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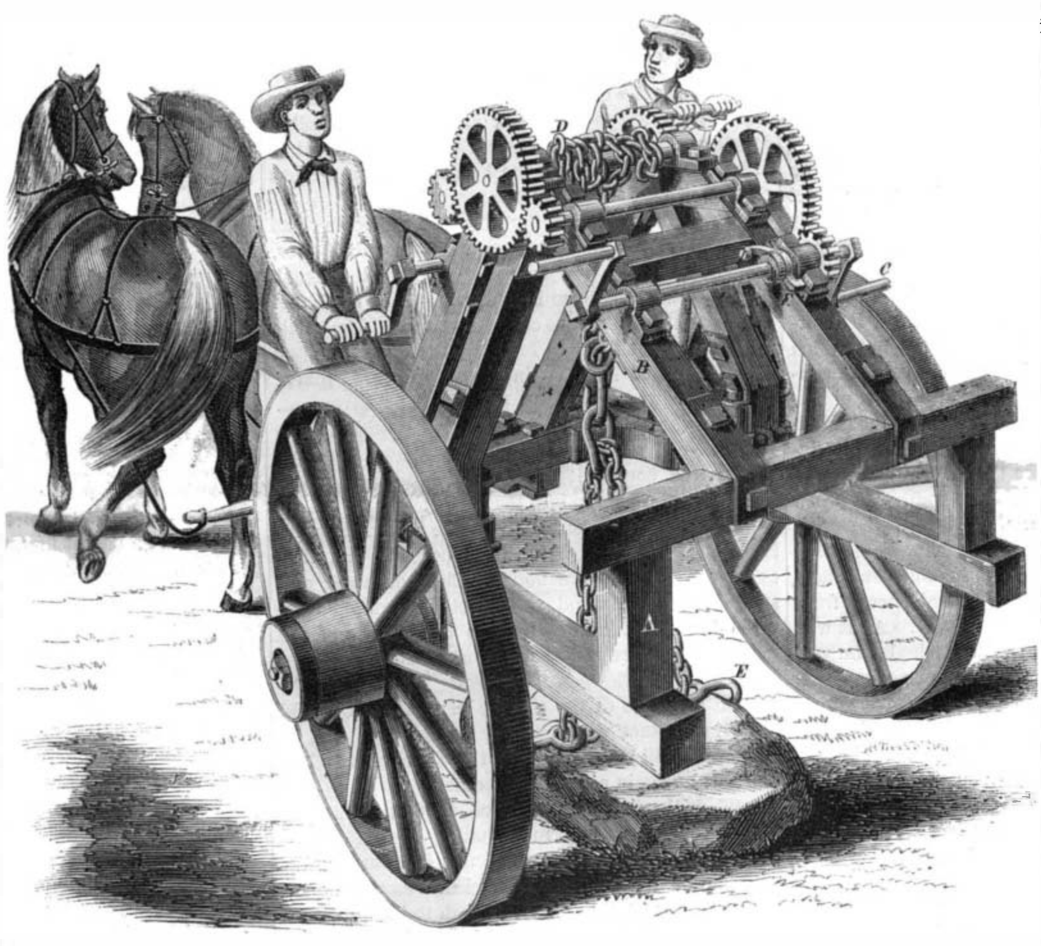
Improved Stone-lifting Machine.

The power-exerting machines which have recently been introduced into farming operations, are among the most useful and convenient assistants the agriculturist can have. Through them a great deal of labor is saved, and the work accomplished much more speedily.

The engraving which we publish herewith represents a powerfully-geared machine designed for raising stones, pulling stumps, loading heavy timber or logs on to sleds, or any other purpose that requires a great power, which can be easily managed by ordinary laborers. The machine consists of a very strong frame, A, mounted on wheels; this frame is surmounted by another wooden structure, B, which carries a system of gearing upon it. This gearing is so arranged that the handles, C, when turned, transmit a slow rotary motion to the axle or windlass, D, upon which the chain is wound. These chains connect to a shorter one which is fastened to the stone to be raised by two hooks, E. There are holes in the side of the stone, about half an inch deep, which have been drilled to receive the hooks in question, and when the latter are inserted and power applied to the winch handles, the stone is raised from its bed and may be carried to any point and deposited; there is to be a pawl (not shown in the engraving) working in the large wheel to prevent it from turning back when the load is hanging on the main chains. There is also a disconnecting clutch at F, by which one of the gears may be thrown out if necessary. The frame of the machine is strongly clamped to stand the severe strain it has to bear, and by having but two wheels it turns easier and has a clear space beneath in which the stone may hang while being conveyed to other parts of the field. Two men can raise a great weight with this system of gearing, and the efficiency of it is of course much increased when the number of assistants is doubled.



HATHAWAY'S STONE-LIFTING MACHINE.

The above machine was invented by R. T. Hathaway, of New Bedford, Mass., and for further information address him at that place.

The Expansive Force of Gunpowder.

An interesting experiment was made lately at Bridesburg, Pa., arsenal, under the supervision of Major Laidley, commanding, to ascertain whether a building for the filling or manufacture of cartridges could be constructed of an iron frame with wooden sides and tin roof, and if, in case of an explosion, the iron frame-work would remain standing. An iron framed building, with wooden sides and tin roof, twenty-three and a half feet square and sixteen feet in hight, was erected in the extreme end of the arsenal grounds, on the Delaware river. The woodwork upon the building was so constructed that the sides, by a heavy pressure, could be forced from the iron frame; from the outside they could not be pushed in by any force. In the building were six tables, each table containing about four boxes of cartridges. The ends of the cartridges pointing upwards were open. Boxes of powder were also on the tables. They were arranged the same as in a factory when the men are in the act of filling the cartridges. A galvanic battery was stationed at a distance from the building, and copper wires were run along on small poles and through one of the windows of the building, and thence into a powder box. Two of the sides of the building were torn from the iron, and thrown down. One was left remaining and the other partly down. The roof was lifted off and thrown a short distance. The boxes in the building contained eleven thousand five hundred cartridges and two barrels of powder.

The "Mystery" of a Boiler Explosion.

At a recent examination of a witness before a Coroner of Philadelphia, some "mysterious" circumstances, in connection with a steam boiler explosion were brought to light. The witness, Algernon Roberts, testified that he had examined portions of the exploded boilers at Messrs. Cornelius & Baker's Columbia-avenue factory, also at Morgan & Orr's establishment; the iron at Morgan & Orr's appeared to be in good condition. The witness exhibited a piece of iron from the exploded mud drum, which upon measurement proved to be about an eighth of an inch thick. To the mind of the witness that was a sufficient cause for the accident in that part of the boiler; the thinness of the iron was caused by corrosion; all the other iron examined seemed to be in a good condition. The "mystery" in this case, as in almost every other, was a simple deterioration of the drum from neglect, or rather the effect of time.

Large Mass of Copper.

Mr. J. B. Townsend, agent of the Minnesota Mine, has communicated the following facts regarding the large mass of copper found in 1857:—"The 'great mass' of the Minnesota Mine was discovered in February, 1857, between the adit and ten fathom level, or about 120 feet below the surface. It was imbedded in the belt of conglomerate which forms the foot-wall of the Minnesota vein. Previous to its discovery the regular vein at the junction of the trap and conglomerate had been removed. The foot-wall of the vein, at the place where the great mass was found, was perfect and regular as in other cases; the lode was also rich in mass copper. The great mass was discovered only by small strings or pieces of copper extending into the conglomerate. The mass itself was 45 feet in length, about 22 feet at the greatest width, and the thickest part was more than 8 feet. It was over 90 per cent copper, and weighed about 420 tuns. It required 13 months to complete the cutting up and sending it to the surface. Some 30 men were employed in cutting at a time. Several heavy blasts were necessary to loosen the mass from its bed. At the last blast or charge, 30 kegs of powder (750 lbs.) were used. The whole amount of powder consumed in the various trials was 95 kegs (2,375 lbs.) The principal features of this mass, of more than ordinary interest, were its great weight in one solid body, its remarkable purity, and its occurring outside of the regular vein in the conglomerate rock."

American Steamboat Engines and Models in England.

We find in a foreign contemporary the followin' paragraph respecting the adoption of plans of… steam vessels in England:—

"The first of two large steamers, intended for tl passenger trade between Quebec and Montreal, now in course of construction by Messrs. Barclay, Curle & Co., in their yard at Stobcross. They are being built from a fine New York model, and the work upon the first of them, the *Quebec*, is now in a forward state. Her dimensions are—Length of keel, 285 feet; breadth of iron hull, 34 feet; and 11 feet depth of hold. The decks are to project over the sides of the hull, and will be 60 feet across. On the main deck there will be a large and beautifully fitted up ladies' cabin, offices, luggage rooms, engine room, &c. Above the main deck there will be another deck, also 60 feet broad, extending the whole length of the vessel. This upper deck is to be devoted entirely to cabin passengers. The engine to propel the vessel is to be a single cylinder beam engine. The cylinder is to be 60-inch diameter, and 11 feet stroke, and will be supplied with steam at 45 lbs. pressure from two boilers. The paddle wheels will be 32 feet diameter, with floats 10 feet broad. The engine will work up to 1,500 horse-power, and is expected to propel the boat at a speed of twenty miles an hour. The other boat to be laid on after the *Quebec* will be the same in all respects. Each these steamers, with all on board, will draw only about 5 feet of water. They are being built under the superintendence of Mr. William Inglis, a Canadian engineer, now settled in Edinburgh. When the *Quebec* is finished she will be taken asunder, packed up, and shipped to Canada.

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"In order to extract the oil, wash the hoofs clean—then break up the shin bones, the finer the better, and cut the hoofs and bones of the feet into small pieces. Then put them in a kettle of any kind, and pour in water enough to cover the bones. The kettle should never be filled so full that the water will boil over the top of it. The finer the bones are broken, or cut, or sawed, the sooner the oil will be driven out. Now, let the kettle be covered as tightly with a lid as it can be conveniently, and boil the bones thoroughly all day. Of course, it will be understood that more water must be poured into the kettle as it evaporates.

"The object of covering the kettle with a close lid, is to retain the heat as much as possible, and thus expel the oil from the bones. The hot water and steam will liquify the oil and expel it from the bones, when it will immediately rise to the surface of the water. Therefore it is very important that the water should not be allowed to evaporate so low that the oil that has risen to the surface of the water should come in contact with the dry hoofs and bones, as much of it will be absorbed by them, and will be lost unless it be again expelled by boiling.

"When there appears to be oil enough on the surface of the water, pour in a pailful or two of cold water to stop the boiling, or let the fire burn down. Now dip off the oil into some clean vessel, and boil them again until there is oil enough to be dipped off again. The oil that is obtained by the first boiling is purer than that which is obtained at the second or third boiling.

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