

“Improved Stone Quarrying Machine”

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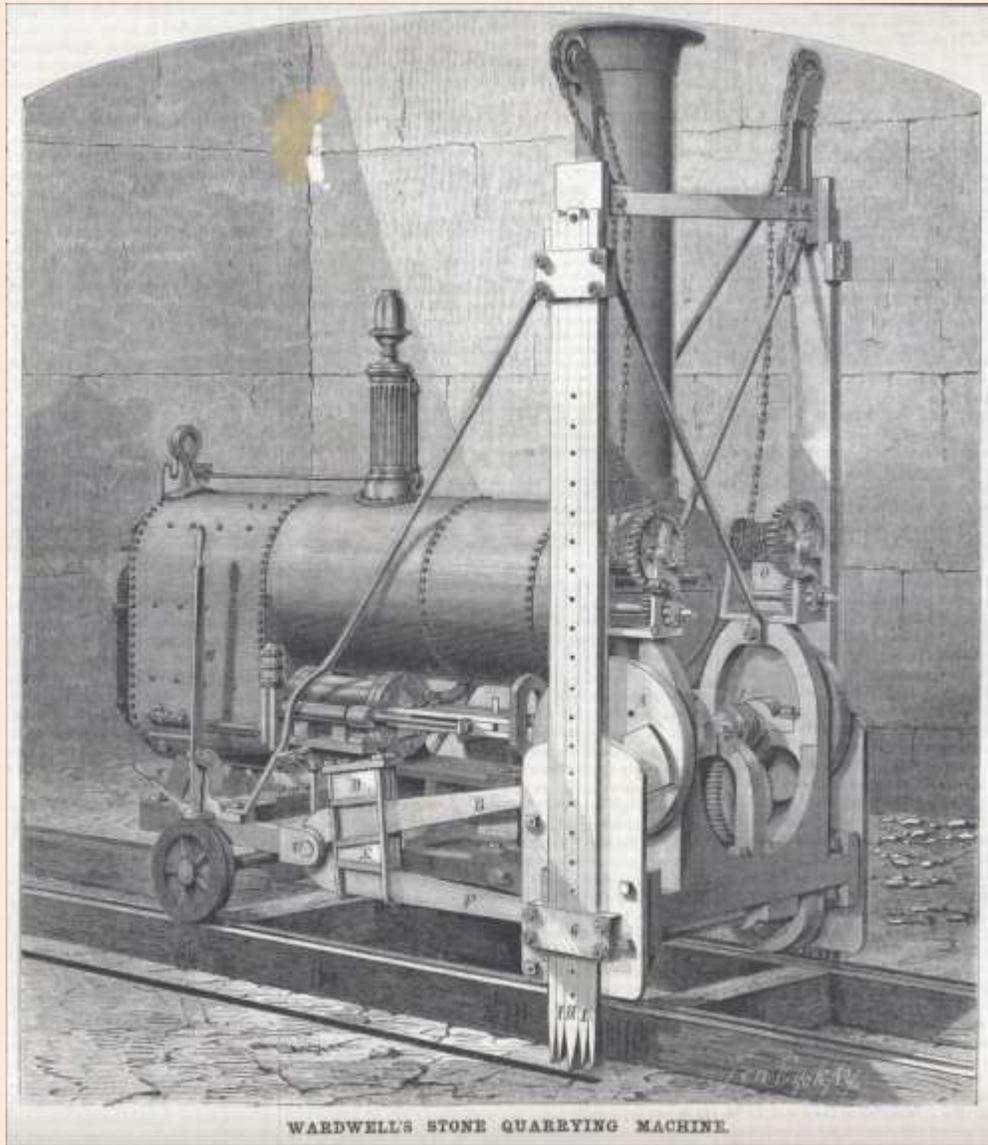
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“The largely increasing demand for stone for building purposes calls for the introduction of labor-saving devices which, while increasing the supply, will tend to lower its cost of production. To this class belongs the machine which we herewith illustrate, and which is extensively used for channeling or cutting stone in various quarries throughout the country.

“It is a double gang machine, and is represented mounted upon its track on the bed of the quarry. The frame which supports the boiler, engine, and other machinery, consists of one piece of forged iron, thereby gaining great strength and durability. The principal portions of the device to which it is necessary to call attention, in detail, are the cutters, the mechanism which actuates them, and also the connections which render the machine locomotive. The engine is of six horse

power. Through the interposition of suitable appliances the piston rod imparts motion to the crank face plate, A. This, in turn, by means of a swivel stirrup applied to its wrist pin (not shown) moves the upper arm, B, of a bifurcated or compound lever, which is pivoted to the frame at C. Arrangements are provided by which the throw of this arm can be shortened and, as will be seen, the movement of the cutters regulated. D and E are springs of rubber, or other elastic medium, arranged above the arm, B, and between it and the lower arm, F. A clamp passes around these springs, as shown, and serves to adjust them, and also to connect the two portions of the lever. The free end of the arm, F, actuates the gang of chisels on its side of the machine. The latter consist of five bars of steel, pointed at their lower ends and clamped together by head and foot clamps or guide blocks, with the lower of which G, the lever arm, F, connects. Of the five, two chisels, I I, have diagonal cutting edges, and three, the middle, H, and two outer ones, have their edges transverse. The middle chisel, H, extends the lowest, and all together form a stepped arrangement each way from the center. By this device it will be seen that when the machine is moving ahead the two forward and middle cutters operate; on a retrograde motion being assumed the two rear chisels, in connection with that in the center, do the work.

“The bars are from seven to fourteen feet in length, according to the depth it is required to penetrate, and are supported by standards arranged on each side of the frames. At their upper ends, on one side, they are serrated to match corresponding serrations in the head clamps, for the purpose of preventing any displacement of the cutters while in use. J is a worm on the main shaft, and actuates the toothed wheel, K. The axle of the latter extends diagonally downwards to the rear of the machine where it terminates in a bevel pinion which, by the lever, M, may be thrown into action with either of two adjoining bevel wheels – part of one of which is shown at L – on the axle of the rear trucks. It will be readily understood that the motion thus communicated serves to turn the axle either backward or forward, according to with which wheel the pinion is caused to engage. When the machine is required to be stationary the pinion is so placed in reference to the wheels that neither is moved. N is a hand lever which communicates with suitable mechanism which serves to lock the pinion in whatever position it may be situated. O O are winches from the barrels of which chains are led, as shown, over pulleys, and are connected with the cutter bars. Their object is to afford a means of withdrawing the latter from deep channels. The mechanism for driving the gang of chisels on the opposite side of the machine is of course the same as that already described.

“From one to two hundred blows per minute can be delivered with each gang of cutters, and the penetration, we are informed, will be about three fourths of an inch each time the apparatus is passed over a given surface. The channels are generally cut down for from four to six feet, and may be of any desired length. It may be noted, as an important advantage claimed, that their sides, as made by the chisels, are quite as true and as even as a sawn surface, so that the machine serves the double purpose of dressing as well as quarrying. The track can be made in sections to extend any desired distance.

“The general use of this invention in the marble quarries of Rutland, Vt., during the last seven years has fully demonstrated its efficiency. It is stated to have averaged from 50 to 100 feet of channel a day during the quarrying season, thereby performing the labor of from 50 to 75 men.

“Several patents have been granted upon its different portions and improvements thereon. Geo. J. Wardwell is the patentee. Further information may be obtained by addressing the Steam Stone Cutter Company, Rutland, Vt.”