

March 4, 1924.

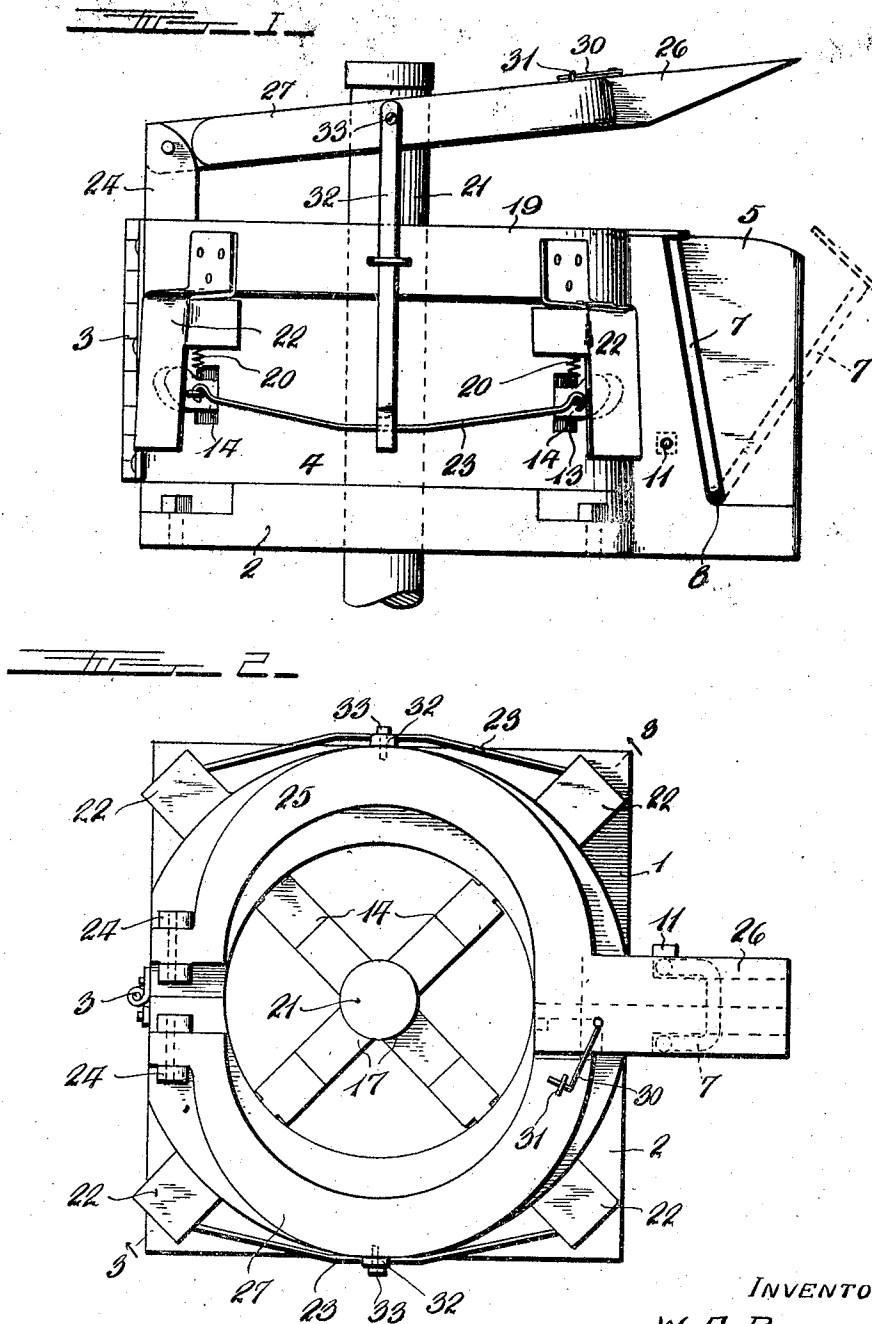
1,486,035

W. E. RICH

PIPE SUSPENDING APPARATUS

Filed April 2, 1923

2 Sheets-Sheet 1



INVENTOR
W. E. RICH

By *Townsend + Townsend*
ATTORNEYS.

March 4, 1924.

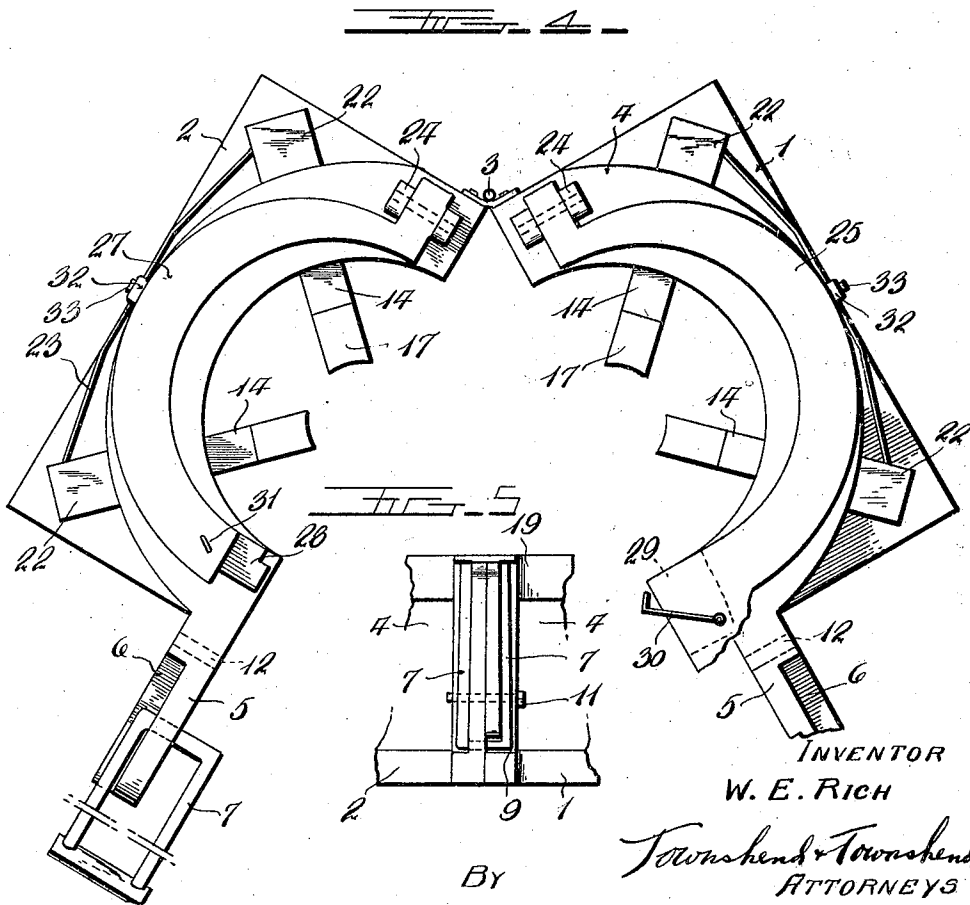
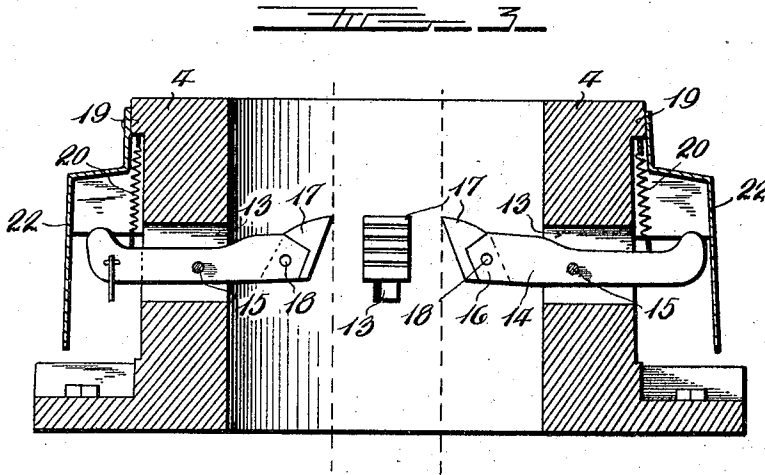
1,486,035

W. E. RICH

PIPE SUSPENDING APPARATUS

Filed April 2, 1923

2 Sheets-Sheet 2



UNITED STATES PATENT OFFICE.

WILLIAM EUGENE RICH, OF BRADLEY, ARKANSAS.

PIPE-SUSPENDING APPARATUS.

Application filed April 2, 1923. Serial No. 629,539.

To all whom it may concern:

Be it known that I, WILLIAM E. RICH, a citizen of the United States, residing at Bradley, in the county of Lafayette and State of Arkansas, have invented certain new and useful Improvements in a Pipe-Suspending Apparatus, of which the following is a specification.

The invention relates to apparatus used in connection with well drilling and the like, and has for its primary object the provision of a novel and improved pipe suspending clamp adapted to be used at the surface of a well when drilled.

Another object is the provision of a clamp of this character equipped with spring operated pipe engaging means automatically operable to engage a pipe section, and provided with manually operable releasing means.

Another object of the invention is to provide a device of this character which may be assembled around a pipe and secured in position.

A further object of the invention is to provide in a device of this character means whereby the apparatus may be adapted to engage various sizes of pipe by a simple change in a few of the parts thereof.

With these general objects in view, and such others as will be apparent from the description, my invention resides in the novel construction, combination and arrangement of parts hereinafter described and claimed and illustrated in the accompanying drawings, in which—

Figure 1 is an elevation showing the clamp as applied;

Figure 2, a top plan view thereof;

Figure 3, a vertical section through the clamp, illustrating the pipe engaging means;

Figure 4, a top plan view with the parts in open position; and

Figure 5, a fragmentary end elevation, illustrating the manner of securing the parts in assembled relation.

In detail, the invention consists of two base blocks 1 and 2 adapted to be disposed at the upper end of a well casing and pivotally connected at one end by means of a hinge 3, so that the blocks may be swung apart or brought together, as desired. Each base block is provided with a semi-circular bore and an upstanding semi-cylindrical relatively thick flange 4. At the opposite side of the apparatus from the hinge 3, each

of the base blocks and flanges is provided with a lateral extension wall 5, each of which is provided on its outer face with a recessed portion 6 over which slides a yoke 7 pivotally connected at its lower end to one of the walls through a transverse bore 8, and slidable through a horizontal slot 9 arranged in the opposite wall in alignment with the transverse bore. The slot 9 extends inwardly from the wall over the outer edge and is adapted to receive the yoke therethrough when the parts are in assembled relation. The yoke is of sufficient dimension so that when engaged with the respective wall members it may be swung upwardly over the upper edges of the wall members and moved inwardly of the apparatus to assume the position illustrated in Figure 1 in full lines. When in this position, the wall members 5 will be clamped together. A dowel pin 11 is adapted to be passed through a line of transverse bores 12 in each of the wall members 5, whereby vertical displacement of the parts is prevented.

Each semi-cylindrical flange 4 is provided with a pair of transverse slots 13 in which are journaled clutch dogs 14 extending entirely through the flanges with their inner ends projecting towards the center of the apparatus with the dogs of each pair running at right angles to one another, as illustrated in Figure 2 and Figure 4. The slots 13 are of sufficient diameter so that a vertical clearance is provided for the vertical movement of the dogs 14 therein on their pivots 15, and the inner ends of each of the clutch dogs are bifurcated to provide arms 16 between which are mounted removable clutch teeth 17 secured in the arms by means of the pins 18, passed therethrough. The outer periphery of each flange 4 carries adjacent the top a lateral flange 19 between which and the outer portion of each of the clutch dogs 14, is mounted a strong contractile spring 20 suitably secured to the under surface of the flange and to the clutch dog. The action of the springs 20 tends at all times to draw the outer ends of the clutch dogs upwardly whereby, owing to their pivotal arrangement in the slots 13, their inner ends and, consequently the teeth 17, will be projected downwardly at the center of the apparatus, and when a pipe, as designated at 21, is mounted on the clamp, the teeth 17 will be forced into engagement

with the pipe surface automatically clamping it at the desired position. The outer end of each clutch dog is protected against accidental movement by means of the shield 22 secured to the flange 19 and projecting laterally and downwardly over the contiguous end of the clutch dog. Each shield is open at the lower portion of its face opposed to the adjacent shield to provide a clearance for a bowed rod 23 secured at the opposite ends and to the extreme outer end of each clutch dog, as illustrated in Figures 1 and 2. This construction provides a rigid connection between the clutch dogs carried by each of the flanges 4.

Pivoted at one end between upright lugs 24 carried by one of the flanges 4 is a lever 25 curved intermediate its ends to correspond with the curvature of the adjacent flange upon which it is mounted and provided with a handle 26 extending, when in position, over the lateral wall members 5 of the respective sections. The flange 4 of the opposite section is provided with a similarly mounted lever 27 having its outer end provided with a reduced portion 28 adapted to extend into a socket 29 formed in the opposed face of the lever 25, so that when the sections are in assembled relation the levers 25 and 27 will work as a unit when operated through the medium of the handle 26. A hook 30 is provided on the handle 26 to engage with the eye 31 carried by the lever 27 for securing the parts in locked relation. At diametrically disposed points, as illustrated in Figures 1 and 2, each of the levers 25 and 27 carries a depending arm 32 pivoted at its upper end to the adjacent lever as at 33, and having its lower end forked to engage over the adjacent rod 23. In the normal assembled position of the apparatus, as illustrated in Figure 1, the depending arms 32 through their connection with the rods 23 support the levers 25 and 27 in raised position so that the handle 26 is elevated as shown. In this position of the various parts, a pipe engaged by the clamp will be held against any downward movement owing to the gripping engagement of the teeth 17 carried by the clutch dogs 14. It is obvious that any downward movement of the pipe will be arrested by the engagement of the clutch dogs, as they will be forced into biting engagement with the pipe surface and hold the same supported. As the pipe is raised the clutch dogs will be carried upwardly against the action of the springs 20 to allow the pipe to slide freely upwardly, the springs tending at all times to maintain the teeth 17 in engagement with the pipe so that any downward movement of the pipe will be instantly arrested.

When it is desired to disengage the clutch members from the pipe, handle 26

is depressed, whereupon the arms 32 will force the rods 23 downwardly which, in turn, will draw down the outer ends of the clutch dogs 14 and elevate the inner ends 16 carrying the gripping teeth 17 out of engagement with the pipe surface. On release of the handle the springs 20 will draw the outer ends of the clutch dogs upwardly and return the parts to their normal engaged position.

In operation, the apparatus is assembled by placing the open sections around the pipe and clamping them in position by means of the engagement of the yoke 7 over the adjacent lateral wall members 5 of each section, and, when it is desired to dismount the apparatus, the yoke 7 is swung outwardly until it assumes a position at right angles to the flanges whereupon it may be slid transversely through the slot 9 and the two sections bent to permit the apparatus to be removed. A reversal of this operation secures the sections in assembled relation.

While I have illustrated and described certain details entering into the construction and operation of the invention, I desire it to be understood that I do not intend to limit myself to these, but that any such may be used and any modifications made, as will fall within the scope of the invention as claimed.

I claim:

1. A device of the character described comprising a base formed of separable sections, means for securing said sections in assembled relation, a plurality of clutch dogs pivotally mounted through each of said sections, springs connecting the outer ends of said dogs and adjacent base sections, said springs acting to depress the inner ends of said dogs, rods connecting the outer ends of all of the clutch dogs on each section, depressible levers on each of said base sections, means for connecting said levers as a unit when said base is assembled, depending links pivoted to said levers on each section and engaged with said connecting rods whereby said rods and dogs are depressed on depression of the levers to elevate the inner ends of the clutch dogs.

2. A device of the character described comprising a base formed of a pair of separable sections, a pair of spring actuated clutch dogs pivotally mounted through transverse openings in each of said sections, a rod connecting the outer end of each pair of clutch dogs, a depressible lever mounted in the top of each section, means for connecting said levers to move the same as a unit when the base sections are assembled, and depending links on each lever engaging the intermediate portions of the dog connecting rods.

3. A device of the character described

comprising a base formed of a pair of hinged sections, spring actuated clutch dogs mounted through said base sections, levers carried by said sections and adapted to
5 move as a unit when the sections are assembled cooperatively connected with said dogs for retracting the same, lateral extensions on the outer ends of said base sections, a pivoted yoke engageable with said extensions to lock the sections in assembled position, and means engageable with the extensions to prevent vertical movement of the
10 base sections.

In testimony whereof I affix my signature.

WILLIAM EUGENE RICH.