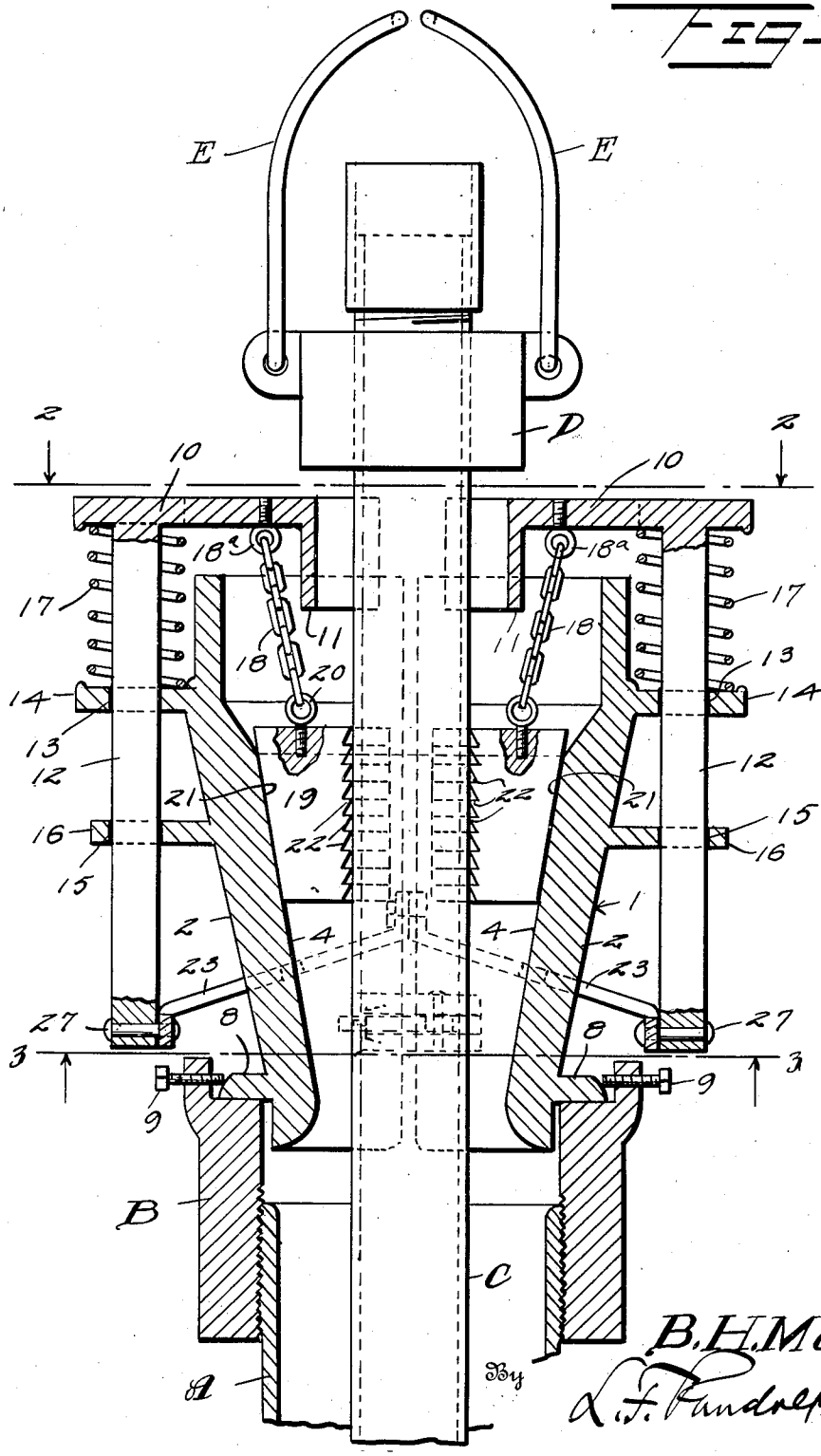
Aug. 20, 1929. B. H. MORROW 1,725,666

TUBING OR PIPE PULLING SPIDER

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Fig. 1.



Inventor

B. H. Morrow

By

A. F. Randolph Jr.

Attorney

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Fig. 2.

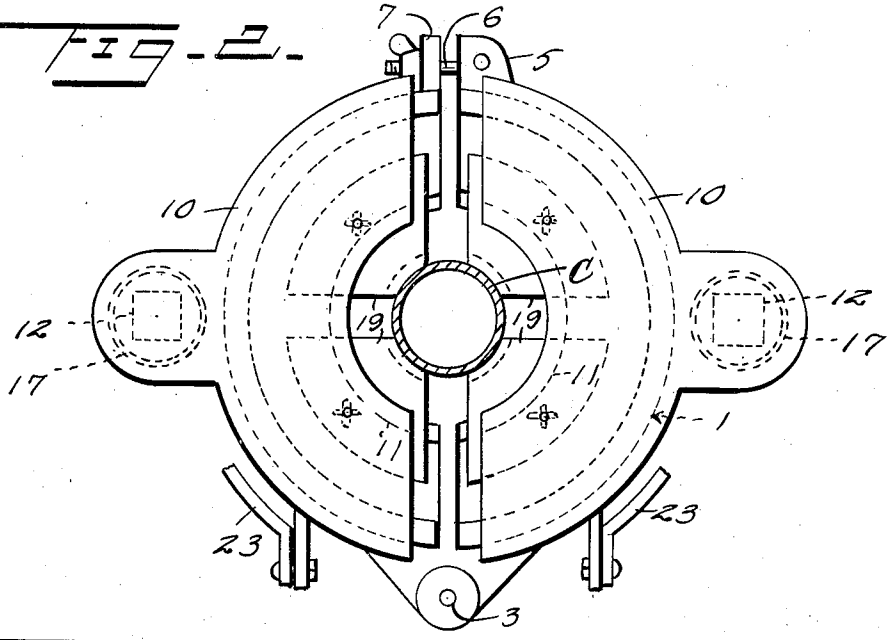
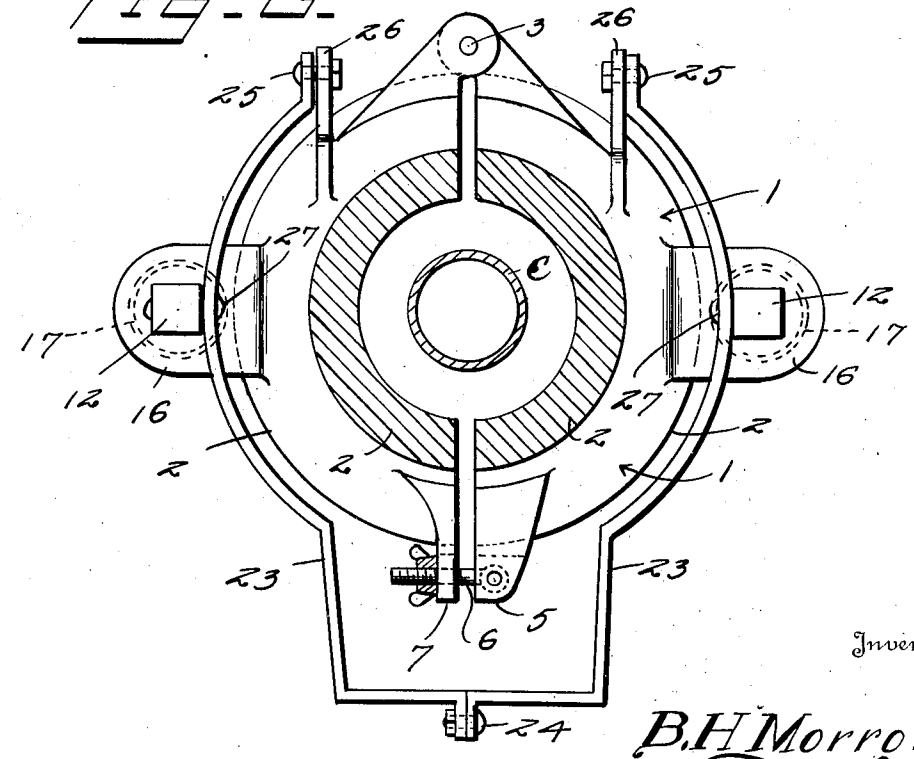


Fig. 3.



Inventor

B. H. Morrow

By L. F. Randolph Jr.

Attorney

Patented Aug. 20, 1929. 1,725,666

UNITED STATES PATENT OFFICE.

BERT H. MORROW, OF CORSICANA, TEXAS, ASSIGNOR OF ONE-THIRD TO O. B. HARLAN, OF CORSICANA, TEXAS.

TUBING OR PIPE PULLING SPIDER.

Application filed May 17, 1928. Serial No. 278,505.

The invention relates to well drilling implements and particularly to improved means for suspending well pipes or tubing or drill rods in a well casing, and has for its principal object the provision of a device that is reasonable in cost of manufacture, that is extremely effective in operation, and that will rigidly clamp and hold a well pipe or tubing or drill rod in fixed relation to the top of the well casing to permit the addition of sections thereto or removal therefrom. Furthermore, the invention is designed to provide a device of the character stated that will speed up the work of well drilling and will as stated rigidly secure the article held and when desired to release the article move quickly to effect the release.

A further object of the invention is the provision of a tool of the character stated for drilling oil and other wells comprising a tapered housing formed of two hingedly engaged sections and provided with means for holding the two sections in assembled relation, a cover for the housing also formed of two sections and provided with interengaging means between the housing and the cover to insure movement of the cover sections simultaneously with the movement of the housing sections, the cover supporting tapered slips engaging the inner walls of the housing and having serrated engaging surfaces to clamp the well pipe or tubing or drill rod, said slips being normally held from engagement by means of springs lifting the cover sections, and means is also provided for lowering the cover sections to move the slips into clamping positions, said means comprising a foot actuated lever pivotally engaging arms depending from the cover sections.

The invention will be described in detail hereinafter and will be found illustrated in the accompanying drawings in which

Figure 1 is a vertical transverse sectional view of the improved tubing and pipe pulling spider showing it applied to a well casing head and a pipe or tube in position,

Figure 2 is a transverse sectional view on a plane indicated by the line 2—2 of Figure 1, and

Figure 3 is a similar view on a plane indicated by the line 3—3 of Figure 1.

In the drawings similar reference characters are used to designate corresponding parts throughout the several views.

In Figure 1 a well casing is shown at A on which is secured a casing head B, C designating a length of pipe or tubing suspended in the well and D a conventional elevator having lifting links E to be engaged by a cable or the like for handling the pipe or tubing C. The spider comprises a housing 1 formed of two sections 2 that are hingedly secured together as shown at 3, said sections having downwardly tapered inner walls 4, and the housing is adapted to receive the pipe or tubing C. 5 indicates an ear on one member 2 having pivotally secured thereto a threaded bolt 6 that engages an ear 7 on the other member 2, said structure forming a clamp to hold the members 2 in assembled position as shown in the drawings.

8 indicates laterally projecting flanges adjacent to the lower ends of the sections 2 that seat on casing head B and are engaged by set screws 9 to hold the housing positioned thereon. 10 indicates mating cover plates for the housing and having flanged openings 11 to receive the pipe or tubing C. 12 indicates depending arms on the cover plates 10 that slidably engage openings 13 in flanges 14, and openings 15 in flanges 16, 17 indicating expansible coil springs terminally engaging the under sides of the cover sections 10 and the flanges 14, the function of said springs 17 being to hold the cover sections 10 normally remote from the top of the housing 1. It will also be apparent that engagement of the arms 12 with the flanges 14 and 16, that form guides therefor, provide for movement of the cover sections 10 simultaneously with the movement of the housing sections 2. Supported on the cover sections 10 by means of chains or other flexible members 18 and terminally engaging eyelets 18^a secured to said cover sections are slips 19 having eyelets 20 secured to said slips, the rear faces of said slips being inclined as shown at 21 to correspond to the inclination of the inner walls 4 of the housing sections 2, while the outer faces of said slips are provided with teeth or serrations 22 that are adapted to engage the pipe or tubing C to hold the pipe or tubing C suspended in the well casing A. In order to permit the slips 19 to move downward into engaging position with the pipe or tubing C, a foot actuated U-shaped lever is provided and formed in two mating portions 23 that are secured together by means of a bolt or other fastening means 24, said portions forming the U-shaped member being

fulcrumed as shown at 25, 26 indicating ears engaged by the bolts forming the fulcrums 25. The lever portions 23 pivotally engage the lower ends of the arms 12 as shown at 27.

In operation it will be apparent that the springs 17 normally raise the slips 19 by means of the chains 18 so that they do not engage the pipe or tubing C when inserted into the casing A, but when it is desired to hold the pipe or tubing C stationary for the addition of another section of the tube or pipe or for any other purpose, the free end of the U-shaped lever is depressed thereby lowering the cover plates 10 and permitting the slips 19 to lower so that said slips engage the tubing or pipe C as shown in Figure 1 of the drawings. To release the slips from the pipe or tubing C it is necessary only to move the tubing or pipe C upward a short distance and the spring 17 will then react to raise the cover plates 10 and with them the slips into a non-engaging position.

What is claimed is:—

1. A tubing or pipe pulling spider, comprising a tapered tubular housing formed of hingedly engaged sections, means to secure the sections together, said housing being adapted to seat on a well casing head, a sectional cover, depending arms on said cover, flanges on the housing sections having openings slidably receiving said arms, resilient means normally raising the cover relatively to the housing, tapered slips engaging the housing and adapted to engage a rod or tube, flexible elements connecting said cover sections and slips, and means engaging said arms to actuate said cover against the resistance of said resilient means to permit the slips to move by gravity into engaging positions.

2. A tubing or pipe pulling spider, comprising a tapered tubular housing adapted to seat on a well casing head, a cover for said housing having an opening to receive a rod or tube, tapered slips engaging the inner walls of the housing and adapted to engage the rod or tube to clamp it in the housing, flexible elements suspending the slips from the cover, arms depending from the cover, guide flanges on the housing slidably mounting the arms, resilient means engaging said cover and guide flanges to raise the cover and the slips out of engaging position, and a lever fulcrumed on the housing and engaging said arms to move the cover against the resistance of said resilient means and permit the slips to move by gravity into engaging position.

3. A tubing or pipe pulling spider, comprising a tapered tubular housing formed of hingedly engaged sections, means to secure the sections together, flanges on said sections adapted to seat on a well casing head, a sectional cover, depending arms on the cover sections, flanges on said housing sections having openings slidably receiving said arms, expansible coil springs enclosing said arms and terminally engaging the cover and some of the second mentioned flanges to normally raise the cover, tapered slips engaging the walls of the housing and adapted to engage a rod or tube to hold it relatively to the housing, flexible elements connecting said cover sections and slips to suspend them in the housing, said flexible elements being inclined outwardly from the slips, a U-shaped lever pivotally engaging said arms, and ears on said housing sections fulcruming said lever.

In testimony whereof I affix my signature.

BERT H. MORROW.