

March 1, 1955

D. C. CORN

2,703,178

WELL CASING RACK

Filed Oct. 31, 1950

3 Sheets-Sheet 1

Fig. 1.

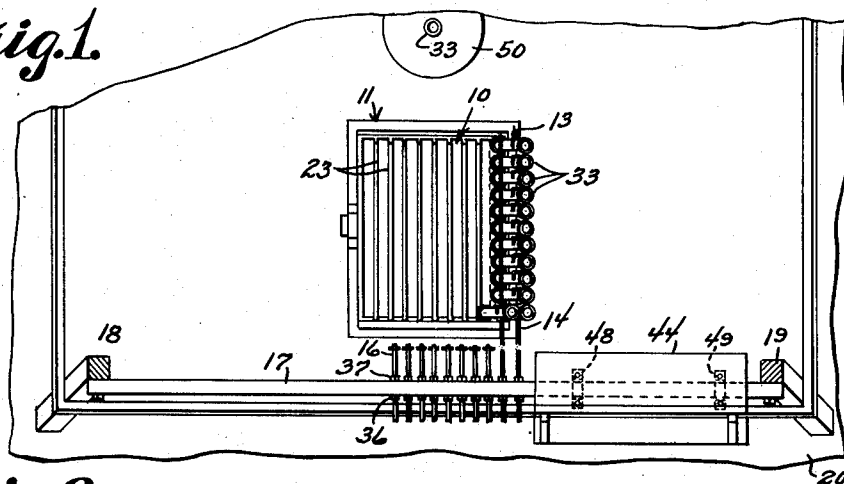
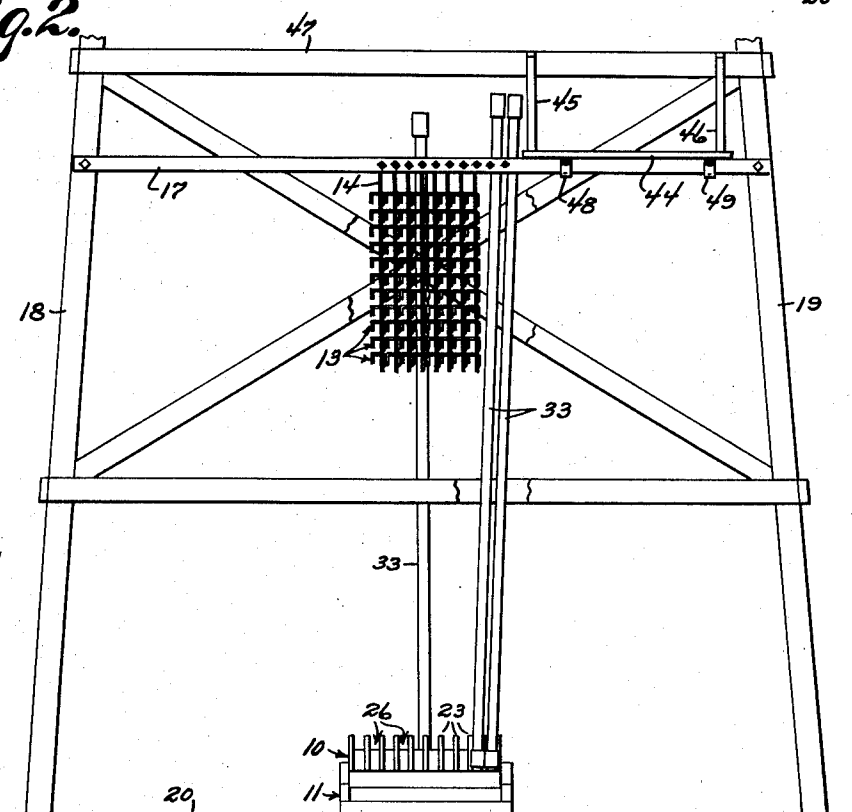


Fig. 2.



INVENTOR.

David C. Corn

BY *Victor J. Evans & Co.*

ATTORNEYS

March 1, 1955

D. C. CORN
WELL CASING RACK

2,703,178

Filed Oct. 31, 1950

3 Sheets-Sheet 2

Fig. 3.

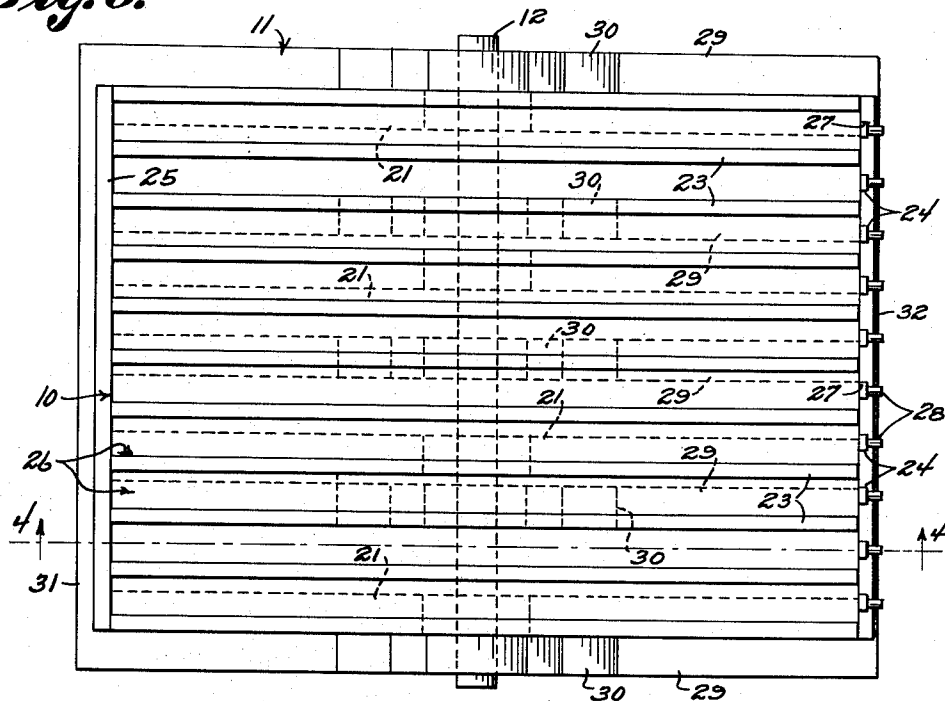
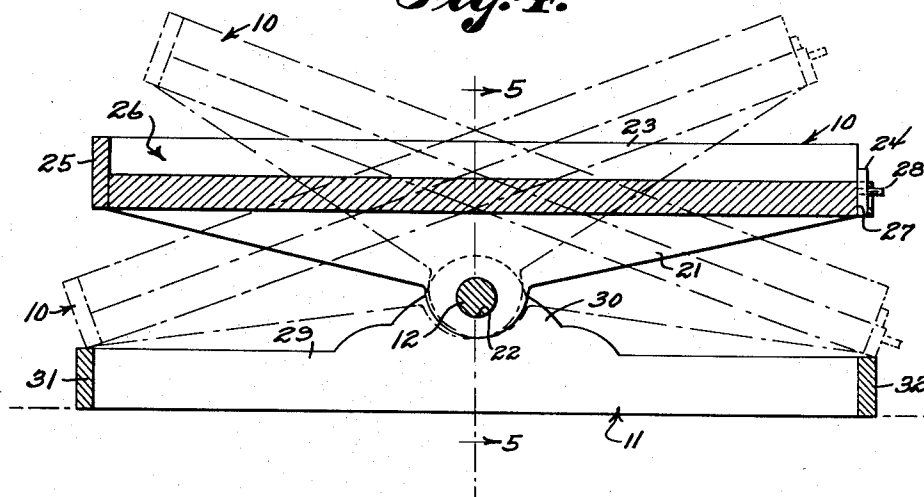


Fig. 4.



INVENTOR.

David C. Corn

BY *Victor J. Evans & Co.*

ATTORNEYS

March 1, 1955

D. C. CORN
WELL CASING RACK

2,703,178

Filed Oct. 31, 1950

3 Sheets-Sheet 3

Fig. 5.

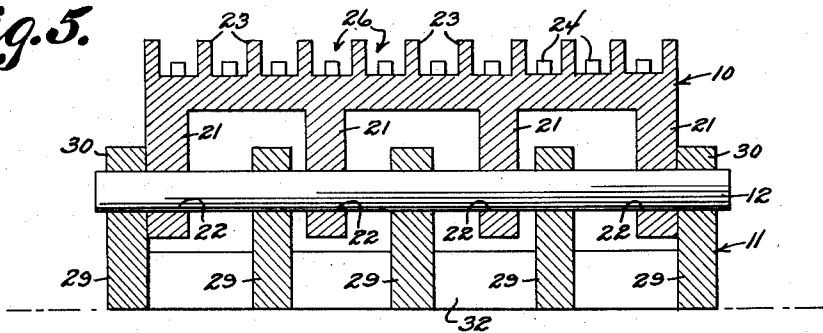


Fig. 6.

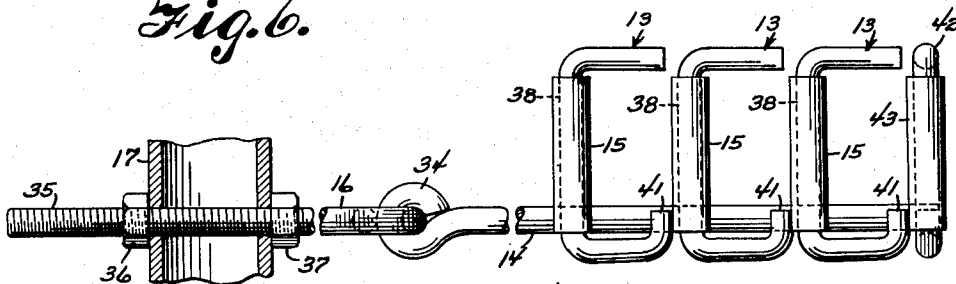


Fig. 7.

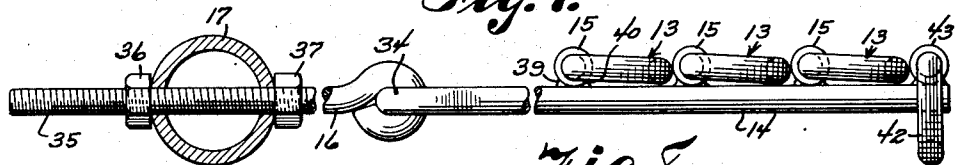
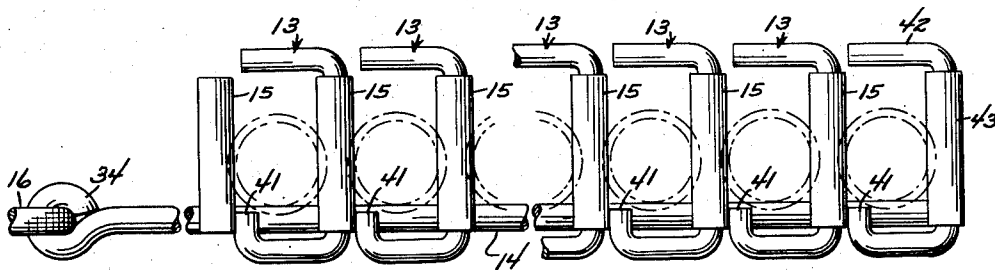


Fig. 8.



INVENTOR.

David C. Corn

BY *Victor J. Evans & Co.*

ATTORNEYS

1

2,703,178

WELL CASING RACK

David C. Corn, Casper, Wyo.

Application October 31, 1950, Serial No. 193,271

1 Claim. (Cl. 211—60)

This invention relates to derricks used for drilling wells for oil, water and the like and in particular a rack for retaining pipe sections of well casings in which the pipe sections may be retained in one side of the derrick as they are withdrawn from a well whereby they are conveniently located for reuse.

The purpose of this invention is to provide means whereby pipe sections of well casings may be supported on end in derrick frames instead of being piled in horizontal positions on the outside of the derrick.

In withdrawing well casings the sections are separated, carried through the derrick frames and piled against the outside of the frames. By this means considerable time is lost in removing and replacing pipes and as these pipe sections are from 30 to 90 feet in length the time required to move a section from one position to another and also the labor cost is excessive. With this thought in mind this invention contemplates a pipe rack positioned within the frame work of a derrick with a grooved tilting platform positioned to receive the lower ends of the pipes and hooks for holding the upper ends of the pipes wherein after the pipes are positioned upon the platform and the drill collars also placed thereon weight causes the platform to tilt over the center whereby the lower ends of the pipes slide to a position from which they are conveniently placed upon the rotary table at the opposite side of the rotary chain driving means of the well drilling rig whereby they are conveniently positioned for use.

The object of this invention is, therefore, to provide pipe supporting means within the frame work of a well derrick whereby the pipe sections are stood on end and positioned for reuse.

Another object of the invention is to provide means for vertically supporting well casing sections in a derrick frame work whereby the sections are fed to a position from which they may readily be taken for reuse.

A further object of the invention is to provide a well casing supporting rack for supporting pipes in a well derrick frame-work which is of a comparatively simple and economical construction.

With these and other objects and advantages in view the invention embodies a pivotally mounted grooved platform positioned upon the platform of a derrick with rows of hooks carried by rods mounted in the upper part of the derrick for supporting the upper ends of well casings positioned on the platform.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings wherein:

Figure 1 is a sectional plan through a derrick illustrating the relative positions of the tilting platform, hooks and monkey board which supports an operator for inserting the well sections in the hooks.

Figure 2 is an elevational view showing the lower part of a derrick also illustrating the tilting platform and hooks and showing pipes positioned on the platform and retained in position by the hooks.

Figure 3 is a plan view on an enlarged scale showing the tilting platform.

Figure 4 is a cross section through the tilting platform taken on line 4—4 of Figure 3.

Figure 5 is also a cross section through the tilting platform and mounting shaft therefor, taken on line 5—5 of Figure 4.

Figure 6 is a detail showing a plan view of one of the hook retaining rods, showing some of the hooks in hori-

2

zontal positions and showing a hook at the end in a vertical position.

Figure 7 is a side elevational view of the hook assembly shown in Figure 6.

Figure 8 is also a plan view of the hook assembly, as shown in Figure 6, showing the hooks turned over to the pipe holding positions, and in which parts are broken away.

Referring now to the drawings wherein like reference characters denote corresponding parts the well casing pipe rack of this invention includes a tilting platform 10 pivotally mounted in a base 11 by a pin 12 with a plurality of hooks 13 pivotally mounted on rods 14 by sleeves 15, and screw eyes 16 by which the rods and hooks are supported in a cross bar 17 between legs 18 and 19 of a derrick having a platform 20.

The tilting platform 10 is formed with downwardly extended flanges 21 having openings 22 therein through which the pin 12 extends and the upper surface is provided with spaced ribs 23 with latches 24 positioned between the ribs.

One end of the platform is provided with a continuous bar 25 that closes the ends of grooves 26 between the ribs and at the opposite end, where the ends of the grooves are open the latches 24 which are slidably mounted in sockets 27 retain the pipe sections in the grooves until the latches are moved downwardly by buttons or pins 28.

The base frame 11 is formed with longitudinally disposed beams 29 having upwardly extended sections 30 in which the pin 12 is journaled and the ends of the beams are connected by transversely disposed bars 31 and 32.

The tilting platform with the supporting frame 11 is positioned on the platform 20 of the derrick as illustrated in Figures 1 and 2 and well sections or pipes 33 are stood upwardly with the lower ends in the grooves 26 of the platform and with the upper ends held in position by the hooks 13 on the rods 14.

Eyes 34 at the ends of the rods 14 are freely held in the screw eyes 16 with the threaded shanks 35 of the screw eyes extended through the cross bar 17 and secured in position by nuts 36 and 37.

As illustrated in Figures 6, 7 and 8 the hooks 13 are substantially U-shaped, having outwardly extended arms connected by a base section 38 and the base section is pivotally mounted in one of the sleeves 15. The ends of the sleeves 15 are secured, preferably by welding at the points 39 and 40 to the bars 14 and the arms of the hooks extended from the ends of the sleeves mounted on the bars 14 are provided with extensions 41 that rest upon the upper surfaces of the bars 14 to retain the hooks in position.

The hooks may be positioned as illustrated in Figure 6 or may be turned over to the position shown in Figure 8 and hooks 42 at the ends, which are pivotally mounted in sleeves 43 may hang vertically downwardly as shown in Figures 6 and 7.

With the parts arranged in this manner and with the tilting platform and hooks positioned as illustrated in Figures 1 and 2 pipe sections of the well casing, while remaining in upright positions, are placed with the lower ends in the grooves of the tilting platform 10 and an operator on a monkey board 44 suspended by hooks 45 and 46 from a cross member 47 of the derrick frame and held in position by clamps 48 and 49, secures the upper ends of the pipe sections in the hooks 13 whereby the rods on which the hooks are positioned, which extend downwardly in the free positions as shown in Figure 2, extend substantially horizontally as shown in Figure 1.

With the lower ends of the pipes positioned in the tilting platform and the upper ends supported by the hooks and rods the pipe sections remain in this position until the drill collars, which are heavier than the pipe sections are placed upon the rack and the weight of the collars overbalances the platform so that the rods slide downwardly toward the rotary table, as indicated by the numeral 50 whereby the pipe sections are conveniently positioned for replacement in the well casing.

It will be understood that hooks of any suitable type or design may be used and the hooks may be supported by suitable means. The drill collars are of conventional construction and are normally attached to the ends of

3

the pipe sections 33 in any suitable manner, as for example by a threaded connection. These drill collars are adapted to be selectively used as weights so that by removing the drill collars from the pipe sections 33 and positioning these drill collars at different places on the platform, the platform 10 will be caused to tilt to a desired position. Since the platform 10 can tilt about an axis extending through the pin 12, the pipe sections 33 resting on the platform 10 can be readily shifted within the derrick with a minimum of expenditure of labor and cost.

It will also be understood that other modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

In a well casing section rack the combination which comprises a racking means for holding the upper ends of pipe sections, a derrick platform, a rectangular shaped base positioned on the platform, a tilting platform for supporting the lower ends of the pipe sections pivotally mounted on said base so that said platform is tiltable along an axis intermediate its ends, said tilting platform having longitudinally disposed grooves in the upper sur-

4

face thereof, longitudinally extending ribs on the platform defining said grooves, means closing the ends of the grooves of the tilting platform at one end thereof, and latches positioned in the ends of the grooves at the opposite end of the tilting platform.

References Cited in the file of this patent

UNITED STATES PATENTS

1,595,652	Fritts -----	Aug. 10, 1926
1,705,237	Bulman -----	Mar. 12, 1929
1,750,798	Gidley -----	Mar. 18, 1930
1,826,055	Cornwall -----	Oct. 6, 1931
1,971,609	Harrah -----	Aug. 28, 1934
2,086,417	Hunts et al. -----	July 6, 1937
2,172,860	Weaver -----	Sept. 12, 1939
2,148,058	Clark -----	Feb. 21, 1939
2,167,584	Morne -----	July 25, 1939
2,235,265	Shope -----	Mar. 18, 1941
2,389,045	Haddock et al. -----	Nov. 13, 1945
2,488,664	Gruber -----	Nov. 22, 1949