Wrecking, Drainage, and Irrigating Pump.

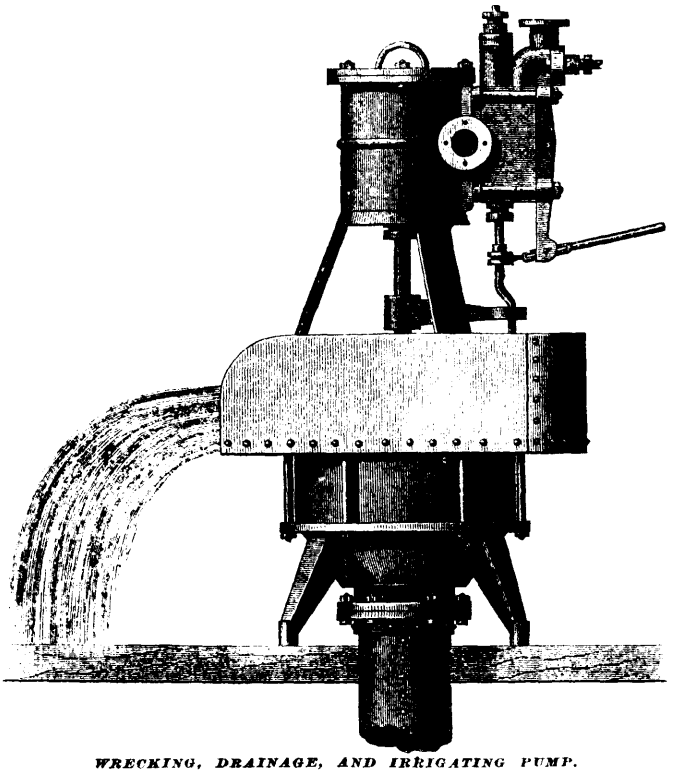
The adjoined engraving represents what is well known by the name of the Worthington Wrecking Pump. It is a direct-acting steam-pump, constructed in such a way as to obtain the greatest advantage of the steam practically available under the peculiar circumstances in which such pumps are to be used. It is a direct and single acting steam-pump, and the connecting flange, seen in the upper part of the engraving, has only to be connected with a steam boiler to have the whole in operation.

It is almost exclusively used by the New York Coast Wrecking Company, and by the principal wrecking companies of the whole Atlantic and Pacific seaboards. The large steamer Massachusetts, which last fall sank in the Long Island Sound, would have been a total loss without the aid of these powerful pumps, eight or ten of which were applied to raise her and bring her safely on one of the sectional dry docks in this city, where she was thoroughly repaired and made as good as new. Captain Merritt, of the wrecking company, maintains that it is not only the best wrecking pump, but in fact the only pump that is of any practical use in this kind of business.

It need scarcely be said that such a powerful pump is also well adapted for the purpose of draining low lands, of which there are hundreds of square miles all over the country, even within sight of New York city, which are now useless, but which, by proper drainage, could be redeemed and made worth millions.

For the same reason this pump is adapted for the opposite purpose—the irrigation of lands where, instead of having too much water, there is a deficiency of the same. Experience has always shown, that by the doubling and tripling of the crops in such localities, the expense of irrigation was always repaid manyfold, and even useless lands have been redeemed and changed into profitable agricultural districts.

For further information, apply to the Reading Hydraulic Works, of 87 Liberty street, New York, selling agents for H. R. Worthington, the manufacturer.



WRECKING, DRAINAGE, AND IRRIGATING PUMP.

Boiler Inspection.

At a recent meeting of the steamer and boiler owners in St. Louis, Mo., Mr. J. Marriot said that he was very strongly in favor of the hammer test, in which the eye, the ear, and sound all tended to make the test infallible. He regarded the hydrostatic pressure, as employed by the City Boiler Inspector, as weakening and dangerous. Under such inspection the boiler was tested when in a cold state, and the result could not be entirely satisfactory. The strain was harsh and severe, and the speaker, who had in his employ 156 persons, said that for ten or twelve days after the testing of his boilers by hydrostatic pressure he was always fearful of an explosion. He wanted the privilege of having his boilers tested in a manner that seemed best to him, and not be obliged to submit to the test imposed by the city. He looked upon the hydrostatic test as a more fruitful cause of explosions than anything else, and the city, by requiring its use, placed manufacturers in a sorry plight. It endangered the entire insurance upon their property.

Capt. Fitch, of the Harrison Wire Works, was equally strong in favor of the hammer test. In his experience in the United States Navy for twelve years, he had never seen hydrostatic tests used on board ship. The engineer made his own test with the hammer, and there were no regulations for any other test than this.

John Nolan, a boiler-maker, was opposed to the hammer test, and did not believe that it could be successfully applied, especially in small upright boilers.

Capt. Stephenson, of the United States Board of Inspectors, thought there was no test so satisfactory as that by hydrostatic pressure. It reached all parts of a boiler, and was sure to find a weak spot if there was one. It was impossible, he thought, to tell by hammer test whether a boiler would carry 40, 50, or 100 pounds of steam, yet by the hydrostatic test this fact could be arrived at. He employed the latter test, and had full confidence in its merits.

Col. J. W. Paramore, of the St. Louis Cotton Compressing Press Co., said that he had several instances to relate wherein the hydrostatic test had found his boilers all right, and the hammer test, applied immediately after, had developed most serious defects. His confidence was therefore seriously shaken in the test required by the city.

Jacob Tamm, of the St. Louis Wood Works, viewed the hydrostatic test as injurious. He had had a boiler tested by the City Boiler Inspector, and had received a certificate from the inspector of the good condition of the boiler. Two days later it developed a leak, and this he attributed to the hydrostatic pressure that had been applied.

Mr. E. Godard had been a steam user before the city required boiler inspection, and when the ordinance was passed requiring hydrostatic test, he had been fearful of results, for it was against reason to suppose that iron would withstand in all its parts the strain imposed in a cold state. He desired to elect how his boilers should be inspected.

A number of other interested parties also gave their views, and many more conflicting opinions were expressed. The meeting finally adjourned without coming to a decision.

If we wish to draw a conclusion from the above conflicting opinions, we must remember that experiments have proved (see page 274 of our December number for 1877) that wrought iron is stronger at the temperature of steam than when cold, and therefore if a boiler stands a certain pressure while cold, it certainly will stand the same pressure when hot. When it is said that boilers have been injured by the hydrostatic test, (and in fact we are personally acquainted with cases where boilers were actually made leaky by this test), we answer that the leaks were weak spots revealed by the hydrostatic pressure, and that it was fortunate that they were thus discovered in time. Of the value of the hammer test there can be no dispute, and we are consequently driven to the conclusion that both tests ought to be combined.

The trouble is, however, that the hammer test is difficult and laborious; nothing is easier or quicker done than to fill a boiler with water and apply a hydraulic pump until a certain degree of pressure is indicated by the gauge, or until the weakest parts give out; while the hammer test requires (what the government inspectors do not like) creeping into the furnace, or even into the boiler, and spending a certain amount of time until they find, or do not find, defective spots.

COMPARATIVE FIRE-RESISTING QUALITIES OF ORDINARY BUILDING MATERIALS.

From a paper recently read at the Convention of the American Institute of Architects, by R. G. Hatfield, we glean the following facts:

Brick possesses the best known fire-resisting qualities. Stone, though inferior to brick, is far superior to iron. Granite, when exposed to a very great heat, will crack and splinter freely. Marble is quickly reduced to lime. Sandstones disintegrate. Only those stones which are of volcanic origin may be safely trusted in fire.

The extensive use of iron as a material of construction is of recent date, yet the experience, especially at Chicago and Boston, has materially lessened confidence in its fire-resisting character. Wood is generally supposed to have the least power to resist fire. This idea in the main is correct, and yet under certain circumstances wood will stand fire longer than iron. Firemen are rather reluctant to enter a burning building which has iron supports, yet do not hesitate where they are of wood. A floor of wooden beams placed apart in the usual way has but little fire resisting quality. The fire, aided by a current of air between the beams, rapidly consumes them. In order to remedy this defect in the construction of wooden floors various devices have been used, one of which is the use of thick coatings of plaster or gypsum upon the lathing at the bottom of the beams, and also to extend them up on each side. This forms a good filling and will prevent the passage of air, but induces a rapid decay of the timbers, and besides the fillings produce too much weight. If some filling could be used which would support itself, such, for instance, as wood, or if the intervening spaces were filled with additional wooden beams, so as to make the flooring one solid mass and shut up all air passages, such floor would resist the action of fire for hours. But then wood is subject to decay, and some remedy might be devised to prevent this decay before the above method of building floors would be satisfactory.