

A New Boiler Cleaning Compound.

The Empire Boiler Cleaning Company, of 19 Whitehall Street, New York, are introducing a new boiler compound, furnished in the form of a powder and placed in a cup attached to the top of the boiler. The steam entering the cup condenses and the moisture is quickly absorbed by the powder, which then gradually dissolves and passes into the boiler. The basis of the compound is metallic mercury, which, being set free in a finely divided state, impinges upon the surface of the tubes and plates, where it works its way under the scale, seeking the other metal, and by the combined action of heat and pressure it is claimed that it mechanically breaks away the scale and forms upon the clean iron or steel an oxide, which is a very thin coating similar to enamel. It is claimed that this enamel coating in a short time so fortifies the surface of the tubes and shell that corrosion and scale become impossible.

THE LARGEST SAILING VESSEL IN THE WORLD.

A little more than three years have passed since the proud German five-master Maria Rickmers started from an English port on its first voyage, from which it never returned. It disappeared without leaving a trace. Only one sailing vessel of similar dimensions has been built since (we refer to the French five-master La France); but now Germany has become the possessor of the largest sailing vessel in the world. On June 8, of this year, the five-master Potosi was launched from the yards of Tecklenborg, and a short time ago started on its first voyage to Iquique. The vessel is owned by the well known Hamburg house of F. Laeisz, and its command was given to Captain Hilgendorf, who has made remarkably quick voyages with other vessels built in the Tecklenborg yards and enjoys a very high reputation for ability.

The Potosi is so enormous that other sailing vessels which have been considered large appear like dwarfs beside it. It is about 426 feet 6 inches long, 52 feet 5 inches broad, and 32 feet 9 inches deep. It has a capacity of 6,150 tons, or 550 tons more than that of La France. The uninitiated may obtain a better idea of the great size of this vessel from the following figures: 5,511,500 pounds of iron were used in its construction, and the vessel, which will make regular trips to the western coast of South America for saltpeter, can carry about 13,227 bags of this salt. For the transportation of the same quantity by rail 600 double cars would be required, which, if coupled together, would make a train more than 3 miles long.

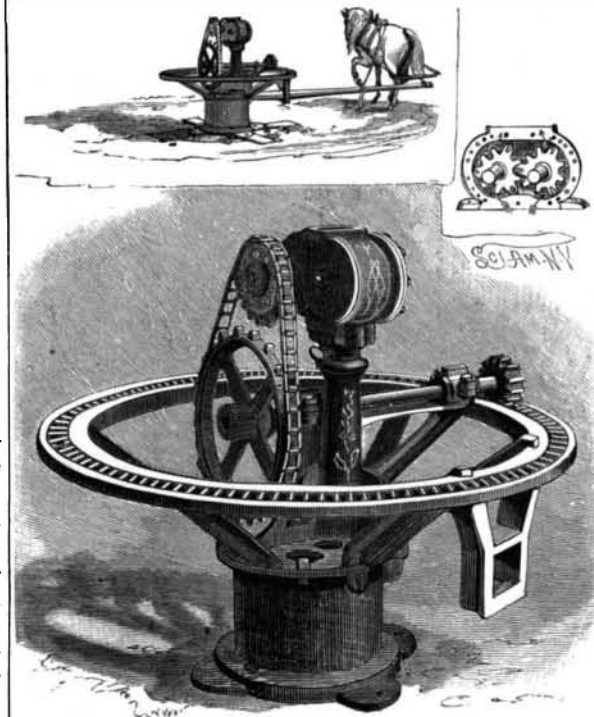
The Potosi carries 39 sails that are made of canvas nearly two feet wide, and if all of these pieces of canvas were sewed together they would make a strip nearly one and one-half miles long. The vessel can carry as many people as there are in a city of the size of Bremen.

The Potosi excels other sailing vessels not only in size, but also in the elegance of its construction

and fitting. The Maria Rickmers was built in an English yard, but, as we have said, the Potosi was constructed in Germany and is a specimen of ship building of which all Germans may well be proud. May good fortune attend her in all her voyages!—*Illustrirte Zeitung.*

AN EFFICIENT HORSE POWER AND PUMP.

The illustration represents a simple, strong, and highly efficient horse power and pump, which has been



BEEBE'S HORSE POWER AND PUMP.

in general use on the Pacific coast for the past eight years. It has been patented and is manufactured by R. M. Beebe, of Gridley, Cal. The flanges of the center casing are bolted to timbers over or at one side of a well, and the large gear or master wheel as it revolves sets in motion the pinion shaft and large chain gear which runs the pump, a sectional view of which is shown in the small figure. It comprises a pair of corrugated cams working together in an oval case, the ends of long teeth being packed with blocks of metal inserted in grooves and pressed out by springs, insuring a perfect vacuum and taking up wear. The water enters at the bottom by suction, the stream dividing and filling the chambers made by the long teeth as the cams revolve, and discharging at the top. The rotary motion is steady and continuous, there being no dead points, and the pump may also be used as a force pump to force water to any height or distance from the pump.

The Phonograph Explained Just What Ailed a Big Pump in California.

It appears that the Knowles Pump Works put up one of their large pumps for the Ricks Water Company at the Elk River pumping station in California. The pump was in constant use for some years and the makers heard no complaint until a few weeks ago, when they received a novel communication from H. L. Ricks, the manager of the pumping station.

There was no doubt in the minds of those at the station who were best acquainted with the mechanism that something was wrong with the pump, but they were unable to fix on the defect, and as the dismemberment of the pump would involve much loss of time, and as a visit by an expert from the East would mean a considerable expense, the phonograph was resorted to. The manager spoke into the receiver, describing the symptoms of the ailing pump, and further to indicate the case, he placed the receiver so that the pulsations of the pump would be recorded on the roll.

Just as a physician listens to the action of the heart or lungs in the human body by means of a stethoscope, so the pump doctor listened by means of a phonograph to the throbs and pulsations of the pump thousands of miles away, and was enabled by that means to diagnose the disease.

The New York Tribune tells how a reporter listened to the strange communication at the New York office of the Knowles Company. The voice of the Californian is heard first giving in a clear, precise, and distinct way the symptoms of the pump, and then he asks the listener to pay attention to the pump's action. Then one hears the b-r-r-r-bang! b-r-r-r-bang! of the pump and an occasional wheezing sound which might be made by escaping steam.

The engineer to whom the phonograph was submitted said that the whole record was so perfect and the speaking so plain that he felt tempted sometimes to interrupt and ask additional questions.

The experiment proved absolutely successful, and by means of the roll the disease was diagnosed. The proper remedy was suggested, and the pump is running once more "good as new."

Spools.

Practically all the wood used in making spools for thread in this country and Great Britain is cut in Maine forests, but so great is the amount of lumber required each year for the making of these seemingly insignificant articles that Maine will not be able to supply the raw material much longer. The spools are made of birch wood, and the birch of the Maine forests is the best for the purpose. More than two million feet of lumber is shipped to Scotland every year for the use of the great thread manufactories there, and almost as much is supplied to domestic manufacturers. The business began in Maine twenty-five years ago, and land that was cut over at that time is now well covered with young trees, but not for twenty-five years more will this timber be fit to cut.



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