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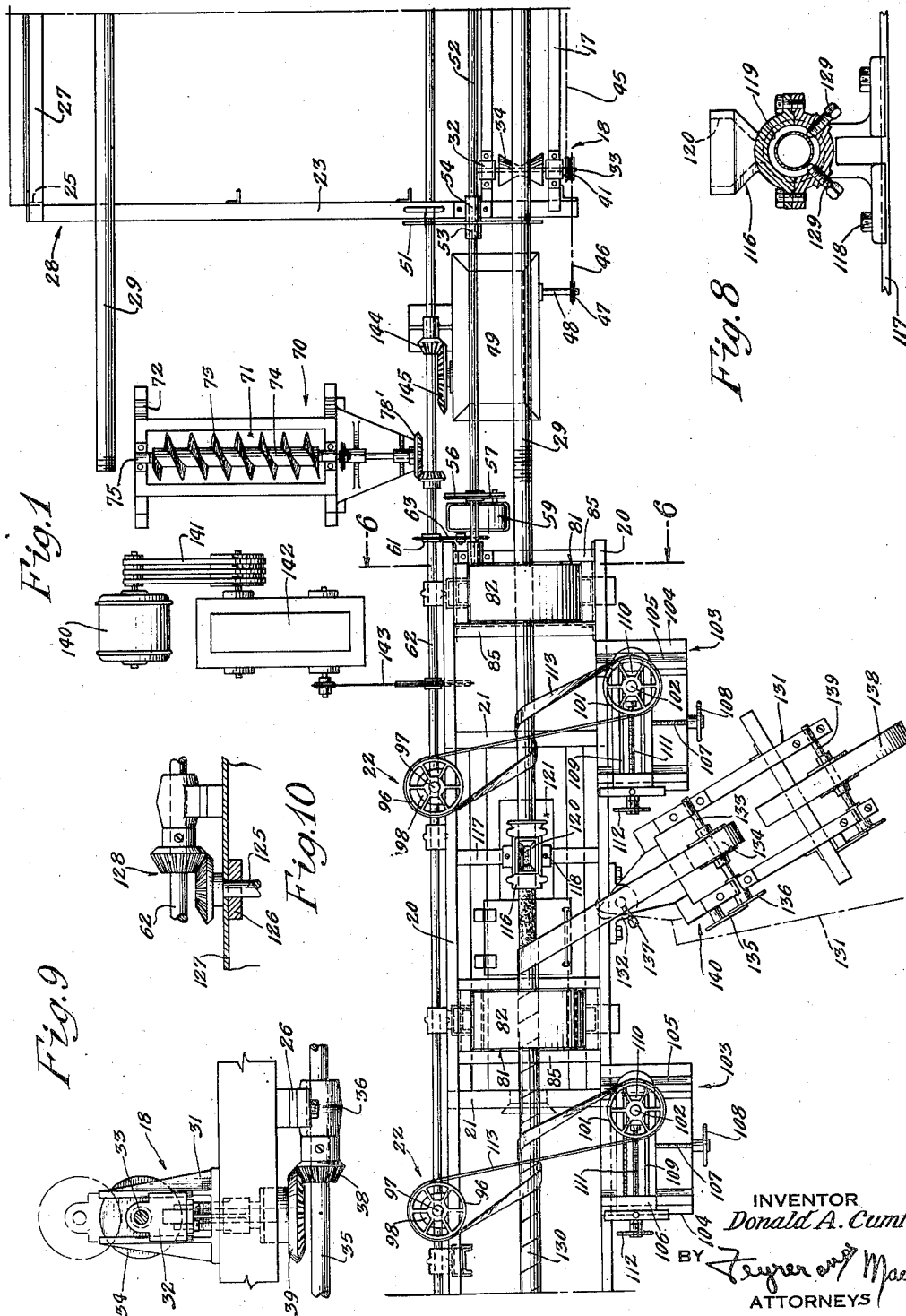
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PIPE COATING APPARATUS AND METHOD

Filed Dec. 23, 1939

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Fig. 2

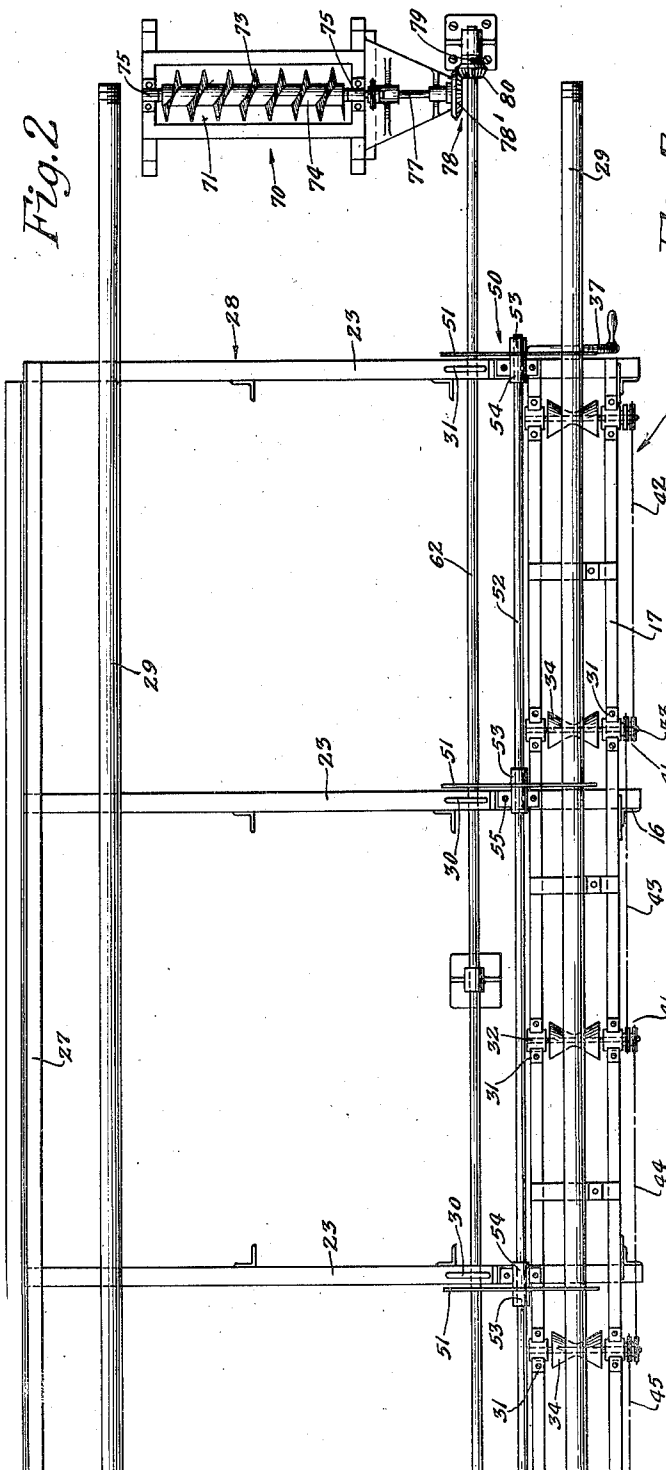
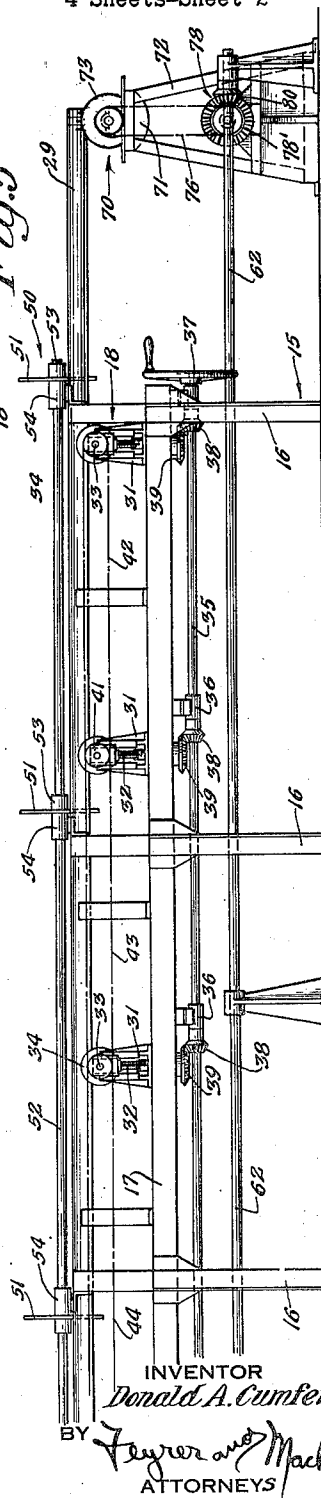


Fig. 3



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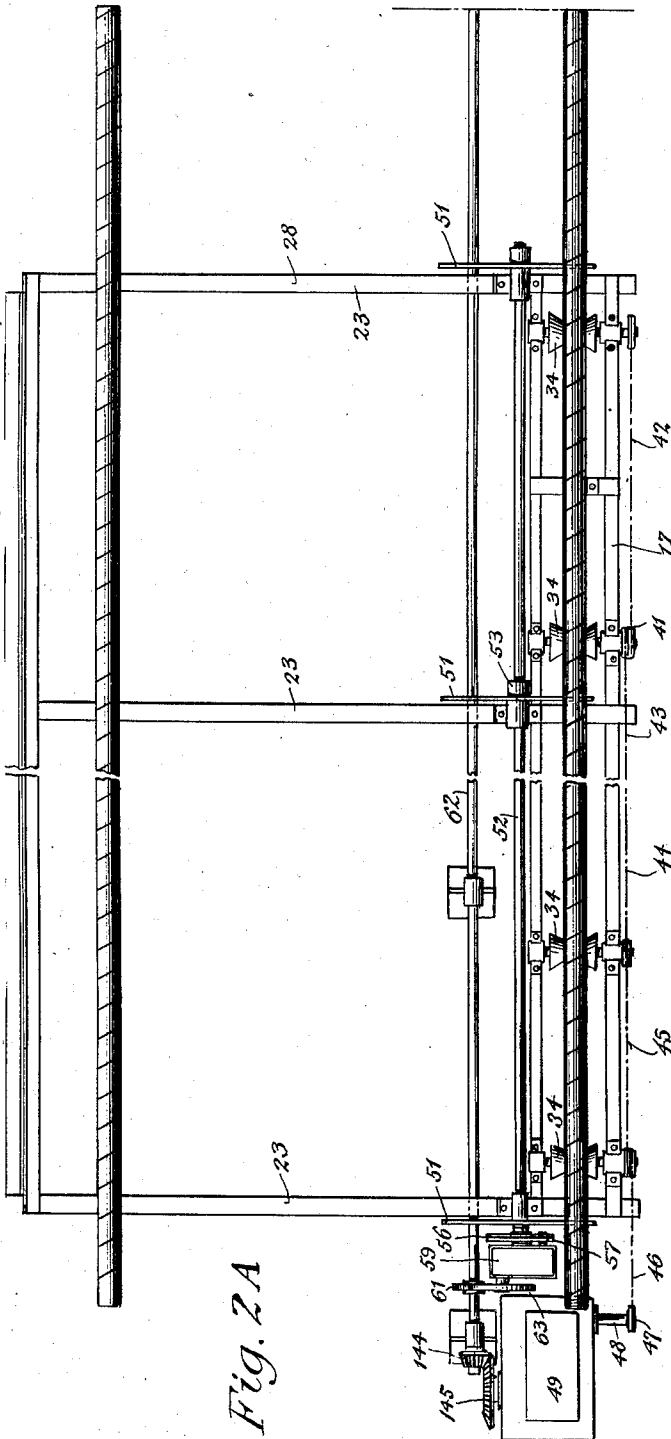


Fig. 2A

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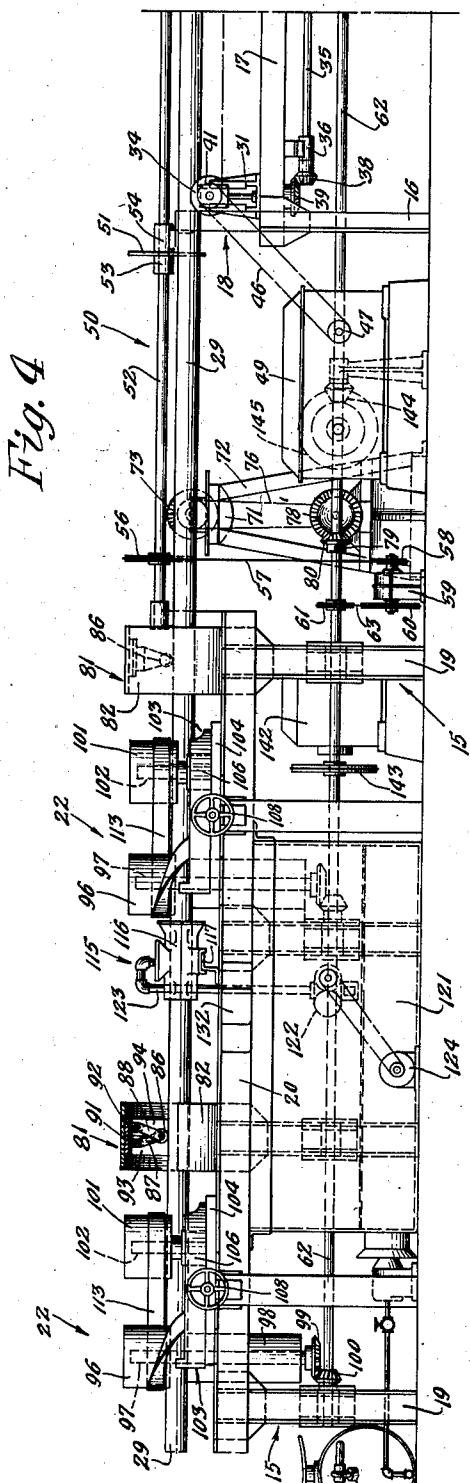
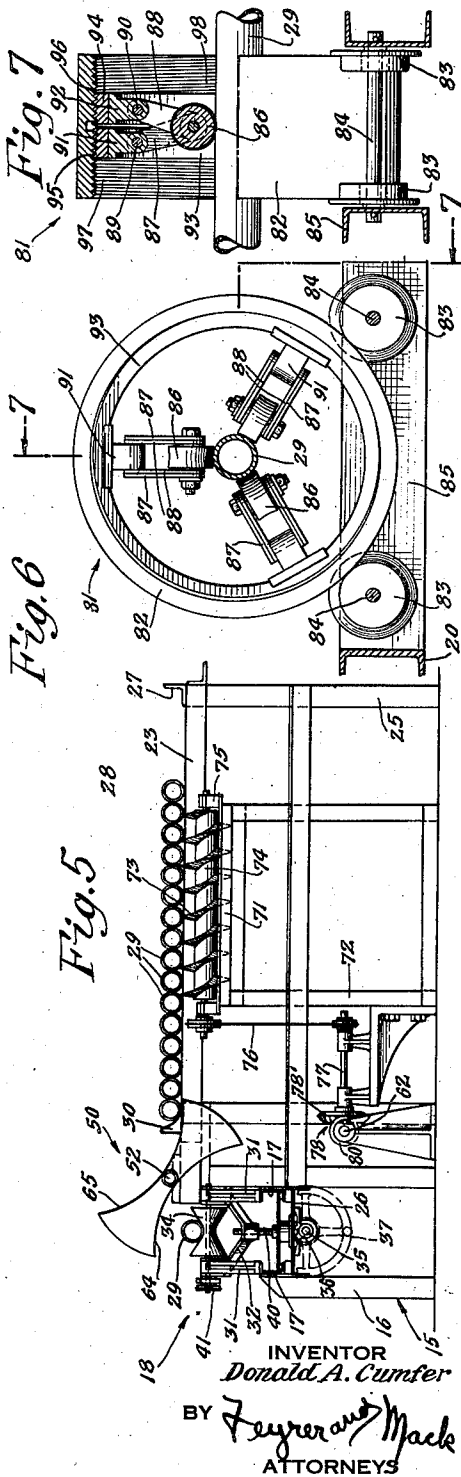
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PIPE COATING APPARATUS, AND METHOD

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PIPE COATING APPARATUS AND METHOD

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Application December 23, 1939, Serial No. 310,790

15 Claims. (Cl. 242—11)

The present invention relates to improvements in coating and wrapping apparatus. In particular it relates to apparatus used for applying a coating of asphaltum or the like to pipes, and used for spirally wrapping a strip of paper or the like therearound.

Heretofore there have been a number of proposals in this direction. However, most machines of this kind heretofore proposed necessitated considerable manual manipulation of the pipes through the various stages of coating and wrapping. Also, many of these previously proposed machines were satisfactory for only one size of pipe.

It is an important object of the present invention to provide a coating and wrapping apparatus which dispenses with the many manual operations necessary in the machines heretofore proposed.

Features flowing from the attainment of this objective include the provision of mechanisms in the machine which are capable of taking pipes automatically from a rack one by one and automatically feeding them into the coating and wrapping sections of the machine. Complementary to this, the present invention provides novel and advantageous means for moving such successive lengths of pipe one by one through the machine.

Another important objective is the provision of an apparatus capable of coating and wrapping pipes of various sizes.

Features flowing from the attainment of this objective include the provision of a simple yet highly satisfactory mechanism for locating and centralizing different sizes of pipes relative to the main parts of the apparatus. In its preferred form, this includes a plurality of rollers, adapted to engage the outside of the pipe, which are mounted in a housing that is adapted to rotate in the apparatus.

It is a further objective of the present invention to provide an apparatus for coating and wrapping pipes which may be used to wrap the paper or other material in abutting relation around the pipe or to lay it in edge-overlapping relation thereon. A further complementary objective is the provision of an apparatus capable of applying the wrapping either in a coarse or in a fine helical path around the pipe.

With these and other objectives in view the present invention provides a number of novel features including mechanism which may be easily and quickly adjusted to impart a coarse or fine spiral and axial feed to the pipe.

It is another important object of the present invention to provide apparatus for automatically coating an end or both ends of the pipes automatically.

To this end, and in its present preferred form, the present invention provides a simple power-driven brush moving in a tank of coating material and into the path of the ends of the pipe to coat the same.

Other features of the invention include: a first and second feeding mechanism concurrently driven so that the first feeding mechanism may advance the pipe or pipes at a slightly faster rate of speed than the second mechanism to compensate for any delay in the selective feed of pipes to the machine; adjustable mechanism for adapting the first feeding mechanism to advance both large and small pipes; mechanism to insure a one-by-one selective feed of pipes from the rack to the main working parts of the machine; a coating shoe which will insure a flow of coating entirely around the pipe.

Other objects, features and advantages will appear hereinafter.

In the drawings:

Figure 1 is a top plan view of much of the apparatus of the present invention.

Fig. 2 is a top plan view of the remainder of the top right-hand side of the apparatus.

Fig. 2A is a top plan view of the unloading section which extends to the left of Fig. 1.

Fig. 3 is a front view of the apparatus shown in Fig. 2.

Fig. 4 is a front view of the apparatus shown in Fig. 1.

Fig. 5 is a right-hand end view of the apparatus shown in Figs. 2 and 3.

Fig. 6 is an enlarged detail of the supporting and centralizing means.

Fig. 7 is a further showing of the apparatus shown in Fig. 6 taken on line 7—7 therein.

Fig. 8 is an enlarged view of the coating shoe.

Fig. 9 is an enlarged detail of the adjusting means for the feed rollers.

Fig. 10 is an enlarged detail of a modified form of drive for the pump.

Before describing the present improvements and mode of operation thereof in detail it should be understood that the invention is not limited to the details of construction and arrangement of parts shown in the accompanying drawings, which are merely illustrative of the present preferred embodiments, since the invention is capable of other embodiments, and the phrase-

ology employed is for the purpose of description and not of limitation.

Referring now in detail to the drawings, the present invention, in its now preferred form, includes a main frame 15 which could be made in the form of a large casting. However, in the present form and as shown, the frame is made of a plurality of structural iron elements welded, or otherwise suitably secured together, into the general form shown, including the standards 16 secured to and supporting a pair of horizontal bars 17 capable of supporting the first feeding mechanism 18 and a plurality of vertical standards 19 connected to side plates and transversely disposed bars 20 and 21 respectively adapted to support the second feeding mechanism 22.

Rearwardly extending bars 23 supported at their outer extremities by standards 25 and strengthened with horizontal bars 27, form a rack 28 adapted to support a plurality of lengths of pipe 29, as may be seen best in Figs. 2 through 5. Preferably the rack is slightly inclined downwardly toward stop members 30 at the inner end of each of the bars 23. The first feeding mechanism includes a plurality of U-shaped brackets 31 on each of the bars 17 supporting a plurality of bearing blocks 32 for vertical movement therein. These bearing blocks accommodate shafts 33 and V-shaped rollers 34. As shown best in Figs. 1, 2, 3, 4, 5 and 9, a lowering of the rollers 34 is effected concurrently and an equal extent by a shaft 35 suitably supported in bearings 36 when a handwheel 37 affixed thereto is rotated. As the latter is rotated bevelled driver gears 38 rotate the mating bevelled driven gear 39 underlying bars 26 and concurrently rotate screws 40 in each of the blocks 32 to effect an equal extent of raising or lowering of the latter and the associated V-shaped rollers 34. As may be seen best in Figs. 2, 3 and 4, the shafts 33 of each of the rollers 34 are at their outer extremities provided with double pulleys 41, all of which have suitable belt connections 42, 43, 44, 45 and 46 to a main driven roller 47 on a shaft 48 extending to a speed-reducing mechanism 49 supported underneath the main frame 15, as may be seen best in Figs. 1 and 4.

Loading mechanism

In order to successively load pipes, one by one, from a supply rack 28 to the first and second feeding mechanisms 18 and 22 the present invention provides a novel selective loading mechanism 50 including a plurality of I-shaped plates 51, all of which are connected to a shaft 52 by a conventional set screw spline or the like through collars 53 or the like. The shaft 52 is rotatably supported in bearings 54 connected as by screws 55 to the top edges of the rearwardly extending bars 23.

At its inner end the shaft 52 is provided with a driven pulley 56 having a suitable belt connection 57 with a driver pulley 58 on a speed-reducing unit 59. The latter through pulleys 60 and 61 is connected to the main drive shaft 62 as by a belt connection 63. Preferably the speed-reducing unit 59 is adjustable. The loading speed-reducing mechanisms are arranged so that one length of pipe is taken from the supply rack as one length of pipe is fed through the machine.

Thus, lengths of pipe 29 are successively taken from the supply rack 28 and automatically and selectively fed to the main parts of the apparatus for coating and wrapping. Any well-known speed reducer may be used. The size of the various

pulleys and rotation of the speed-reducing unit is arranged so that the plates are given only half a rotation each time a full length pipe is driven through the machine. If, perchance, the driving of these plates 51 is fast the edges 64 or 65 of the plates 51 would engage with the top of the pipe 29 in the rollers 34 to stop rotation of the plates, by causing the belts 57 and/or 63 to slip upon the pulleys until the pipe is fed through the machine beyond the innermost plate 51, see Fig. 1, whereupon the shaft 52 and plates 51 connected thereto would again begin to rotate and rock or roll a pipe onto the feed rollers 34.

Stop plates 30 are provided on the forward or inner ends of the inclined bars 23 in order to limit movement of the pipes from the supply rack 28 toward the rollers 34. Thus, as the concave edges 64 and 65 rotate upwardly into engagement with the pipes on the supply rack only one length of pipe would be engaged by the concave edges 64 or 65 and would be lifted and rolled from the supply rack 28 toward the feed rollers 34, as will be readily appreciated. As the plates 51 on the shaft 52 are rotated in a counter-clockwise direction as viewed in Fig. 5 the one pipe on the edges 65 would roll from the right-hand side of the plate, as viewed in Fig. 5, to the left-hand side. Thereafter as the other side of the plate 51 swings down substantially in the path of the rollers 34 the pipe carried by the plates would be deposited on the rotating feed rollers 34 to be transported thereby.

End-coating apparatus

With the coating and wrapping apparatus heretofore provided considerable difficulty was often encountered in getting the coating and wrapping cleared from the threads at the ends of the pipe.

Referring to Figs. 1 through 5, inclusive, the present invention provides a simple and highly satisfactory apparatus for coating the threaded ends of the pipes with a thick solution of lime or the like which prevents asphaltum or other coating material from getting into the threads and facilitates removal of the wrapping from the threads.

The end-coating apparatus 70 includes a tank 71 suitably supported on standards 72 with a spiral brush 73 on a shaft 74 rotably mounted in bearings 75. A belt connection 76 to the shaft 77, which in turn has a bevel gear connection 78 to the shaft 62 rotates the brush. Runs of divers length of pipes may be end-coated with this apparatus by merely loosening the set screw 79 and shifting a bevel gear 80 along the shaft 62 to the desired new location, and shifting the coating apparatus 70 to the new desired location.

As pipes roll down the bars 23 the rotating spiral brush 74 transfers lime from the tank 71 onto the threaded end of the pipe 29. Such coating apparatus is preferably provided at both ends of the pipe (see Figs. 1 and 2).

Centralizing and supporting mechanism

The present invention provides novel centralizing and supporting mechanism 81 which includes circular housings 82, preferably supported on shouldered rollers 83, see Figs. 6 and 7, which in turn are mounted upon shafts 84 extending through cross bars 85 welded or otherwise secured to the side plates 20. The shouldered or flanged rollers 83 confine the circular housings 82 against longitudinal movement in the machine. As may be seen best in Figs. 6 and 7, the

circular housings 82 support a plurality of, preferably grooved, rollers 86 therein (e. g., three in number) which are adapted to engage the periphery of the pipe to centralize and support the pipe in the machine. These rollers are adjustably and sturdily supported relative to each circular housing upon swivel or toggle plates 87 and 88 pivotally connected on studs 89 and 90 extending through brackets 91 and 92 secured to or forming part of annular threaded rings 93 and 94. These annular rings 93 and 94 have threaded connections 95 and 96 with threads 97 and 98 on the inside of the circular housing 82.

As the annular rings 93 and 94 are rotated inwardly of the circular housing 82 the threaded connections 95 and 96 cause the upper ends of the toggle plates 87 and 88 to come together and in this action the associated rollers 86 at the lower or inner ends of the toggle plate are caused to move toward the axis of the circular housing for small pipes. Similarly as the rings 93 and 94 are moved outwardly within the housing 82 the rollers 86 are spread relative to each other to accommodate a large pipe. This structure is very advantageous in that it is very simple and serves satisfactorily to centralize and to support divers sizes of pipes through a wide range (e. g., $\frac{3}{4}$ " to 6" or larger pipe). Further, it should be noted that the circular housing 82 may rotate upon the rollers 83 and thereby lessen the possibility of the centralizing and supporting structure frictionally dragging upon the pipe in any way. Also, an even and satisfactory spiral and axial feed of the pipe through the machine and an even winding of the wrapping on the pipe is thus assured.

Preferably, a third centralizing and supporting mechanism 81, like those just described, is provided at the left side of the machine shown in Figs. 1 and 4 to support the coated and wrapped pipe, as the latter feeds out of the machine.

Second feeding mechanism

A second feeding mechanism 22 is provided by the present invention to effect a spiral and axial or longitudinal feed of successive lengths of pipes 29 through the machine for coating and wrapping. This second feeding mechanism may be seen best in Figs. 1 and 4, and in its present preferred form includes driver pulleys 96 suitably secured to shafts 97 which in turn extend through suitable bearings in brackets 98 secured to the side plate or bar 20. At the lower end the shafts 97 are each provided with bevelled gears 99 having a suitable driving connection with bevelled gears 100 secured to the drive shaft 62.

At the front or adjacent side of the machine upon the side plate 20 cooperating adjustable pulleys 101 are provided. These pulleys 101 are each mounted upon a shaft 102 carried in compound slide mechanisms 103. The latter each includes a base 104 suitably secured to the front plate 20 within a dovetail channel 105 adapted to accommodate a transversely movable slide member 106 therein which may be moved toward and from the front of the machine as by a screw 107 and handwheel 108.

The transversely movable slides 106 are each in turn provided with a dovetail channel 109 adapted to accommodate a longitudinally movable slide member 110 upon which the shaft 102 for the pulley 101 is mounted. These longitudinally adjustable slides are controlled and set by screws 111 and associated handwheels 112.

Endless belts 113 of canvas, leather or any suitable material are mounted upon each of the pulleys 96 and 101. As each of these belts is extended from the pulley 96 to the pulley 101 one run is straight from pulley to pulley, while the other run is enveloped about the pipe, as may be seen best in Fig. 1. As the belts are rotated they carry the associated pipe in both an axial and spiral direction.

By moving the transverse slide 106 toward the pipe a slack may be provided in the belt in order to easily place the wound section of the belt around the pipe. As the slide 106 and pulley 101 are retracted from the machine they tighten the belt 113 upon the pipe sufficiently to grip and drive or feed the same. Such adjustment is also utilized in adapting this driving or feeding mechanism to divers sizes of pipes; viz., the slide 106 is close to the plate 20 when a large size pipe is being driven through the machine and is away from the side plate 20 when small-diameter pipes are driven through the machine.

The same feeding mechanisms are also advantageous in effecting a change in the extent of spiral feed of pipes through the machine. In other words, it is possible with this feeding mechanism to slowly move the pipes through the machine with a slight helix or to move the pipe through the machine more quickly or with an acute helix. For example, as the pulleys 96 and 101 are in a nearly straight line transversely of the machine only a slight twist is imposed upon the curved run of the belt 113 so that the pipe is fed thereby with only a slight helical turn through the machine, whereas when the pulley 101 is far to the right longitudinally of the machine and relative to the pulley 96 a considerable twist is imparted to the curved run of the belt which causes the pipe to be fed in a sharp helical path through the machine.

By having two of these feeding mechanisms 22 in the apparatus of the present invention a positive helical feed of the successive pipes 29 is achieved throughout their full lengths while they are being coated and wrapped; viz., the drive unit 22 at the right-hand side in Fig. 1 drives the uncoated and unwrapped pipe to the coating and wrapping apparatus about to be described and the other feeding mechanism on the left-hand side of the machine causes the coated and wrapped pipe to be fed completely through the apparatus. Further, the spiral arrangement of the curved section of the belts and the double feeding mechanism 22 is such that the forward or incoming-end section of a pipe 29 is gripped and rotated by the belt concurrently with the end-turning of the preceding length of pipe. Thereby it is not necessary to use wedge blocks between successive lengths of pipes to insure a continuous interconnected travel of a plurality of pipes through the machine. This is an important advantage.

Coating apparatus

The pipe may be coated in any of the well-known ways. However, in order to insure the proper and complete coating thereof the present invention provides a coating apparatus 115 including a shoe 116 secured to the crossbar 117 as by screws 118. This shoe is provided with an axial bore 119 and with an inlet or top opening 120 (see Figs. 1, 4 and 8). A suitable storage tank 121 is provided underneath the machine, with a pumping unit 122 adapted to draw coating material, such as asphaltum, from the storage

tank and force it upwardly through the pipe 123 into the inlet opening 120, as may be seen best in Figs. 1 and 4.

This pumping unit may be driven by a separate electric motor 124 or by a suitable connection to the main drive shaft 62. The latter is accomplished (see Fig. 10) by merely extending shaft 125 of the pump 122 through a bearing 126 in a side wall 127 of the tank 121 and providing a bevel gear connection 128 to the main drive shaft. An abundant supply of coating material is forced into the coating shoe where it is somewhat confined in order to insure a flowing passage thereof completely to and around the pipe. Surplusage of coating material flows out of the axial bore 119 and drops back into the underlying supply tank. Screws 129 centralize and support the pipe 29 in the shoe as shown in Fig. 8.

Various other coating mechanisms may be used with the remaining apparatus of the present invention. For example, a plurality of rollers, engaging the periphery of the pipe, may be provided, which are pivotally mounted to dip into the storage tank and to carry coating material from the storage tank into engagement with the pipe.

Wrapping mechanism

The pipes are preferably covered with a wrapping 130, of paper or other suitable material. To this end the present invention provides wrapping mechanism including a support 131 pivotally mounted on a bracket 132 on the front plate 20. This support is provided with a cross-shaft 133 supporting a supply roll 134 of wrapping paper or tape 130 or the like. Preferably the supply roll has snug fit upon the shaft 133 and a pivotally mounted spring finger 135 is provided to engage a disc 136 secured to the shaft 133 both to hold the shaft in the support and to frictionally retard rotation thereof whereby the paper strip is drawn taut upon the pipe.

It is merely necessary to manually start the paper strip upon the pipe as the latter leaves the coating shoe. Thereafter the paper or like wrapping 130 is automatically drawn from the supply roll 134 by the pipe 29 as it is spirally rotated and axially or longitudinally moved through the machine. When it is desired to have only a slight spiral effect the support is rotated in the bracket 132 toward the dot-and-dash position shown in Fig. 1, where it is held in the desired position with the set screw 137.

If preferred an auxiliary supply 138 of wrapping may be carried at the outer end of the support as shown in Fig. 1. Thus it is merely necessary to replace the shaft 139 and supply roll 138 at the outer end of the support 131 for the one shown at the inner end of the support when the previously used roll 134 is exhausted.

Driving mechanism

The driving mechanism has hereinbefore been described in large part. It includes an electric motor 140 (see Fig. 1) having a belt connection 141 to a speed reducer 142 which in turn has a belt (or chain) connection 143 to the main drive shaft 62. Bevel gears 100 on the main drive shaft meshing with gears 99 cause rotation of the pulleys 96 of the second feeding mechanism 22. A bevel gear 144 meshing with a gear 145 on the speed reducer 49 causes a belt connection 46 from the latter to operate the first feeding mechanism 18.

A belt connection 63 between the main drive

shaft 62 and speed reducer 59 causes the latter through the belt 57 to operate the loading mechanism 50, while the bevel gears 80 meshing with gears 78' operate the end-coating apparatus. Thus, one prime mover can conveniently operate the loading, first feeding and second feeding mechanisms. Also, it concurrently operates the coating apparatus (Fig. 10) and the wrapping apparatus 146 once the end of the tape is connected to the pipe.

Successive lengths of coated and wrapped pipe may be fed out of the machine in any of the well-known ways, for example, they may be dropped onto a suitable platform near the outlet side of the machine.

However, the present invention as shown in Fig. 2A provides a very satisfactory mechanism for unloading the pipes successively from the machine and for automatically stacking the same, which includes lengthening the main drive shaft and merely a duplication of all the loading mechanism 50, first feeding mechanism 18 and the cooperating driving mechanism parts shown in Figs. 1, 2, 3, 4 and 5 (excepting the end-coating apparatus), the only change being that either the belt 63 or belt 57 of speed reducer 59 in this section connected to the drive shaft 62 would be reversed in rotation so that the plates 51 in this other or unloading section would be caused to rotate in a clockwise rather than a counter-clockwise direction as viewed from the right-hand side of the machine, in order to lift the coated and wrapped pipes successively from the rollers 34 to the rack 28. The speed reducer 59 is so adjusted or arranged as to lift the section of pipe at the time when a full length of pipe has been fed from the wrapping station and is in position to be moved. Preferably, too, the feeding mechanism at the left side would be inclined downwardly so that the pipes would extend downwardly slightly as they are fed to the unloading mechanism to slightly or fully break the wrapping at the end of the pipes and thereby facilitate the plates 51 lifting the pipes from the feed rollers. Also, the top and rearwardly extending bars 23 on the rack at the left-hand side of the machine would be preferably inclined downwardly away from the rollers or stops in order to cause the successive lengths of pipe to roll downwardly on the supply racks toward the back of the machine.

Other variations and modifications may be made within the scope of the invention, and portions of the improvements may be used without others.

Having thus described the invention what is claimed as new is:

1. In a pipe coating and wrapping apparatus the combination of a main frame; a rack for supporting a plurality of pipes; straight axial feeding means parallel to the rack; drive means therefor; selective loading means driven from said driving means and controlled by the pipe being fed thereby for moving the lengths of the pipe one by one from the rack to the straight feeding means; spiral feeding means driven from the driving means; means for applying a coating and wrapping to the pipe as it is advanced by the spiral feeding means; and means for centralizing the successive lengths of pipe relative to each other and relative to the spiral feeding means.

2. In a pipe coating and wrapping machine the combination of a main frame; a pair of fixed pulleys on one side of the main frame; a pair of

shiftable pulleys on the opposite side of the frame; mechanism for moving the shiftable pulleys longitudinally and transversely of the main frame; an endless belt extending from each of said stationary pulleys to each of said shiftable pulleys, and having a twist therein adapted to envelop a length of pipe; and means for centralizing and supporting a length of pipe relative to said pulleys.

3. In a pipe wrapping machine the combination of a main frame; a housing; means for supporting said housing on said main frame; a plurality of rollers disposed within said housing for supporting and centralizing lengths of pipe; and lazy-tong mechanism for concurrently moving said rollers an equal extent toward and from the center of the housing.

4. In a pipe wrapping machine the combination of a main frame; a housing; means for rotatably supporting said housing on said main frame; a plurality of rollers disposed within said housing for supporting and centralizing lengths of pipe; and means for concurrently moving said rollers an equal extent toward and from the center of the housing.

5. In a pipe wrapping machine the combination of a main frame; feeding means adapted to spirally and axially transport a pipe through the machine; means adapted to centralize and support the pipe relative to the feeding means, including circular housings each adjustably supporting a plurality of rollers; and means supporting said circular housings for rotary movements on said main frame.

6. In a pipe coating and wrapping apparatus the combination of a main frame; a supply rack; a storage rack; coating mechanism; wrapping mechanism; feeding mechanism for advancing pipe relative to said coating and wrapping mechanism; driving means for said mechanisms; loading mechanism having pipe-engaging arm members driven by driving means and controlled by the pipe being fed for selectively taking lengths of pipes from a supply rack and transferring them individually to the feeding mechanism; and unloading mechanism having pipe-engaging members driven by said driving means to automatically and selectively take coated and wrapped pipe from the apparatus and transfer them successively to a storage rack.

7. The process of treating pipes which includes the steps of forming a moving series of pipes having their unconnected ends in abutting relation; advancing the pipes one by one through a loop of a first belt adapted to impart a helical movement to each pipe; coating and wrapping the pipes one by one; advancing the pipes one by one through a loop of a second belt adapted to maintain a helical movement of each pipe and adapted to firmly press together the wrapping, coating and pipe; and removing the pipes one by one from said moving series of pipes.

8. The process of manufacturing coated and wrapped pipe which includes the steps of racking uncoated pipes upon a supply rack; automatically transferring the pipes one by one from the supply rack to form a moving series of pipes having their unconnected ends in abutting relation; advancing the pipes one by one through a loop in a first belt adapted to impart a helical movement to each pipe; coating the pipes one by one; wrapping the pipes one by one; automatically advancing the pipes one by one through a loop in a second belt adapted to maintain a helical movement of each pipe and adapted to

press together firmly the wrapping, coating and pipe; and removing the pipes one by one from said moving series of pipes.

9. The process of manufacturing coated and wrapped pipe which consists of the sequential steps of racking pipes upon a supply rack; automatically giving a removable coating to the end portions of each pipe; automatically transferring the pipes one by one and with only axial movement from the supply rack to a support, thereby forming a moving series of pipes having their unconnected ends in abutting relation; automatically advancing the pipes one by one through a loop in a first belt adapted to impart a helical movement to each pipe; automatically advancing the coated pipes one by one through a coating shoe adapted to form a predetermined and uniform thickness of protective material about each pipe; automatically advancing the pipes one by one through a wrapping mechanism adapted to form at least one wrapping over each coated pipe; automatically advancing the pipes one by one through a loop in a second belt adapted to maintain a helical movement of each pipe and adapted to press together firmly the wrapping, coating and pipe; automatically removing the pipes one by one from said moving series of pipes; and removing the removable coating, protective coating and wrapping from the end portions of each pipe.

10. In a pipe coating and wrapping machine, the combination of a main frame having pipe feeding means, pipe coating and wrapping means and driving means therefor; and means driven by the driving means and controlled by the pipe advanced by the feeding means for selectively moving a pipe from a pipe supply to the feeding means to be advanced thereby.

11. In a pipe coating and wrapping machine, the combination of a main frame having pipe feeding means, pipe coating and wrapping means and driving means therefor; and means including a pair of rotatable arms driven by the driving means and controlled by the pipe advanced by the feeding means for engaging and selectively moving a pipe from a pipe supply to the feeding means to be advanced thereby.

12. In a pipe coating and wrapping machine, the combination of a main frame having pipe feeding means, pipe coating and wrapping means and driving means therefor; a supply of lengths of pipe disposed parallel to the feeding means; and means including pipe-engaging elements driven by the driving means and controlled by the pipe advanced by the feeding means for selectively moving a pipe from a pipe supply to the feeding means to be advanced thereby.

13. In a pipe coating and wrapping machine, the combination of a main frame having pipe feeding means, pipe coating and wrapping means and driving means therefor; a supply of lengths of pipe disposed parallel to the feeding means; coating means disposed adjacent one end of the pipe supply and driven from said driving means for coating the end only of the pipe prior to the movement thereof from the supply to the feeding means; and means including pipe-engaging elements driven by the driving means and controlled by the pipe advanced by the feeding means for selectively moving a pipe from a pipe supply to the feeding means to be advanced thereby.

14. In a pipe coating and wrapping apparatus, the combination of a main frame, a fixed pulley and a shiftable pulley mounted thereon; means for centralizing and supporting a length of pipe

relative to said pulleys; an endless belt extending between the fixed and shiftable pulleys and engaging the pipe supported therebetween to impart helical movement thereto; means for independently moving the shiftable pulley transversely and longitudinally of the frame and relative to the fixed pulley for changing the relation of the belt on the pipe to vary the helical movement imparted thereto; and driving mechanism for operating said pulleys.

15. In a pipe coating and wrapping apparatus, the combination of a main frame; a fixed and a shiftable pulley mounted on the main frame

with the axis of the pulleys vertically disposed; means for centralizing and supporting a length of pipe relative to said pulleys; an endless belt extending between the fixed and shiftable pulleys and engaging the pipe to impart helical movement thereto; means for independently moving the shiftable pulley transversely and longitudinally of the frame and relative to the fixed pulley for changing the angle of the belt with respect to the pipe and varying the helical advance thereof; and driving mechanism for operating said pulleys.

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