H. CORRIGAN.

BACK-UP OR GO-AROUND TONG.

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1,384,688. **Patented July 12, 1921.**

Fig. 1.

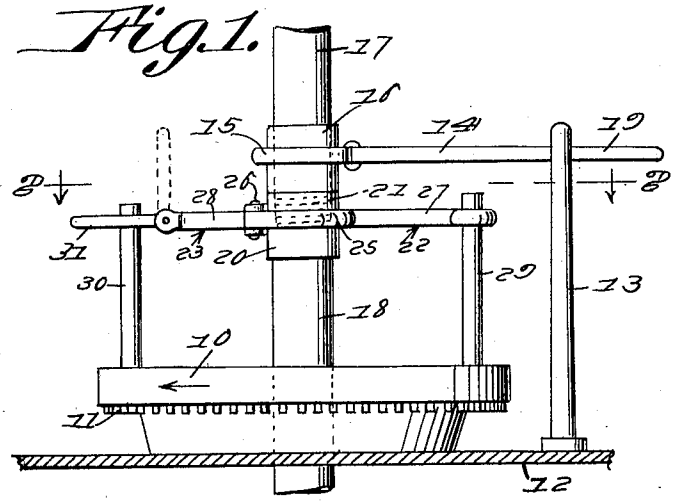
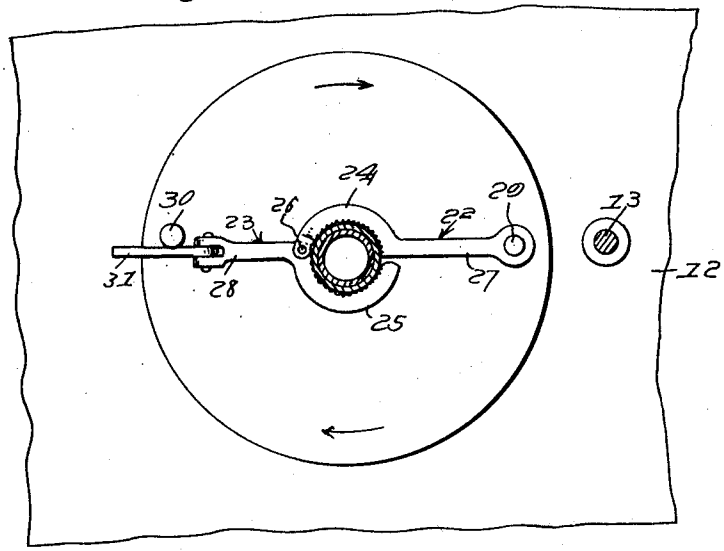


Fig. 2.



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BACK-UP OR GO-AROUND TONG.

1,384,688. Specification of Letters Patent. Patented July 12, 1921.

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To all whom it may concern:

Be it known that I, HUGH CORRIGAN, a citizen of the United States of America, residing at Duncan, in the county of Stephens and State of Oklahoma, have invented new and useful Improvements in Back-Up or Go-Around Tongs, of which the following is a specification.

The object of the invention is to provide a simple and efficient means for disconnecting the sections of a drill rod or tube at the joints as the rod or tube is withdrawn from the hole or well, for the purpose of disposing of the sections or joints successively under conditions which will permit of their subsequent union, as the rod or pipe is returned to the well or hole, the purpose of withdrawal, ordinarily, being to permit of the replacement or repair of the bit or of the standing valve.

As will be readily understood by those skilled in the art the usual practice is to employ quick-acting screw joints in the couplings or unions between the sections of drill rod or tubing which are added successively as the well is drilled or as the tube is lowered, and especially when a rotary or torsional strain is applied to the tube or rod as in the operation of a rotary drill, and also due to a certain extent to corrosion and accumulations at the joints, the disconnection of the sections of rod or tube is attended with a certain amount of difficulty and involves the application of a considerable amount of force, while at the same time the lower of the two disconnected sections and to which is connected the portion of the rod or tubing in the well, must be supported after the breaking of the joint until further connection of the elevating mechanism or derrick is effected to continue the rod or pipe raising operation.

Thus the specific object of the present invention is to provide a means which may be applied quickly and effectively to the members of the union or coupling between two adjoining sections or lengths of rod or tubing to secure the disengagement thereof while supporting the lower section or length which then becomes the uppermost section or length of the continuous rod or tubing.

With these objects in view the invention consists in a construction and combination of parts of which a preferred embodiment is shown in the accompanying drawing, wherein:

Figure 1 is a side view of the apparatus, popularly known in the oil fields as a back-up or go-around.

Fig. 2 is a plan view of the same on a horizontal plane indicated by the line 2—2 of Fig. 1.

The device consists essentially of a rotary table or platform 10 consisting of a revoluble head having gear teeth 11 from which power may be communicated thereto, for example, in the direction indicated by the arrows in the drawing, the same being mounted upon a base 12 from which rises a standard or other fixed anchor 13 for receiving the pressure of holding tongs 14 provided with a head 15 for engaging and gripping the upper member 16 of the union coupling by which the tube or rod sections or lengths 17 and 18 are united. Any suitable holding tongs or equivalent tool may be employed in this connection having, for example, an arm 19 for contact with the standard or anchor 13 to lock the upper member of the tube or rod section against rotary movement while the lower member 20 of said coupling or union is turned relative thereto to break the screw joint represented at 21 therebetween.

The clamp which engages the lower member of the coupling or union in order that the rotary motion of the platform or table 10 may be communicated thereto to disengage the threads of the union consists of complemental members 22 and 23, respectively having arcuate jaws 24 and 25 for embracing the lower union or coupling member and pivotally connected together at 26, to the end that the relative swinging movement of the stems 27 and 28 of said clamp members in one direction will serve to close the jaws whereas relative swinging movement in the opposite direction will serve to open the same or relative pressure upon the interposed coupling or union member. The inner surfaces of the jaws are preferably serrated as shown to insure a firm frictional engagement with the coupling or union member.

The stem of one of the clamp members is fulcrumed or mounted for swinging movement upon a pin 29 carried by the table or platform 10, and the stem of the other clamp member is adapted for bearing contact with

a pin 30 also carried by said platform or table, the stem 28 preferably having a pivotal latch arm 31 which by swinging movement in the plane of the body portion of the arm or perpendicular to the plane of the clamping jaws may be disengaged from the pin 30 so as to permit of relative movement of the stems of the clamp members in a direction serving to disengage the jaws from the coupling or union member. The disengaged position of the latch arm is indicated in dotted lines in Fig. 1 while in full lines the locked position is illustrated, it being obvious that simply by swinging the clamp bodily upon the fulcrum pin 29 until the coupling or union member 20 is received between the jaws 24 and 25, and then continuing the swinging movement of the stem 28 to compress the coupling or union member between the clamp jaws until the latch arm 31 can be dropped behind the holding pin 30, the effective engagement of the union member and the locking of the same to the rotary platform or table will be secured to the end that the rotary movement of the latter, assuming that the upper coupling or union member 16 has been locked against rotary movement by the holding tool 14, will result in the disconnection of the coupling or union members. Moreover the lower tube or rod section will be securely supported after the breaking of the joint to give ample opportunity for the application thereto of the means employed for further withdrawing the drill tube or rod from the well.

It will be seen that the complemental members of the clamping device by which the lower member of the coupling or union is locked to the rotary table or platform consists essentially of a lever 22 of the first order having its power point at 29 and its load point at 26 with an intermediate fulcrum formed by bearing upon the engaged member of the coupling or union, and a lever of the third order 23 having its power point at 26 and its fulcrum at 30 with the load point represented by the bearing of the jaw 25 in opposed relation with the jaw 24.

An important practical advantage of the apparatus is that it may be thrown into and out of operative position or engagement with the union or coupling to be broken without loss of time or effort upon the part of the operators and when in engaging position will require no attention and also that the clamping means after the breaking of the joints serves as a supporting means for the balance of the tubing or drill rod and prevents the dropping of the latter into the hole or well.

What is claimed is:

1. An apparatus of the class described having in combination with means for holding one member of a coupling or union, a rotary head and a clamp carried by said head for engagement with the other coupling or union member and consisting of complemental lever members respectively of the first and third order with the inner extremity of the former pivotally connected with an intermediate point of the latter and provided with opposed clamping jaws, said clamping members having terminals bearing upon the rotary head.

2. An apparatus of the class described having in combination with means for holding one member of a coupling or union, a rotary head and a clamp carried by said head for engagement with the other coupling or union member and consisting of pivotally connected members provided at their inner ends with opposed jaws for engaging a second coupling or union member, one of said clamping members being pivotally mounted upon the rotary head and the other being provided with a latch arm for engagement with a fixed bearing on said head.

3. An apparatus of the class described having in combination with means for holding one member of a coupling or union, a rotary head and a clamp carried by said head for engagement with the other coupling or union member and consisting of complemental pivotally connected clamping members provided at their inner ends with opposed jaws for engaging a second coupling or union member, one of said clamping members being pivotally mounted upon the rotary head for swinging movement in a plane perpendicular to the axis thereof, and the other of said clamping members being provided with a pivotal latch arm for swinging movement in a plane perpendicular to that of said jaws, for detachable engagement with a fixed bearing on the rotary head.

In testimony whereof I affix my signature.

HUGH CORRIGAN.