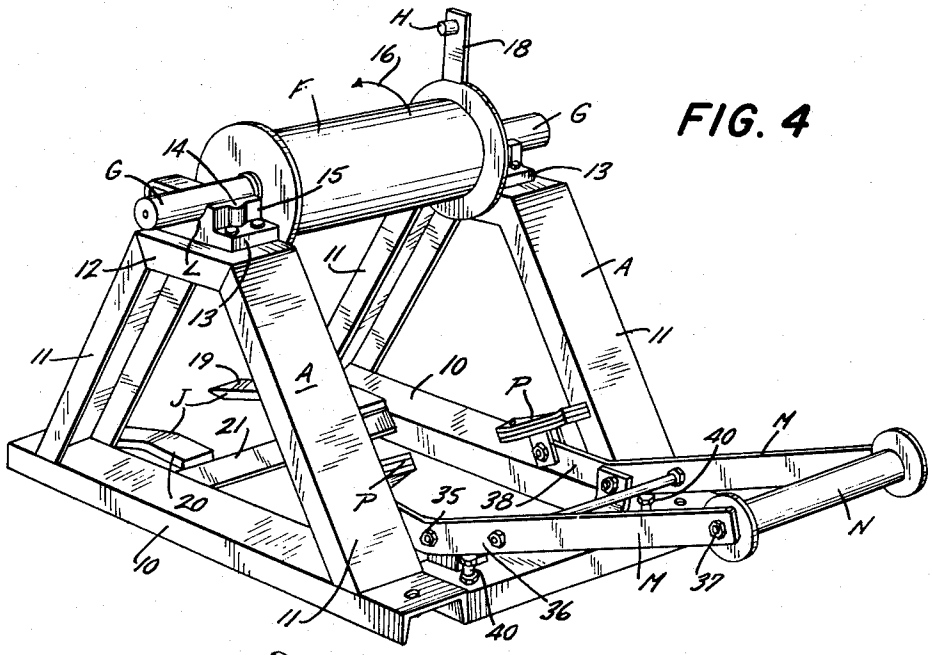

FIG. 4

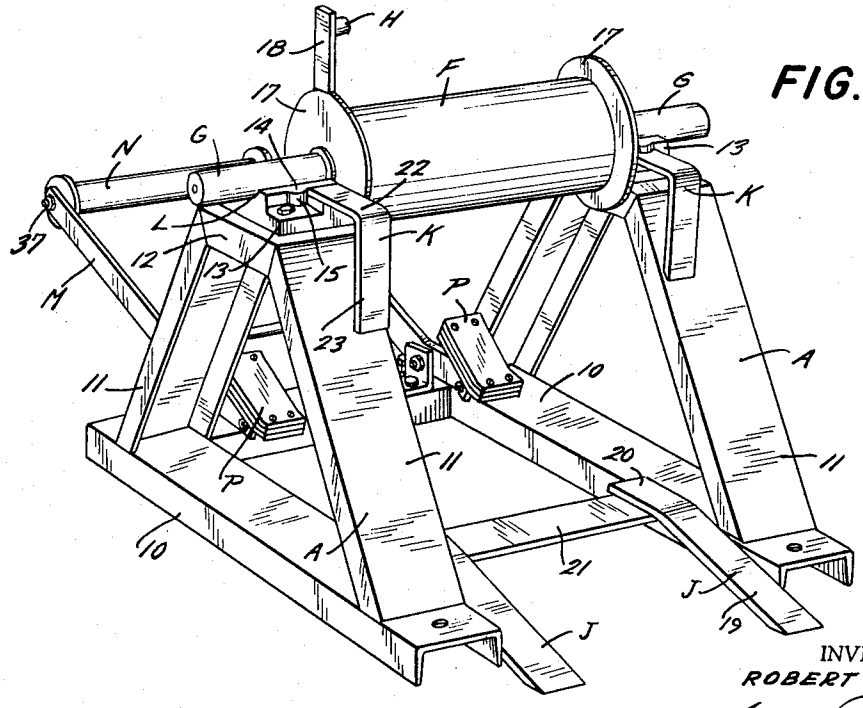

FIG. 5

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REEL PLAY-OFF STAND

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The present invention relates to a reel play-off stand and it particularly relates to a reel play-off stand which may be utilized for carrying wire to be used in connection with a wire drawing operation.

It is among the objects of the present invention to provide a reel play-off stand which may readily be utilized with any dimensions or width of reel with wire and which will permit ready association of a reel of wire to be drawn with a wire drawing apparatus or wire drawing apparatus or wire drawing mill and which can be readily loaded or unloaded with a minimum of manual labor and lifting equipment.

Another object is to provide a reel play-off stand which may be readily loaded and unloaded and in which assurance is had that the wire will be fed in proper fashion without over-feed to the wire drawing equipment.

Still further objects and advantages will appear in the more detailed description set forth below, it being understood, however, that this more detailed description is given by way of illustration and explanation only and not by way of limitation, since various changes therein may be made by those skilled in the art without departing from the scope and spirit of the present invention.

In accomplishing the above objects, it has been found most satisfactory to provide a stand with side support members which carry in elevated position the side pivot mounts for the reel.

The stand is provided with ramps at the load-on point thereof so that the reel may be readily rolled up onto and in the sockets with there being provided two ramps adjacent the base, one for each of the side flanges, to permit the entire reel to be elevated and with there being another ramp to engage the trunnions or pivot studs of the reel and to permit the same to be rolled onto the sockets into which it is received during the unreeling operation.

In addition, the forward part of the reel is provided with spaced side brake arms pivotally mounted on the base and with a roller shaft at the forward part thereof under which the wire passes on its way to the drawing operation.

The reel portion of these brake arms is provided with a laterally extending brake shoe which will contact the flanges if the unwinding is taking place too rapidly and brake the reel and prevent the wire from becoming disengaged from the reel at a greater rate than it is taken up by the wire drawing mill.

This apparatus will permit the reels to be readily rolled up onto the stand and to be dropped into the recess pivot mounts or bearing blocks with the wire then being pulled out under a bearing mounted shaft on its way to the drawing mills or to any other operation that may be desired, such as respooling.

To release the reel either before or after the wire has been exhausted the brake arms may be moved downwardly so that the brake shoe will press upwardly on the side flanges, lifting the trunnion pins or arbor shaft from its bearing sockets.

Thereupon the reel may be rolled in reverse direction first upon the upper ramp over which the trunnion will roll and then over the lower ramp over which the flanges will roll until the reel is altogether free of the stand.

With the foregoing and other objects in view, the invention consists of the novel construction, combination

and arrangement of parts as hereinafter more specifically described, and illustrated in the accompanying drawings, wherein is shown an embodiment of the invention, but it is to be understood that changes, variations and modifications can be resorted to which fall within the scope of the claims hereunto appended.

In the drawings wherein like reference characters denote corresponding parts throughout the several views:

FIG. 1 is a side elevational view showing the reel in position on the stand with the wire being unreeled therefrom.

FIG. 2 is a front elevational view of the trunnion or arbor shaft arrangement with the drive pin connection for driving the reels.

FIG. 3 is a top elevational view of the arrangement as shown in FIG. 1.

FIG. 4 is a perspective view of the reel play-off stand without the reel in position thereon taken from the side where the wire is taken off.

FIG. 5 is a perspective view of the reel play-off stand from the side where the stand is loaded.

FIGURES 1 to 3 show a stand A carrying the reel B. The reel B is provided with a coil of wire C which is being unwound as indicated at D and moving to a wire drawing mill fed into a respooler or to some other piece of equipment.

The reel itself is provided with the side flanges E which are mounted upon an arbor F carrying the trunnions G and the drive pin connection H.

The base structure A is provided with a low ramp J for the wheel flanges E and with a high ramp K for the trunnions G to enable them to be rolled into the pivot or trunnion sockets L.

The lower ramps J are permanently mounted at their forward ends onto the stand A and particularly the cross member **21** as by welding and they are sufficiently wide to engage the side flanges E.

The side flanges E first roll along the ramps J and then the trunnions G roll along the ramps K by the horizontal portions **22** until the trunnions engage the sockets L without any power or lever applications.

The brake arm arrangement M is provided with a bearing mounted roller shaft N and with the brake shoes P.

Referring specifically to the stand A there is a base **10** which may rest upon the floor or be mounted upon a foundation and this base on each side of the reel B is provided with the upwardly extending structural arms **11** which are connected by and terminate in the horizontal cross member **12** at their upper ends.

These members carry the bearing blocks **13** having the bearing recesses L. These bearing blocks **13** have rear portions **14**, the top of which coincide with the center line of the bearing to facilitate loading and unloading, and forward portions **15** to hold the trunnions G in position as the reel is turned in the direction **16**.

The arbor structure shown in FIG. 2 has the central cylindrical portion F with the side flanges **17** against which the main reel flanges E are pressed with the drive pin H being mounted on an extension or shoulder **18**, which pin H will fit into a recess on one of the side flanges E. This will assure that the arbor structure F—H, as shown in FIG. 2, will revolve as shown in the bearing blocks **13**, together with the reel flanges E as the wire is unwound or pulled from the reel.

The reel flanges E are normally rolled upon the ramp J which has an oblique portion **19** and an elevated flat portion **20** supported upon the members **21**. When the flanges reach the top **20** of the ramp J the trunnions G will move onto the horizontal portion **22** of the top ramp K. One of these ramps K is positioned at each side of the reel and it has an upwardly extending portion **23** from the leg **11** which supports the outer end

of the horizontal portion 22 which extends into the bearing block 13, as indicated in FIG. 1.

The brake arm structure M consists of two members as shown in FIG. 3 which are pivotally mounted at 35 on the upwardly extending flange members 36. The forward ends of the arms M carry the shaft 37 for the bearing mounted shaft or roller N under which the wire pases as it is being unreeled.

The weight of the arms M and the roller N may be such as to hold the wire down and control the tension on the wire as it moves upwardly as indicated at D in FIG. 1. The arms will be provided with stops 40.

The rearwardly extending arms 38 carry the brake shoes P which will contact the flanges E and slow the reel B if the tension is released and the roller members or bearing member N is dropped.

This reel play-off stand, as shown in FIGS. 1 to 3, may be fabricated for use with 30" reels as well as any other diameter and width of reel.

To load the stand the flanges are rolled up on the ramps J and then the trunnions are rolled onto the ramps K and then onto the recesses L in the bearing blocks 13.

The leading edges of the bearing blocks as indicated at 14 will cut at a horizontal level the same as the center line of the bearing to facilitate loading and unloading and the wire is then pulled under the bearing mounted shaft on roller N as it is pulled into the drawing mill or other mechanism.

As the wire at D is unrolled, the brake arm M will raise, lowering the brake shoe P from the reel.

However, when slack occurs, indicating that the wire is being fed too rapidly, the brake arm M will drop, permitting the brake shoe P to contact the flanges E and brake the reel.

To unload the reel, a slight downward pressure applied by the foot upon the brake arms M will lift the reel from the recesses L and permit it to be rolled first reversely over the ramp K, and then reversely over the ramp J, until it is completely released from the reel play-off stand.

The pin H fitting in the flange E will assure that the arbor structure as shown in FIG. 2 will revolve in the bearing blocks as the wire is drawn off from the reel.

While there has been herein described a preferred form of the invention, it should be understoo dthat the same may be altered in details and in relative arrangement of parts within the scope of the appended claims.

Having now particularly described and ascertained the nature of the invention, and in what manner the same is to be performed.

What is claimed is:

1. A reel play-off stand for a wire reel having a front outlet side for the outgoing wire and a back inlet side for the incoming wire and having a central transverse reel axis midway between said inlet and outlet sides, said stand having a central arbor with wheel side flanges and outwardly extending side trunnions, said stand comprising a base having wheel flange engaging upwardly sloping base ramps onto which the reel may be rolled by its flanges and elevated, side structures having elevated bearing blocks with trunnion carrying recesses, upper right angular trunnion engaging ramps having horizontal members leading to the recesses and vertical members mounted on said side structures, said horizontal members serving to receive the trunnions of the elevated reel and guide the trunnions into said recesses and a brake below the outlet side of the reel having brake shoes under the reel and a guide roller beyond the reel in an outlet direction to control the letoff of the wire, said brake having a pivot mount on said stand below said edges of the reel flanges in the outlet direction and having outwardly extending arms in an outlet direction carrying at their outer ends the outlet guide roller at a horizontal position at about the lowermost level of the wire on the reel and having inwardly extending arms to carry said brake shoes located below the reel flanges but beyond in an outlet direction of the transverse axis of the reel.

2. A reel play-off stand for a wire reel having a front outlet side for the outgoing wire and back inlet side for the incoming wire and having a central transverse reel axis midway between said inlet and outlet sides, said stand having a central arbor with wheel side flanges and outwardly extending side trunnions, said stand comprising a base having wheel flange engaging upwardly sloping base ramps onto which the reel may be rolled by its flanges and elevated, side structures having elevated bearing blocks with trunnion carrying recesses, upper right angular trunnion engaging ramps having horizontal members leading to the recesses and vertical members mounted on said side structures, said horizontal members serving to receive the trunnions of the elevated reel and guide the trunnions into said recesses and a brake below the outlet side of the reel having brake shoes under the reel and a guide roller beyond the reel in an outlet direction to control the letoff of the wire, said brake having a pivot mount on said stand below said edges of the reel flanges in the outlet direction and having outwardly extending arms in an outlet direction carrying at their outer ends the lowermost level of the wire on the reel and having inwardly extending arms to carry said brake shoes located below the reel flanges but beyond in an outlet direction of the transverse axis of the reel, under which roller the wire is drawn as it leaves the reel to maintain tension thereon and assure smooth unreeling of the wire.

3. A reel play-off stand for a wire reel having a front outlet side for the outgoing wire and back inlet side for the incoming wire and having a central transverse reel axis midway between said inlet and outlet sides, said stand having a central arbor with wheel side flanges and outwardly extending side trunnions, said stand comprising a base having wheel flange engaging upwardly sloping base ramps onto which the reel may be rolled by its flanges and elevated, side structures having elevated bearing blocks with trunnion carrying recesses, upper right angular trunnion engaging ramps having horizontal members leading to the recesses and vertical members mounted on said side structures, said horizontal members serving to receive the trunnions of the elevated reel and guide the trunnions into said recesses and a brake below the outlet side of the reel having brake shoes under the reel and a guide roller beyond the reel in an outlet direction to control the letoff of the wire, said brake having a pivot mount on said stand below said edges of the reel flanges in the outlet direction and having outwardly extending arms in an outlet direction carrying at their outer ends the lowermost level of the wire on the reel and having inwardly extending arms to carrying said brake shoes located below the reel flanges but beyond in an outlet direction of the transverse axis of the reel, said brake shoes being to the flanges on the reel if the wire is being unreeled more quickly than it is being taken up.

4. A reel play-off stand for a wire reel having a front outlet side of the outgoing wire and back inlet side for the incoming wire and having a central transverse reel axis midway between said inlet and outlet sides, said stand having a central arbor with wheel side flanges and outwardly extending side trunnions, said stand comprising a base having wheel flange engaging upwardly sloping base ramps onto which the reel may be rolled by its flanges and elevated, side structures having elevated bearing blocks with trunnion carrying recesses, upper right angular trunnion engaging ramps having horizontal members leading to the recesses and vertical members mounted on said side structures, said horizontal members serving to receive the trunnions of the elevated reel and guide the trunnions into said recesses and a brake below the outlet side of the reel having brake shoes under the reel and a guide roller beyond the reel in an outlet direction

to control the letoff of the wire, said brake having a pivot mount on said stand below said edges of the reel flanges in the outlet direction and having outwardly extending arms in an outlet direction carrying at their outer ends the lowermost level of the wire on the reel and having inwardly extending arms to carrying said brake shoes located below the reel flanges but beyond in an outlet direction of the transverse axis of the reel, said bearing blocks being cut off at the level of the axis at the side at which the trunnions roll thereinto and having elevated portions on the other side to hold the trunnions in position.

5. A reel play-off stand for carrying wire including a reel with a cylindrical arbor having side wheel flanges and small circular flanges outside and in contact with said side wheel flanges and an outstanding arm extending radially outwardly from one of said small circular flanges having an outer pin stud to engage a side wheel flange and cause said flanges and arbor to turn together and having a through shaft with end trunnions, said stand having two parallel inverted channels members extending along each side thereof and two upwardly converging channel members forming side triangular supports and top platforms at the upper ends of said triangular supports having side recesses to receive said trunnions, said stand having inlet and outlet cross members at the ends thereof between the parallel channel members, lower ramps consisting of upwardly ascending inclined members for the reel flanges to elevate the end trunnions to the top platforms and above the side recesses and upper ramps consisting of right angular members with vertical portions extending upwardly from the triangular supports and horizontal portions extending from the upper ends of the vertical portions to and above said top platforms to guide the trunnion ends into said recess, and a pivotally mounted brake member positioned on the bottom of said stand below the reel at the outlet side of the reel.

6. The stand of claim 5, said brake member including two side lever members and said lever members carrying brake shoes at their inside ends to contact the periphery of the wheel flanges and having a cross guide member at the other ends to contact the wire when unreeling to move the brake shoes downwardly from the wheel flanges and means to rotate the wire reel and the side flanges so that the wire will be unreeled forwardly from the bottom of the coil and above the brake shoes and below the cross guide.

7. A reel play-off stand having a back inlet side and a front outlet side for supplying wire from a wire reel, comprising a stand with spaced side parallel triangular supports having flat top bearing portions, bearing mounts on the flat top bearing portions, said mounts having semicylindrical transverse trunnion receiving recesses, a trunnion member having a small diameter rotatable cylinder mounted between said spaced supports having short side circular flanges adjacent to and positioned against the inside faces of the bearing mounts said trunnion member having shaft ends turning in said transverse recesses, and a reel having a central portion received upon and mounted on said small diameter cylinder and relatively wide circular side flanges positioned inside of and in contact with said short circular flanges, means extending radially outwardly from one of said short flanges engaging one of said wide flanges to cause said reel to turn with said trunnion members and a brake member to brake the edges of the wide flanges upon too rapid supply of wire and removed from the edges of the wide flanges upon proper slow feed of wire, said brake having a pivot mount on the stand between the edges of the wide flanges at outlet side thereof, upwardly and parallel outwardly inclined arms extending in an outlet direction away from the outlet side of the pivot mount, a guide roller for the outgoing wire between the outer ends of said arms at about the lower level of the wire on the reel, horizontal parallel inwardly directed arms extending under the edges of the wide flanges and brake contact means on the inner ends of the said arms.

8. The stand of claim 7, the inlet side having two upwardly inclined ramps on the stand at the bottom thereof to lift the wide circular flanges of the reel and right angular guides positioned thereabove and on the top bearing portions at the inlet side to guide the shaft ends into said transverse recesses.

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