Oct. 5, 1937. J. C. CURTIS 2,094,588

PORTABLE DRILLING RIG

Filed Feb. 26, 1936 3 Sheets-Sheet 1

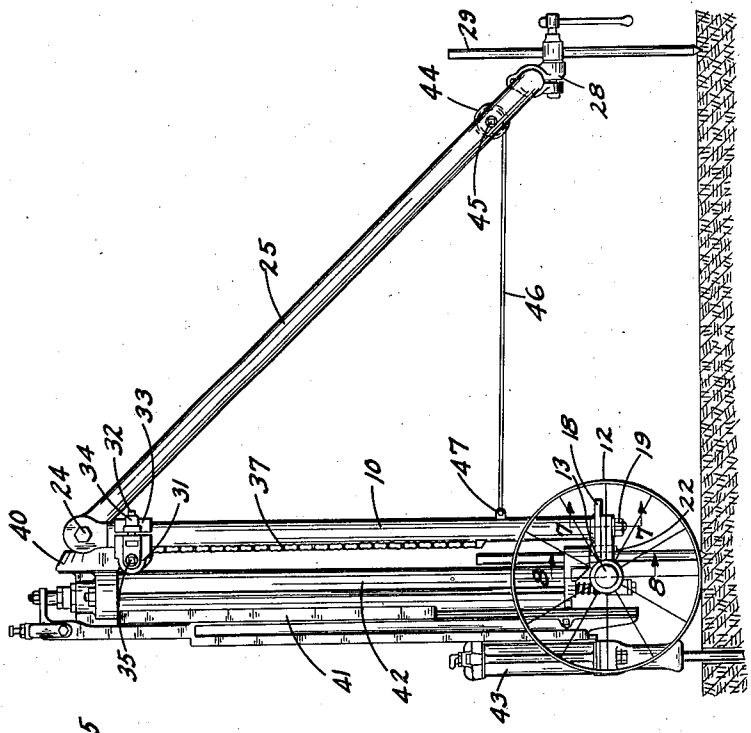


Fig. 2

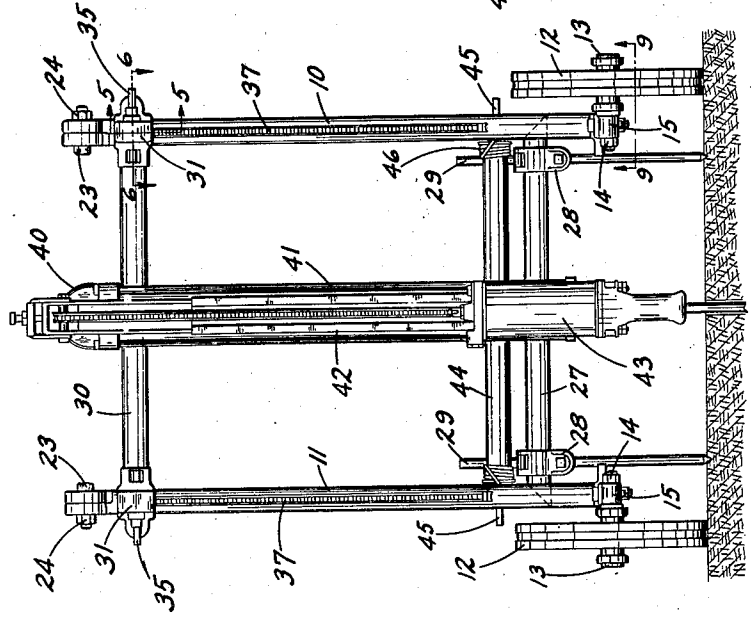


Fig. 1

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PORTABLE DRILLING RIG

Filed Feb. 26, 1936 3 Sheets-Sheet 2

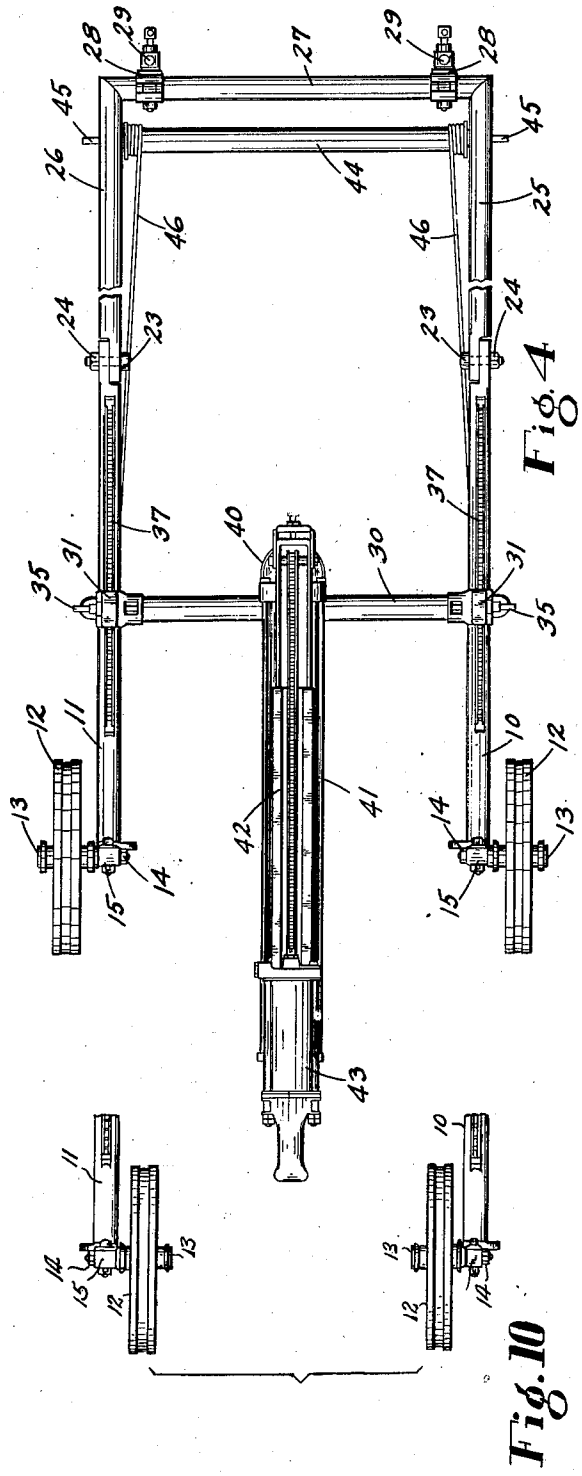


Fig. 4

Fig. 10

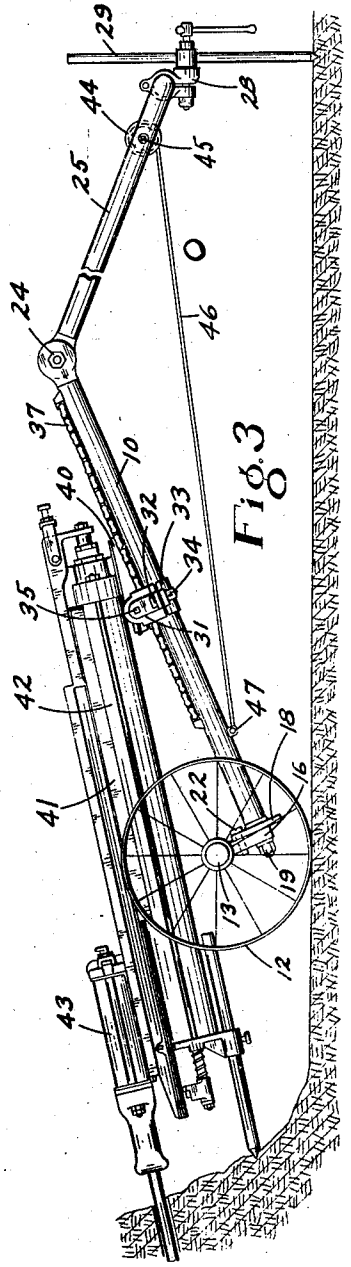


Fig. 3

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PORTABLE DRILLING RIG

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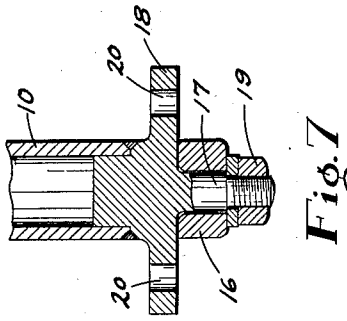


Fig. 7

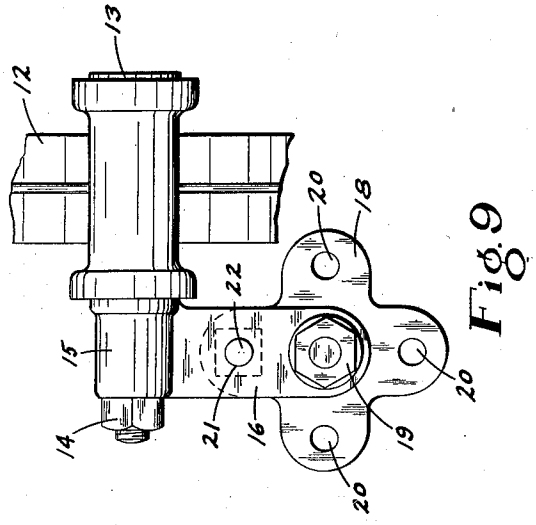


Fig. 9

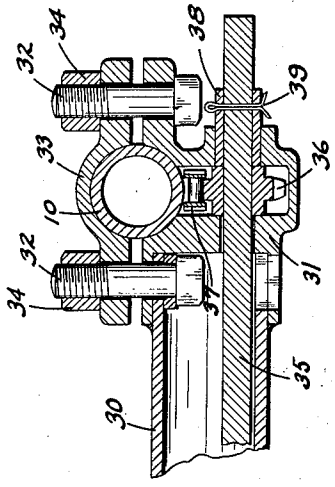


Fig. 6

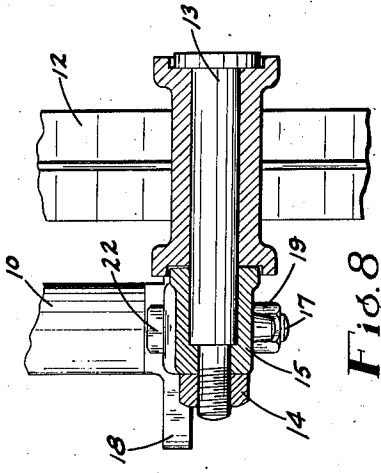


Fig. 8

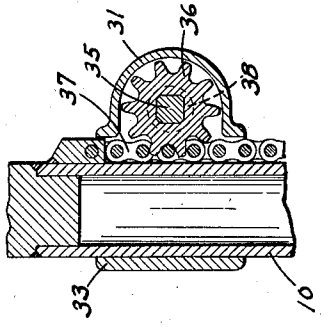


Fig. 5

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Patented Oct. 5, 1937 2,094,588

UNITED STATES PATENT OFFICE

2,094,588

PORTABLE DRILLING RIG

John C. Curtis, Garfield Heights, Ohio, assignor to The Cleveland Rock Drill Company, Cleveland, Ohio, a corporation of Ohio

Application February 26, 1936, Serial No. 65,791

5 Claims. (Cl. 255—51)

This invention relates broadly to rock drills, but more particularly to a drill carrying frame.

One object of the invention is to produce an improved drill carrying frame of simple construction, relatively light in weight, which is strong, durable and efficient.

Another object of this invention is to produce an improved portable and readily movable drill carrying frame constructed and arranged in a manner permitting the drill to be moved in a multiplicity of drilling positions.

Another object of this invention is to provide a wheel supported drill carrying frame wherein the drill may readily be positioned to distribute the weight thereof on the wheels, thus facilitating the mobility of the entire drilling rig.

Another object of this invention is to produce a wheel mounting for a rock drill carrying frame, affording the wheels to be positioned inside or outside of the drill carrying frame.

Other objects and advantages more or less auxiliary to the foregoing and the manner in which the various objects are attained, reside in the specific construction and arrangement of the elements peculiar to this structure, as will become apparent from a more complete examination of this specification, in the claims of which there are assembled certain specific combinations of parts and specific constructions indicative of the scope and spirit of the invention.

In the drawings:

Fig. 1 is a front elevational view of the improved drilling rig.

Fig. 2 is a side elevational view of the frame as shown in Fig. 1.

Fig. 3 is a side elevational view showing the frame and drill in a different position.

Fig. 4 is a top plan view of the assembly shown in Fig. 3.

Fig. 5 is a longitudinal sectional view taken in a plane indicated by line 5—5 in Fig. 1.

Fig. 6 is a cross sectional view taken in a plane indicated by line 6—6 in Fig. 1.

Fig. 7 is a longitudinal sectional view taken in a plane indicated by line 7—7 in Fig. 2.

Fig. 8 is also a longitudinal sectional view in a plane indicated by line 8—8 in Fig. 2.

Fig. 9 is a cross sectional view taken in a plane indicated by line 9—9 in Fig. 1, and looking in the direction of the arrows terminating the line.

Fig. 10 represents the open end of the carrying frame shown in Fig. 4, with the wheels located inside of the frame.

Referring to the drawings, in which like symbols designate corresponding parts throughout the several views, 10 and 11 represent two elongated elements or posts disposed in parallel alignment. Each post is supported by a wheel 12 which is rotatably mounted on a transversal shaft 13 rigidly secured by a nut 14 within the apertured boss 15 of a bracket 16. This bracket is pivotally mounted on a stud 17 between a flange 18 and nut 19 carried by the stud. The stud 17 depends from the flange 18 which forms the lower end of the post, and is provided with four holes 20 disposed at right angles from each other. Intermediate its end the bracket 16 is provided with one hole 21 capable of registration with either of the holes 20 to receive a pin 22 by which the bracket may be locked against pivotal movement.

Pivotally connected to the upper end of each post 10 and 11 by a bolt 23 carrying a nut 24, there is the free end of the side arms or legs 25 and 26 of a substantially U-shaped brace 27. Adjustably secured to the cross arm of the brace 27 by clamps 28, there are anchoring pins or pegs 29 which form with the brace 27 an anchoring device pivotally connected to the posts 10 and 11.

Extending from the post 10 to the post 11, there is a cross member or tie-bar 30 slidable on the posts. To each end of this tie-bar is welded or otherwise affixed a housing 31 having a wall shaped for slidable engagement with the posts, and carrying bolts 32 which in turn carry a cap 33. This cap may be clamped by nuts 34 against the post to prevent the slidable movement of the tie-bar 30. Longitudinally disposed within the tie-bar 30 and protruding from the ends thereof, there is a square shaft 35 carrying, within each housing 31, a sprocket wheel 36 engageable with a stationary chain 37 longitudinally disposed on the posts. Mounted on the shaft 35 near each extremity thereof in abutment with the sprocket wheel 36, there is a bushing 38 secured thereon by a cotter pin 39. Each bushing is journaled within its respective housing 31. On either ends of the shafts may be mounted a crank handle (not shown) for imparting rotation to the shaft and consequently to the sprocket wheels 36.

Intermediate its ends, there is pivotally mounted on the tie-bar 30 a clamp 40 adapted to pivotally receive the upper end of a drilling mechanism 41, which includes a drill guiding frame 42 having slidably mounted thereon a rock drill 43. Since this mechanism, other than illustrating the practicability of the improved drill carrying frame, forms no part of the present invention, no further explanation is thought necessary.

Rotatably carried between the lower end of

the legs 25 and 26 of the substantially U-shaped brace 27, and disposed transversally thereof, there is the drum 44 of a hand operated hoist. This drum has a shaft 45 extending therethrough with square ended portion protruding externally from the legs 25 and 26 and adapted to receive a crank (not shown) for imparting rotation to the drum 44. Wound on each end portion of the drum 44, there is a flexible draft element or rope 46 having its free end attached to the lower end portion of the corresponding posts 10 and 11 as at 47.

From the above description, it will be understood that a top plan view of the frame constitutes a substantially rectangular structure with one cross arm thereof or tie-bar 30 slidable on the side arms or posts 10 and 11. The space between the side arms of the structure being unobstructed except for the tie-bar 30 on which is movably mounted the drilling mechanism 41, thus permitting the latter to be positioned for movement between the side members or arms of the structure. As viewed from the side, the structure simply comprises two elongated elements pivotally connected to each other, one of the elements being supported by a wheel 12 and the other by an anchoring member or peg 29.

To bring the drilling mechanism in any suitable drilling position, the pegs 29 will first be driven in the ground and rigidly fastened to the brace 27. Subsequently the drum 44 may be rotated to shorten or lengthen the distance between the point 47 and the brace 27. In the first instance, that is when the drum is rotated in a clockwise direction in Fig. 3, the posts 10 and 11 will be moved toward the brace 27 while the supporting wheels 12 are caused to rotate. In this manner, the posts 10 and 11 may be moved from the position shown in Fig. 3 to the position shown in Fig. 2. When the adversed movement of the posts is desired, that is from the position shown in Fig. 2 toward that shown in Fig. 3, the drum 44 may simply be rotated in a counterclockwise direction. In this instance the weight of the drilling mechanism will cause the posts to move, by the rotation of the wheels 12, away from the brace 27. When the posts are positioned as desired, the nuts 24 may be tightened to lock the posts and brace against relative movement.

Further adjustment of the drilling mechanism may be had by rotating the shaft 35 mounted within the tie-bar 30. In this instance, the rotation of the shaft and the consequential rotation of the sprocket wheels 36 will cause, due to the engagement of the sprocket wheels 36 with the stationary chains 37, the upward or downward slidable movement of the tie-bar on the posts 10 and 11. When the tie-bar 30 is in the position desired, the nuts 34 may be tightened to lock the tie-bar and posts against relative movement.

Due to the pivotal connection of the wheels 12, by their bracket 16 with the ends of the posts 10 and 11, the wheels may be turned 360° and be secured in any operative position possible by the registration of the hole 21, formed through the bracket 16, with the holes 20 formed through the flange 18. Thus it will be understood that the wheels 12 may be positioned either outside of the posts as shown in Fig. 4, or inside of the posts as shown in Fig. 10, thereby affording an adjustment of the distance between the wheels.

Although the foregoing description is necessarily of a detailed character, in order to completely set forth the invention, it is to be understood that the specific terminology is not intended to be restrictive or confining and it is to be further understood that various rearrangements of parts and modification of structural detail may be resorted to without departing from the scope or spirit of the invention as herein claimed.

I claim:

1. In a portable drilling rig, a carrying frame including a duality of parallel posts, a supporting wheel carried by each post, anchoring means for said posts, a cross-bar slidable on said posts, a drill carried by said cross-bar adjustable in height by the slidable movement of the latter, a mechanism enclosed within said cross-bar including manually operable means protruding from the outer ends thereof coacting with means on said posts for effecting the slidable movement of said cross-bar, and means for locking said posts and cross-bar against relative movement.

2. In a portable drilling rig, a carrying frame including a duality of parallel elements, a supporting wheel carried by each element, anchoring means for said elements, a member slidable on said elements, the space between said elements being unobstructed except for said member, a drill carried by said member for movement between said elements and adjustable in height by the slidable movement of said member, a mechanism enclosed within said member including manually operable means protruding from one end thereof outside of said elements operatively associated therewith for effecting the slidable movement of said member, and means for locking said member and elements against relative movement.

3. In a portable drilling rig, the combination of a carrying frame including two side members, a drill carried by said frame, supporting wheels for said frame, connecting means between said wheels and frame, and means included in said connecting means whereby said wheels may be rotated from a fixed operative position outside of said side members to a fixed operative position inside of said side members.

4. In a portable drilling rig, a drill carrying frame formed with an open end, supporting wheels for said frame mounted near the open end thereof, a shaft for each of said wheels pivotally connected to said frame whereby said wheels may be swung through the open end of said frame to position the wheels inside or outside of said frame in longitudinal relation therewith, and means for locking said shafts against pivotal movement.

5. In a portable drilling rig, a drill carrying frame, supporting wheels for said frame mounted near one end thereof in longitudinal relation therewith, means for varying the road gage between said wheels including a shaft for each of said wheels pivotally connected to said frame whereby said wheels may be swung inside or outside of said frame, and means for locking said shafts against pivotal movement.

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