

April 13, 1948.

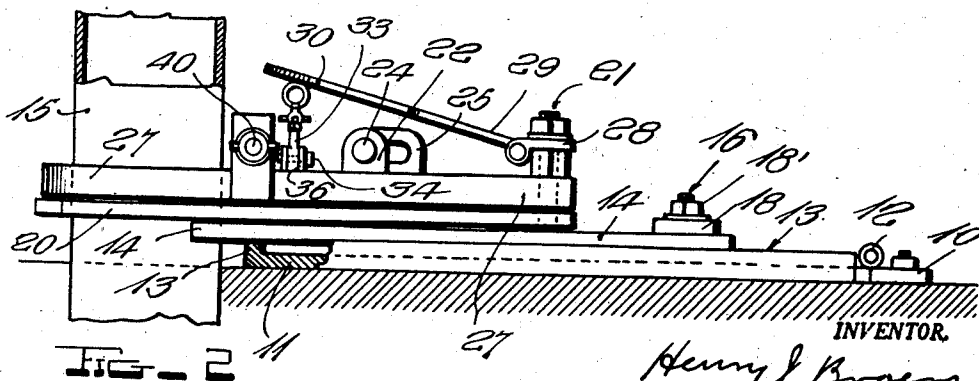
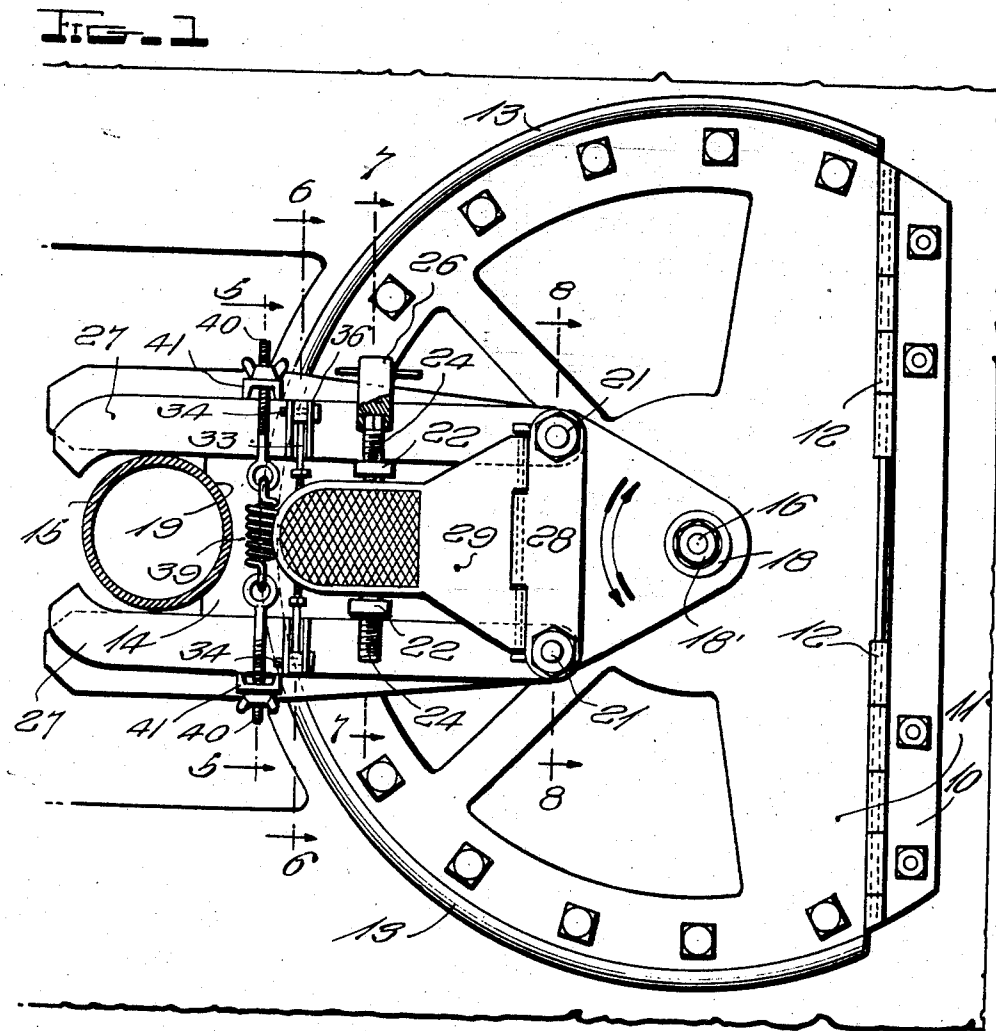
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2,439,714

ATTACHMENT FOR WELL DRILLING DERRICKS

Filed July 12, 1946

3 Sheets-Sheet 1



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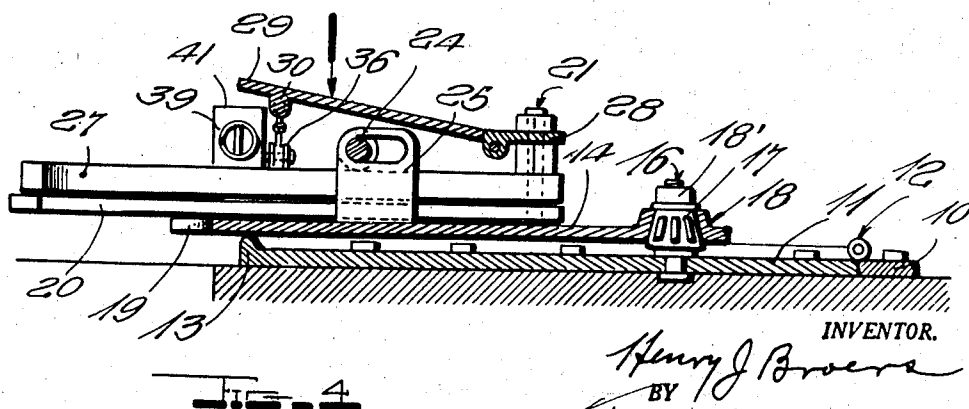
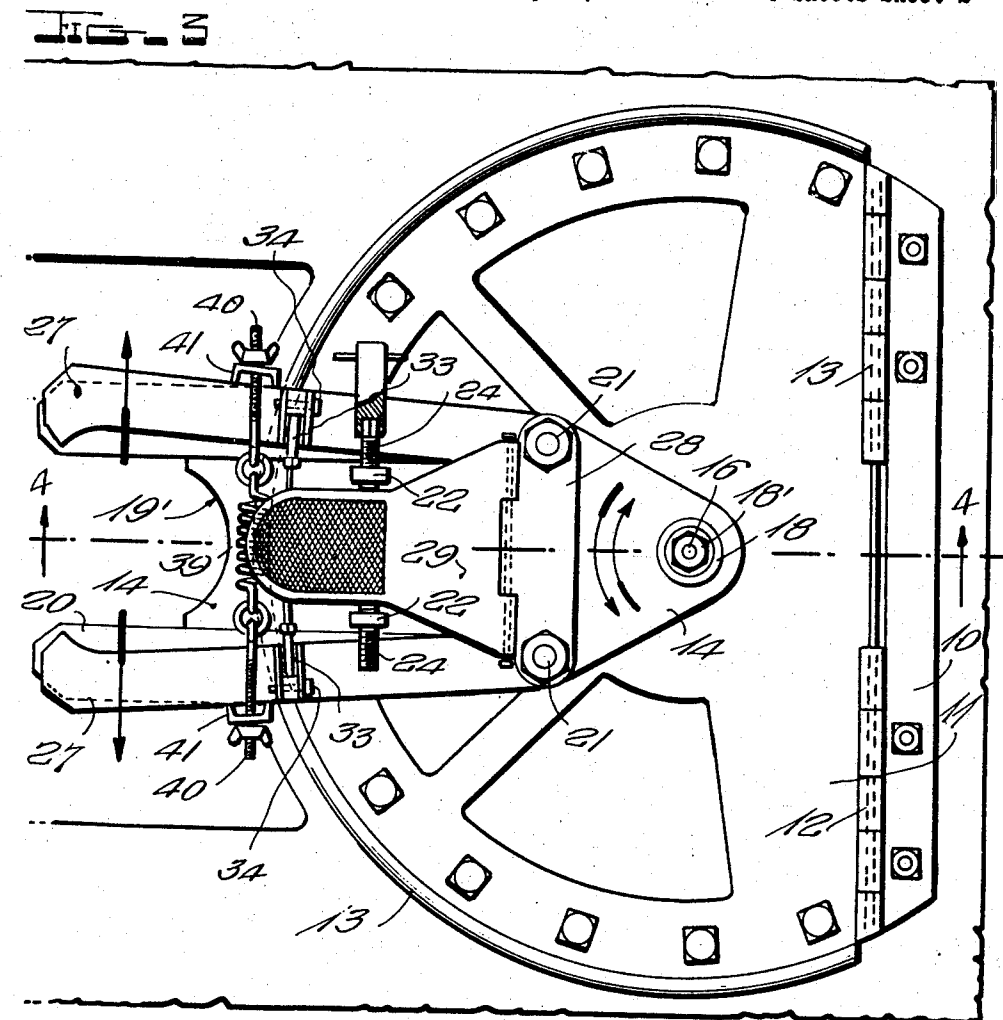
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ATTACHMENT FOR WELL DRILLING DERRICKS

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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

FIG. 5

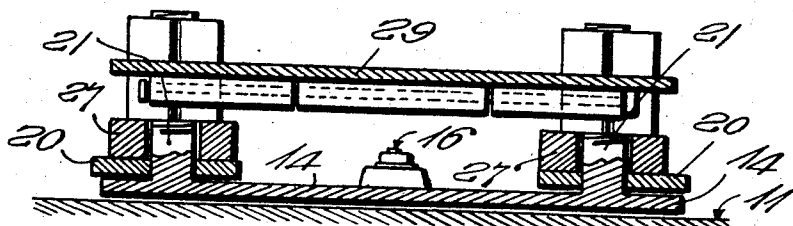
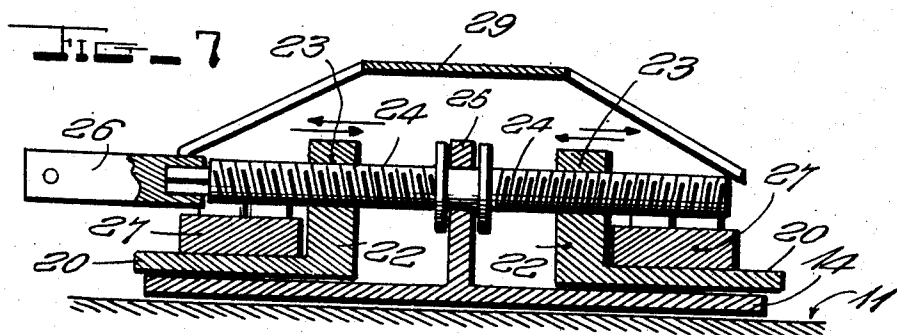
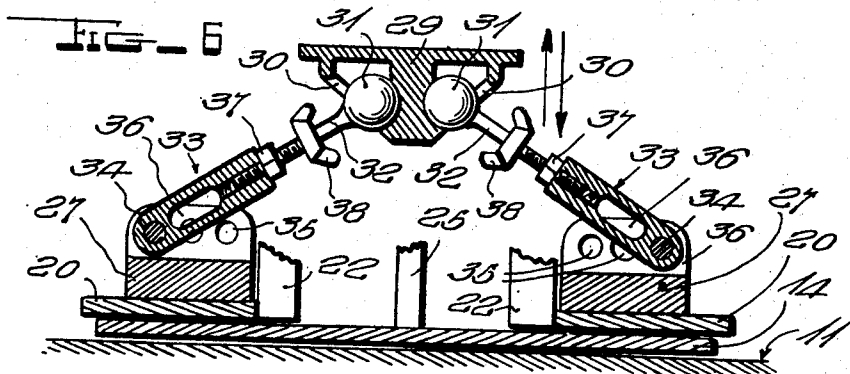
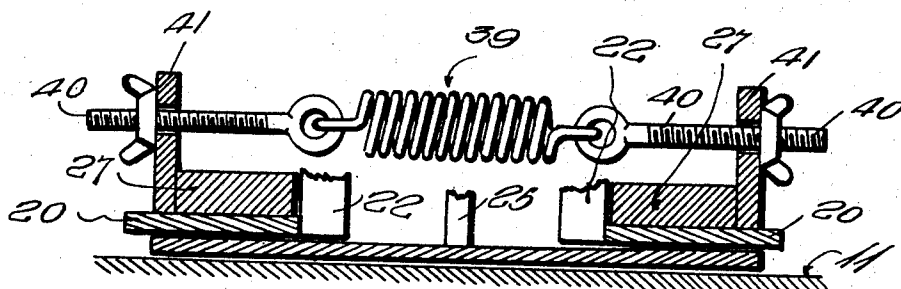


FIG. 8

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UNITED STATES PATENT OFFICE

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ATTACHMENT FOR WELL DRILLING
DERRICKS

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Application July 12, 1946, Serial No. 683,017

6 Claims. (Cl. 214—1)

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This invention relates to attachments for well drilling apparatus, and comprises an attachment for drilling derricks which facilitates the manipulation or transfer of pipes or casings from a lodged position on the derrick to a position in line with the drilling operations or the previously positioned casing section.

It is an object of the invention to provide a structure which may be secured to a well drilling derrick having parts which are turnable with respect to a base plate so that it may swing from side to side for receiving the pipe section which is to be installed, novel means being provided for clamping and frictionally holding the casing while it is moved to a position for installation; novel means being also included for moving the clamping instrumentalities for forcing them into clamping position, and other means being provided for moving them free of the pipe when the clamp operating means is to release the pipe.

It is furthermore an object of the invention to provide a mounting or carrier plate for the said operating instrumentalities which is turnable or oscillatable with respect to a base plate, which base plate is attached or anchored to the derrick; and it is furthermore an object to provide a fixed or stationary stub shaft or journal on which a bearing formed with or carried by the mounting or carrier plate is turnable.

It is furthermore an object to provide means for adjusting the jaws with respect to each other so that they can be made to effectively clamp pipes of different diameters.

It is furthermore an object to provide means by which the base plate may be oscillatively mounted with respect to an anchor plate on the derrick so that said mounting or carrier plate with its jaws and the jaw operating mechanism may be swung upwardly clear of operations that may occur on the derrick.

It is a further object of the invention to provide a mechanism of the character indicated which may be readily installed or removed, and the parts of which are strong, durable and effective.

With the foregoing and other objects in view, the invention consists in the details of construction, and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this application, wherein like characters denote corresponding parts in the several views, and in which:

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Figure 1 illustrates a plan view of the apparatus with a pipe in section;

Figure 2 illustrates a view in side elevation, in which the pipe and a portion of the base is in section;

Figure 3 illustrates a plan view of the apparatus in a different position of adjustment as compared with that shown in Fig. 1;

Figure 4 illustrates a sectional view on the line 4—4 of Fig. 3;

Figure 5 illustrates a sectional view on the line 5—5 of Fig. 1;

Figure 6 illustrates a sectional view on the line 6—6 of Fig. 1;

Figure 7 illustrates a sectional view on the line 7—7 of Fig. 1; and

Figure 8 illustrates a sectional view on the line 8—8 of Fig. 1.

In these drawings 10 denotes an anchor plate which is bolted or otherwise fixed on the derrick, and 11 is a base plate hinged to the anchor plate by the hinge members, generally identified by the numeral 12, and the base plate may swing upwardly and rearwardly so that the derrick may be cleared for actions other than those of transferring the pipes and placing them. The base plate has a peripheral flange 13 on which a carrier plate 14 rides as it oscillates or turns on an approximately horizontal plane while carrying and placing pipes such as 15, as will presently appear. A stub shaft or journal 16 is anchored to the base plate and it has anti-friction rollers 17, which rollers are engaged by a half bearing 18 formed at the inner end of the carrier plate 14 and held in place by a nut 18' threaded on the upper end of the stub shaft. The outer end of the carrier plate 14 is concave or inwardly curved, as at 19, to the general contour of the external surface of a pipe to be carried, and arms 20 have their inner ends pivotally mounted on studs, such as 21, having their lower ends anchored to the carrier plate. The arms 20 have lugs, such as 22, attached to them, as by welding or the like, and each lug has a threaded aperture 23, the threads of which are of the right and left hand type, for engaging similar threads on a screw 24, which screw is rotatably mounted in a yoke or stud 25 on the carrier plate, it being shown that the screw has a flange on each side of the yoke for holding the screw against axial movement. The threads of the screw are illustrated in detail, Figure 7, and the purpose of the screw and the threaded lugs is to permit an adjustment of the arms 20 so that the space between the arms will accommodate pipes of dif-

ferent diameters. A wrench 26 is removably applied to an end of the screw so that it can be turned to adjust the said arms.

Clamping jaws, such as 27, coact to embrace and clamp the pipe 15, and the inner ends of the jaws are also pivoted on the studs 21 so that the said studs act as mountings for the arms and the clamps, and they also act as a support for the cross plate 28 to which a pedal 29 is hinged.

The under surface of the pedal 29 has bearings, such as 30, in each of which a ball, such as 31, is partially rotatable, and each ball is integral with a threaded shank or rod 32, the threads of which engage the threaded apertures of a link 33, and each link is oscillatably mounted on a pin or bolt 34, adjustable in apertures 35 in spaced flanges 36, pairs of which are carried by each jaw 27 so that when the pedal is depressed by foot pressure or the like, the jaws are forced apart for the reception between them of a pipe 15. As shown in Fig. 6, the throw of the jaws by the operation of the pedal may be increased or diminished by the adjustment of the threaded rods 32 in the links 33, and the parts are held at their adjusted positions by jamb nuts 37 and the wing nuts 38.

The jaws are retracted or drawn together by a spring 39, the ends of which are connected to eye-bolts, such as 40, each of which projects through a flange or ear 41 attached to a jaw 27 so that when the carrier plate is turned to the right or left, it may bring the jaws into position to receive a pipe when said jaws are opened by operating the pedal, and when the pedal is released, the spring and its accompanying parts are operative to bring the jaws into clamping relation with the pipe, and therefore, the pipe may be carried or transferred to the line of installation in the well, and by pressure on the pedal, the jaws will release the pipe.

I claim:

1. An attachment for drilling derricks comprising a suitably mounted base, a stub shaft anchored to the base and projecting thereabove, a carrier plate turnably mounted on the stub shaft, spaced studs having their ends secured in the carrier plate, arms pivotally mounted on the said studs and projecting beyond the edge of the base, clamping jaws pivoted on said studs above the arms, means for adjusting the arms with relation to each other for varying the space between them, means for drawing the jaws into clamping contact with a pipe, and means for forcing the jaws apart.

2. An attachment for drilling derricks comprising a suitably mounted base, a stub shaft anchored to the base and projecting thereabove, a carrier plate turnably mounted on the stub shaft, spaced studs having their ends secured in the carrier plate, arms pivotally mounted on the said studs and projecting beyond the edge of the base, clamping jaws pivoted on said studs above the arms, means for adjusting the arms with relation to each other for varying the space between them, means for drawing the jaws into clamping contact with a pipe, said means com-

prising apertured members attached to the jaws, eye-bolts, one of which extends through each of the members, means for adjustably holding the bolts in operative positions, and a spring interposed between and attached to the eye-bolts whereby the tension of the spring holds the jaws in clamping engagement with a pipe, and means for forcing the jaws apart.

3. A pipe transferring mechanism comprising a suitably mounted base, a carrier plate turnably mounted on the base, arms pivotally mounted on the carrier plate in spaced relation to each other, said arms projecting beyond the carrier plate, means for moving the arms toward and away from each other, clamping jaws pivotally mounted on the carrier plate, means for drawing the clamping jaws together for frictionally clamping and holding a pipe between them, and means for moving the jaws against the action of the last mentioned means.

4. A pipe transferring mechanism comprising a suitably mounted base, a carrier plate turnably mounted on the base, arms pivotally mounted on the carrier plate in spaced relation to each other, said arms projecting beyond the carrier plate, means for moving the arms toward and away from each other, clamping jaws pivotally mounted on the carrier plate, means for drawing the clamping jaws together for frictionally clamping and holding a pipe between them, said means comprising members stationary with the jaws, eye-bolts adjustable in the last mentioned means, and a spring connecting the eye-bolts for operating the jaws into engagement with the pipe, and means for moving the jaws against the action of the last mentioned means.

5. A pipe transferring mechanism comprising a suitably mounted base, a carrier plate turnably mounted on the base, arms pivotally mounted on the carrier plate in spaced relation to each other, said arms projecting beyond the carrier plate, means for moving the arms toward and away from each other, clamping jaws pivotally mounted on the carrier plate, means for drawing the clamping jaws together for frictionally clamping and holding a pipe between them, and means for moving the jaws against the action of the last mentioned means, including a hinged pedal, bearings on the under side of the pedal, threaded rods each having a ball turnable in one of the bearings, a link connected to each rod, and means for connecting each of the links to one of the jaws whereby downward movement of the pedal spreads the said jaws.

6. An attachment for transferring pipe, a suitably mounted base, a carrier plate turnably mounted on the base, spaced arms pivotally mounted above the base and projecting beyond the edge of the base, clamping jaws pivotally mounted above the said arms, means for adjusting the arms with relation to each other for varying the space between them, means for drawing the jaws into clamping contact with a pipe between the arms, and means for forcing the jaws apart.

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