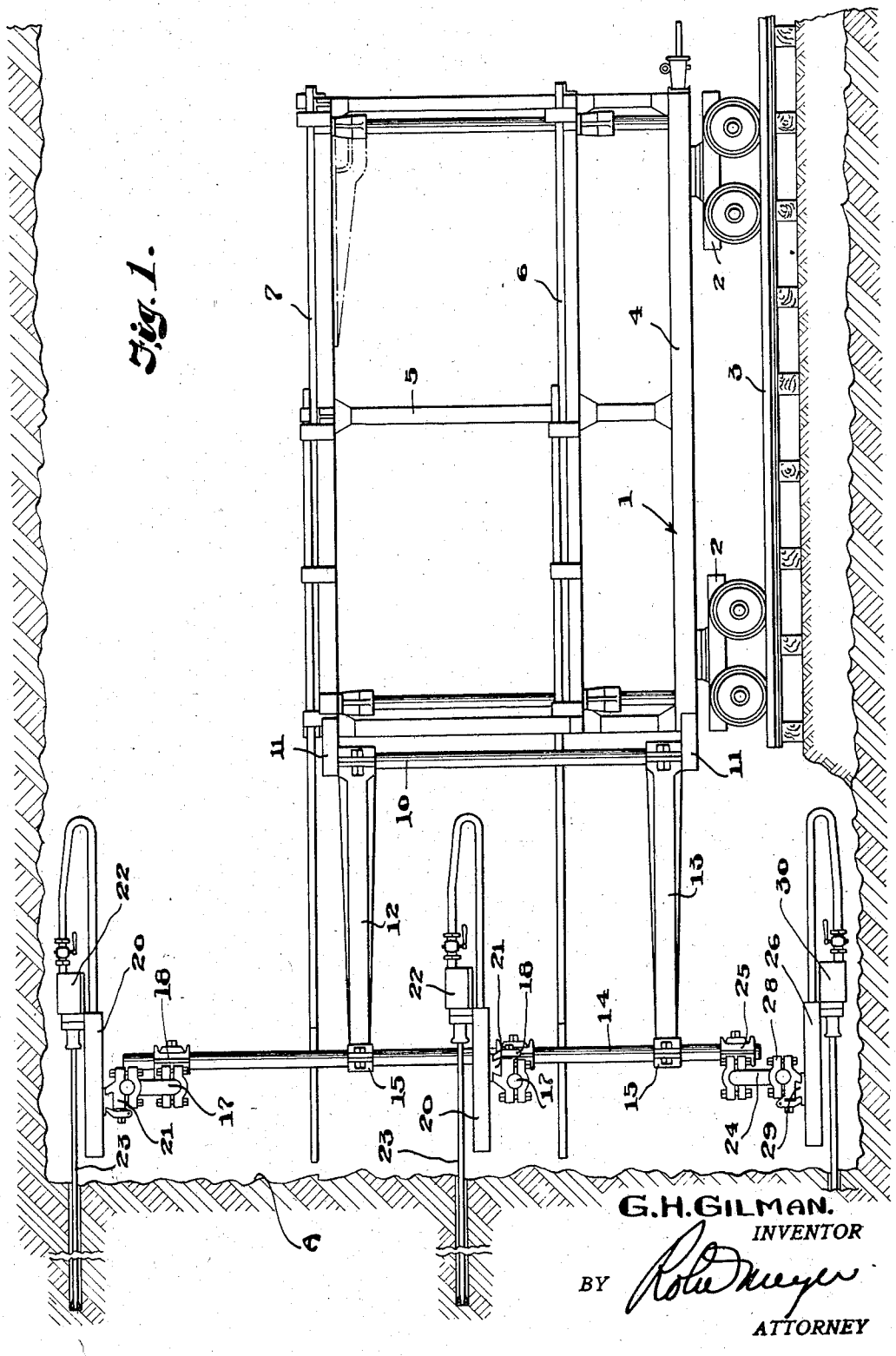
Jan. 7, 1936. G. H. GILMAN 2,026,627

PORTABLE DRILLING RIG

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Fig. 1.



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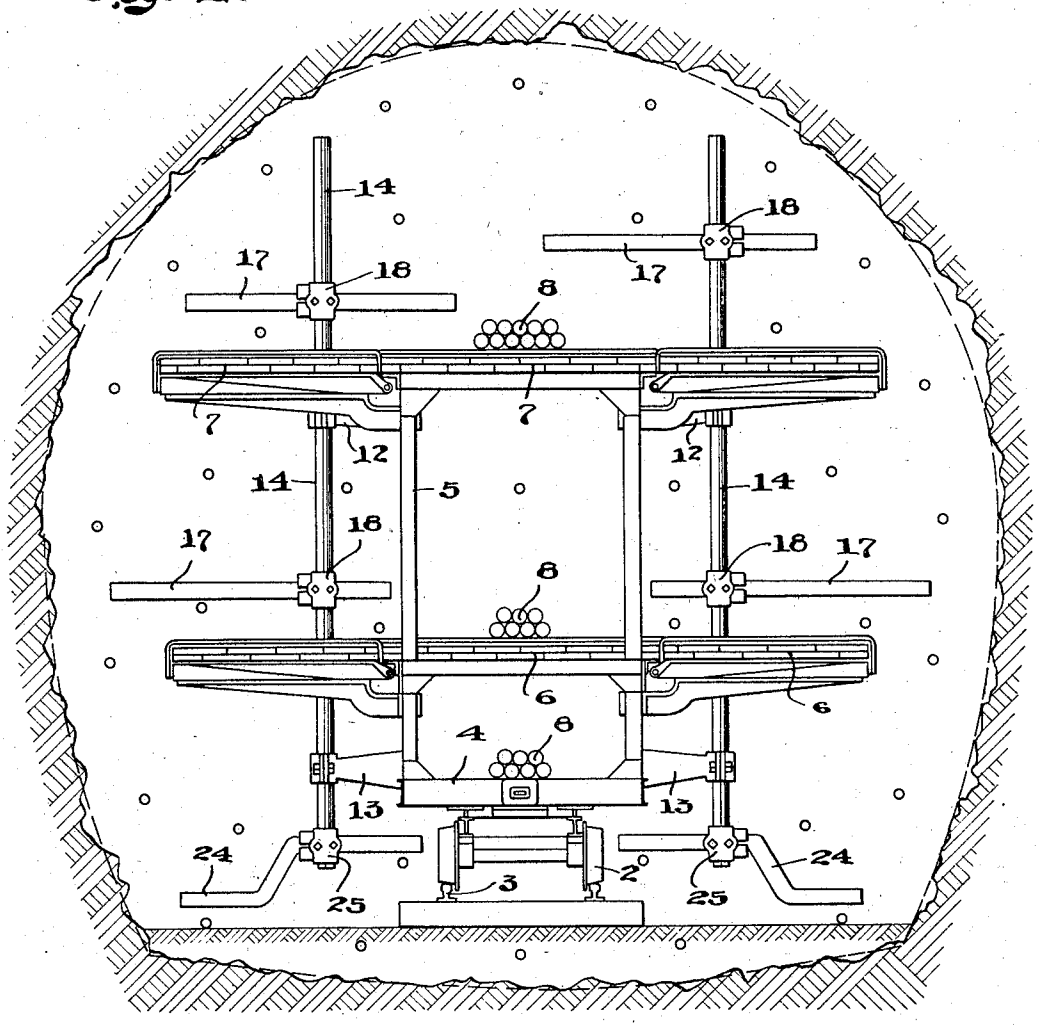
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PORTABLE DRILLING RIG

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Fig. 2.



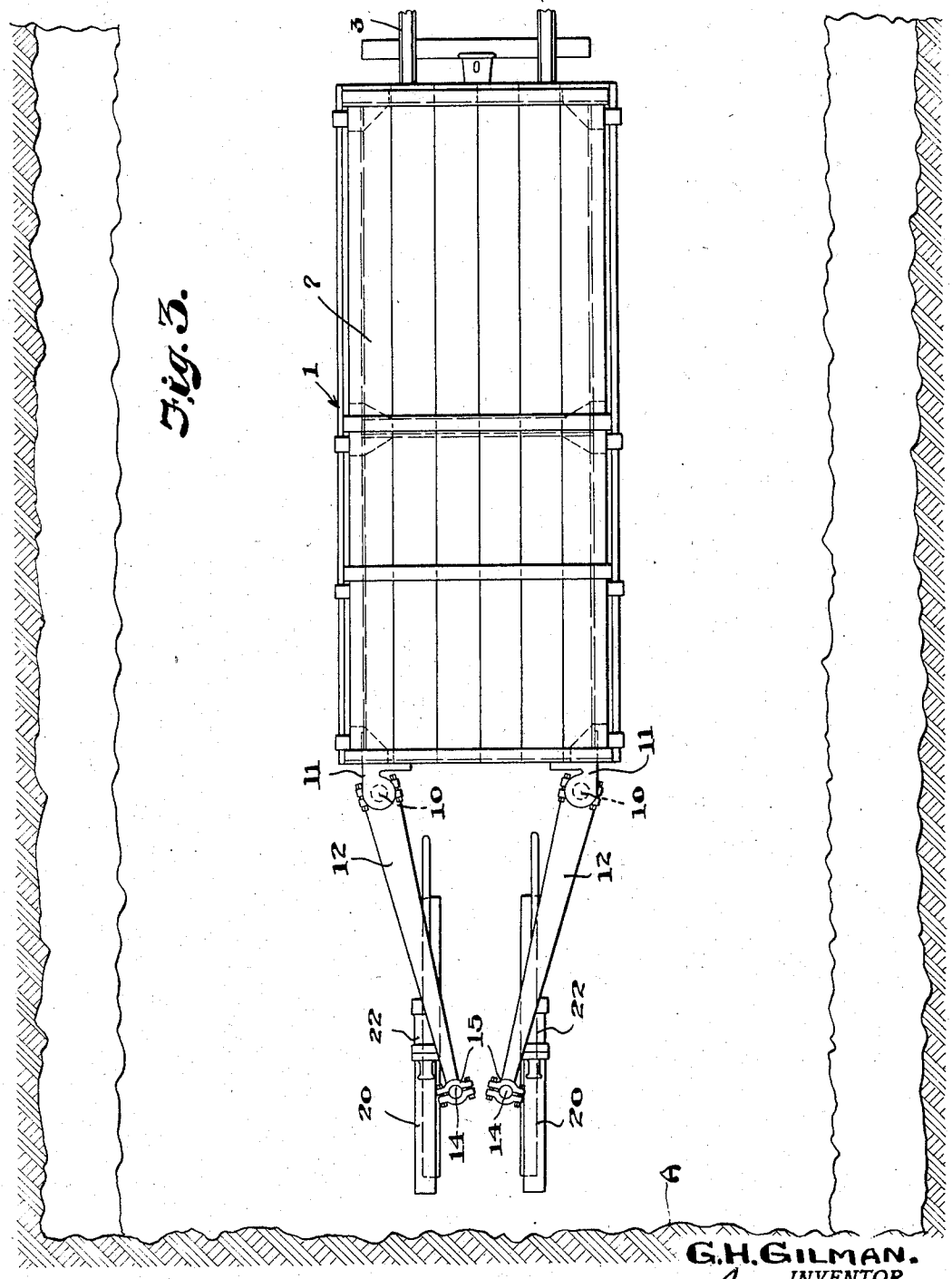
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Fig. 3.



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2,026,627

PORTABLE DRILLING RIG

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Application September 8, 1933, Serial No. 688,554

4 Claims. (Cl. 255—51)

This invention relates to drilling rigs and more particularly to a portable drilling rig designed principally for facilitating the cutting or drilling of tunnels or like structures.

An object of the invention is to provide a portable drilling or tunneling rig including a carriage movable over the mucking track of a tunnel for bringing the drills to the surface to be drilled, which rig is so designed that a plurality of percussive tools, such as rock drills, may be carried thereby and adjusted into a plurality of drilling positions with a minimum amount of labor and in a short time, thereby eliminating the taking down and setting up of the tool supporting rig and materially reducing the cost of the drilling operation in the cutting of a tunnel.

Another object of this invention is to provide a drilling rig as specified which includes pivotally supported drill carrying arms which arms may be easily and rapidly swung into and out of position to facilitate movement of the rig in a tunnel and provide clearance for the mucking truck.

With these and other objects in view, as may appear from the accompanying specification, the invention consists of various features of construction and combination of parts, which will be first described in connection with the accompanying drawings, showing a portable drilling rig of the preferred form, embodying the invention, and the features forming the invention will be specifically pointed out in the claims.

In the drawings:

Fig. 1 is a side elevation of the improved portable drilling rig.

Fig. 2 is an end elevation of the improved portable drilling rig.

Fig. 3 is a top plan of the improved portable drilling rig.

Referring more particularly to the drawings, the improved portable drilling rig comprises a carriage 1, which is supported upon trucks 2. The trucks 2 may be of any approved type and they are of such gauge as to be operable over a mucking track 3 which is ordinarily built in a tunnel as it is being cut, to facilitate the removal of the material removed from the surface thru which the tunnel is being cut.

The carriage 1 comprises a main platform 4, and a super-structure supported thereon. The super-structure 5 comprises platforms 6 and 7, which as clearly shown in Fig. 2 of the drawings, project laterally beyond the sides of the superstructure 5, and form platforms on which the various operators of the percussive or pneumatic tools may stand, during the drilling operation.

The platforms 4, 6 and 7 also form supports for carrying drill steels, or drill bars as indicated at 8, so that a supply of sharpened drill bars may always be conveniently at hand for use when it is necessary to change the drill bars in the various tools.

The carriage structure 1 has a plurality of vertical standards 10, rigidly connected thereto and supported by suitable brackets 11. The standards 10 are round and have upper and lower arms 12 and 13 respectively, pivotally connected thereto as clearly shown in Figs. 1 and 3 of the drawings.

Tool supporting bars 14, are carried by the outer ends of the arms 12 and 13. The tool carrying bars 14 are detachably attached to the pivoted or swingable arms 12 and 13 in any suitable manner such as by means of the clamp structures 15, so that the tool carrying bars 14 may be disconnected from the swingable arms 12 and 13 when it is desired, and also they may be adjusted perpendicularly to the swingable arms if desired.

As clearly shown in Figs. 1 and 2 of the drawings, the tool carrying bars 14 project perpendicularly to the swingable arm 12 and extend above and below the carriage structure 1.

Horizontally adjustable tool supporting bars 17 are connected to the vertical bars 14 by means of suitable clamp structures 18. These clamp structures 18 are of any approved construction and are so designed as to permit the bars 17 to be adjusted vertically and horizontally with respect to the vertical bars 14. The clamp structures 18 are also so constructed as to permit the horizontal bars 17 to be swung about or rotated on axes both parallel and perpendicular to the axes of the vertical bars 14, so as to permit the varying of the angle of inclination of the tool supporting guides 20 both in vertical and horizontal planes. The tool supporting guides 20 may be of any approved type and are connected to the horizontal bars 17 by suitable clamp and trunnion structures 21.

Percussive or pneumatic tools 22 of any approved type are mounted upon the supporting guides 20 in the usual manner so as to position the drill bars 23 in the proper and desired position for drilling into the face indicated at A, of the material thru which the tunnel is being driven.

Crank tool-supporting arms 24 are connected to the lower end of the vertical bars 14 by clamps 25 which are similar in every respect to the clamps 18. Cranks horizontally adjustable to the

supporting bars 24 are provided to permit a greater scope of adjustment of the percussive tools carried thereby to permit the drilling of the lowermost part of the tunnel, as clearly shown in Figs. 1 and 2 of the drawings. The tool carriages 26 which are similar to or identical with the supporting carriages 20, are connected to the outer crank ends of the horizontally adjustable crank bars 24 by suitable clamp structures 28, and trunnions 29, while percussive tools 30 of any approved type are carried by the supporting guides 26. By rotating the crank bars 24 a greater scope of adjustability is provided for the percussive tools 30, carried by the crank supporting bars. The bars 24 are adjustable transversely of the bars 14 and thru the medium of the clamps 25 are adjustable in a rotary manner about axes both parallel to and perpendicular to the axes of the bars 14. When the drilling rig is not in use, the swingable arms 12 and 13 may be swung inwardly into the position shown in Fig. 3 of the drawings, to permit the portable drilling rig to be withdrawn from the face A of the tunnel and side-tracked to permit the mucking cars (not shown) to be moved forward for the purpose of removing the material which has been cut from the face A. When it is desired to drill, the arms 12 and 13 may be swung outwardly to position various percussive tools or rock drills 22, etc., into their proper drilling position, and as indicated or shown in Figs. 1 and 2 of the drawings.

From the foregoing description taken in connection with the accompanying drawings it will be apparent that a portable drilling rig has been provided which is comparatively simple in construction, and which will permit maximum adjustment of position of the various percussive or pneumatic drills carried thereby, with a minimum amount of manual labor, and in a minimum amount of time; that the improved portable drilling rig will very materially decrease the labor required in the drilling operations of a tunnel, and that when a single drilling operation has been completed, the tool carrying parts of the carriage may be swung inwardly out of the way to occupy a minimum amount of space in the tunnel so as to enable the drilling rig to be side-tracked and not interfere with the mucking operation of tunneling.

It will be understood that the invention is not to be limited to the specific construction or arrangement of parts shown, but that they may be widely modified within the invention as defined by the claims.

What is claimed is:

1. In a portable drilling rig, a wheeled carriage, standards rigidly attached to said carriage at one end thereof, arms arranged in vertical pairs and adjustably carried by said standards, said arms swingable in horizontal planes, a vertical tool carrying bar adjustably carried by each pair of said arms, and horizontal tool carrying bars adjustably carried by said vertical tool carrying bars.

2. In a portable drilling rig, a wheeled carriage, standards rigidly attached to said carriage at one end thereof, arms arranged in vertical pairs and adjustably carried by said standards, said arms swingable in horizontal planes, a vertical tool carrying bar adjustably carried by each pair of said arms, and horizontal tool carrying bars adjustably carried by said vertical tool carrying bars, certain of said horizontal tool carrying bars being crank shaped.

3. In a portable drilling rig, a wheeled carriage, super-posed platforms carried by said carriage, standards rigidly attached to said carriage at one end thereof outwardly of the ends of said platforms, arms arranged in vertical pairs and adjustably carried by said standards, said arms swingable in horizontal planes, a vertical tool carrying bar adjustably carried by each pair of said arms, and horizontal tool carrying bars adjustably carried by said vertical tool carrying bars.

4. In a portable drilling rig, a wheeled carriage, super-posed platforms carried by said carriage, standards rigidly attached to said carriage at one end thereof outwardly of the ends of said platforms, arms arranged in vertical pairs and adjustably carried by said standards, said arms swingable in horizontal planes, a vertical tool carrying bar adjustably carried by each pair of said arms, and horizontal tool carrying bars adjustably carried by said vertical tool carrying bars, said horizontal tool carrying bars being positioned some above the level of the topmost portion of said carriage and others being positioned below the lowermost portion of said carriage.

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