

New Inventions.

Bi-Sulphuret of Carbon as a Motive Agent.

There has been on exhibition in this city for some time, a small engine using the bi-sulphuret of carbon, as a motive agent, and it is also fitted up to use steam, so as to show the difference between the two agents, that is, their economy in fuel. We have witnessed two experiments; one with the bi-sulphuret of carbon, and the other with steam; but although we had intended to test the relative differences of these two agents by other experiments, we have not found time to do so.—We will, therefore, present the results of the experiments we have already witnessed, because they are of great importance:

The engine is a small one, similar in every respect to a common steam engine, with an outside condenser. The first experiment was with steam, and 7 ounces of alcohol for fuel. At twelve pounds pressure, the engine made 1285 revolutions, with a friction brake on, and the weight placed four inches from the fulcrum. With bi-sulphuret of carbon, the engine made 1652 revolutions with the quantity of alcohol, as fuel—pressure 35 lbs. and the weight placed on the brake at 12 inches from the fulcrum, thus exerting over three times the power with the same quantity of fuel. We should like to have witnessed the steam tested at higher pressures, but we have been assured, that the same relative differences have always been exhibited at all pressures. The economy of this substance as a new motive agent, has been demonstrated, thus far; of this there can be no doubt; and it seems to place a negative upon the general accepted statement of chemists, "all vapors contain a like amount of latent heat."

The bi-sulphuret of carbon is made by raising charcoal to a red heat in a retort, and then introducing small pieces of sulphur.—The vapor that passes off, is condensed into a liquid, by being passed through a worm immersed in cold water. This liquid is sensitive to heat, and easily condensed with cold. It cannot dissolve in water, and it is therefore well adapted for a motive agent by condensing it under water in a covered condenser. It is a combustible compound, igniting with a brilliant flash of flame, but without a violent explosion. We hope to see this substance applied on a large scale, and this can be done with any steam engine that uses an outside condenser. Our engineers should give it a candid consideration. The inventor is Bernard Hughes, an ingenious mechanic of Rochester, N. Y., who has applied this motive agent successfully for more than a year, and from his experience, he has perfect confidence in its superior economy.

A New Propeller.

There is now to be seen at the office of the Royal North American Steam Mail Co.—E. Cunard's—at the Bowling Green, models of the new propeller for steamships, for which an American patent was granted to Chas. de Bergue, of London, on the 9th of last January. We have had the pleasure of examining the application of the propeller, on a small scale, at the above-named place, which impressed us favorably with its simplicity, compactness, and originality. We were acquainted with the invention previously, but had not seen a working model in operation before. The propeller somewhat resembles a rocking arm or blade, working in a chamber open at each extremity, one on each side of the vessel, as a substitute for and in the place of the common paddle wheel. It is connected by a rod to a crank on the extremity of the main shaft of the engine, and it thus receives a vibrating treading motion, the action being somewhat like that of a fish's tail: it is all under water except the crank, and part of the connecting rod.

Mr. de Bergue was present, and explained its nature and qualities to quite a number of scientific gentlemen. It is a subject to which he has devoted much study and attention. Working models of the invention are now on exhibition in Paris, and we understand they have attracted no small share of observation by those interested in

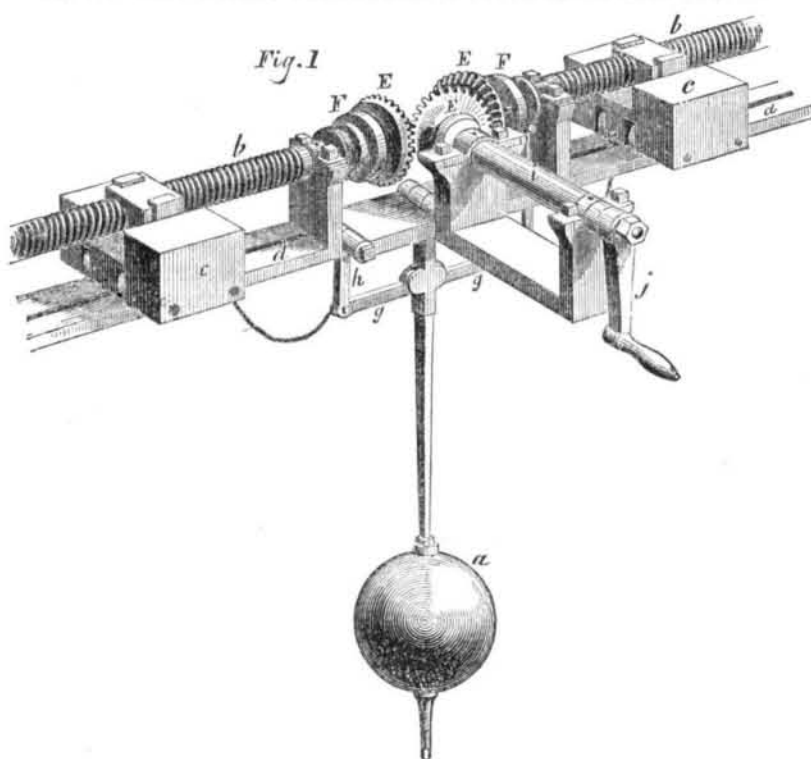
nautical inventions. We intend to publish engravings of this invention in a week or two.

Apparatus for Testing the Strength of Materials

Mr. R. G. Hatfield, a prominent architect of this city, has invented, and put in operation at his rooms, 396 Broadway, a hydraulic apparatus of great power for the purpose of testing the strength of materials. He has already conducted a large number of exper-

iments for various parties with the most perfect satisfaction. By means of the apparatus the exact cohesive and lateral strength of given samples, as well as torsion, crushing resistance, &c., may be easily ascertained. This improvement will be a valuable and convenient acquisition for builders, manufacturers, engineers, &c., since the strength of any particular size or quality of iron, wood or other material may be quickly known.

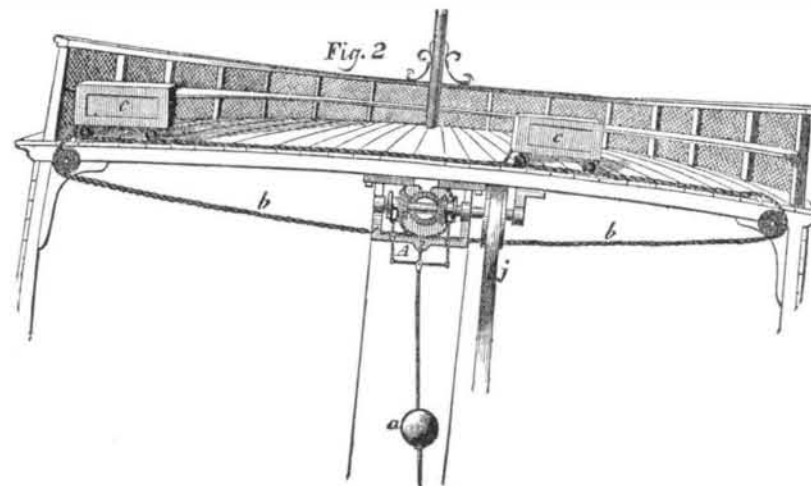
NEW BALLAST TRIMMING FOR STEAMBOATS.



On all our steamboats ballast boxes on wheels, containing shot or heavy weights, are kept on deck, and wheeled from the lee to the weather side, as adjustable ballast to right the vessel. The annexed figures represent an improved method of shifting such movable ballast, to be used on steamboats and all vessels requiring trimming of ballast. The inventors are Thomas A. Sedgwick, of Binghamton, N. Y., and Frederick Sedgwick, Esq., of Stratford, Conn., who have taken measures to secure a patent.

Fig. 1 is a perspective view of the machinery for effecting the object stated, and fig. 2

is a transverse section, showing the machinery in operation. In fig. 1 *a* is a pendulum with a weight attached. It is hung on an axis above, secured in a plate, and is thus allowed to swing or vibrate as the vessel careens. *g* *g* are two cross arms jointed to the pendulum, and *h* *h* are two arms projecting upward from these, and have shippers on their upper ends which take into the grooves of two clutch collars, *F* *F*, of the shaft of the screws, *b* *b*. These screws pass through nuts in the collars of large heavy boxes, *c* *c*, with friction rollers on their under surfaces, to run on rails, *d* *d*. The lever handle, *j*, is secured on



the other end of a shaft, *i*, on the inner end of which is a bevel wheel, *E*, that gears into two bevel pinions, *E* *E*, on a loose collar secured on the center of the shaft of the screws, *b* *b*, which extends from end to end of the frame. By rotating the shaft, *i*, the bevel gear will be removed without driving the screw, if the pendulum is perfectly plumb, for the loose collars of the pinions, *E* *E*, will revolve free on the shaft. If, however, the pendulum vibrates out of the true perpendicular, the arms, *h* *h*, will push one of the clutches, *F*, towards the back of one of the pinions, *E*, on which there are clutch pins, so that these will take into one another, and the screw shafts, *b* *b*, will revolve and move the ballast weights or boxes, *c* *c*,—the one from the side to the center, and the other from the center to the high side of the vessel, which will then right itself, and the pendulum will assume its perpendicular position, and the

clutches will free themselves from the pinions. It is therefore a self-acting ballast regulator, for the shaft, *i*, may be kept, and is intended to be kept in motion by the engine, as shown in fig. 2, and just as the vessel careens so will the pendulum, *a*, operate the clutches, *F* *F*, to shift the ballast and turn the vessel. This is done by the two center pinions revolving in contrary directions, and by the clutch being shifted so as to take into that pinion that will turn the screw shaft, to bring the weighted carriage or box to the elevated side of the vessel.

In figure 2 the pendulum is shown swung to the right side, and the vessel inclined upwards to the left. The right hand clutch is shown thrown into gear with the right hand pinion, which gears into the pinion on the end of a barrel around which a chain, *b* *b*, is wound off and on to shift the ballast boxes, *c* *c*. In this figure the ballast cars run on a

railroad, and no screws are used; either of the plans may be used, but they are both alike in the principle of being guided and directed by the ballasting pendulum, and may be used on deck or under deck, for river or lake steamboats. In this figure the ballast box to the left has reached its place, and the vessel is about to assume its proper position. *j* represents a belt to operate the machinery, and *A* represents the clutch arms of the ballasting pendulum, *a*. The application of this invention to accomplish the objects specified, will no doubt be easily understood by all, as the machinery is exceedingly simple.

More information may be obtained by letter addressed to the inventors, at Binghamton, N. Y., or Stratford, Conn.

The Ericsson.

The above steamer sailed from this port on her first Atlantic voyage on the 16th of this month. It is said that it would not take cargo, and could not get but very few passengers. It left this port exactly at the same hour as the *Washington*, our oldest and slowest steamer, destined for the same port. Since they left they have been seen several times. Capt. Robinson, of the ship *R. Robinson*, from Liverpool, reports seeing them on the 17th off Nantucket Shoal bearing N. N. E., 35 miles distant, at 9 A. M.—the *Washington* about eight miles ahead, weather moderate. Capt., Guptie, of brig *Frances Jane*, reports seeing them on the 18th, at 8 A. M., in lat. 40 35, lon. 70 12, both under steam only; weather very moderate; wind from eastward. The *Washington* about two miles ahead. They were seen twice afterwards, the *Washington* still ahead, and the distance widened between them to about 18 miles.

Wire Dish Covers.

Some specimens of plated wire dish covers and painted wire window screens were exhibited at our office a few days ago, from the establishment of B. F. Allen & Co., who have recently commenced the manufacturing of wire goods at Amherst, Mass. The articles shown here, exhibited much perfection in execution, and we were informed that landscapes, views, and designs from engravings or pen and ink sketches, may be transferred to suit the fancy. Orders for these goods are filled by Messrs. Hathaway & Carmer, 13 Platt street, this city.

Horace Greeley and his Accuser in Paris.

It will be observed by our Paris correspondence that Horace Greeley had been put into a French prison, on the complaint of a Parisian artist—M. Leschene—for a claim of \$2,500, as damages for a statue sent by the artist to the New York Exhibition, and which was said to have been broken. The claim for damages was brought against Mr. Greeley because he was a director of the New York Exhibition, and on this charge he was sent to the debtor's prison of Clichy, confined for two days, and then discharged, the judge before whom the case was brought having promptly dismissed the complaint.

Great Trial of Mowing Machines.

A great trial of mowing machines took place on the days of the 15th and 16th ult., at Bedford, Westchester Co., under the superintendence of the County Agricultural Society. We have received the report of the Committee appointed to decide upon the different machines, but we have not room for it in our columns this week. We shall publish it in full, with remarks, in our next number.

A Schooner Beating the Steamers.

The schooner *Albert Mason*, Capt. Smith, has proved herself to be one of the fastest, if not the fastest craft of her size plying between this port and Charleston, having made eight trips from dock to dock in thirty-four days, running time. She made one run in sixty-seven hours, reporting the steamship which sailed the same time. The *Albert Mason* was built at Patchogue, L. I., and registers 150 tons.

We have recently examined several fine specimens of oil distilled from the Breckenridge Coal.