May 6, 1952 A. L. STONE 2,595,902

SPINNER ELEVATOR FOR PIPE

Filed Dec. 23, 1948 3 Sheets-Sheet 1

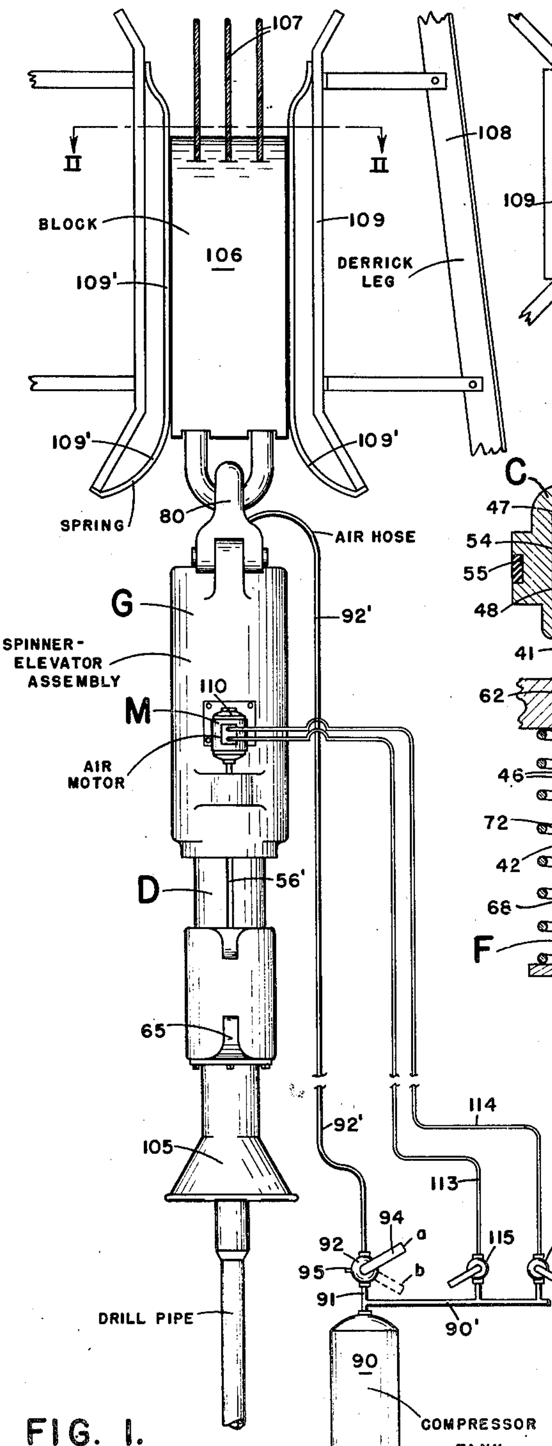

FIG. I.

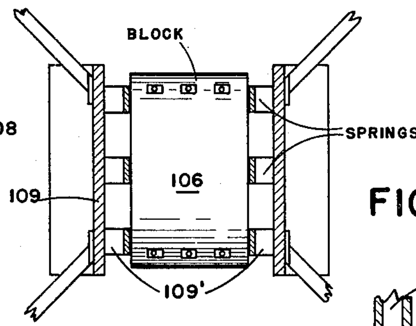

FIG. 2.

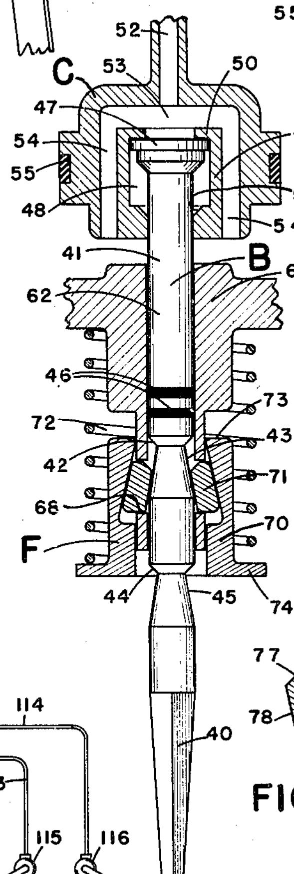

FIG. 6.

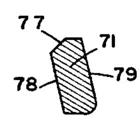

FIG. 5a

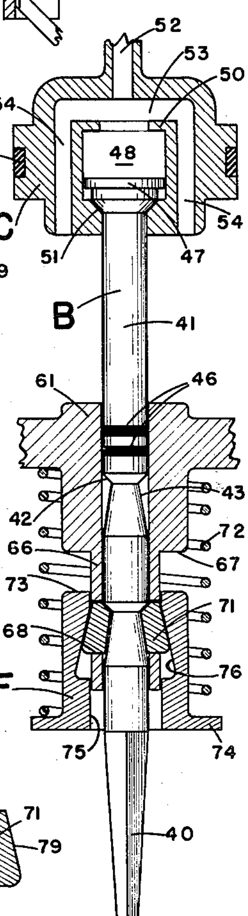

FIG. 5.

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SPINNER ELEVATOR FOR PIPE

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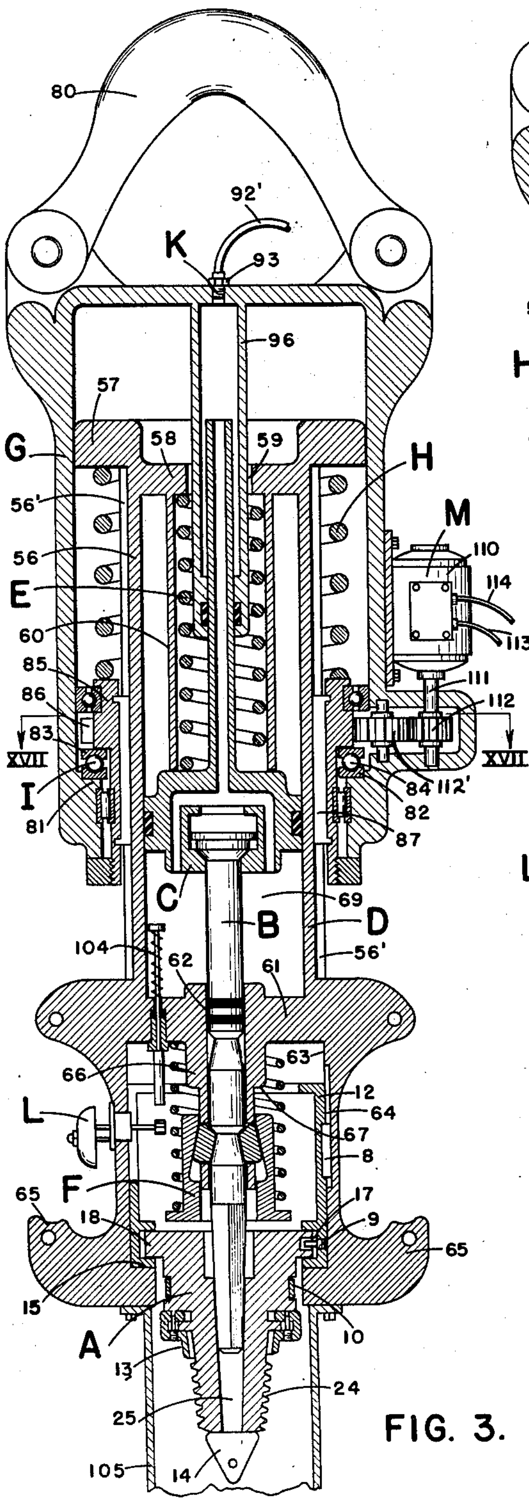

FIG. 3.

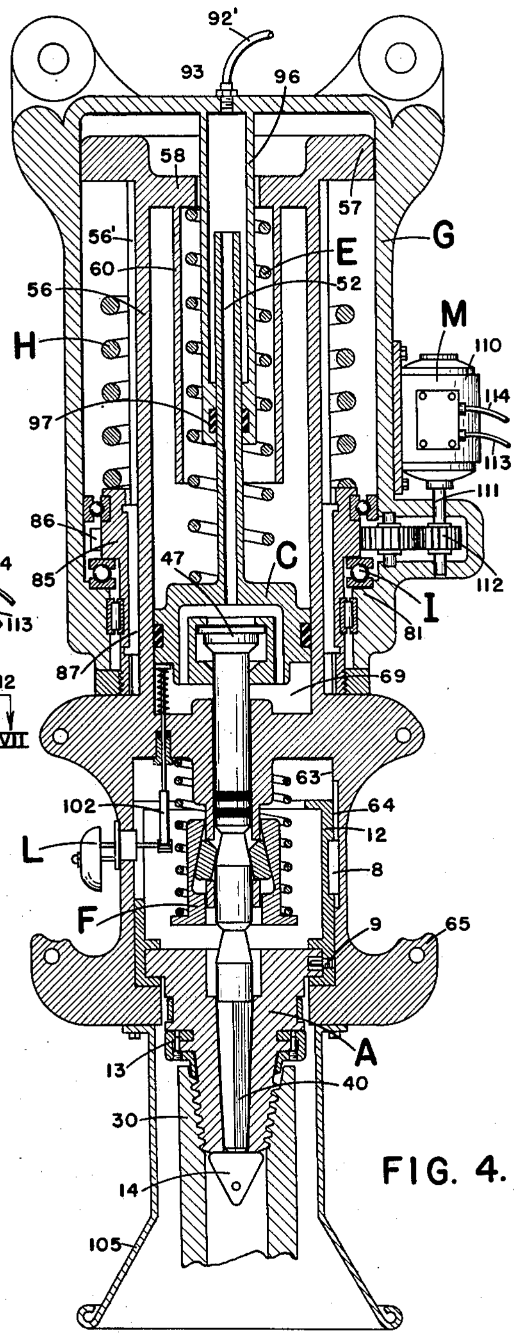

FIG. 4.

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SPINNER ELEVATOR FOR PIPE

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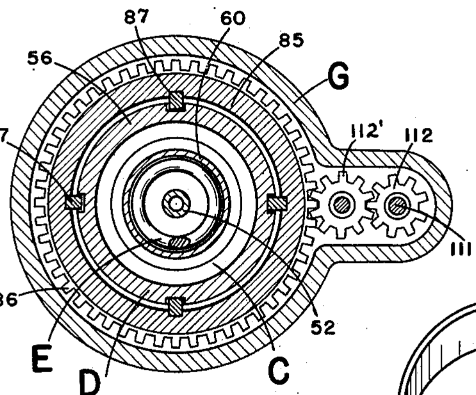


FIG. 17.

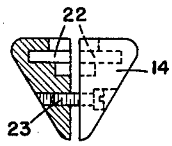
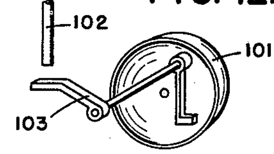


FIG. 11.

FIG. 12.



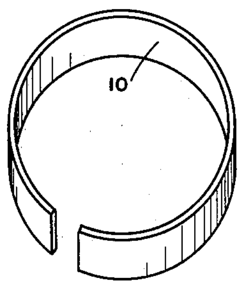
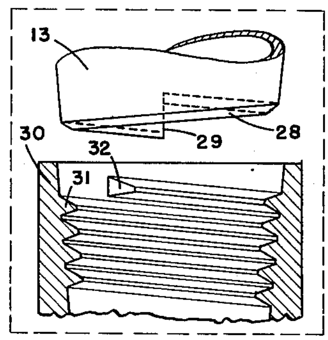


FIG. 10.

FIG. 13.



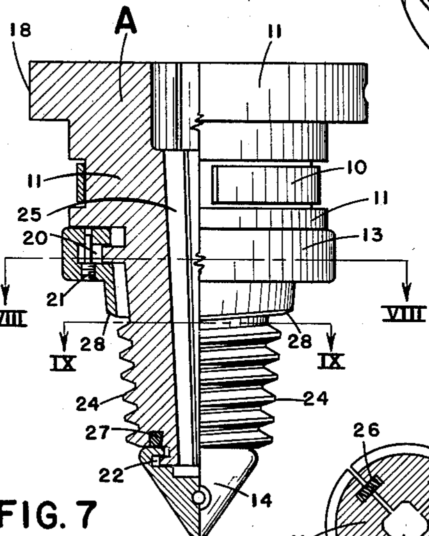


FIG. 7

FIG. 14.

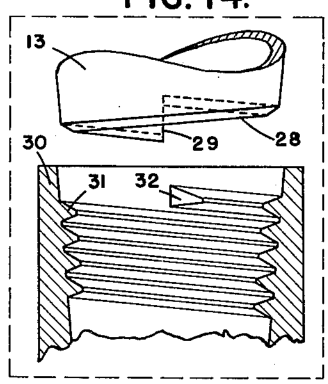
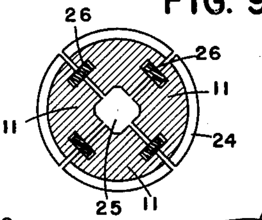


FIG. 9.



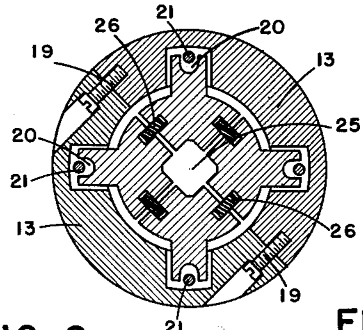


FIG. 8.

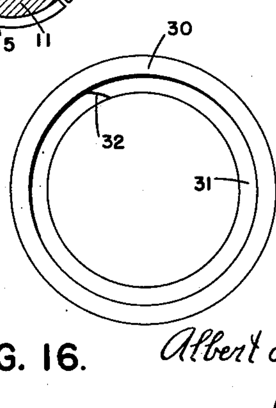
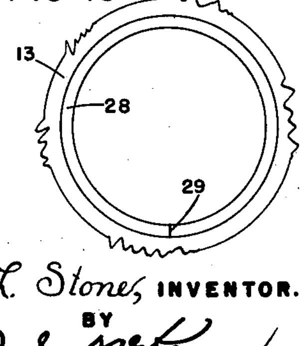


FIG. 16.

FIG. 15.



Albert L. Stone, INVENTOR.

BY J. S. McKean

ATTORNEY.

Patented May 6, 1952

2,595,902

UNITED STATES PATENT OFFICE

2,595,902

SPINNER ELEVATOR FOR PIPE

Albert L. Stone, Redondo Beach, Calif., assignor, by mesne assignments, to Standard Oil Development Company, Elizabeth, N. J., a corporation of Delaware

Application December 23, 1948, Serial No. 66,966

3 Claims. (Cl. 255—35)

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This application is a continuation-in-part of Serial No. 790,124, filed December 6, 1947, entitled "Spinner Elevator for Pipe," now abandoned.

This application is also related to my application Serial No. 56,402, filed October 25, 1948, entitled "Pipe Elevator" which claims the pipe elevator and indexing means forming a portion of the combined spinner and elevator of this application.

The present invention is directed to an assembly serving as an elevator and spinner adapted for suspending and rotating vertical sections of drill pipe in a derrick.

When drilling boreholes using sections of pipe as the drill stem, it is necessary to rotate sections of the pipe as well as to suspend the sections of pipe in the derrick. Conventional operations require an elevator suspended from the traveling blocks for suspending the drill pipe, tongs for breaking or making up the joints of pipe and a spinning means, which may be a rope or chain activated by a cathead, for spinning the pipe.

Conventional elevators arranged to engage with the shoulder defined by the tool joint of drill pipe or an elevator plug screwed into the upper end of the length of pipe to be handled suffer from several disadvantages well known to the art. These elevators must be manually engaged with and disengaged from the drill pipe being handled. In addition, the requirement that an external shoulder be provided for engagement with the elevator is disadvantageous. In the interest of economics as well as good structural design, it is not desirable to provide tool joints with external shoulders. Elevator plugs are unsatisfactory because of the time element involved in screwing and unscrewing the plugs in the joint of pipe being handled, and in addition, the use of these plugs introduces an additional hazard in the handling of the drill pipe, inasmuch as it is sometimes desirable to rotate the pipe while suspended from the elevators and the elevator plug may come loose during the rotational operation.

The conventional means for spinning stands of pipe suffer from several disadvantages. If a chain or rope activated by a cathead is employed, an appreciable interval of time is required for wrapping the chain or rope around the pipe preparatory to the spinning operation. When spinning out the joint no appreciable time is required for removing the chain or rope because the cathead may pull on the rope until it is entirely unwrapped from the pipe but when spinning up joints of pipe an appreciable interval of time is also required to remove the rope or chain from the pipe. In addition, the use of a rope or chain to spin the pipe involves a hazard and ofttimes causes injury to the workman.

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Devices have been constructed which are adapted to be engaged with the pipe for spinning it but heretofore such devices have been relatively clumsy and heavy as well as expensive and have suffered from the same disadvantage as spinning ropes and chains in that an appreciable interval of time is required for engaging the device with the pipe preparatory to the spinning operation and disengaging it from the pipe after the spinning operation has been completed.

It is an object of the present invention to provide a combined elevator and spinner for pipe.

Other objects and advantages of the present invention may be seen from the following description taken in conjunction with the drawing in which

Fig. 1 is an elevation showing an embodiment of the present invention as it appears suspended from the traveling block and supporting a section of pipe;

Fig. 2 is a view along line II—II of Fig. 1;

Fig. 3 is a fragmentary view, partly in section, of the device of Fig. 1 with the parts shown in the position they would normally occupy when the unloaded device is suspended with the pipe engaging parts in their retracted or disengaged position;

Fig. 4 is a fragmentary view, partly in section, of the device of Fig. 1 with the parts shown in the position they would occupy after the device has been lowered to engage with a box end of a section of pipe so that the pipe engaging parts are in their expanded or engaged position and the device rests on the engaged pipe;

Fig. 5 is a fragmentary view showing details of construction of parts which are in the same relative position as in Fig. 3 when the pipe engaging portion is in its retracted or its disengaged position;

Fig. 5*a* is a view of a member of the assembly of Fig. 5;

Fig. 6 is a view showing details of construction of the same parts as shown in Fig. 5 but with the parts in the same relative position as shown in Fig. 4 when the pipe engaging parts are in their engaged or expanded position;

Fig. 7 is an elevation, partly in section, of the pipe engaging portion or chuck of the embodiment of the foregoing figures;

Fig. 8 is a view taken along line VIII—VIII of Fig. 7;

Fig. 9 is a view taken along line IX—IX of Fig. 7;

Fig. 10 is an elevation of a member of the assembly of Fig. 7;

Fig. 11 is an elevation, partly in section, of another member of the assembly of Fig. 7;

Fig. 12 is an elevation showing the details of construction of the signal bell of the embodiment of the foregoing figures;

Fig. 13 is a view illustrating the relationship between the indexing means of the device and the box of a tool joint with a portion of the tool joint cut away to show the upper end of its thread;

Fig. 14 is a view similar to Fig. 13 but with the indexing means and the tool joint thread in a different angular relationship;

Fig. 15 is a view looking upwardly in the indexing means shown in Figs. 13 and 14;

Fig. 16 is a view looking downwardly at the tool joint box of Figs. 13 and 14; and

Fig. 17 is a view taken along line XVII—XVII of Fig. 3.

For convenience, the device shown in the drawing has its principal parts or assemblies designated by letters and component parts of the assemblies or parts of the principal parts designated by numerals.

The principal parts or assemblies are chuck assembly A, mandrel B, piston assembly C, body D, power spring E, mandrel locking assembly F, housing G, compression spring H, bearing assembly I, releasing assembly K, signal assembly L and rotating unit M.

Of the parts enumerated those from A through L may be considered necessary for engaging with the threaded end of a pipe while unit M is the means for spinning or rotating the pipe.

In Fig. 1, housing G is suspended from traveling block 106 which in turn is suspended by drilling line 107 from derrick 108. Guides 109 are mounted in derrick 108 with their upper and lower ends flared and the lower ends supplied with springs 109′. The purpose of these guides is to provide counter torque in addition to that supplied by the drilling line and weight of the traveling block to oppose the torque exerted through unit M on chuck assembly A.

Chuck assembly A, as shown in Figs. 3, 4 and Figs. 7 through 11, consists of a compression ring 10, a plurality of jaws 11, sleeve 12, indexing ring 13 and guide cone 14. Sleeve 12 is slidably arranged in the lower portion of body D being normally supported from inwardly extending circumferential shoulder 15 of body D. Sleeve 12 defines a circular groove 17 for receiving shoulders 18 of jaws 11. The outer surface of sleeve 12 is provided with a longitudinally extending slot to receive key 8 for preventing rotation between body D and the sleeve. A radially extending screw 9 extends from the sleeve into a corresponding radial passage in a jaw 11 to prevent rotation between the jaws and the sleeve. This allows the chuck assembly to move longitudinally but not rotatably with respect to body D.

Indexing ring 13 is split with the two halves secured together by cap screws 19 so that indexing ring 13 is in effect a member of constant diameter. Each jaw member 11 defines a radially extending passage 20 and screws 21 mounted on indexing ring 13 extend slidably into each of said radial passages 20. Guide cone 14 defines radially extending slots 22. It is made up of two like parts held together by cap screw 23. The mode for securing the jaws to sleeve 12, indexing ring 13 and cone 14 allows the entire chuck assembly to move longitudinally with respect to body D and also allows jaw members 11 to move radially. The sleeve, indexing ring and guide cone are concentric and remain fixed in position with respect to each other at all times. Jaws 11 move radially but remain concentric with respect to the axis of chuck assembly A. Compression ring 10 biases the jaws radially inward so that normally they assume a contracted or disengaged position.

The outer surfaces of the jaw members 11 of chuck assembly A define a substantially complete screw thread 24 with the only incomplete portion of the thread being the space which separates the jaw sections. The inner surfaces of the jaw members define a passage 25 for receiving mandrel B. In the embodiment shown in the drawing, the lower portion of the mandrel is square in section and, accordingly, passage 25 is square in configuration. To prevent dirt and foreign particles from entering passage 25 the spaces between the sides of the adjacent jaw members 11 are sealed by rubber packing members 26 and the space between guide cone 14 and jaw members 11 is packed off by packing ring 27.

The chuck assembly shown is adapted to engage with the tapered thread such as may be employed for the tool joint of drill pipe. The lower surface of indexing ring 13 defines an indexing surface 28 which is in the shape of the lower surface of a thread extending through an arc of approximately 360°. The indexing surface must extend through approximately this length of arc although satisfactory operation may be obtained if it is a few degrees less, say 355°. If desired, the thread could extend through a greater length than 360° but the usable portion for indexing is limited to 360° and there is no advantage of extending it a greater distance. In order for this indexing means to operate properly the thread of the tool joint with which it is to engage should terminate as a true spiral. A tool joint thread of this character is shown in Figs. 13, 14, and 16.

Fig. 15 is a view of the indexing surface 28 looking upwardly. In this view line 29 represents the vertically extending shoulder with which spiral thread surface 28 terminates.

Fig. 13 is an elevation, partly in section, showing the index ring 13 immediately above tool joint 30. Tool joint 30 defines a thread 31 which terminates as a true spiral and ends in shoulder 32. This figure illustrates the relationship the indexing ring and the tool joint may assume when the elevator assembly is being lowered to engage the tool joint. In this figure shoulder 29 of the index ring overlaps by a few degrees shoulder 32 of the tool joint so that if the elevator is lowered the index ring will strike the end of the tool joint thread, thereupon the chuck assembly A will be held against further downward movement with the thread 24 defined by jaw 11 lined up properly with thread 31 of the tool joint and if the mandrel locking member F is activated by further lowering of body D the mandrel B will expand the jaw members 11 into the tool joint thread.

Fig. 14 is similar to Fig. 13 but shows index ring 13 rotated a few degrees (in the counter-clockwise direction looking downwardly) with respect to shoulder 32 of the tool joint thread so that shoulder 29 will pass shoulder 32 upon lowering of the elevator assembly and indexing surface 28 will engage with thread 31 approximately one pitch below the point they will engage in Fig. 13. When the indexing ring 13 does engage with thread 32 of the tool joint the thread 24 defined by jaws 11 will be lined up properly with thread 31 of the tool joint so that the jaw members will properly expand into the tool joint thread. The Figs. 13 and 14 illustrate that the index 13 insures that the thread 24 of the chuck assembly will properly engage with thread 31 of the tool joint at any relative angular position between the indexing member 13 and the tool joint thread 31.

Mandrel B, as shown in Figs. 5 and 6, consists of a lower tapered square section 40, an upper section of generally cylindrical shape 41, an upper locking portion consisting of tapered surfaces 42 and 43, a lower locking portion consisting of tapered surfaces 44 and 45, packing rings 46 and an upper head 47.

Piston C is arranged to move mandrel B longitudinally but is connected therewith so as to produce an initial jar for releasing the mandrel after the chuck A has been used for supporting a load. Piston C defines a cavity 48 for receiving head 47 of mandrel B. Cavity 48 is defined by cylindrical wall 49 and end wall 50. A circular inwardly extending ledge 51 encircles body 41 of the mandrel below head 47. Piston C defines an upwardly extending tube 52 which serves as a passage for compressed air. This passage discharges into radially extending passages 53 and thence into longitudinally extending passages 54 which discharge below piston C. The outer cylindrical surface of piston C is provided with packing ring 55.

Body D is of a somewhat irregular shape but is generally tubular having an upper wall portion 56 and having its upper end terminating in an outwardly extending shoulder 57 and defining an inwardly extending wall 58 which is pierced by a central passage 59. A tube 60 extends downwardly from wall 58. The outer surface of wall 56 defines key ways 56′. Below wall 56 is an inwardly extending wall or shoulder 61 pierced by a central passage 62 and below wall 61 the body defines an inner cylindrical surface 63 having a key way 64 for receiving key 8 and terminating in lower shoulder 15. The lower outer portion of body D defines ears 65 adapted for supporting the links of a conventional type elevator (not shown on the drawing), if desired.

Inwardly extending wall or shoulder 61 defines or has attached thereto a downwardly extending tube 66 which has an upper portion of its wall thicker than its lower portion to define shoulder 67 and is provided with longitudinally extending slots 68 in its thinner wall portion.

Piston C slides longitudinally within body D with packing ring 55 in contact with the inner surface of cylindrical portion 56. Mandrel B slides in the central passage 62 defined by wall 61 with packing rings 46 making a fluid-tight seal therewith, the chamber between piston C and wall 61 being designated as 69 and is the chamber in which compressed air discharges after flowing through passages 52, 53, and 54. Power spring E is arranged within tube 60 with its upper end in contact with shoulder 57 and its lower end in contact with piston C so that it exerts a downward bias thereon. Outwardly extending shoulder 57 serves as a support for compression spring H.

Mandrel locking assembly F is arranged for releasably locking mandrel B in either in up position or a down position. When mandrel B is locked in its up position, chuck assembly A is movable upwardly and the mandrel B is released upon upward movement of chuck assembly A. When mandrel B is in its down position, it is locked to chuck assembly A and may be released by downward movement of body D with respect to the mandrel B and chuck assembly A.

Mandrel locking assembly F consists of a locking ring 70, wedge members 71 and spring 72. The upper end of locking ring 70 terminates in shoulder 73 while its lower end terminates in an outwardly extending shoulder 74. The locking ring defines a central passage having a lower cylindrical portion 75 and an upper tapered portion 76. Wedges 71 define locking surfaces 77 and 78 and an outer surface 79. Wedge members 71 are arranged in longitudinally extending slots 68 in tube 66 of body D and are encircled by locking ring 70 so that outer surfaces 79 are in contact with tapering surface 76 of the locking ring. Spring 72 biases locking ring 70 downwardly.

When mandrel B is in its up position, as shown in Figs. 3 and 5, it is locked against downward movement by contact of its tapered locking surface 44 with locking surface 77 of wedges 71. If mandrel B is raised to its up position by admitting compressed air into chamber 69, and if at this time locking ring 70 is free to move under the influence of spring 72, spring 72 forces the locking ring downwardly so that tapered surface 76 of the locking ring slides over surface 79 of the wedges forcing them inwardly until the locking surface 77 is in contact with the tapered locking surface 44 of the mandrel. This locks the mandrel in its up position against the bias exerted on the mandrel by power spring E through piston assembly C after the compressed air is released from chamber 69.

The mandrel locking assembly F releases the mandrel from its up position when the locking ring 70 is moved upwardly with respect to body D. This relative movement of locking ring 70 occurs when the chuck assembly A is held against downward movement and body D moves downwardly. When the lower shoulder of locking ring 70 comes in contact with the chuck assembly A, it is held against further movement while continued downward movement of body D, wedges 71 and mandrel B allows the wedge members 71 to move radially outwardly as well as downwardly with body D thereby releasing mandrel B so that power spring E can force it downwardly to its second position.

Mandrel locking assembly F is able to lock mandrel B in its down position when body D has been lifted upwardly a sufficient distance to move locking ring 70 out of contact with chuck assembly A. When this occurs spring 72 exerts its force against locking ring 70 in turn causing the tapered surface 76 of the locking ring to force wedges 71 against the tapered locking surface 43 of mandrel B. This is illustrated in Figs. 4 and 6.

When the mandrel is locked in its up position, it is locked against the bias exerted by the power spring E, but when it is locked in its down position, it is locked against possible upward movement which might be produced by accidental release of compressed air into chamber 69 while the mandrel is supporting a load.

When mandrel locking assembly F has locked the mandrel in its down position, as shown in Figs. 4 and 6, it may be released by holding chuck A against downward movement and allowing the weight of body D to be exerted through tube 66 against the upper ends of wedge members 71 thereby forcing locking ring 70 to move upwardly with respect to wedge members 71 while the wedge members simultaneously move radially outwardly until they have moved a sufficient distance to release mandrel B; after the weight of the body has been exerted on the upper ends of wedge members 71, comprssed air may be admitted to chamber 69 to act against the lower surface of piston C thereby driving the piston upwardly, compressing power spring E and forcing the mandrel B to its up position.

Housing G is adapted to be supported from the traveling block and for this purpose is provided with a bail 80 at its upper end. The lower end of housing G defines a shoulder 81 arranged to support bearing assembly I. Bearing assembly I consists of lower race 82, upper race 83, and bearings 84. Supporting ring 85 rests on bearing assembly I and slidingly embraces wall portion 56 of body D. The outer periphery of ring 85 defines a ring gear 86 which cooperates with rotary unit M. The inner surface of ring 85 is provided with longitudinally extending grooves for receiving keys 87 which fit slidingly in key ways 56′ of body D.

Suspension spring H encircles wall portion 56 of body D with its lower end resting on supporting ring 85. When the elevator is supported from bail 80, the load is transmitted from chuck assembly A to body assembly D and from shoulder 57 of body D through spring H, ring 85 and bearing assembly I to shoulder 81 of housing G. Over-travel is provided so that housing G is free to slide downwardly in the event that the downward movement of body D is stopped when the device is being lowered. This provision of over-travel is particularly useful when engaging the device in that when the chuck assembly A engages with a stand of pipe the downward movement of the chuck as well as body D must be abruptly terminated but the housing G with the heavy traveling block may move downward the distance of the over-travel giving the driller an opportunity to stop the blocks and housing G after he has engaged the elevator with the load.

Compressed air for operating the assembly is obtained from a source of supply shown schematically as a vessel 90. The vessel is provided with a manifold 90′ having an outlet 91 provided with valve 92 in turn connected through air hose 92′ through fitting 93 to housing G. While tank 90 is shown in the drawing as a means for supplying compressed air, it will be understood that this is for illustrative purposes only and that conventional means such as an air compressor provided with a reservoir may be employed for this purpose.

Valve 92 is provided with an operating handle 94 shown in position "a" by solid lines and in position "b" by dashed lines. Valve 92 is provided with an exhaust vent 95. Fitting 93 in the top of housing G is connected to tube 96 which, for purposes of simplifying the drawing, is shown as a portion of housing G. Tube 96 is concentric with tube 52 of piston assembly C and is provided at its lower end with packing 97 which makes a fluid-tight seal with the outer surface of tube 52.

When the valve handle 94 is in position "a," compressed air supply 90 is in fluid communication with chamber 69 allowing air pressure to be exerted on the underside of piston assembly C. When the handle 94 of the valve is in position "b" it prevents flow of compressed air from air supply 90 and simultaneously exhausts chamber 69 to the atmosphere through exhaust vent 95.

The releasing assembly K is for the purpose of supplying compressed air pressure to chamber 69 for forcing piston C and mandrel B upwardly to allow chuck assembly to assume its retracted position. Assuming operating handle 94 is in its "b" position and the elevator load has been lowered to rest, the chuck assembly A may be released and mandrel B moved from its down to its up position by allowing the weight of body D to rest on wedges 71 which in turn forces locking ring 70 upwardly and allows the wedges to move radially outward to release mandrel B. Thereupon the operator may move valve lever 94 from its "b" to its "a" position to apply air from air supply 90 to chamber 69. This air pressure causes piston assembly C to move upwardly until it strikes head 47 of mandrel B giving the mandrel a jar to loosen the squared portion 40 from jaws 11 and thereafter the continued application of air pressure against piston C forces it and mandrel B upwardly and against power spring E to its up position. Mandrel B is now in its up position and chuck A is retracted. The mandrel locking assembly F may then be allowed to lock the mandrel in its upper position by raising body D until locking ring 70 is moved upwardly out of contact with chuck assembly A and assumes the position shown in Figs. 3 and 5. The operator may then move valve handle 94 from "a" to "b" position thereby bleeding air from chamber 69 to the atmosphere and the mandrel B is locked in its up position by wedge member 71.

The valve lever 94 should remain in the "b" position all of the time the elevator is carrying its load. However, if the lever is accidentally moved to its "a" position while the chuck is carrying a load, mandrel B is locked against upward movement by the locking means previously described so that the accidental manipulation of valve lever 94 at this time will not cause the elevator to drop its load.

Guide funnel 105 is secured to the lower end of body D and aids in guiding the chuck assembly A into position for engaging with a section of pipe.

The signal assembly L may be any suitable signalling device arranged to give out a signal when the chuck A has assumed its expanded position. For purposes of illustration, an assembly is shown consisting of bell 101, plunger 102 and striker arm 103. Plunger 102 is slidably arranged in a passage defined by shoulder 61 of body D with its lower end below the shoulder and its upper end above the shoulder. A spring 104 biases plunger 102 in its up position. When the device is being engaged with a section of pipe, after the piston C has been moved downwardly such a distance as to force mandrel B into chuck A to expand it for proper engagement with a tool joint, piston C strikes the upper end of plunger 102 and forces it downwardly to rotate striker arm

103 and ring bell 101. However, if for any reason the chuck assembly A does not index properly with the tool joint and the crest of the threads of jaws 11 expand against the crest of the threads on the box, the mandrel B will not move to its lower position and, therefore, the piston assembly C will not move down a sufficient distance to trip plunger 102. It is impossible for the operator to view chuck assembly A because it is wholly concealed by guide funnel 105 and even if guide funnel 105 were not present it would be partially concealed by the box of the tool joint. However, if signal assembly L emits a signal the operator will know that the device has engaged properly with the threads of the jaws but if the signal assembly L fails to give out a signal the operator will know that the elevator has not engaged properly and that he must disengage the elevator from the load and make another attempt to stab.

Rotary unit M contains a reversible motor 110 provided with a shaft 111 upon which is mounted pinion gear 112. In the embodiment shown, motor 110 is a compressed air motor and is connected to compressed air supply 90 through air hoses 113 and 114 and manifold 90'. Hose 113 is controlled by valve 115 and hose 114 is controlled by valve 116. With valve 115 open and valve 116 closed the motor rotates in one direction, while with valve 116 open and valve 115 closed, it rotates in the opposite direction. It will be understood that if desired some other type of prime mover such as a hydraulic motor or electric motor may be employed instead of a compressed air motor for unit 110. Power is transmitted from pinion 112 through gear 112' to teeth 86 of ring 85. Ring 85 is keyed to body D, in turn keyed to sleeve 12 which in turn is keyed to jaws 11 of the chuck assembly A. By engaging chuck assembly A with the section of drill pipe, a section of drill pipe may be spun in either direction as desired, by means of motor 110.

From the foregoing description it will be seen that the combined spinner and elevator disclosed is adapted to be suspended from the traveling block and when lowered to stab a tool joint box the expanding chuck indexes automatically and engages automatically. When the chuck assembly A has engaged with a section of pipe, the pipe may be spun in either direction as desired. The elevator may be readily released from its load using compressed air to supply the power for this manipulative step.

When the device is used for spinning pipe, a torque is exerted by rotating unit M on chuck assembly A and this torque is opposed by a counter torque consisting of the weight of traveling blocks 106, the rigidity of the drilling line 107 and guides 109 carried by the derrick.

The device of the present invention will be seen to embody a substantial number of advantages. The provision of an apparatus capable of engaging with a section of pipe and of rotating the section of pipe when so engaged may substantially reduce the time and effort required when drilling boreholes. At the same time, working conditions for the drilling crew are made less hazardous.

While I have disclosed a specific embodiment of the present invention, it will be evident to a workman skilled in the art that various changes in the size, shape and proportions of the parts of the members may be made without departing from the scope of the invention.

Having fully described and illustrated a preferred embodiment of the present invention, what I desire to claim as new and useful and to secure by Letters Patent is:

1. A pipe elevator and spinner for suspending and spinning a section of pipe having its end terminating in a spiral screw thread comprising, in combination, a housing adapted to be suspended from a traveling block, a pipe engaging assembly suspended therefrom for rotation with respect thereto and including a body, a chuck assembly carried by the lower end of the body including a plurality of jaw members mounted for radial movement outwardly from a retracted position to an extended position, said jaw members defining at least a major portion of a screw thread adapted to mate with the screw thread of said pipe when the jaw members are in their extended position, and means in contact with the jaw members for holding them in the retracted position, an indexing member carried by said jaw members for indexing the screw thread defined by said jaw members with the screw thread of said pipe, a slidable mandrel carried by the body in contact with each of said jaw members and adapted to assume an upper position with the jaw members in their retracted position and movable downwardly from its upper position to a lower position to move said jaw members radially outwardly to their extended position, means operatively connected with the mandrel for moving the mandrel from its upper position to its lower position and vice versa, a prime mover mounted on said housing and means including said body interconnected between said prime mover and said chuck assembly for rotating the latter.

2. A device in accordance with claim 1 in which the indexing member is a ring of fixed diameter defining the surface of the end of a thread of fixed diameter corresponding to the end of the thread defined by said pipe.

3. A pipe elevator and spinner for suspending and rotating a section of pipe having its end terminating in a spiral screw thread comprising, in combination, a housing adapted to be suspended from a traveling block, a bearing assembly carried by the housing, a body assembly arranged to be supported from said bearing assembly, a prime mover having a rotating shaft mounted on said housing, means for transmitting the rotative movement of the shaft of said prime mover to said body assembly, a chuck assembly normally carried by the lower end of the body in a lower position and mounted thereon for longitudinal movement upward with respect to said body to an upper position, the chuck assembly including a plurality of jaw members mounted for radial movement outwardly from a retracted position to an extended position, said jaw members defining at least a major portion of a spiral screw thread adapted to mate with the thread of said section of pipe when the jaw members are in their extended position, means in contact with the jaw members for holding them in the retracted position, an indexing member mounted on said jaw members and defining the surface of the end of a thread of fixed diameter corresponding to the end of the thread of the section of pipe, a key and slot means securing the chuck assembly to the body to allow longitudinal movement while presenting angular movement, a slidable mandrel carried by the body in contact with each of said jaw members and adapted to assume an upper position to allow the jaw members of the chuck assembly to be moved radially inwardly to their retracted position and movable to a down position to force the jaw members radially outwardly to their ex-

tended position, means operatively connected with the mandrel and including a spring member arranged to bias the mandrel from its upper position to its lower position for moving the mandrel from its upper position to its lower position and vice versa, and a mandrel locking means carried by the body and releasably engageable with said mandrel when the mandrel is in its upper position and actuated by contact with the chuck assembly when the chuck assembly is moved from its lower position to its upper position for releasing the mandrel from it upper position to assume its lower position.

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