

# SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES

Vol. XXXVIII.—No. 21.  
[NEW SERIES.]

NEW YORK, MAY 25, 1878.

[\$3.20 per Annum.  
[POSTAGE PREPAID.]

## IMPROVED FEED WATER HEATER AND PURIFIER.

That there are utility and economy in a steam boiler heater that will warm the feed water to 212° with a part of the heat of the waste fuel, which escapes with the exhaust steam of a high or low pressure engine, is a matter scarcely to be doubted. The best mode of accomplishing this end, and at the same time preventing the formation of scale and the accumulation of dirt and grease in the boiler, are practical questions which should demand the attention of steam users.

The heater and purifier which our engraving illustrates has some new features, and is the invention of Mr. T. J. Lovegrove, of Philadelphia, an engineer of ability and experience.

The heater consists of an outer water chamber, from 12 to 16 feet long, the diameter depending upon the horse power of the engine, in which the cold water is pumped at the top and falls through water of about 200° Fah. After remaining in this chamber one hour it flows over the top of the inside apartment, of the same length, where it remains the same time. The inside chamber is supplied with copper or brass tubes, which are claimed to present sufficient surface to heat the water to a temperature of 212°. The exhaust steam has an uninterrupted passage through the tubes, with ample area to prevent loading the engine with back pressure. The double chamber prevents the tubes from becoming foul.

The outside case has a nozzle in which the dirt accumulates. This is large enough to receive a small shovel after the cap is removed. It also has a lower and upper blow-off. The inside chamber has a blow-off at the bottom only.

The tubes are expanded in a brass tube-sheet with a gum expander, which prevents the hardening, as is the case with the metallic expander. The deflection of the long tubes amply provides for their expansion and contraction.

The inventor submits a tabular statement of tests of this heater at the cotton and woolen manufactory of Messrs. James Smith & Co., Philadelphia, from which it appears that the percentage of gain due to the apparatus was 22½ per cent.

For further information address Mr. T. J. Lovegrove, 3,326 N. Broad street, Philadelphia, Pa.

RECENTLY at the Middlesex quarry at Portland, Conn., three drill holes were made from 8 to 9 inches in diameter, 17, 18, and 19 feet deep, and about 35 feet apart. It required several kegs of powder to load them, and all were fired simultaneously by means of an electric battery. A solid block of stone, moved out several inches, measured 110 feet in length, 50 feet in width, and 22 feet in depth, and contained 121,000 cubic feet of stone, or 12,100 tons in weight.

## Novelty in Yarn.

Mr. Louis Cordonnier has hit upon a singular method of producing a novelty in yarn; this is not surprising when we consider the immense number of varieties of cloth which our neighbors designate as *nouveautés*, and what we term "fancy cloths." After having tried every imaginable way of weaving to produce different effects, there hardly remains anything new but to return to the spinning. Mr. Cordonnier takes a mule, and places upon this another row of rollers, through which, at a different speed, he passes a colored or plain thread, but twisted in the reverse way of the direction of the yarn to be operated upon. In this way, when the spindles revolve, the two threads are twisted, but the additional yarn is at the same time untwisted; he then takes this doubled yarn, and twists it again with the same or any other yarn, but running it again in the opposite direc-

the A. Houghton, was wintering last year at Marble Island, in the upper part of Hudson Bay, he obtained from some Nechelli a silver spoon with Franklin's crest on it. These Nechelli told him exactly the same story respecting the party of white men that he had heard from others at Repulse Bay five years before. This corroboration led Chief Justice Daly, President of the American Geographical Society, to see Barry, with whom, he tells us, he had a long, full, and very satisfactory conversation. On the authority of Joe Ebering, so well known in connection with Hall's Expedition, Justice Daly states that Barry speaks Esquimaux very well, and the Justice is thoroughly satisfied of Barry's truthfulness.

The Nechelli whom Barry met last winter, gave substantially the same account as the others, and two, who were between fifty and sixty years of age, said they had seen the white men. The Nechelli offered to go and point out the

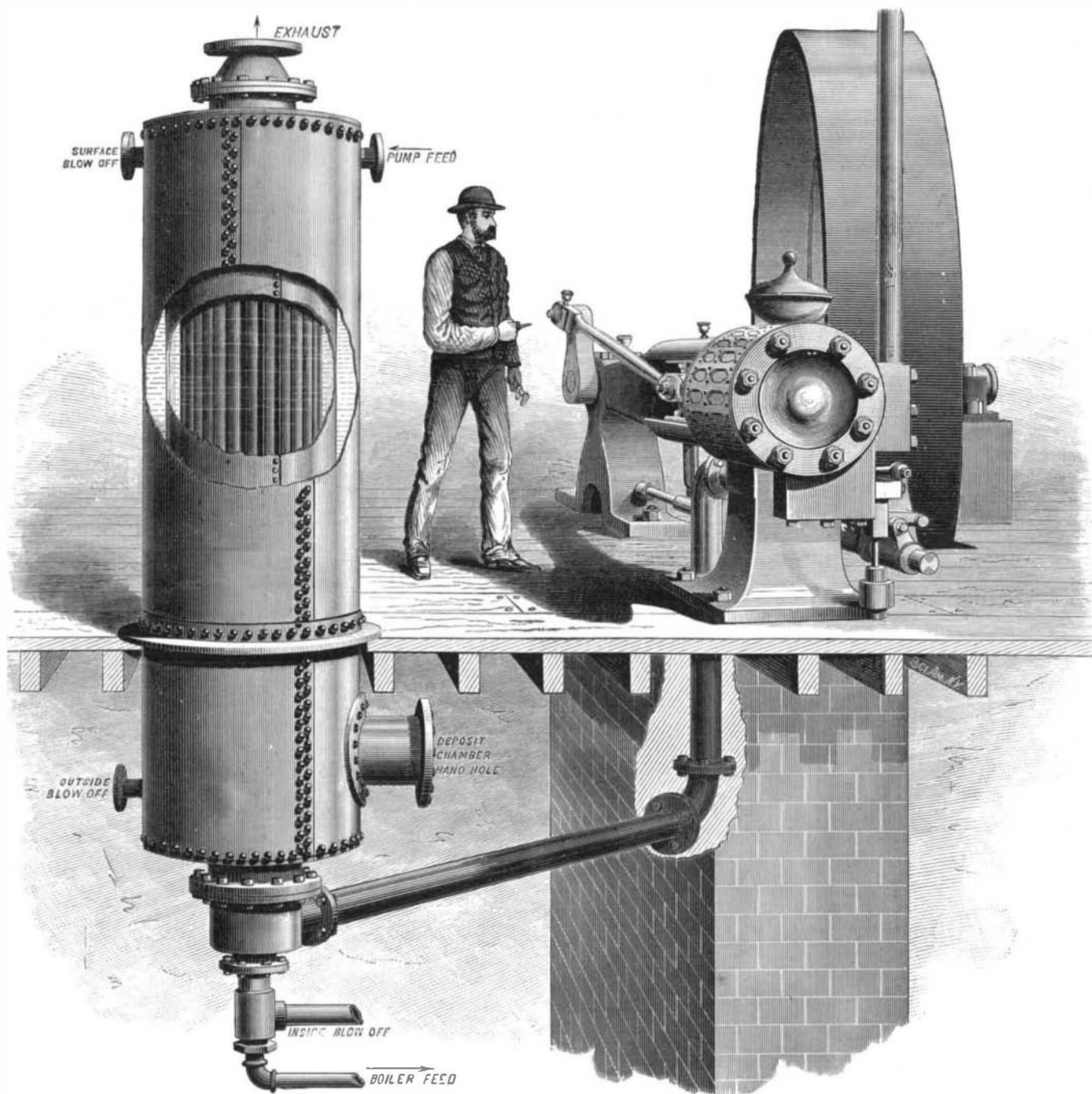
spot where the cairn still remains, with the books or papers that were put under it; but it involved a journey of over 400 miles, and those in the vessel were not provided with the equipment necessary for such an expedition.

Whatever conjectures may be indulged in, we think with Justice Daly there is sufficient information communicated to Captain Potter to justify a search for the spot where the Nechelli say this party of white men died, which could be done at a comparatively small expense, and might very well be undertaken by some of those private persons who have money and public spirit enough for enterprises of this kind.

Apart from the interest that is felt in knowing the fate of the officers and crews of the Franklin Expedition, there is the expectation that where the last of them perished some record will be found which will be of scientific value if it should contain the observations made over this part of the Arctic region by the expedition. The record of his journey is the very last

thing that an explorer will part with; everything will be sacrificed for its preservation; and the assurance, Justice Daly thinks, may be felt that some memorial containing documents and papers, the precious record of their labor and fate, was erected in the vicinity of the place where the last of them died, in the hope that at some time in the future it would be found by civilized man.—*London Times*.

A QUANTITY of well executed counterfeit trade dollars has been captured in Cincinnati. They are composed of block tin, bismuth, and pulverized glass. They possess pretty nearly the standard weight, and have the exact color and the true ring of the real dollars. The only means of detecting them from the genuine is by means of a weigher or by pressing them between the teeth, when the glass which they contain emits of a cracking sound.



LOVEGROVE'S IMPROVED FEED WATER HEATER AND PURIFIER.

tion, which untwists the first thread, and produces a very singular effect, and one which in the loom will no doubt produce a novelty.—*Textile Manufacturer*.

## Sir John Franklin.

In 1872, while Captain Edward Potter was wintering in Repulse Bay, he obtained a few spoons and other relics of Sir John Franklin's ill-fated expedition from two Esquimaux of the Nechelli tribe. They told him that a party of white men came, a long time before, to the place in the Gulf of Boothia where the Nechelli were then wintering, and all had died there from exhaustion and want of food. This information, which seemed improbable then, was confirmed by later reports. During the present year, however, Thomas F. Barry, who was with Captain Potter in 1872, brought back the intelligence that while his vessel,