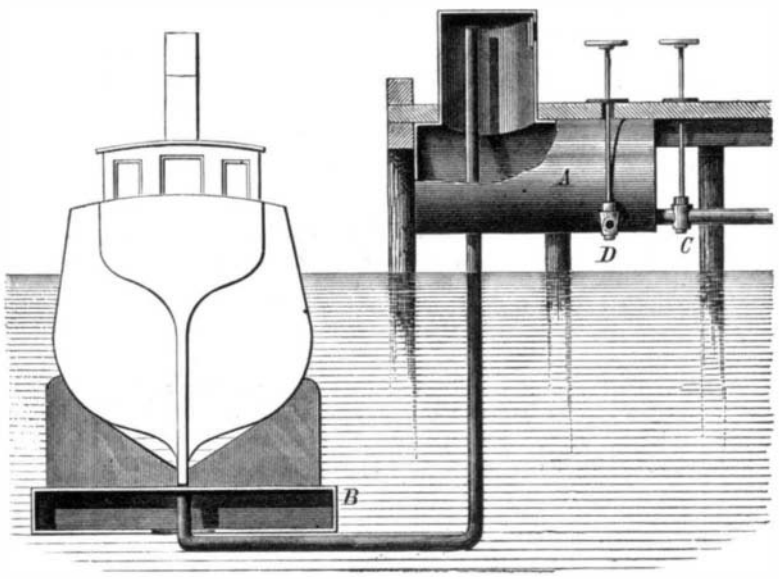
NEW MODE OF DOCKING VESSELS.

The ordinary method of raising vessels, so as to allow of repairs being made upon their bottoms, consists in floating them upon submerged docks. Out of the latter the water is then pumped, and as the dock rises the vessel is simultaneously lifted. The inventor of the new plan for accomplishing the above considers that the pumping out of the water is an expensive process, which may well be replaced by employing compressed air to enter the compartment in order to force the water therefrom, and at the same time render the dock buoyant.

This plan, it is believed, is susceptible of a variety of practical applications. As represented in the engraving, air is compressed into the tank, A, and, passing through the pipe shown, enters the dock, B. In order to effect this compression, the pressure of water in city mains might be used, or suitable storage reservoirs could be arranged to collect rain or surface water and hold it in readiness to exercise the pressure when desired. In such case the water would enter the tank, A, through the valve, C, and, rising therein, would drive the air down through the pipe. After the water had reached a certain level in the upper extension of the tank, the valve, C, would be closed, and the exit valve, D, opened. The tank being emptied would be again filled, and thus the process might continue until the desired end were accomplished.

An engine might be employed, if desired, to compress air into the tank, or any other suitable means used, which would afford a pressure sufficient of course to overcome the resistance of the column of water, depending on the depth of the dock.

The invention, which was patented September 8, 1876, is a simple one. For further particulars address the inventor, Dr. T. J. Wheeden, 107 Sands street, Brooklyn, N. Y.



WHEEDEN'S MODE OF DOCKING VESSELS.

IMPROVED APPARATUS FOR TESTING ILLUMINATING OILS.

We have so frequently called the attention of our readers to the dangers attending the use of cheap and inferior kerosene oils that to repeat the warnings is scarcely necessary here. Kerosene accidents, with their disastrous results, need not occur if the retailer or consumer of the oil who will take the trouble can, by a simple test, satisfy himself as to the safety of the same.

Any oil which will evolve inflammable vapor at so low a temperature as 100° Fah. should be as scrupulously avoided as

if it were gunpowder. That temperature may easily occur in a lamp, and the vapor therein forming, mingling with the air, may readily be ignited by a chance draft blowing down the flame above. It is a safe rule not to purchase oil which will flash under 110° Fah., and it should be further understood that the greater the heat the material will endure, above 110°, the greater the proportional increase in its safety and value.

In order to admit of the making of the test above referred to with ease and certainty, Mr. Pethuel Millspaugh, of Kent, Conn., has recently introduced a simple little apparatus which is represented in the accompanying illustration. It consists of a sheet metal chamber which receives a lamp below, and a glass vessel, A, above. The latter is formed with a contracted lower portion, so that the wider part above makes a shoulder, enabling the glass to be firmly set in the orifice over the lamp. The vessel is surmounted by a suitable cover, in which there is a filling aperture, B, and another opening, at which the test is made. To the cover is also attached a small thermometer, as shown.

The method of using the device consists in filling the glass, to the point, C, with the oil to be tested. The lamp is then ignited; and a lighted taper is from time to time applied to the cover orifice, as represented in the engraving, until a flash takes place, when it remains only to note the temperature of the oil as indicated by the thermometer. The tapers are shown in the small box beside the apparatus, and are sold with the latter.

When it is desired to determine the degree of heat at which the fluid actually takes fire and burns, which is commonly called the fire test, the apparatus may be easily adapted therefor by removing the cover (though leaving the thermometer in the fluid) and touching the surface of the oil with the taper.

These tests are very easily done, and are claimed to be accurate. Sufficient oil is held in the glass vessel for a fair and satisfactory trial; and the process of heating is slow and gradual, approximating closely to the manner in which the oil is heated when it is used for domestic purposes.

Mr. Millspaugh (who may be addressed as above for further particulars regarding the device) is also the author of an excellent little work entitled "Kerosene Accidents, and How to Prevent Them," which goes over the whole subject of these casualties in detail, giving a large number of valuable and practical suggestions. It might be read with profit by oil dealers and housekeepers generally.

A Certain Cure for Rheumatism.

Judging from his article in the *Wiener Medizinische Presse*, Dr, Franz Zeller is an enthusiast in the administration of caustic ammonia in rheumatism. For several years he had been a sufferer from severe muscular rheumatism in the right shoulder: he had taken all the anti-rheumatic remedies, with but little alleviation, when he began to reason that in rheumatism, as in gout, there may be a uric acid diathesis; he thought that *liquor ammonia*, on account of its rapid volatilization, would be the remedy most readily absorbed and the most prompt in action.

In almost the same moment in which he took one drop, diluted with water, he felt a complete relief from the pain, which had lasted for ten hours; he was now able to move freely the arm which, an instant before, he could scarcely bear to have touched. The remedy, he claims, has proved a positive cure in all recent cases of muscular rheumatism which have fallen under his observation; he cites numerous cases in which relief, as instantaneous as his own, was experienced. He also observed its effects in several cases of acute articular rheumatism, in two of which six drops sufficed to subdue the pain and swelling within a period of twenty-four hours. In one case of chronic rheumatism of a finger joint, which had lasted for over half a year, the simple administration of the ammonia completely dispelled the inflammation and pain in the joint within two days.

He then discusses the mode of action of his remedy. "If we consider an excessive acidity as the cause of the rheumatism, we can scarcely claim, in the cases in which one drop will instantaneously relieve the pain in recent rheumatism, that one drop was sufficient to counteract the effects of the excess of uric or (according to Fuller) lactic acid.

"Nothing remains therefore but for us to seek for the source of rheumatism in a morbid nervous activity induced by disturbances of nutrition, and to believe that the ammonia acts as a nervine directly upon the nerves."

After the cure of one attack of rheumatism, our object should be to put the patient in such a condition as to prevent their recurrence. This, the writer thinks, can be done by building up the general system, and thus diminishing the nervous excitability.—*The Clinic.*

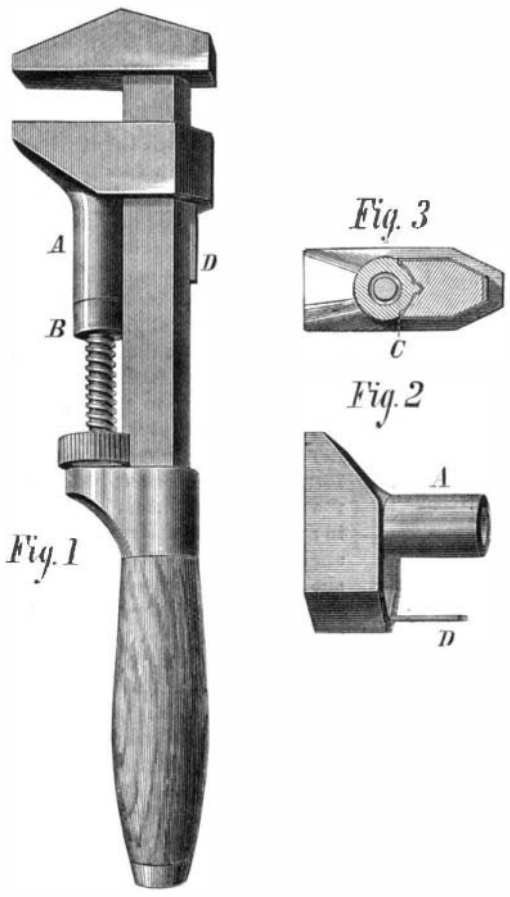
Power for Flouring Mills.

Mr. Henry Cabanes, miller and constructor, of Bordeaux, France, writes to *The Miller* as follows: "The force employed to drive a corn mill depends not only upon the quantity that is required to be ground, but also upon the nature of the wheat and the quality of grinding required; and it cannot be definitely answered without further information. I can nevertheless give you an approximate idea of what can be ground by one horse power of steam, including the necessary machinery for cleaning wheat, and dressing flour. 1. Forty-four pounds of wheat, in a good mill making flour for sale and also for baking, which in one grinding gives the largest possible quantity of fine flour, with broad and well cleaned bran, such as is done by mills around Paris and other neighborhoods, yields from 55 to 60 per cent of first flour from the first grinding; this of course varies with the nature of the wheat. 2. Fifty-five to fifty-seven pounds in mills where it is ground more round or higher, the stones being further apart, and when the millstones are not kept in condition for fine grinding, makes 45 to 55 per cent of first flour, according to quality of the wheat. 3. Sixty-six pounds in mills grinding coarser, with smaller bran more broken and not well cleaned, produces only from 40 to 50 per cent of first flour in the first grinding. Having given these particulars, supposing the grinding you require to be average quality, making fifty-five to fifty-seven lbs. of meal per horse power per hour, it is necessary to reckon 7 horse power for each pair of 4 feet stones or 4 feet 4 English. To work the three pairs with all accessories would require an engine of 21 indicated horse power. Two questions here present themselves, worth more consideration than is frequently given: Speed according to diameter (and in this case 180 revolutions appear to me excessive) and weight of the running stone, which, from all I can gather and from my own practical experience, I consider should be in proportion to the work to be done. Should this answer not be completely satisfactory, I shall be most happy to reply to you further; and perhaps I may be able to prove to you that it is easier than you think to grind 77 to 88 lbs. of meal per horse power, and obtain 55 to 60 per cent of first flour, running the stones at only 125 to 130 revolutions per minute."

BEDELL'S RAPID TRANSIT WRENCH.

An important advantage of this wrench is its capability of immediate adjustment to any size, and the consequent obviation of the slow process of working a screw to set the moving jaw as required. The inventor asserts that no pressure comes on the handle, owing to the movable jaw binding tightly (through said jaw having but one keeper), against the bar, which portion, he claims, is thus rendered about one third stronger. It is further claimed that all the parts are of nearly equal wear. The bevel on the rear portion of the head admits of the use of the wrench in close quarters, and of its turning 45° further than if it were square.

The movable jaw, A, is entirely detached from the screw, which passes loosely into it. Said jaw embraces the bar, as shown, and is provided at the rear with a spring, D, Fig. 2, for holding it against the bar. B is a carriage, screw-threaded



to receive the adjusting screw, which is operated in the usual way by a milled head. The rear portion of the carriage travels in a groove or channel in the bar, as indicated at C, in the horizontal section, Fig. 3.

In order to adjust the wrench it is only necessary to run the movable jaw up by hand until the object is embraced, when the spring holds the jaw in place until the milled screw head is turned sufficiently to bring the carriage against the base of the jaw, so securing the latter tightly.

The absence of a thread on the jaw, which is apt to wear out or bind on the screw, is a point of advantage, as is the absence of nut, ferrule, or any other device for holding the pressure bar in place. The latter receives the strain in a diagonal direction, downward and rearward, and, according to the inventor, will not spring in the back under a stress less than that previously mentioned.

Patented September 28, 1874, and January 12, 1875. Foreign patents now pending through the Scientific American Patent Agency. For information relative to sale of patent or lease on royalty, address the inventor, Otis T. Bedell, care Ely & Wray, 83 Reade street, New York city.