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### Traction Engine and Train for Steam Freighting.

At no work does a high-power traction engine show to better advantage than in steam freighting, which is now so extensively and profitably used in this State.

With suitable wagons, a reasonably good road, and with water and fuel stations properly located, the cost of moving grain, logs, lumber, coal, ore, etc., by the use of these wagons is not more than one-third as much as by the use of animal power.

The engine, as shown herewith, is of fifty-horse power, built by Daniel Best, of San Leandro, especially for steam freighting over any ordinarily good road. It can ascend and descend grades, as is practically done with horse or mule teams when in hauling freight.

These engines are capable of hauling twenty-five to forty tons, exclusive of weight of train, over grades of as much as 500 feet to the mile, and, in a pinch, much steeper grades; and on comparatively level roads the load may be increased fifteen tons or more.

This train is now in use in hauling salt a distance of thirty miles over the desert in San Bernardino county in this State, from the mines of the "Crystal Salt Co." to Danby, a point on the Atlantic and Pacific railroad, to be shipped to different points. This route is somewhat sandy; the train, however, makes the round trip (sixty miles) in one day and a half, including loading and unloading. The cargo averages about forty tons at each load.

That is a very trying place to operate a train, owing to the loose sand to be contended with and the scarcity of water for the engine—the water being hauled in sufficient quantity from one end of the road by the engine to supply it for the round trip.

However, the train is a success there and makes it possible to market one of the great resources of this State that otherwise would lie dormant for want of way of getting it to a shipping point on the railroad.

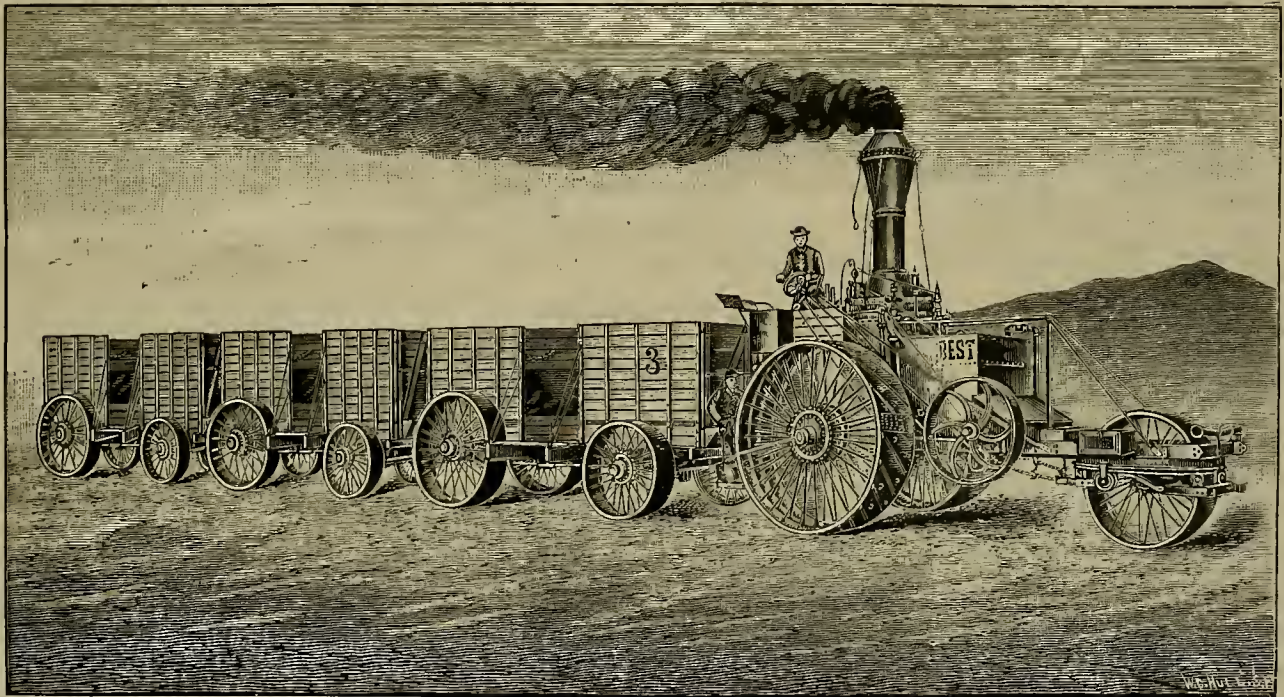
These engines are also extensively used in this State for hauling logs to the mills and lumber to the market, some large firms owning as many as three and four each, and at a profit considerably over animals which were formerly used by them, the engines doing the work much more satisfactorily.

As in the case of cable and electric roads and bicycles, it would seem that the raising of horses and beasts of burden is to dwindle as fast as the whale fisheries. Such machines as those herewith depicted will revolutionize land carriage. One Mendocino firm write that they have but two horses where two years ago they had 150. The lumber men "run up grades of 800 feet to the mile in going after logs. When they get to the point where they can go no farther without inconvenience, a horseman carries a light cable through the woods for a quarter of a mile if necessary and attaches it to a tree; then the engine on the wagon is set to work. It having a heavy cable and reel, it draws in the small cable, and in doing so the heavy one is paid out, and by the horseman attached to a log. Then the engine is set to work

Australian gold miners who depend on camels for freight are taking up this matter. D. W. Balch, now near Coolgardie, says these camels cost \$250 at Fremantle. They carry about 700 pounds each, and can travel three miles an hour for eight hours. They require food and fifty pounds of water daily. On the route is employed 142 camels. The owners of the freight contract propose supplanting the camels by something similar to that herein illustrated.

CONSIDERABLE of our correspondence relates to "mining experts." Some of it is published, illustrating the general trend of opinion. The writer remembers twenty years ago fixing up, with the help of an assayer, a "specimen" and submitting it to

Prof. Frank Stewart, who gravely descended on the component parts thereof, and joined in the laugh on himself when its composition was told him. He was a "mining expert," but not infallible. Infallibility is an attribute ordinarily denied poor humanity in any walk of life. But because mining experts sometimes make mistakes; be-



TRACTION ENGINE AND WAGONS FOR HAULING FREIGHT.

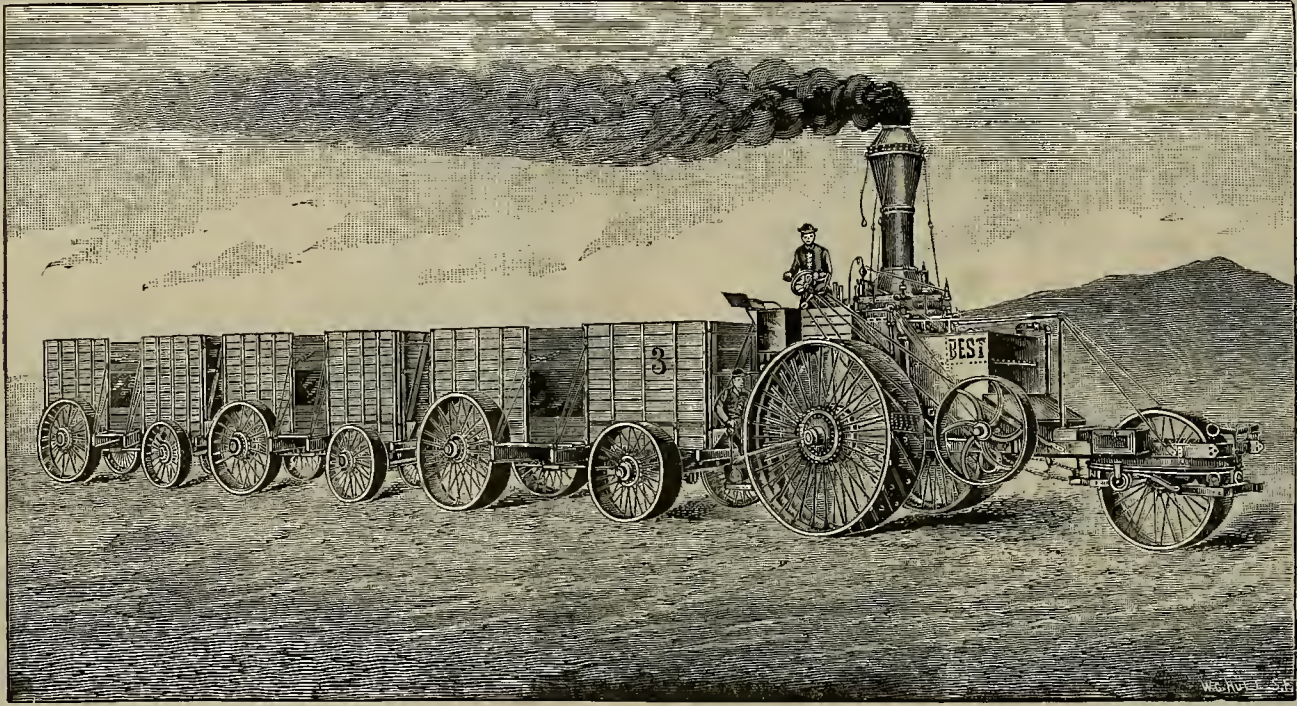
again and winds up the cable on the reel, and in doing so brings the log along with it. Then the engine is set to work again and loads the logs on the trucks, and so they build up fifty-ton loads and deliver them at the mill. They cut down no brush because they run over it. If a stump is in the way they simply take hold and pull it up and drag it out of the road."

In the great wheat fields of the State the traction engine finds as useful a place. By their use grain is cut and thrashed, and sixty acres can be plowed in twenty-four hours. They will pump water, clear land, make roads, and will come in of use around a mine. "Say a railroad passes within thirty miles of a great mine. The traction wagon can go to the mine, making its own road, and can haul in at one time sixty tons of ore, and all the expense is the little coal it burns and the labor of two men. It would bring sixty tons of ore thirty miles in seven hours. It could go to the mine, load the ore and bring it back between sun and sun, and, if necessary, could return and do the same thing over in the night, because it is not like an animal; it does not get tired; it is not particular about its food; all it wants is a little carbon in the shape of soft coal." West

cause a good many "mining experts" don't know anything more about mining than mining knows about them, it does not follow that the expert is to be condemned or derided. An experienced miner gifted with intelligent observation, with actual knowledge and careful speech, possessing an earned reputation for honesty, "unawed by influence and unbribed by gain," is not wholly an imaginary creation. Few mining transactions of any magnitude can be negotiated without the employment of what is deemed a reliable man, and the fact that the term "mining expert" is prostituted by numerous frauds should not justly detract from any individual who possesses the qualifications justifying him in claim to the title, though, in general, the real "mining expert" is in no haste to loudly proclaim his right to be so called.

THE newest thing in chemical attainment is acetylene—the commercial synthesis of hydrogeu and carbon. It is a veritable triumph, and was achieved by means of the electric furnace. The carbide of calcium is an illuminant of the first class, and as a foundry factor it is of almost-equal importance.

# A REVOLUTION IN FREIGHTING.



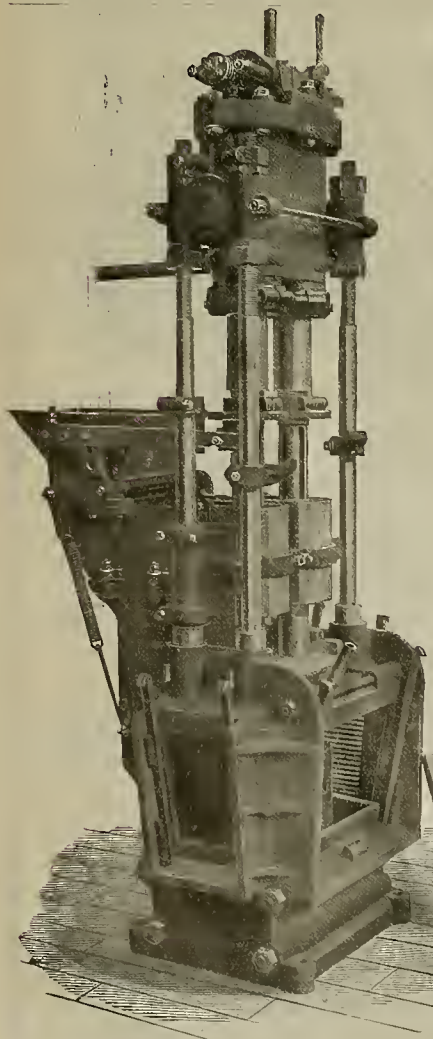
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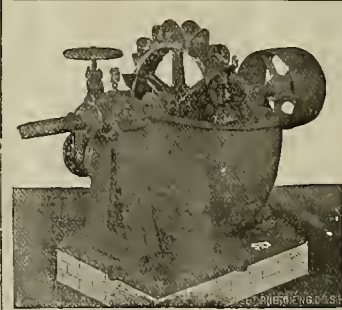
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