

SCIENTIFIC AMERICAN

[Entered at the Post Office of New York, N. Y., as Second Class Matter.]

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

Vol. LIII.—No. 14.]
[NEW SERIES.]

NEW YORK, OCTOBER 3, 1885.

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

FLOATING DEPOSITING DOCK AND HYDRAULIC GRID DOCK.

Those who have inspected the stand of Messrs. Clark & Standfield, of 6 Westminster Chambers, London, at the Inventions Exhibition, will agree with us that floating dry docks and docking accommodation are eminently well represented there. The exhibits of this firm consist mainly of drawings, photographs, and working models of the several systems of docks and hydraulic canal lifts which have been designed and carried out by them at various ports, both at home and abroad. It is not our intention to enumerate the numerous exhibits, but rather in the present and succeeding articles to describe and illustrate the leading practical applications of Messrs. Clark & Standfield's system of depositing dock.

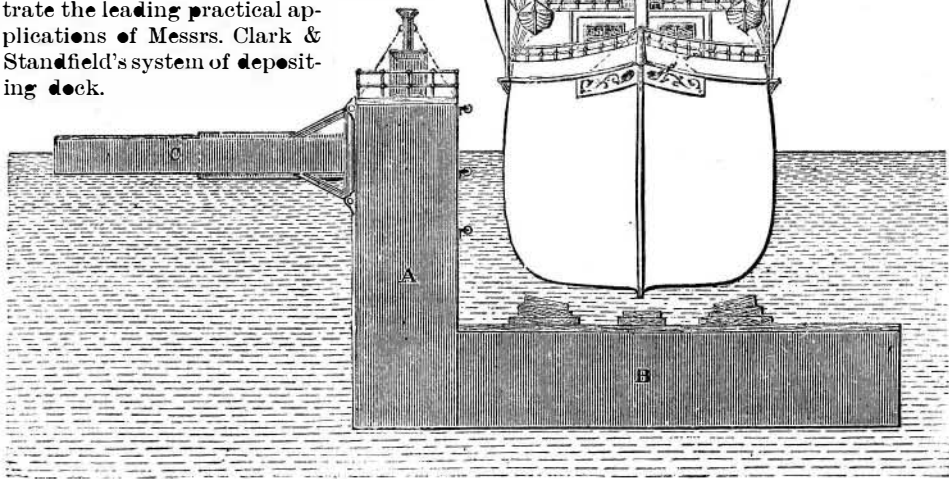


Fig. 2.

docks, and in sheltered harbors where there is a pretty constant water level. Its unusual form, and the manner of its working, will be easily seen by referring to our illustrations. The end elevation, Fig. 2, shows it to be an L-shaped dock, that is, having only one side.

are permanently closed, so that it is impossible to sink the dock. Each compartment has independent pipe connection with the pumps, which are situated in wells close to the bottom of the vertical side, and which are worked by two or more semi-portable engines placed on an engine dock in the vertical side. The side is also divided into separate watertight compartments. The pipes are divided into groups controlled by valves, which are worked by one man on the upper deck. The outrigger is divided into watertight compartments, and is ballasted so as always to float at half its depth. It communicates with the upper deck by means of self-adjusting ladders, and with the pontoons by

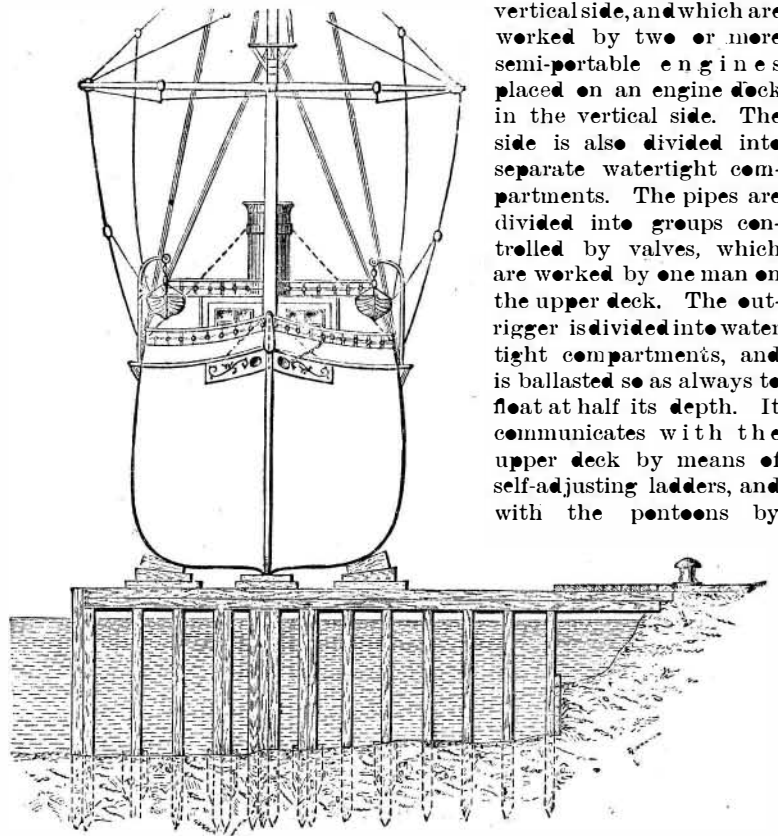


Fig. 3.

FLOATING DEPOSITING DOCK AND HYDRAULIC GRID DOCK.

In our present notice we confine ourselves to a general description of this dock and the hydraulic grid. Fig. 1 of our engravings represents a general view of a naval establishment provided with Clark & Standfield's gridiron stage and depositing dock. Figs. 2 and

The broad, shallow pontoon attached on the left of the vertical side of the dock is called the outrigger. Its function is to keep the dock horizontal while being lowered or raised. The stability given by the outrigger is quite equal to that of a dock with two sides.

means of gangways passing through the side of the dock. It forms a convenient store for tools and materials.

When the dock has been lowered by admitting water in the usual manner, the vessel is brought over the

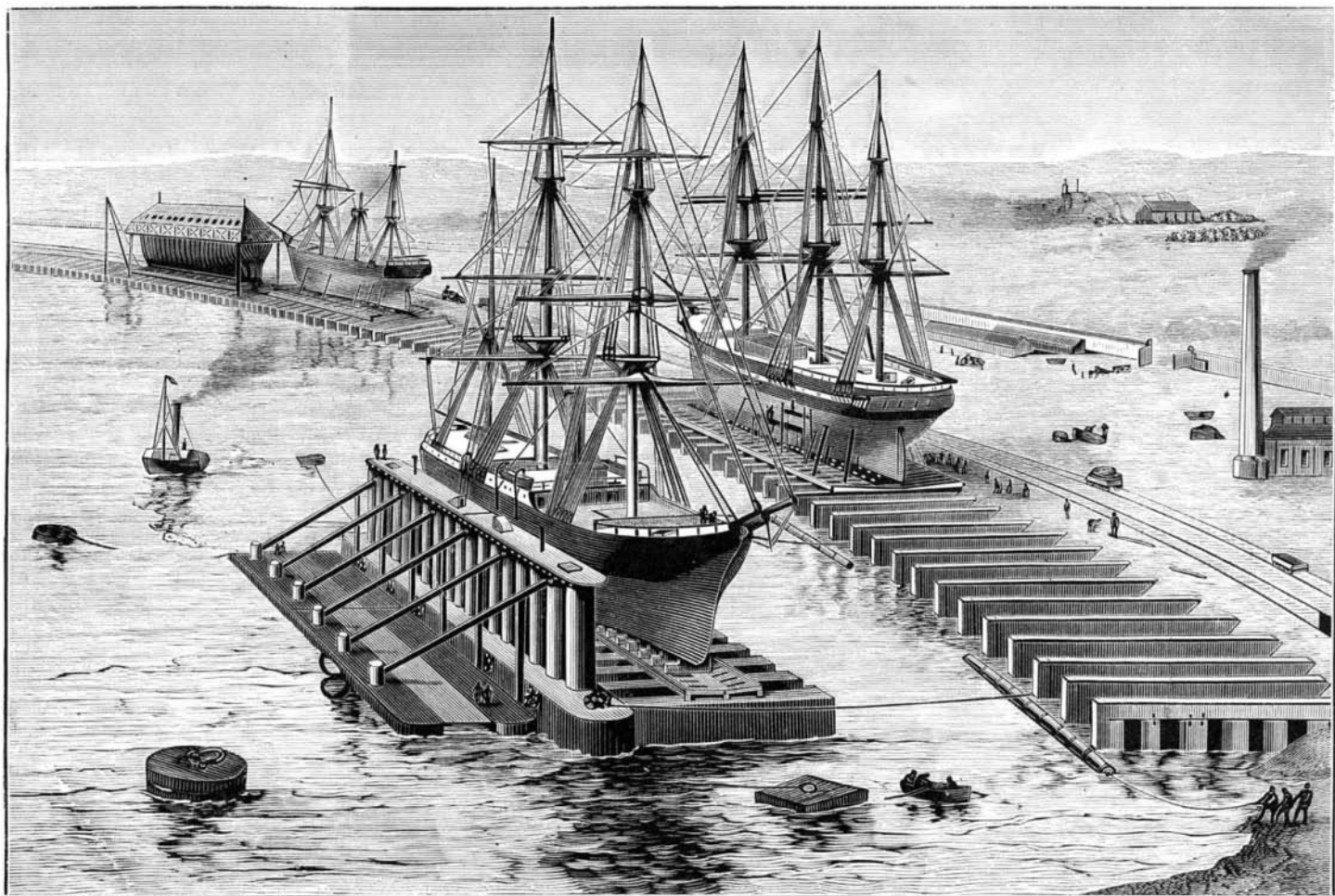


Fig. 1.—FLOATING DEPOSITING DOCK AND HYDRAULIC GRID DOCK.

3 illustrate the details and the working of the system. The depositing dock has the very great advantage that, by means of its staging, it can accommodate any number of vessels at the same time, as shown in the general view. It is particularly suited for use in wet

The bottom consists of a series of parallel fingers or pontoons, firmly connected to the vertical side, but quite free at the outer ends. These pontoons are divided into several watertight compartments by means of internal bulkheads. Some of these compartments

pontoons, and readily centered by means of movable shores, which are easily controlled from the upper deck. Sufficient water is then pumped out to cause the vessel to take a bearing on the keel blocks on the pontoons. The bilge blocks, which are also worked

from the upper deck, are then brought into position, and the vessel is thus secured. Pumping is then continued until the vessel is raised clear of the water.

The special feature of this dock, from which it has been named, is seen in the next operation, viz., that of depositing the vessel on the staging. Fig. 3 shows an end elevation or section of the staging, which is formed of parallel rows of vertical piles of iron or timber, capped by horizontal timbers.

It will be seen that the depositing dock is specially suitable for large commercial ports where many vessels have to be docked, as one dock can serve any number of vessels; the number of vessels that can be accommodated is, in fact, limited only by the length of staging provided.

The dock is very economical in its working, and requires much less pumping to be done than an ordinary stone dock. When a vessel is on the staging, it is fully exposed to light and air, and is in an exceptionally favorable position for being painted or repaired.

We may add that in 1876 Messrs. Clark & Standfield constructed for the Russian government a large depositing dock. The firm have also constructed a depositing dock at Barrow, to dock vessels up to about 3,200 tons displacement, and also another dock for the Russian government, to dock vessels up to about 8,000 tons displacement.—Iron.

THE following is a good remedy for burns: Mix 4 ounces of the yolk of eggs with 5 ounces of pure glycerine. This forms a kind of varnish.

Scientific American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors.

PUBLISHED WEEKLY AT

No. 361 BROADWAY, NEW YORK.

O. D. MUNN.

A. E. BEACH.

TERMS FOR THE SCIENTIFIC AMERICAN.

One copy, one year, postage included.....\$3 20
One copy, six months, postage included..... 1 60

Clubs.—One extra copy of THE SCIENTIFIC AMERICAN will be supplied gratis for every club of five subscribers at \$3.20 each; additional copies at same proportionate rate. Postage prepaid.

Remit by postal order. Address

MUNN & CO., 361 Broadway, corner of Franklin Street, New York.

The Scientific American Supplement

is a distinct paper from the SCIENTIFIC AMERICAN. THE SUPPLEMENT is issued weekly. Every number contains 16 octavo pages, uniform in size with SCIENTIFIC AMERICAN. Terms of subscription for SUPPLEMENT, \$5.00 a year, postage paid, to subscribers. Single copies, 10 cents. Sold by all newsdealers throughout the country.

Combined Rates.—The SCIENTIFIC AMERICAN and SUPPLEMENT will be sent for one year, postage free, on receipt of seven dollars. Both papers to one address or different addresses as desired.

The safest way to remit is by draft, postal order, or registered letter. Address MUNN & CO., 361 Broadway, corner of Franklin Street, New York.

Scientific American Export Edition.

The SCIENTIFIC AMERICAN Export Edition is a large and splendid periodical, issued once a month. Each number contains about one hundred large quarto pages, profusely illustrated, embracing: (1.) Most of the plates and pages of the four preceding weekly issues of the SCIENTIFIC AMERICAN, with its splendid engravings and valuable information; (2.) Commercial, trade, and manufacturing announcements of leading houses.

Terms for Export Edition, \$5.00 a year, sent prepaid to any part of the world. Single copies, 50 cents. Manufacturers and others who desire to secure foreign trade may have large and handsomely displayed announcements published in this edition at a very moderate cost.

The SCIENTIFIC AMERICAN Export Edition has a large guaranteed circulation in all commercial places throughout the world. Address MUNN & CO., 361 Broadway, corner of Franklin Street, New York.

NEW YORK, SATURDAY, OCTOBER 3, 1885.

Contents.

(Illustrated articles are marked with an asterisk.)

Table listing various articles such as Air bladder in fishes, Boats, torpedo, new English, Business and personal, Cranes, steam crane, 15-ton, Electricity and dust, Hair and frockles, removing by electricity, Hammers, Vulcan, for Sweden, Heat, solar, utilization of for the elevation of water, Horse, hobby, improved, Horses, training, apparatus for, Ice, contraction of, Inventions, agricultural, Inventions, engineering, Inventions, index of, Inventions, miscellaneous, Lamp, extinguisher, automatic, Mirror pivot, spring friction, New books and publications, Nose, drum drainer's, why it is red, Notes and queries, Photographic notes, Planets, aspects for October, Plants, to grow from cuttings, Pneumonia and ozone, Railway leads, increased, Seal fishery, the, Skates, roller, stop attachment for, Solder for glass, porcelain, and metals, Stiletto and Atalanta, Supporting and end thrust anti-friction pads for shafts, Telephone litigations, new phase in, Temperature, lowest known, Trout killed by mosquitoes.

TABLE OF CONTENTS OF

THE SCIENTIFIC AMERICAN SUPPLEMENT

No. 509,

For the Week Ending October 3, 1885.

Price 10 cents. For sale by all newsdealers.

Table listing contents of the supplement: I. CHEMISTRY AND METALLURGY.—Rapid Determination of Nitrogen, Detection of Nitric Acid in Air, Water, and Soils, Reducing Properties of Oxygenated Water, A Cellular Structure in Cast Steel, Principle of Maximum Work.—Phenomena of Chemical Change. II. ENGINEERING, ETC.—On the Construction of Rolling Cams, Locomotive Power, N. Y. Elevated Railroad Trains. III. TECHNOLOGY.—The Chamberland Filter, Microscopic Gleanings, Prof. Leonhard Weber's Photometer, Photo-Micrographs on Gelatine Plates for Lantern Projection. IV. ELECTRICITY, ETC.—Progress of Telephone Litigation, Ravaglia's Hygrometograph, New Analogies between Electric Phenomena and Hydrodynamic Effects, Ocean and Air Currents. V. ARCHITECTURE, ARCHEOLOGY, ETC.—A Louis XIV. Cradle, Foundations of St. Mark's, Venice, A Chapter from Dr. Le Plongeon's New Book, "Monuments of Mayax," The Ruins of the Humpi, Madras Presidency. VI. MISCELLANEOUS.—How to Mount Large Insects, Measurement of Blood Corpuscles.

A NEW PHASE IN THE TELEPHONE LITIGATIONS.

It will be seen from an interesting article, with details, given in our this week's SUPPLEMENT, that a new and peculiar form of attack has been commenced against the Bell Telephone Company, being a suit brought in the name and at the cost of the Government of the United States to break and annul the original Bell patent. One peculiarity of the case is that the Attorney-General, by whose authority the suit is brought, is, or was lately, deeply interested in the stock of a rival telephone company that will shortly be enjoined and probably ruined, unless saved by this new legal dodge.

We are among those who regard the Bell patent as an illegal monopoly. We believe the lower court, through some misinterpretation of evidence or failure in its presentation, awarded to Bell a discovery that, in truth and justice, belonged to another man. Phillip Reis, in 1860, was the original and first inventor of the electric telephone; he gave the invention to the public in several forms many years before Bell's device was made; his inventions were known to Bell; and now, at this late day, to have the inventions of Reis wrenched from the people and converted into a vast monopoly for the enrichment of private individuals seems like a mockery of justice.

The manner of its accomplishment is about as follows: In the first suit judge number one, on the meager evidence then presented, concluded Reis' telephone to be good for nothing, and held Bell's patent to be valid. In the second case, judge number two would not hear additional evidence concerning Reis, as the subject had been already decided. In the third case, judge number three declined to hear the evidence for similar reasons. In the fourth case, judge number four reaches the same result; he agrees it would not be polite to the other judges to rule differently. Thus the several judges, although only one investigation of evidence has been made, have ranged themselves like so many fences, one behind the other; and the Bell people, in addition to their patents, practically control the art of transmitting speech to the ears of the judges of the lower courts.

Unsatisfactory as this state of things appears, it is, nevertheless, strictly in accordance with legal forms and precedents, and affords no shadow of justification for the scandalous spectacle which the Department of Justice is now making of itself.

Patentees are interested in this matter without regard to what they may think of this particular patent of Graham Bell. If the United States will lend its wealth and influence to carry on litigation and encourage infringement of a patent sustained by all the circuit courts, and do this upon alleged defenses which have been passed upon, and in favor of those who can avail of them in actually pending suits, but who happen to have special personal relations with the Attorney-General, and do this on ex parte presentation of the case, invention and a patent will no longer confer rights, and decisions of the courts can no longer, sustain nor protect them.

STILETTO AND ATALANTA.

It will be remembered that early in July it was announced that the Stiletto had won the race over the ninety mile course from Larchmont to New London. The race was very close, but it was supposed that she had beaten the Atalanta by several minutes. Mr. Gould promptly protested against the decision, on the ground that the Stiletto, probably by mistake, had left the prescribed course, and near the finish had gone inside instead of outside of a certain buoy. A committee was appointed by the American Steam Yacht Club to investigate the charge, and after hearing rather a voluminous testimony on the subject, decided in Mr. Gould's favor, and awarded the challenge cup to the Atalanta.

This decision has called forth a challenge from Mr. Herreshoff for another race between the two steam yachts, over a hundred mile course on the Hudson, from New York fifty miles up river and back again. The proposed stake is a new championship cup, to be held by the winning boat until her record is surpassed. Mr. Gould has intimated his willingness to accept the challenge, if an open water course, such as that on the Sound, over which the disputed race took place in July, be selected instead of the Hudson, as the Atalanta, it is stated, is only allowed to run at three-fourths speed on the river, on account of the numerous craft encountered, and in passing a flotilla of tow boats is obliged to slow down or even to come to a full stop, while the smaller yacht circles around them at full speed. Moreover, the Atalanta, on account of her size, requires fifteen minutes to turn about, while the Stiletto can turn in two. These conditions