May 15, 1928.

1,670,231

C. H. BESSE

WELL DRILLING RIG

Filed Sept. 18, 1926

2 Sheets-Sheet 1

Fig. 1.

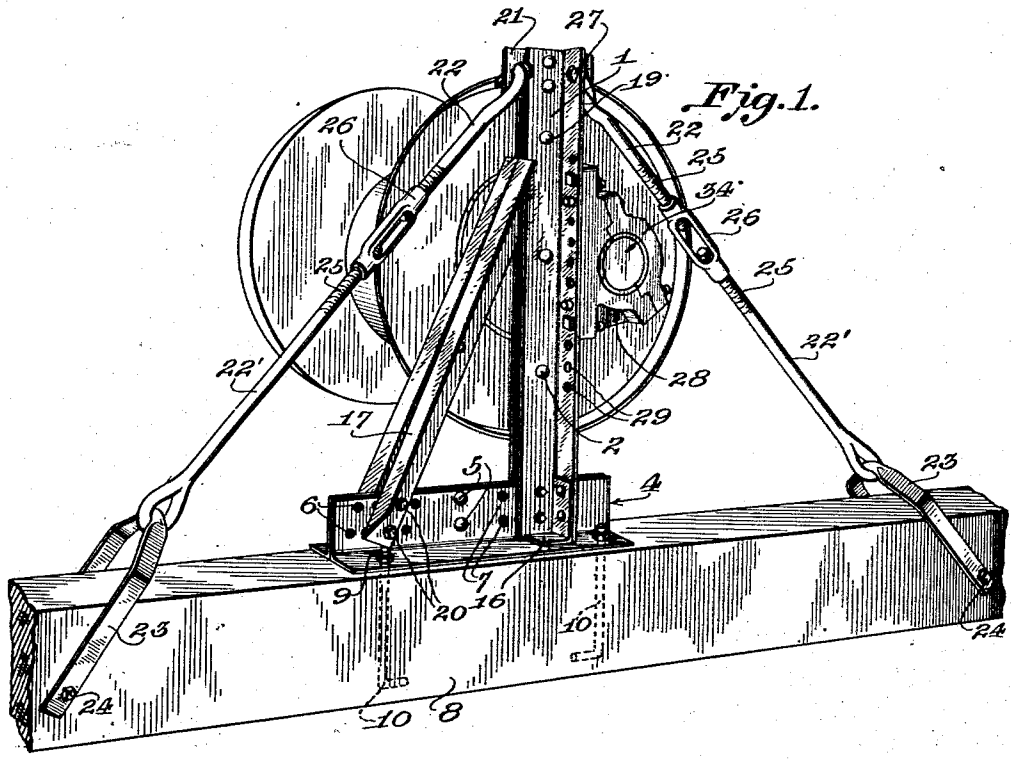


Fig. 6.

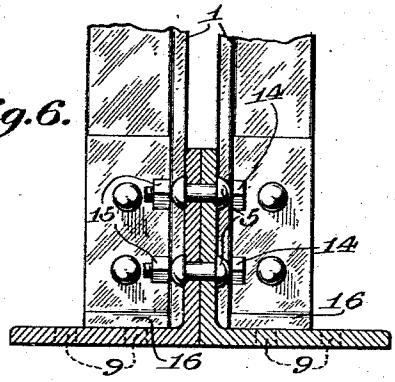
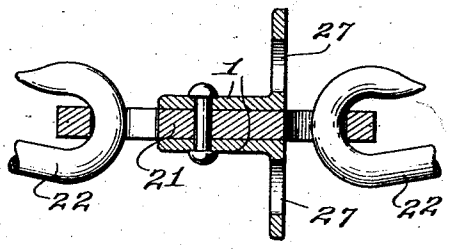


Fig. 5.



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2 Sheets-Sheet 2

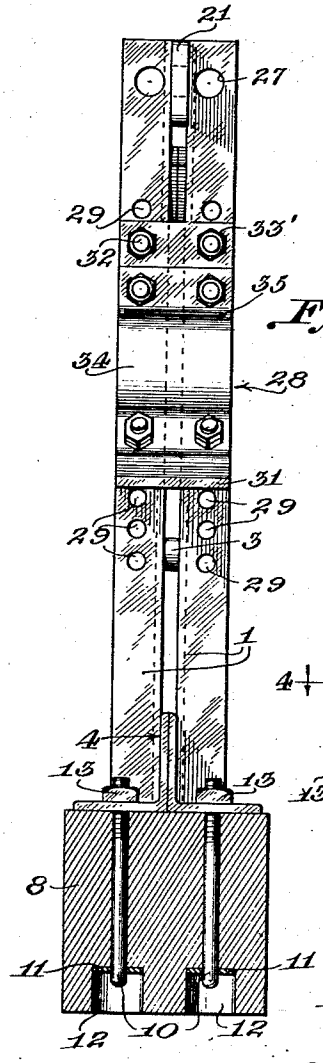


Fig. 3.

Fig. 2.

Fig. 4.

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UNITED STATES PATENT OFFICE.

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WELL-DRILLING RIG.

Application filed September 18, 1926. Serial No. 136,334.

This invention relates to improvements in well drilling rigs, having for an object to provide rigs of this character with a novel and advantageous form of tail post adapted for use in conjunction with that type of swing lever illustrated and described in my copending application for patent Serial Number 112,110, to support the usual sand reel of a well drilling rig, permitting of a multiplicity of vertical adjustments of the reel shaft bearing thereupon to correspond to similar adjustments of the bearing for the opposite end of said shaft carried upon the swing lever.

It is also an object of the invention to provide a tail post utilizing a novelly constructed base plate, having means thereon to permit of adjustment of the tail post proper and its brace longitudinally of the same and also, having means which will permit of side or lateral adjustment, either toward or from the sand reel and its shaft.

It is also among the aims and objects of the invention to provide a tail post of such construction as will increase the efficiency of a rig equipped therewith and which, by reason of its rigid, rugged and durable construction, will lessen the incident operation costs in that the same will be of materially greater lasting character and further, will allow of a complete salvaging and hence permit its usage upon a great number of well drilling operations with but minimum repairs and replacements.

Other objects of the invention will be in part obvious and in part pointed out hereinafter.

In order that the invention and its mode of operation may be readily understood by those skilled in the art to which it appertains, I have in the accompanying drawing and in the detailed following description based thereupon, set out one possible embodiment of the invention.

In these drawings:

Figure 1 is a perspective of the improved tail post showing the same in operative position upon a sill timber of a rig bed, a portion of a sand reel being shown mounted in the bearing thereupon,

Figure 2 is a side elevation of the improved post,

Figure 3 is a similar view taken at substantially right angles to the Figure 2 and illustrating the base plate connected to the adjacent sill timber of the rig bed,

Figure 4 is a horizontal section taken on the line 4—4 of the Figure 2 looking in the direction in which the arrows point,

Figure 5 is a similar section taken on the line 5—5 of Figure 2 looking in the direction in which the arrows point, and

Figure 6 is a vertical fragmentary section taken on the line 6—6 of Figure 2 looking in the direction in which the arrows point.

Having more particular reference to the drawings, in connection with which like characters of reference will designate corresponding parts throughout, the improved tail post may be stated to comprise a supporting element or post proper including relatively opposed angle metal bars 1, the adjacent portions of which are adapted to be rigidly interconnected through the medium of rivets or other suitable fastening devices 2, the intermediate portions of which carry metal fillers 3 arranged between the spaced and adjacent portions of said bars 1 whereby the same will be rigidly retained in relatively spaced positions as is clearly indicated in the Figures 1 and 3.

A base plate consisting of complementally formed or shaped metal angle bars is provided for the post proper, the same being indicated in its entirety at this time by the numeral 4. The angle bars making up this base plate 4 are rigidly interconnected in juxtaposed relation, after the manner as shown in the Figures 3 and 4 through the medium of rivets or similar fastening devices 5, the vertical portions of said bars of the base plate having a plurality of pairs of openings 6 and 7 formed therein, the openings 6 being slightly inclined in their relative disposition as respects the vertical axis of the plate whereas the openings 7 are in true perpendicular alignment, the purpose of which will be subsequently described.

To permit of positive and firm securing of the base plate 4 to an adjacent sill timber of an equipped rig bed, indicated for convenience at this time by the numeral 8, a plurality of pairs of openings 9 are formed in the horizontal or lower portions of said

base plate 4 and are adapted to receive anchor bolts 10 therethrough, the lower portions of such anchor bolts being extended through openings in appropriate portions of said sill timber 8 and engaged with suitable bearing plates 11 countersunk in openings 12 in the lower side of said timber, as is shown in the Figure 3; the upper screw threaded extremities of said anchor bolts being passed through certain of the pairs of the openings 9 and then engaged by locking nuts or similar devices 13, thus firmly and rigidly connecting the said base plate 4 to the upper surface of the sill timber 8. Because of the disposition of the pairs of openings 9 in the horizontal portions of the base plate 4, it will be understood that lateral or side adjustment of said base plate either toward or from the sand reel to be supported thereupon will be permitted.

The tail post proper 1 is adapted to be received upon and rigidly connected to the base plate 4 and to accomplish this, it will be understood that the lower portions of the angle bars making up such tail post proper are overlappingly engaged with the vertical portion of the base plate 4, that is, the lower portion of the tail post proper 1 straddles said vertical portion of the base plate in the fashion as shown in the Figures 1, 3 and 6; this being permitted by reason of the rigid interconnection of the angle bars of the tail post proper 1 through the medium of the rivets 2 and the metal fillers 3 carried upon the intermediate portions of the same.

Those portions of the tail post proper parallel to the vertical portion of the base plate 4 are formed with aligned openings adapted to receive superposed connecting bolts 14 therethrough, the intermediate portions of said bolts passing through the adjacent perpendicularly disposed openings 7, aforesaid, whereupon locking nuts 15 are turned into engagement with their respective screw threaded extremities and, obviously, afford means for effecting a practical and rigid connection of the tail post proper to the base plate 4. To further rigidify or stabilize the arrangement of the tail post proper 1 with respect to the base plate 4, angle brackets designated by the numeral 16 are riveted or otherwise fixedly connected to the lower extremities of those portions of the angle bars making up the tail post 1 and disposed at substantially right angles to the vertical portions of the base plate 4, the angular extremities of these plates 16 flushly resting upon adjacent portions of the horizontal parts of said base plate 4 and thus affording effectual feet for said lower extremity of the tail post proper 1.

That the tail post proper 1 may be effectually braced in its positioning with respect to the base plate 4, whereby to increase rigidity of the construction and to bring about proper mounting of the sand reel of the well rig equipment thereupon, a brace bar designated in its entirety by the numeral 17 is provided, said brace bar being composed of complementally formed angle bars having their intermediate portions rigidly interconnected through the medium of a rivet or a multiplicity of rivets such as indicated by the numeral 18, the intermediate portion of said rivet or rivets 18 having metal fillers (not shown) thereupon whereby to bring about a rigid relative spacing of the adjacent and parallel portions of said angle bars. The upper end of the brace bar 17 is provided with an extension shown in the Figure 2 and designated by the numeral 18', such extension being snugly received between adjacent portions of the angle bars of the tail post proper 1, whereupon it is fixedly secured or connected to the same through the medium of a rivet or other suitable fastening device 19; the lower portion of the brace bar having straddling engagement with the adjacent vertical portion of the base plate 4 after the fashion shown in the Figures 1 and 2, whereupon connecting bolts 20 are passed through appropriately formed openings in the same and through the adjacent pair of openings 6 in said vertical portion of the base plate 4, following which suitable locking nuts or similar devices are turned into engagement with their screw threaded extremities whereby to render the connection between the base plate 4 and the lower portion of said brace 17 rigid and positive.

To further brace and rigidify the tail post with respect to the sill timber 8 receiving the same, I may and preferably do fixedly mount in the upper portion thereof a bracket plate 21, forming openings in the opposite extremities of said plate and engaging the hooked ends of rods 22 in the same; these rods being arranged in diagonally opposed relation as is shown in the Figures 1 and 2 and in substantially parallelism to the sill timber 8, while other rods 22' are loosely connected to strap brackets 23 connected to portions of the sill timber 8 as at 24 and have their free extremities screw threaded as at 25 whereby to receive turnbuckles 26 thereupon, the opposite ends of said turnbuckles being engaged with screw threaded adjacent portions of the hooked rods 22. Thus, it will be understood that the usual turnbuckle braces are provided upon the opposite sides of the tail post construction and that by adjusting turnbuckles 26 thereof, the tension upon said opposite sides of the tail post may be varied and consequently upon this, the construction may be absolutely braced and rigidified to the desired nicety.

Also, if desired, openings as indicated by the numeral 27 may be formed in portions of the upper ends of tail posts constructed

in accordance with the invention and these openings may be engaged by other suitable bracing devices or means, such as conditions or preference may dictate.

With a view toward providing the tail post construction with means for receiving and permitting of vertical adjustment of a bearing box indicated in its entirety by the numeral 28, I form in those opposed portions of the angle bars making up the tail post proper 1 and arranged at substantially right angles to the vertical portion of the base plate 4 a plurality of series of equispaced openings generally indicated by the numeral 29, the openings of said several series being arranged in relative horizontal alignment as is shown in the Figure 3 and being adapted to receive dowel pins 30 integral with or fixedly connected to the base section 31 of the bearing box 28, as shown in the Figures 1 and 2; likewise, to receive connecting or securing bolts 32 therethrough, these bolts, in turn, having their shank portions passed through suitable openings formed in extensions 31′ of the bearing box base section 31, whereupon opposed locking nuts 33 are engaged with the same to effect a positive connection of the bearing box 28 to the tail post 1 and likewise, to prevent any lateral movement or vibration of said bearing box with respect to the adjacent portion of the tail post.

It is preferable, as I have described in my copending application for Letters Patent, Serial Number 112,110 that the cap section 34 of the bearing box 28 be provided with an oil pocket or opening 35 in order that an effectual supply of lubricant may be delivered to the babbitt linings of said box.

In usage of my improved tail post, the base plate 4 thereof is properly adjusted upon the upper face of the sill timber 8 whereupon the anchor bolts 10 are passed through the adjacent openings 9 in the horizontal portions of said base plate and secured in the sill timber in the manner hereinbefore stated. Obviously, by reason of the formation of pairs of openings 9 in these horizontal portions of the base plate 4, said plate may be adjusted sideways or laterally, that is, toward or from the sand reel R supported by the tail post 1. Following adjustment and securing of the base plate 4 upon the sill timber 8, the tail post proper and its brace 17 may be then adjusted to the proper position upon the vertical portion of said base plate 4 by sliding the lower portion of said tail post proper and said brace 17 longitudinally there along until the proper positioning has been attained, whereupon the securing bolts 14 and 20 in the lower portions of these particular elements are passed through the adjacent openings 6 and 7 and then fixedly secured. Thus, it will be seen that lateral and longitudinal adjustment of the tail post construction with respect to the sand reel R, will have been secured.

The bearing box 28 may be readily adjusted vertically with respect to the tail post proper by removing the securing bolts 32 and the dowel pins 30 from the openings 29 and re-engaging the same with those openings of the several series whereat the bearing box will be supported in the proper plane or position, following re-introduction of the dowel pins 30 into the proper openings 29 with re-engagement of the locking bolts 32 in those openings adjacent to the openings in the extensions 31′ of the base section 31. By reason of the vertical adjustability of the bearing box 28 upon the tail post, it will be appreciated that the same may be positioned to accurately correspond to the vertical positioning of the bearing box supporting the opposite end of the sand reel shaft upon the usual swing lever construction of the rig.

Manifestly, the construction shown is capable of considerable modification and such modification as is within the scope of my claims, I consider within the spirit of my invention.

I claim:

1. A tail post comprising a vertical body portion, a base plate, a vertically disposed web arranged longitudinally of said base plate, the lower end of the body portion slidably straddling said web, the web having pairs of openings formed therein, fastening means passed through the lower end of said body portion and through certain of said openings, an angular brace fixedly connected at its upper end to the upper portion of the body portion and having its lower end slidably straddling said web, and other fastening means passing through said lower end of the brace and through others of said openings in the web.

2. A tail post comprising a vertical body portion, a base plate, a vertical longitudinally extending web on said base plate, the lower end of said body portion slidably straddling said web, a diagonal brace fixedly connected at its upper end to the upper portion of said body portion and the lower end of said brace slidably straddling said web, means for connecting the lower ends of said body portion and said brace to adjacent portions of said web, a horizontal bracket plate carried upon the upper extremity of said body portion, opposed adjustable braces connected to said plate, and a bearing carried on the body portion.

3. A tail post comprising a body portion composed of rigidly interconnected and relatively spaced angle bars, a base plate composed of rigidly interconnected angle bars, the lower end of said body portion slidably straddling the vertical web of said brace

plate, means for adjustably connecting said lower end of the body portion to said web of the base plate, a diagonal brace composed of rigidly interconnected and relatively spaced angle bars, the upper ends of said angle bars of the brace having complemental extensions thereon engaged between the angle bars of the body portion and connected thereto, the lower ends of the angle bars of said brace slidably straddling the web of said base plate, means for adjustably securing the lower end of the brace to said web, and a bearing adjustably carried upon the body portion.

4. A well drilling rig comprising a sill timber, a base plate comprising a pair of angle bars arranged thereupon, means for connecting said bars whereby a vertical web is formed extending longitudinally of said sill timber, means for securing and permitting of lateral adjustment of said bar with respect to said sill timber, a tail post, said tail post comprising a pair of angle bars adapted to straddle said web of the base plate, a brace bar comprising a pair of angle bars having connection at one end with said post, means for adjustably connecting the angle bars of said brace bar with the web of said base plate, angle plates secured to the lower ends of the bars of said post and adapted to rest upon said base plate, and a sand reel bearing mounted for vertical adjustment upon said tail post.

In witness whereof I have hereunto set my hand.

CARL H. BESSE.