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A POWERFUL CRANE.

Messrs. James Taylor & Co., of Birkenhead, England, have recently constructed and erected five large cranes, one of which was sent to Australia, the others being established, one at Greenock, two at Glasgow, and one at Dundee. Our engraving represents the last-named machine. It is nominally a 70 tun crane, but the test load is 90 tuns, and the makers have no fear of putting 100 tuns on it. It has already carried 80 tuns, lifting that load with only two thirds of the allowed pressure of steam, and lowering on the brake with a nicety that would enable the most delicate adjustment of its load, in case of its being used in erecting marine engines, to be made with confidence.

The crane will deposit its load a clear distance of 40 feet from the face of the quay wall, or 56 feet from the center of the pedestal of masonry on which it is fixed. The head of the jib is 60 feet in perpendicular height from the coping of the pedestal.

The main features of construction are in the arrangement, by which the center post gives way to a central pin, only subject to direct upward tension, the whole crane acting as a lever to raise it vertically. The fulcrum is the ring of 60 rollers running on the cast iron and steel roller race on the top of the stonework, eight or nine of which at a time take the thrust at the foot of the jib, and constantly change as the crane revolves; and the resistance is the weight of the masonry secured by six massive radiating holding-down bolts by which the central pin is anchored.

The hoisting, says *Engineering*, from whose pages we select the engraving, is effected by two barrels, winding simultaneously the two ends of the chain, which lead from the barrels to pulleys on the jib head, thence drop to and rise again from the gin block, the middle or loop of the chain being on a fixed compensating pulley hung fast close below the jib head. The gin block weighs 4 tuns. The winding barrels are grooved right and left, by which an even distribution of strains on the crane framing is secured. There are three speeds of lift, besides a separate crab with a single chain for light lift up to 10 tuns. The hoisting engines are a pair of vertical direct acting engines with cylinders 10 inches diameter and 16 inches stroke.

The revolving is effected by a pair of smaller independent horizontal engines. The boiler is a vertical one, very large in proportion to the work to be performed, and is fed by an injector. All the valves and levers are easily within reach of one engine or crane driver. Wrought iron predominates in the structure, and is obviously the best material for the framing, the jib, the center pin, and all such important parts of the machine.

New Deodorizer.

A working man named Wilkes, residing at Bloxwich, England, has patented an intercepting process which does away with the necessity for sewers—so far as refuse matter is concerned—altogether. The vital principle of Wilkes's patent consists in effectually dividing the liquid matter from the solid. This is gained by the division of the receiving pan into two parts. The next point arrived at is the effectual

deodorizing of both liquid and solid. Liquid matter is allowed to flow into a receptacle filled with a powder. This powder so effectually absorbs the moisture and kills any effluvia that, notwithstanding the fact that the receptacle examined had been in use for some months, no offensive odor of any kind whatever was discernible, even under the most critical testing. Solid matter is received into a receptacle which may either be made in the form of a movable pan or

at the end so pure as to allow of its being used for scouring purposes. Whatever alkaline, greasy, or solid particles of any kind there may be are left behind amongst the powder in the tanks. The tanks in their turn are emptied, and a valuable manure secured.—*Birmingham News*.

Sewer Gas Dangers.

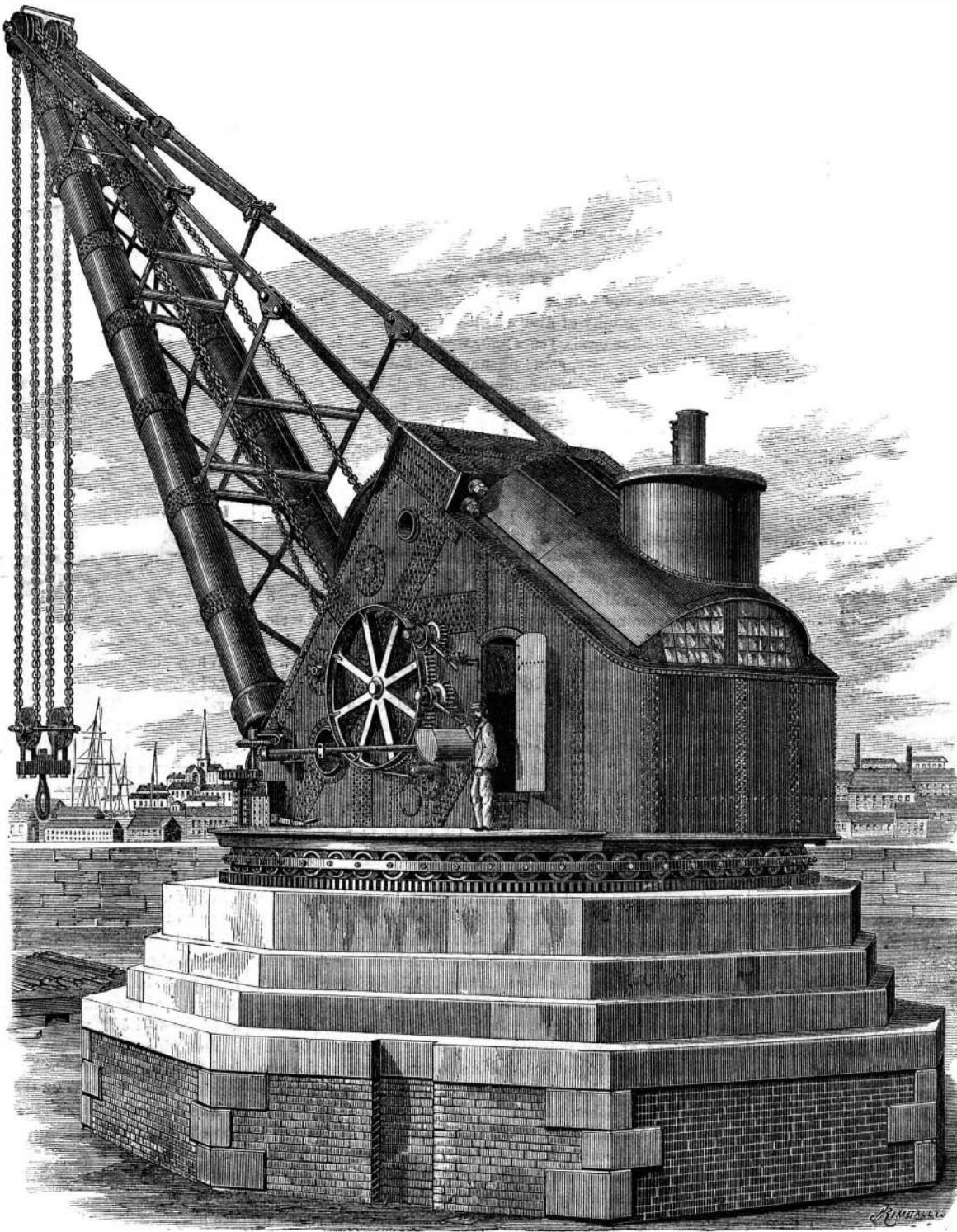
It is rarely that so striking an instance of the dangers of sewer gas as that reported by Dr. Trask, of Astoria, N. Y., in a recent number of the *Medical Record*, is brought to public notice. This physician states that a lady patient, shortly after confinement, was attacked with severe symptoms of fever and acute peritonitis. On the same day her son became sick with a severe continued fever, a week after a servant was taken with a similar malady, and so on through the members of a family of ten persons, only two of whom were excepted. After investigating every possible source of the epidemic, the doctor became convinced that it was due to the escape of mephitic gases from the mains of the house, and a long search finally brought to light an imperfect joint, which allowed the noxious emanations to pass up between the plastering and wall of the parlor. The family shortly afterward removed to another house, and here the health of all the members greatly improved; but on the other hand, the lady again became a sufferer with a chronic ailment. Another search, after she had undergone a tedious convalescence, proved that her illness was due to the same cause as before, this time produced by the choking up by ice of a soil pipe adjacent to her apartment. The medical aspects of the cases are peculiar, though not intelligible to the general reader. The report will, however, serve a good purpose if it suggests to people the overhauling of their drain pipes at once. During the winter, when pipes are easily blocked by frost, joints are liable to break or loosen and gases to escape, so that the present is the time to see that the entire house system is in perfect condition.

Molasses Manure.

We learn from *La Sucrierie Indigène* that, in consequence of the low price of beet molasses, attempts are being made in France to introduce it in the place of manure. It is used either in a liquid form, diluted with seven parts of water, or as a powder; and just at this moment it is cheaper than ordinary manure, while it contains all its essential elements in equal abundance. As soon, however, as the cold weather comes on, the molasses will again be required for cattle-feeding purposes, and will probably rise to a price at which it would be useless for manure.

WHILE tunneling into the side of Mount McLellan, Colorado, recently, the explorers came upon ground solidly frozen ninety feet from the surface. The question is how the frost got in, as there was no crevice through which it could enter.

IRON may be cemented in wood by dropping in the recess prepared in the latter a small quantity of a strong solution of sal ammoniac. This causes the iron to rust, rendering it very difficult to extract.



TAYLOR & CO.'S STEAM CRANE.

a fixed chamber, to be emptied periodically. On the solid matter the powder is sprinkled either mechanically, as in the case of Moule's earth closets, or by hand. In either case, no odor whatever can be detected. When the receptacles are full, they can be emptied either by day or by night, for there is no unpleasant smell perceptible. The refuse matter is taken away, and laid in heaps to dry. After this, it is pulverized, and can be sold as a most valuable manure at as high a rate as \$26 per tun. The manure itself, when ready for transport, has the appearance of fine cement, and it is also devoid of odor. With reference to the powder spoken of, it is simply the result of calcining the contents of vegetable refuse and ashpits. It is much more effective than dry earth, and costs a mere trifle. The patent also embraces a very ingenious method of dealing with slops taken from the house, whether greasy water, soapsuds, or whatever they may be. The great feature, in short, throughout the system, is to obviate the necessity for anything in the shape of sewers. The apparatus for disposing of slops consists of a very simple set of filters, the water in its passage percolating through two small tanks filled with the powder, and exuding