Jan. 4, 1927. 1,613,264

E. E. BERRY

APPARATUS AND METHOD FOR APPLYING WIRES TO REMOVABLE FOURDRINIERS

Filed July 23, 1924 4 Sheets-Sheet 1

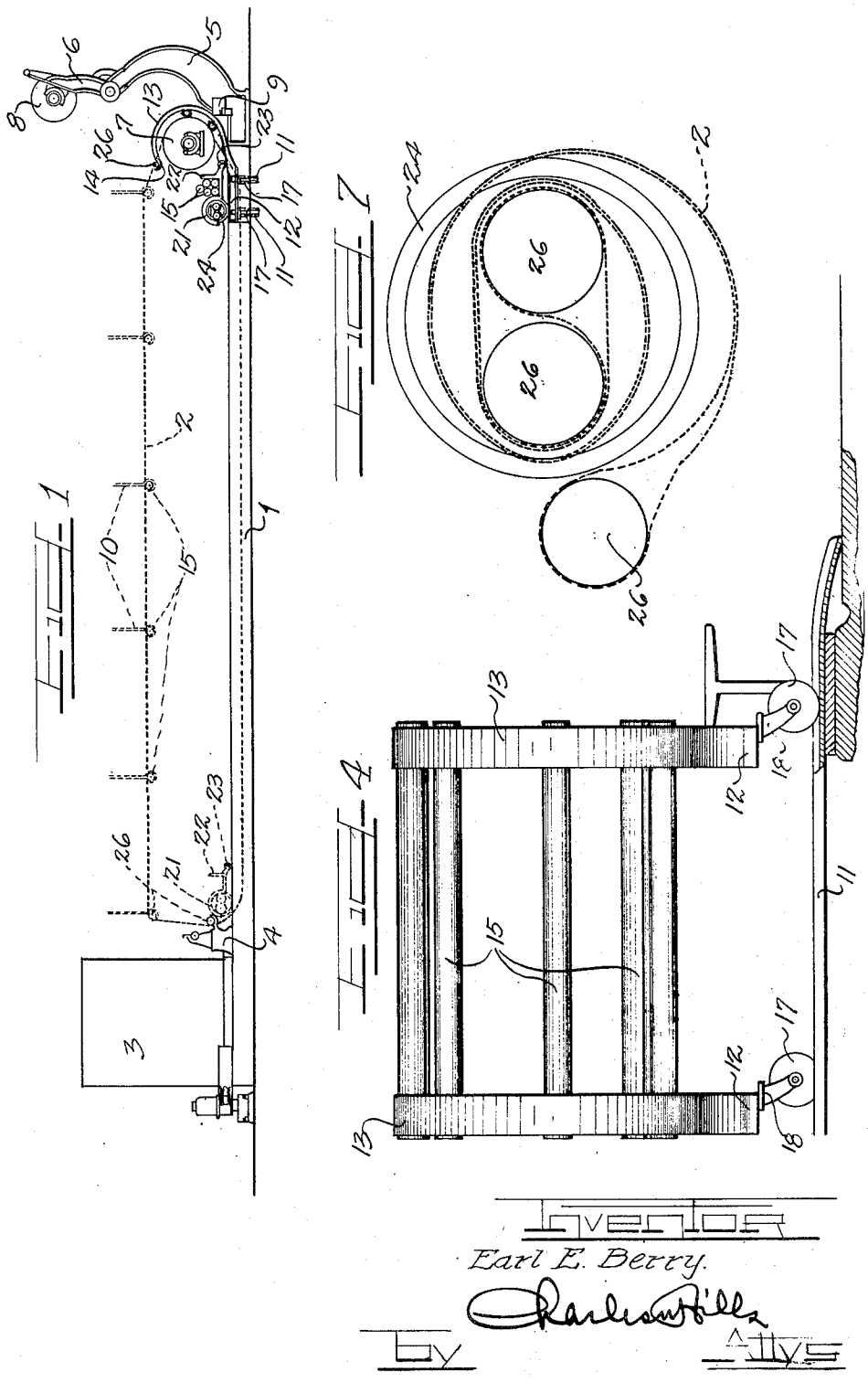

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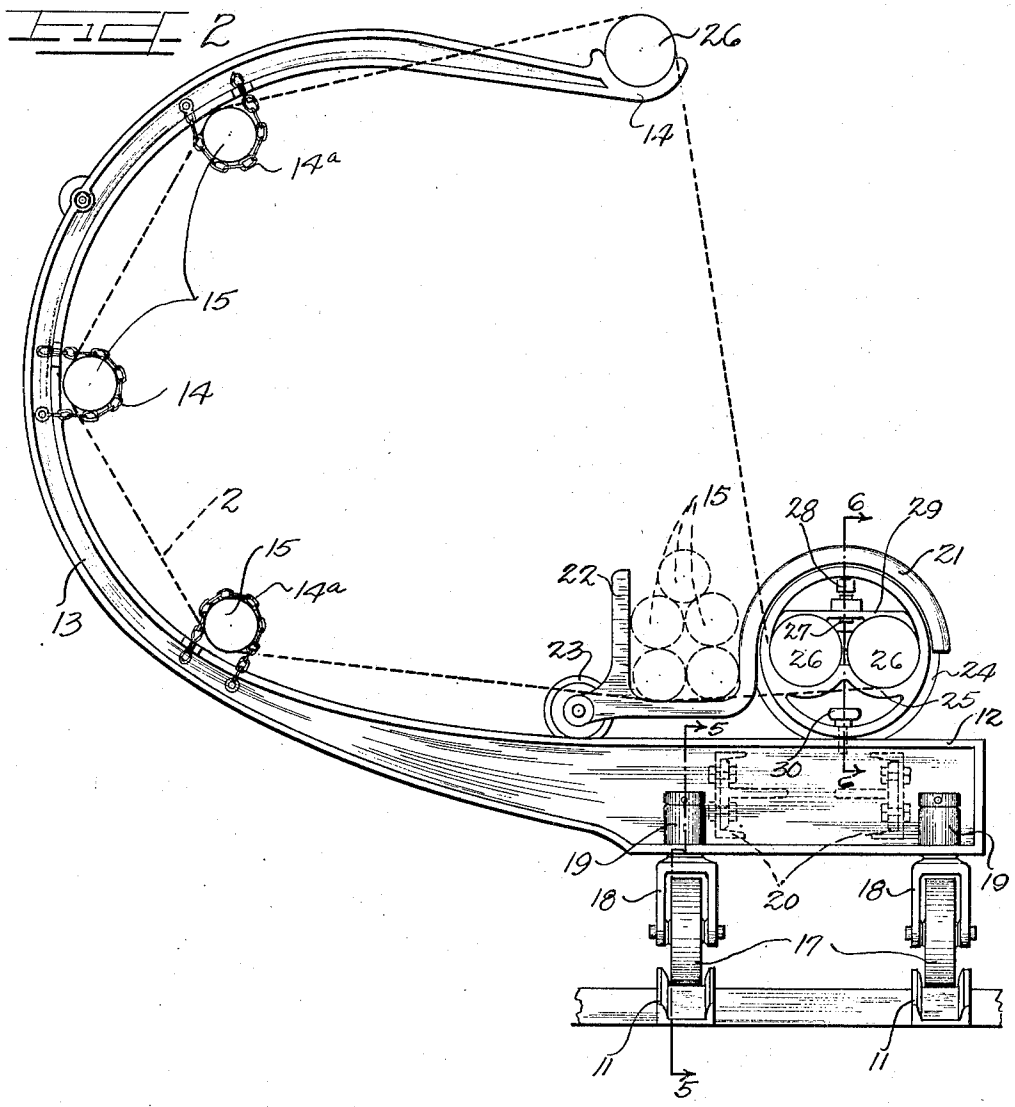
FIG 2



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APPARATUS AND METHOD FOR APPLYING WIRES TO REMOVABLE FOURDRINIERS

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FIG 3

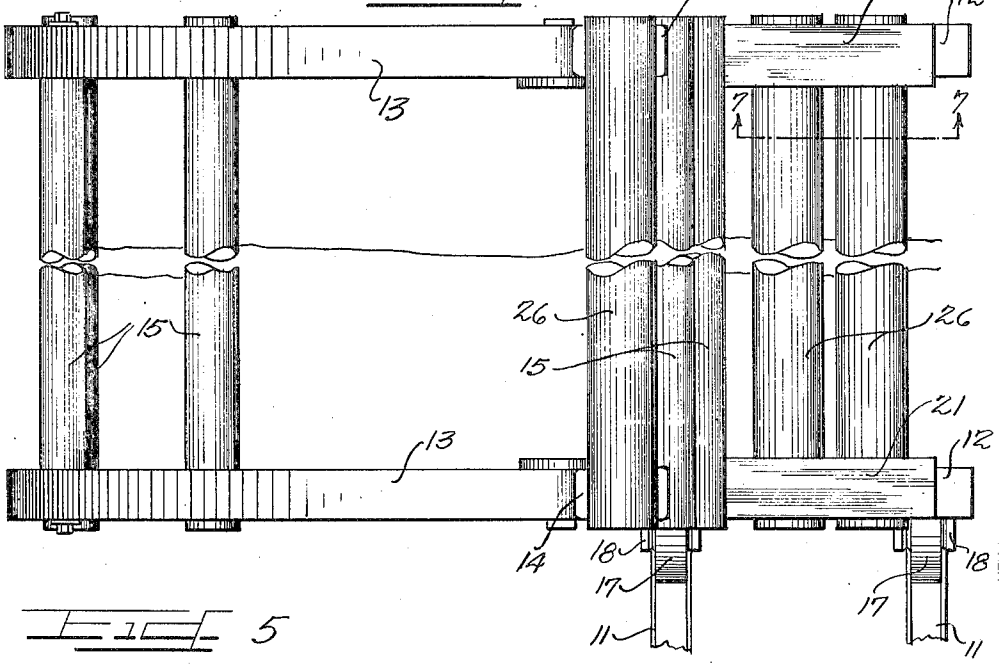


FIG 5

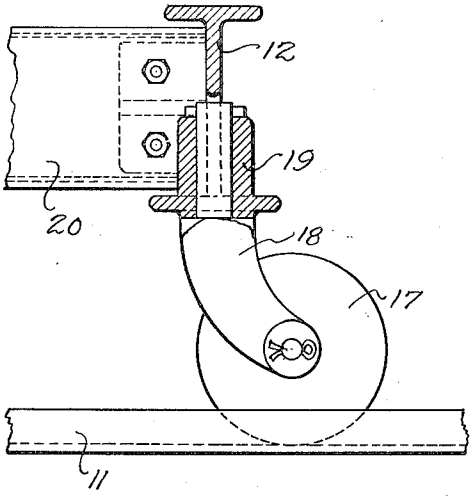
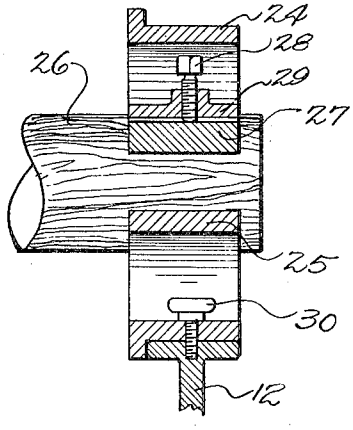


FIG 6



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APPARATUS AND METHOD FOR APPLYING WIRES TO REMOVABLE FOURDRINIERS

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FIG. 8

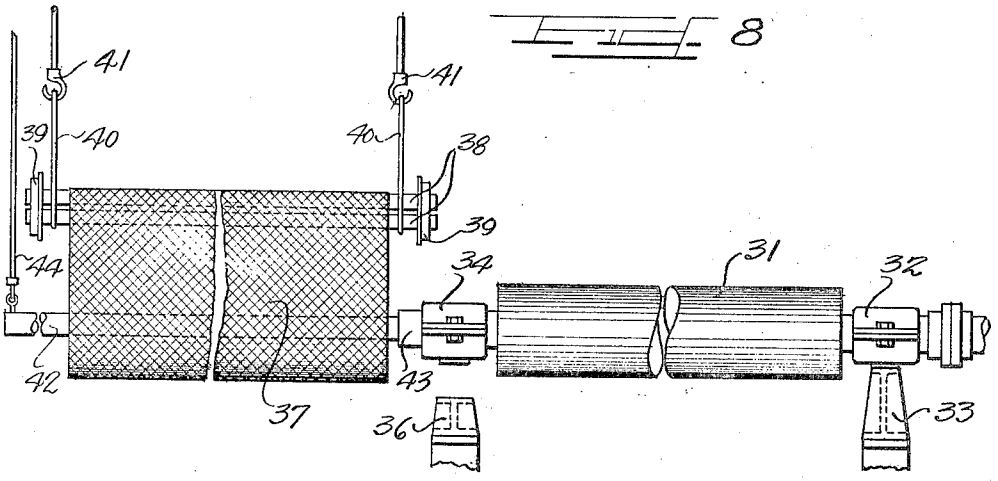

FIG. 9

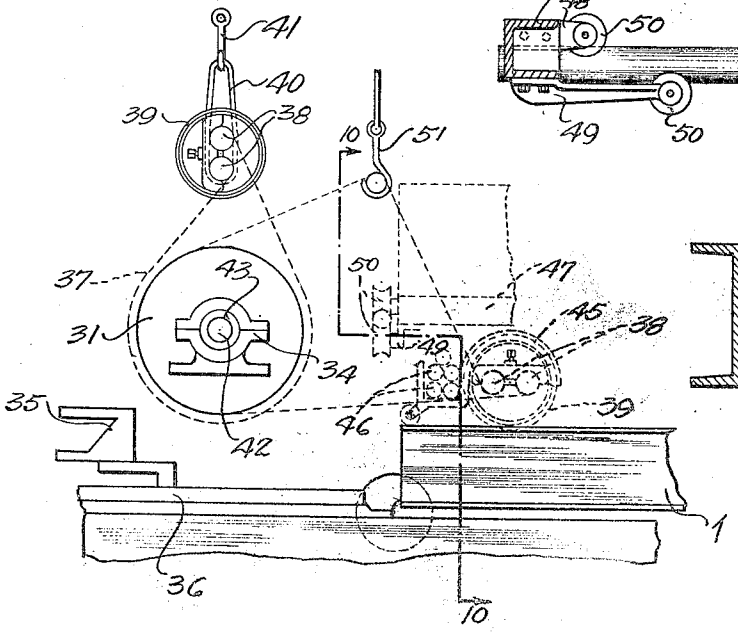

FIG. 10

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Patented Jan. 4, 1927. 1,613,264

UNITED STATES PATENT OFFICE.

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APPARATUS AND METHOD FOR APPLYING WIRES TO REMOVABLE FOURDRINIERS.

Application filed July 23, 1924. Serial No. 727,637.

In the Fourdrinier section of a paper making machine the Fourdrinier wire often becomes worn or breaks requiring the replacement of the wire by a new one. This necessitates the shutting down of the machine for a considerable length of time to permit changing of the wire. There are two improved arrangements for the mounting for the lower couch roll. One in which the couch roll is supported from the back end with the front end projecting as a cantilever and having a removable block below the bearing at the front end of the couch roll, thereby affording a gap allowing a looped or bight portion of an endless wire to pass over the couch roll. In the second arrangement the back end of the lower couch roll is supported from below while the front end is supported by means of a pipe or rod which passes through a suspended wire and enters into the trunnion of the couch roll.

In the first arrangement above referred to, this invention relates more particularly to an arrangement wherein an improved carriage and reel is provided to carry the Fourdrinier wire properly wound on reel poles so that the carriage carrying an auxiliary carriage and the roll of wire may be conveniently moved into position between the Fourdrinier frame and the couch frame to permit the new wire to be mounted in place of an old one which has worn out or broken. The invention also covers a second method whereby the properly reeled wire is adapted to be moved into position over the lower couch roll over the suspended outer end of said roll.

It is an object of this invention to provide a portable wire carrying reel mechanism or carriage adapted to facilitate the mounting of a new wire in the Fourdrinier section of a paper making machine in a comparatively short time.

It is also an object of the invention to provide a portable main carriage adapted to be moved transversely into the couch roll end of a Fourdrinier frame and carrying a reeled up wire on an auxiliary reel carriage which is adapted to be run off of the main carriage and longitudinally along the Fourdrinier frame as the wire is unreeled and placed in position on temporary supports until the removed Fourdrinier section is pushed transversely back into the Fourdrinier frame.

It is a further object of the invention to provide a removable type paper making machine with a wire carriage and reel, said reel carrying a reeled up wire supported on a reel and on a plurality of removable poles to permit one bight of the wire to engage around the lower couch roll when the carriage is pushed into the couch roll end of the Fourdrinier frame in position to permit the reel to travel along the Fourdrinier frame, to gradually unreel the wire to permit the wire to be temporarily supported on poles until the removable Fourdrinier section is pushed back into the Fourdrinier frame.

Another object of the invention is to provide an improved method for placing a wire in a removable type Fourdrinier paper making machine by removing the Fourdrinier section from the frame, then suspending the couch roll from its back end and releasing a bearing supporting block at the front end of the couch roll to afford a gap, then sliding a portable carriage into the Fourdrinier frame and advancing a wire carrying reel together with a plurality of poles along the frame to unwind the wire, one bight of which has been passed over the couch roll, and supporting the unreeled wire on the poles until the removable Fourdrinier section is moved back into place in the frame.

It is furthermore an object of this invention to provide a method of mounting a new wire in a removable type Fourdrinier paper making machine frame, suspending a wire carrying reel in position to permit a pipe or pole to be passed through the wire and engaged in one end of the couch roll to hold the same in a suspended position, then removing a bearing supporting block from beneath the front end of the couch roll to afford a gap to allow the reel to be moved longitudinally with respect to the couch roll so that a bight of the wire may pass over said roll after which the reel may be lowered and run along the Fourdrinier frame to unreel the remainder of the wire.

It is also an object of this invention to provide a wire carriage which is adapted to carry the new wire with the temporary supporting poles including the original reel poles properly positioned therein, thus obviating laborious and troublesome handling of the poles at the time the wire is changed.

It is an important object of this invention

to provide a simple and convenient device and method for use in a removable type Fourdrinier paper making machine, said device being portable and carrying not only a reeled up Fourdrinier wire but a plurality of wire supporting poles for temporarily supporting the wire when unreeled in place until the Fourdrinier section is pushed back into place to receive the wire.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawings.

This invention (in a preferred form) is illustrated in the drawings and hereinafter more fully described.

On the drawings:

Figure 1 is a side elevation of a Fourdrinier frame with the Fourdrinier section removed and showing a wire carriage and reel embodying the principles of this invention in place in the couch end of the frame and further illustrating the new wire in unreeled dotted line position supported on temporary supports ready to receive the Fourdrinier section.

Figure 2 is an enlarged side elevation of the wire carriage and reel.

Figure 3 is a fragmentary top plan view of the device illustrated in Figure 2.

Figure 4 is a reduced end elevation of the carriage device.

Figure 5 is an enlarged fragmentary detail section taken on line 5—5 of Figure 2.

Figure 6 is a fragmentary detail section taken on line 6—6 of Figure 2.

Figure 7 is an end view of the reel and the reel poles illustrating in dotted lines the method by which the wire is unreeled preparatory for mounting in the Fourdrinier frame.

Figure 8 is a fragmentary elevational view of a modified form of this invention illustrating a method and arrangement for mounting a wire when the front end of the lower couch roll is suspended by means of a pipe.

Figure 9 is an end elevation thereof, illustrating in dotted lines the position of the reel and reel carriage with respect to the Fourdrinier frame after a bight of the wire has been passed over the couch roll.

Figure 10 is a fragmentary detail view taken on line 10—10 of Figure 9 illustrating an arrangement whereby the supporting poles are mounted in position while being put across the machine and through the wire.

As shown on the drawings:

Referring to Figure 1 a Fourdrinier frame 1 is illustrated having the Fourdrinier section removed to permit placing a Fourdrinier wire 2 in place. Mounted on one end of the frame is a flow box 3 and a breast roll support 4. Spaced from the other end of the frame 1 is a lower couch frame 5 having an upper couch frame section 6 pivotally mounted thereon. The lower couch frame 5 carries a lower couch roll 7 while the upper couch roll frame 6 has an upper couch roll 8 mounted thereon. The front bearing of the lower couch roll is normally supported on a block 9 which is movably supported to permit the same to be swung into and out of the way position as illustrated in Figure 1 leaving a gap beneath the front bearing of the lower couch roll. The back end of the lower couch roll is supported by suitable means to maintain a gap beneath the front couch roll bearing. Positioned above the frame 1 are a plurality of spaced hooks or hangers 10 for removably receiving poles as hereinafter described.

The improved carriage and reel is adapted to carry a new Fourdrinier wire wound up on the reel, ready for unwinding when the carriage is moved transversely into the machine between the couch roll end of the frame 1 and the couch frame 5. Rails 11 are positioned at right angles to the frame 1 to afford a track for the carriage and reel mechanism.

As illustrated in Figure 2 the wire carrying device comprises a main carriage frame sill 12 each having integrally formed on one end thereof an upwardly curved arm 13 on the upper end of which a retaining hook or finger 14 is integrally formed. Attached to each arm 13 at intervals are a plurality of pole retaining chains 14^a the free ends of which are adapted to be engaged around poles 15 and removably engaged in notches provided in said arms 13. The poles 15 as illustrated in Figure 2 are arranged to support one bight of the wire 2 in an open looped position as illustrated in dotted lines. The carriage sills 12 are supported on wheels or rollers 17 mounted in caster yokes 18 the stems of which are swiveled in bearing sockets 19 mounted on the frame sills 12. Cross beams 20 connect the frame sills 12 to complete the main carriage.

Supported on the main carriage frame sills 12 is a movable reel mechanism or auxiliary carriage comprising a reel frame 21 having a pole carrying box or crib 22 formed thereon to carry a pile of poles 15 as illustrated in Figure 2. The pole carrying end of the auxiliary carriage is supported on rollers or wheels 23 while the other end of the auxiliary carriage is supported by reel rollers or wheels 24. The two reel rollers 24 are each formed with double brackets 25 to removably receive the ends of two of the original reel poles 26 which span the space between the reel rollers 24. Wedge clamping blocks 27 are engaged between the poles 26 in the rollers 24 and are engaged by adjusting screws 28 which thread through

cord brace bars 29 which are integrally formed in the rollers 24. The reel poles 26 are thus held in position connected with rollers 24 to form a wire reel. Screws 30 are engaged through the rims of the rollers 24 and threaded into suitable apertures in the carriage sills 12 to hold the reel locked on the main carriage.

In the modified arrangement illustrated in Figures 8, 9 and 10 the reference numeral 31 illustrates a lower couch roll the back bearing 32 of which is supported on a pedestal or block 33. The front bearing 34 of the couch roll is normally supported on a removable supporting block 35, which, in supporting position is adapted to be seated on a pedestal 36. The wire 37 has one bight thereof engaged on a third pole 38 on which the wire is originally engaged. The remainder of the wire is rolled up on a pair of reel poles 38 on which the wire originally is received wound in a manner similar to that illustrated in Figure 7. Reel rollers or wheels 39 are engaged on the ends of two of the reel poles 38. The two reel poles 38 are suspended at points to the inside of the rollers 39 by means of suspending cords 40 carried by hoist hooks 41. The third pole on which the wire originally comes is removed from the wire leaving a looped portion of the wire to permit a pipe or rod 42 to be engaged through the wire and inserted into the front end of the couch roll trunnion 43. The outer end of the pipe 42 is suspended from a hoist 44. In this way the front end of the couch roll is lifted or supported in a suspended position to permit the removable supporting block 35 to be moved into an out of the way position to afford a gap between the front couch roll bearing 34 and the supporting pedestal 36 as illustrated in Figure 8. The wire supporting reel mechanism 38—39 is now adapted to be moved inwardly to permit the looped portion of the wire to pass over the couch roll 31 as illustrated in Figure 9. The reeled portion of the wire together with two of the reel poles 38 and the rollers 39 are adapted to be lowered into the dotted line position of Figure 9 with the rollers 39 tracking on the Fourdrinier sills 1. A reel carriage 45 similar to that illustrated in Figure 2 is placed in position on the reel rollers and is adapted to carry a plurality of poles 46 as illustrated.

As illustrated in Figure 10 the back frame 47 of the Fourdrinier has a plurality of brackets 48 and 49 each carrying a grooved roller 50. The arms 48 and 49 are of different lengths as shown. The rollers 50 are adapted to afford a means whereby the ends of the poles 46 may be supported while they are being put across the machine through the Fourdrinier wire, preparatory to being supported in the auxiliary carriage from which position they are adapted to be conveniently removed and engaged in the hooks or hangers 51 distributed along the length of the Fourdrinier.

The operation is as follows:

When a Fourdrinier wire breaks in a Fourdrinier section of a paper making machine the wire is removed and the Fourdrinier section is removed transversely from the frame by any suitable method. A new wire to be mounted in the machine is delivered to the paper mill on three poles 26 substantially as illustrated in Figure 7. Two of the reel poles are next engaged in the brackets 25 of the reel rollers 24 and are clamped in position by means of the clamping blocks 27 and the set screws 28 to form a reel which is mounted upon the carriage sills 12 and is held in place by the retaining screws 30 or other suitable means. The auxiliary carriage 21 is now placed in position on the carriage sills 12 as shown in Figure 2 and the outer bight of the wire 2 is opened up and is supported in position by a plurality of poles 15 and the third original pole 26 which is supported in the hooks 14 of the arms 13 while the remaining poles 15 are supported by means of the chains 14a as illustrated. The movable block 9 is swung into an out of the way position illustrated in Figure 1 to afford a gap beneath the front couch roll bearing. The main carriage having the reel carriage thereon is now rolled along the guide rails 11 transversely into the machine between the Fourdrinier frame 1 and the couch roll frame 5. As the main carriage is moved into position adjacent the couch roll end of the Fourdrinier frame 1 the open bight of the wire 2 passes over the lower couch roll 7. The main carriage sills 12 are positioned to align with the frame sills 1. With the main carriage and the auxiliary reel carriage in the position illustrated in Figure 1 the supporting poles 15 on the arms 13 are removed, permitting the bight of the wire to engage around the lower couch roll 7. The removed poles 15 are deposited in the box or holder 22 of the auxiliary reel carriage 21 as illustrated in dotted lines in Figure 2. The locking screws 30 are released and the auxiliary carriage 21 is then advanced from the main carriage sills 12 along the Fourdrinier frame sills 1 toward the dotted line position of Figure 1 adjacent the breast roll supports 4. After the auxiliary carriage is moved into the frame sills 1 the main carriage is removed from the machine. As the auxiliary carriage is advanced over the sills 1 the wire 2 is gradually unwound from the reel poles 26. As the wire is unwound poles 15 are taken from the box 22 and are positioned transversely beneath the upper lap of the wire 2 with the projecting ends of the poles supported in the hangers or hooks 10. When

the wire has been fully unwound the auxiliary carriage 21 is removed from the machine frame and the reel rolls 24 are removed from the two reel poles 26. One of said reel poles is supported on the pair of hangers nearest the breast roll support 4 while the other reel pole is supported directly on the breast supports 4. The new wire 2 is now properly supported in draped position in the Fourdrinier frame with the lower couch roll 7 projecting through one bight of the wire.

The removed Fourdrinier section is now pushed back into place and the various supporting poles 15 and 26 are removed from the respective supports. When this is done the upper lap of the wire is supported upon the Fourdrinier table rolls with one bight of the wire passing around the breast roll and the other bight engaging around the lower couch roll 7 as hereinbefore described.

In the modified arrangement illustrated in Figures 8 to 10 inclusive, the wire is originally reeled up on three reel poles 38 two of which are supported by the hoist members 40 and 41. The reel wheels 39 are engaged on the ends of the two reel poles 38. The third pole 38 is now removed from the wire and a pipe or rod 42 is passed through the wire and engaged in the end of the couch roll trunnion 43. The outer end of the pipe 42 is suspended by a hoist mechanism 44. The front of the couch roll is slightly lifted to permit the removable block 35 to be swung into an out of the way position to afford a gap below the front couch roll bearing 34 as illustrated in Figure 8. The suspended reel and the wire carried thereon is moved into the Fourdrinier frame with the looped hanging portion of the wire passing through the gap to engage around the couch roll 31. After the wire has been engaged on the couch roll the reel poles 38 are lowered to permit the reel rollers 39 to track on the Fourdrinier frame sills 1 as illustrated in Figures 9 and 10. The auxiliary carriage 45 is now placed on the reel rollers 39 with said reel carriage carrying a plurality of poles sufficient to support the wire in a draped position. The auxiliary carriage is now advanced toward the breast roll end of the frame as described under the first condition.

Attached to the back frame 47 of the Fourdrinier when in removed position are the brackets 48 and 49 which support the guide rollers 50. The rollers 50 are provided for the purpose of temporarily supporting the ends of poles 46 while said poles are being placed transversely of the machine preparatory to being deposited in the pole box of the auxiliary carriage 45.

Previous to the time that a new wire is adapted to be mounted in position it will of course be understood that the old wire is first cut off and that the breast roll is moved from the breast roll supports onto the removable Fourdrinier section or table portion of the machine. The removable Fourdrinier section or table is adapted to be removed from the machine on suitable track beams connected with the Fourdrinier frame by any suitable arrangement desired.

It will be seen that by the use of either of the methods described in this application that ready means is afforded whereby a new Fourdrinier wire may be easily mounted in position in a Fourdrinier paper making machine in a comparatively short time with a reduced working force. There is a considerable saving in time over the old methods which required approximately 16 men working for about 4 hours while the present arrangements require a force of only about 8 men for a period of 1 hour or less.

I am aware that many changes may be made, and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I therefore do not purpose limiting the patent granted hereon, otherwise than necessitated by the prior art.

I claim as my invention:

1. The combination with a removable type Fourdrinier, of a portable carriage adapted to be moved into position to co-act therewith, and a reel carriage on said portable carriage adapted to be advanced longitudinally along the Fourdrinier to position a new wire in the Fourdrinier.

2. In a removable type Fourdrinier, the combination with the Fourdrinier frame, of a couch roll frame positioned adjacent one end thereof, and a portable wire carriage and reel adapted to be moved into position between the Fourdrinier frame and the couch frame to permit a wire to be unreeled from the portable wire carriage into a position for use in the Fourdrinier frame.

3. In a Fourdrinier, the combination with a Fourdrinier frame and a removable Fourdrinier section, of a couch frame forming a part of the Fourdrinier, and a portable wire carriage and reel adapted to be moved into position between the Fourdrinier frame and the couch frame.

4. In a Fourdrinier the combination with a Fourdrinier frame, and a removable Fourdrinier section, of a couch frame forming a part of the Fourdrinier, a portable wire carrying carriage and reel adapted to be moved into position between the Fourdrinier frame and the couch frame to permit a wire to be unreeled longitudinally of the Fourdrinier frame, supporting members distributed along the Fourdrinier frame, and poles adapted to be removably engaged in said supporting members to hold the wire

supported in position to receive the removable Fourdrinier section when it is pushed back into place.

5. In a Fourdrinier paper making machine, the combination with a Fourdrinier frame, of a couch frame positioned adjacent one end thereof, a couch roll supported in the couch frame, a removable block at one end of the couch roll, a portable wire carrying carriage and reel adapted to be moved into position between the Fourdrinier frame and the couch frame, with one bight of the wire adapted to be engaged around the couch roll to permit unreeling of the remainder of the wire longitudinally of the Fourdrinier frame, and poles supported on the portable wire carrying carriage and reel and in the Fourdrinier frame to afford a temporary support for the unreeled wire.

6. The combination with a Fourdrinier frame, of a carriage adapted to be moved into position adjacent one end of the Fourdrinier frame, and a wire carrying reel carriage on said first mentioned carriage adapted to be moved therefrom longitudinally along the Fourdrinier frame to unreel the wire carried thereby.

7. The combination with a Fourdrinier frame, of a portable main carriage adapted to be moved into position abutting one end of the Fourdrinier frame, arms integrally formed on said carriage, poles removably supported on said arms to support a portion of a wire in position, and an auxiliary carriage on said main carriage, a reel forming a part of the auxiliary carriage and having the remainder of the wire reeled thereon, said auxiliary carriage adapted to be moved from the main carriage longitudinally along the Fourdrinier frame to unreel the wire from the reel, hook members distributed along the Fourdrinier frame, and poles removably supported by said hook members affording a temporary support for the wire.

8. The combination with a Fourdrinier paper making machine, of a wire carriage and reel mechanism for use therewith, and comprising a main carriage, roller means supporting the same, curved arms integrally formed on said main carriage, retaining means on said arms, poles removably supported by said retaining means adapted to afford temporary supports for the bight of a Fourdrinier wire, an auxiliary carriage movably supported on said main carriage, a pole container forming a part of the auxiliary carriage, rollers supporting one end of the auxiliary carriage and a wire reel supporting the other end of the auxiliary carriage.

9. A wire carriage and reel of the class described comprising a portable main carriage, arms formed thereon, poles removably supported on said arms adapted to afford a temporary support for a bight of a Fourdrinier wire, an auxiliary carriage movably mounted on said main carriage, a wire reel forming a part of the auxiliary carriage and having the remainder of said wire reeled thereon, and means for removably holding said auxiliary carriage in a set position on said main carriage.

10. A Fourdrinier wire carrying carriage and reel of the class described comprising a portable main carriage, arms formed thereon, retaining members on said arms, poles removably supported in said retaining members to afford a temporary support for a bight of a Fourdrinier wire, an auxiliary carriage on said main carriage formed to receive a plurality of extra poles, rollers supporting one end of the auxiliary carriage, reel wheels supporting the other end of said auxiliary carriage, reel poles removably connecting said reel wheels, means for removably clamping the reel poles in position to permit the remainder of the wire to be reeled thereon, and means for securing the reel wheels to the main carriage to hold the auxiliary carriage in position thereon.

11. A wire carrying device for a Fourdrinier paper making machine, said device comprising a portable main carriage, and a wire carrying reel carriage removably supported thereon and adapted to be moved longitudinally of the machine to unwind the wire.

12. A Fourdrinier wire carrying device, comprising a portable main carriage, an auxiliary carriage movably supported thereon and adapted to be removed laterally therefrom, and a wire carrying reel forming a part of the auxiliary carriage.

13. A Fourdrinier wire carriage and reel device of the class described, comprising a portable main carriage, arms integrally formed thereon, retaining members formed on said arms, poles removably engaged in the said retaining members to afford a temporary support for the couch end bight of a Fourdrinier wire, an auxiliary carriage on said main carriage, rollers supporting one end thereof, reel wheels supporting the other end of said auxiliary carriage, reel poles removably connecting said reel wheels and having the remainder of the wire reeled thereon, and a box portion formed on the auxiliary carriage between the supporting rollers and the reel wheels adapted to carry additional wire supporting poles.

14. A portable Fourdrinier wire carrying device, comprising a portable main carriage, means thereon for affording a temporary support for the couch end bight of a Fourdrinier wire, and a reel movably supported on said carriage adapted to have the remainder of the wire and the breast roll bight thereof engaged thereon and to be removed laterally from said main carriage out over the Fourdrinier frame.

15. A portable Fourdrinier wire carrying device, comprising a main carriage, rollers supporting the same, arms formed on said main carriage, poles supporting means on said arms, an auxiliary carriage on said main carriage formed to afford a container for additional poles, rollers supporting one end of the auxiliary carriage, reel wheels supporting the other end of said auxiliary carriage, pole seats integrally formed in said reel wheels, reel poles supported thereon and connecting said reel wheels, clamping blocks in said reel wheels engaged between the said reel poles, adjustable means carried by said reel wheels adapted to engage the clamping blocks to hold the reel poles secured in position to afford a reel for a Fourdrinier wire, and means engaged in said reel wheels for movably securing the same to the main carriage to hold the auxiliary carriage in place thereon.

16. The combination with a Fourdrinier frame, of portable means adapted to be moved into position adjacent one end thereof, and a wire carrying reel on said means adapted to be run from said means longitudinally through the Fourdrinier frame to unreel the Fourdrinier wire.

17. The combination with a Fourdrinier, couch frame, and the lower couch roll thereof, of a removable bearing supporting block for the couch roll, of a portable carriage adapted to be moved adjacent the couch frame, curved arms formed on the portable carriage adapted to pass beneath the couch roll and partially encircle the same, poles removably supported on said arms to support the couch end bight of a Fourdrinier wire in position to engage around the couch roll, and a reel carriage on said portable carriage having the remainder of said wire reeled thereon.

18. The method of mounting a wire in a Fourdrinier paper making machine, consisting of removing the Fourdrinier section transversely from a Fourdrinier frame, then pushing a wire carrying carriage and reel into position between the Fourdrinier frame and the couch roll frame, and then pushing the reel off of said wire carrying carriage onto the Fourdrinier frame to unreel the wire, and supporting the wire as it is unreeled by means of poles removably supported along the Fourdrinier frame, and finally moving the Fourdrinier section back into the Fourdrinier frame into position to receive the unreeled wire.

19. The method of mounting a wire in a removable type Fourdrinier machine, consisting of first removing the removable Fourdrinier section from the machine, then removing one of the bearing supports of the couch roll, then moving a portable frame between the Fourdrinier frame and the couch frame to cause the bight at one end of a Fourdrinier wire to be positioned around the couch roll, then moving a reel from the portable frame along the Fourdrinier frame to unreel the remainder of the wire carried thereby, then supporting the upper lap of the wire on removable supports as said wire is unreeled, then thrusting a removable support through the breast roll bight of the wire and engaging said removable support on the breast roll support of the Fourdrinier, and finally pushing the removable Fourdrinier section back into the Fourdrinier frame between the upper and lower laps of the Fourdrinier wire and removing the removable supports from the wire to permit the wire to be supported by the breast roll, the table rolls and the lower couch roll of the Fourdrinier machine.

20. The method of mounting a wire in a removable type Fourdrinier machine, consisting of first removing the removable Fourdrinier section from the machine, then removing a bearing supporting block from beneath the front end of the machine couch roll, then moving a wire carrying reel into position to permit a bight of the wire to pass over the couch roll, and then moving the wire carrying reel longitudinally of the Fourdrinier frame and supporting the unreeled wire on temporary supports until the removable Fourdrinier section is pushed back into place.

21. The combination with a Fourdrinier wire and the poles on which it is wound, of carriage means adapted to be locked to the ends of certain of said poles, and means supported on said carriage means adapted to receive other of said poles and a portion of the wire preparatory to unreeling of the wire.

22. The combination with a removable type Fourdrinier paper making machine, of a wire carriage provided with means for movement crosswise and longitudinally of the Fourdrinier machine, said means for longitudinal movement being adapted to travel along side means of the machine frame.

23. The combination with a removable type Fourdrinier paper making machine, of a wire carriage provided with means for carrying the wire and unwinding the same as the carriage is moved lengthwise of the machine.

24. A Fourdrinier wire carrying device comprising means for permitting its movement crosswise and lengthwise of the machine, and also with means for carrying and unreeling the wire, said carriage having a supplemental wire carrying reel arrangement adapted to travel lengthwise of the machine frame on side beams thereof.

25. A Fourdrinier carrying device comprising means for permitting its movement crosswise and lengthwise of the machine, and

also with means for carrying and unreeling the wire, said carriage also having means for forming a loop of wire adapted to encircle the lower couch roll.

26. A Fourdrinier carrying device comprising means for permitting its movement crosswise and lengthwise of the machine, and also with means for carrying and unreeling the wire, said carriage also having means for forming a loop of wire adapted to encircle the lower couch roll, and also having means for carrying the wire lengthwise of the machine after said loop has encircled the couch roll.

In testimony whereof I have hereunto subscribed my name.

EARL E. BERRY.