ADJUSTABLE PLATFORM FOR MINE CARS

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3 Sheets-Sheet 2
This invention relates to mine cars or other structures having a movable work platform or stage and aims to provide novel mechanism for raising and lowering such platform.

Another object of this invention is to provide an improved mine car or the like having a movable work platform and wherein guide means for the stage has cooperating screw elements therein for raising and lowering the platform.

A further object of my invention is to provide an improved structure, of the character mentioned, in which the guide and elevating means for the work platform are located so as not to interfere with the operation of rock drills or the like mounted on said structure and to enable the elevating means to be driven by a single motor.

Still another object of the present invention is to provide a novel elevating mechanism, for a work platform or the like, having pairs of cooperating screw elements and in which one element of each such pair is driven by an endless chain extending thereover.

The invention can be further briefly summarized as consisting in certain novel combinations and arrangement of parts hereinafter described, and particularly set out in the appended claims.

In the accompanying sheets of drawings,
Fig. 1 is a side elevation showing a mine car embodying my invention;
Fig. 2 is a plan view thereof;
Fig. 3 is a rear end view of the mine car; and
Fig. 4 is a vertical sectional view taken through the guiding and elevating mechanism as indicated by line 4-4 of Fig. 3.

To proceed with a more detailed description of the invention, I show in the drawings a mine car or "jumbo" 18 having a work stage or platform 11 thereon and guiding and elevating mechanism 12 for raising and lowering the platform. The mine car 10 may comprise an undercarriage or body 13 having wheels 14 adapted to operate on rails 15. The undercarriage or body 13 may include a main or center section 13a and laterally projecting wing sections 13b hingedly connected therewith. The sections 13a and 13b form a work platform for the operation of a pair of laterally spaced rock drills 16 carried by suitable mounts 17 which are attached to the central section 11a. The movable platform 11 forms a work stage for another pair of laterally spaced rock drills 18 and comprises a main or central section 11a and wing sections 11b hingedly connected to such central section. The rock drills 16 are operably supported by laterally spaced mounts 19 which are attached to the central section 11a. The undercarriage 13 may also have a framework 20 thereon which is located rearwardly of the platform 11 and serves various purposes including that of a support for an air line 21 extending to the manifold 22. This framework has channel-shaped uprights or posts 23 at the four corners thereof.

The platform 11 is adapted to be raised and lowered with respect to the undercarriage 13 so as to permit the mine car to travel through tunnels or passages having a relatively low ceiling height. For mounting platform 11 on the undercarriage 13 so as to permit such raising and lowering, I provide a plurality, in this instance three, upright hollow guide members 24 on the central section 13a of the undercarriage and a corresponding number of guide sleeves or followers 25 which are telescopically slideable on the guide members 24 and with which the central section 11a of the platform 11 is connected. As shown in Fig. 2, the guide members 24 and their followers 25 are arranged or located so as to define a triangle having its apex at or adjacent the forward end of the undercarriage 13 and its base located a substantial distance rearwardly of such front end. This triangular arrangement for the guide members and guide followers 24 and 25 permits the mounts 17 and 18 for the rock drills 16 and 18 to be located on opposite sides of the work platforms 13 and 11 leaving relatively large unobstructed spaces for convenient operation of the rock drills.

As shown in Fig. 1 the work platform 11 for the upper pair of rock drills 16 may be located in forwardly offset or overhanging relation with respect to the lower work platform or undercarriage 13. In addition to the guide followers 25 the movable work platform 11 may be guided in part by grooved guide followers 26 which are connected with the platform by means of the brackets 27 and have sliding engagement with the forward flanges 23a of the forward pair of the channel-shaped posts 23 of the frame 20.

For raising and lowering the work platform 11, I provide pairs of cooperating screw elements in the telescoping hollow guide members and followers 24 and 25. Each such pair of screw elements comprises a nut member 31 formed on or carried by the hollow guide members 24 and located adjacent the upper end thereof, and a screw member 32 engaging in such nut member and located coaxially within the guide sleeves 25. As shown in Fig. 4 the guide sleeves 25 are in surrounding telescopic sliding relation to the
guide members 24 and extend through the work platform 11. The platform is connected with the upper ends of the guide sleeves 25 by means of suitable flanged fittings 33 mounted on the upper surface of the platform.

The fittings 33 support a substantially V-shaped hollow casing 34 in spaced relation above the platform 11. The screw elements 32 are rotatably supported by pairs of bearings 35 and 36 which are mounted in the fittings 33 and the casing 34, the bearings 36 being thrust bearings which carry the load of the platform 11. Sprockets 31 are mounted on the upper ends of the screw elements 32 between the bearings 35 and 36 and lie inside the V-shaped casing 34. An endless drive chain 38 extends over or around the sprockets 31 for imparting rotation to the screw elements 32. The V-shaped casing 34 forms a housing for the drive chain 38 and the sprockets and protects the same from dust and other foreign matter.

For driving the screw elements 32 I provide a power device 40 which, in this instance, is in the form of a multiple cylinder engine adapted to be operated by compressed air or other pressure fluid. The motor 40 is located within the triangle defined by the guide sleeves 25 and relatively close to one of the guide sleeves preferably the one located at the apex of the triangle. The motor is suitably mounted on the work platform 11 with its shaft in vertical relation and extending upwardly into the V-shaped casing 34. A sprocket 41 is mounted on the upper end of the motor shaft and a bight of the endless drive chain 38 extends over or around this sprocket so that when the motor 40 is operated, it will simultaneously drive all three of the screw elements 32 and will cause raising and lowering of the work platform 11 depending upon the direction in which the motor is operated.

From the foregoing description and accompanying drawings, it will now be readily seen that I have provided an improved mine car having a work platform which is adapted to be lowered for passage of the mine car through drifts or tunnels having a relatively low ceiling height, and raised to the most advantageous height for drilling considerably higher tunnels or ore bodies. It will also be seen that I have provided novel guiding and elevating mechanism by which a work platform or stage can be raised or lowered in an efficient manner and which requires only a single driving motor and will cause minimum interference with rock drills or other machine tools which may be mounted on such platform.

While I have illustrated and described the improved mine car and elevating mechanism of my invention in considerable detail it will be understood of course that I do not wish to be correspondingly limited but regard my invention as including all changes and modifications coming within the spirit of the invention and the scope of the appended claims.

Having thus described my invention I claim:

1. In apparatus of the character described, a wheeled carriage, three vertical telescoping guides mounted on said carriage at the corners of an isosceles triangle, the base of which extends transversely of the carriage, a work stage movably up and down on said guides, and a pair of drill mounts disposed at the sides of the triangle between the base and apex thereof.

2. In apparatus of the character described, a wheeled carriage, three vertical telescoping guides mounted on said carriage at the corners of an isosceles triangle, the base of which extends transversely of the carriage, a work stage secured to the upper elements of said telescoping guides below the top thereof, and a pair of drill mounts carried by the stage on the sides of the triangle between the base and apex thereof.

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