

## GAS METERS.

We make the following extract from the annual report of John C. Cresson, the engineer of the Philadelphia Gas Works:—

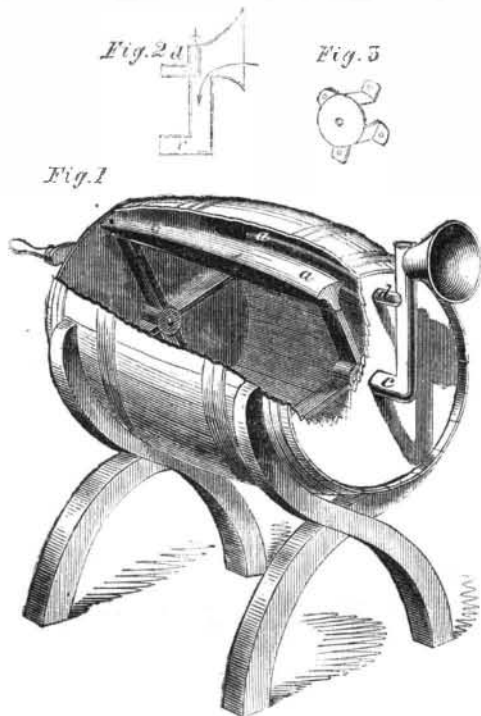
"Among the many subjects of a practical character that engage the attention of the gas engineer, none has given rise to more solicitude than the choice and management of gas meters, upon the accuracy and unvarying action of which the interests of both consumer and producer are in a great degree dependent; the former for his fair and uninterrupted supply of the commodity he pays for, and the latter for securing the due returns for his outlay of material and labor. All these desirable results are obtained in great perfection from the instrument ordinarily known as the wet meter, so long as it is duly protected from frost and evaporative heat. Various contrivances have been suggested and tried for securing the instrument from these injurious influences. The most general practice is the substitution, in part or in whole, of alcohol for water as the hydraulic seal; but while this guards against freezing, it gives rise to much inconvenience by reason of its rapid evaporation and want of specific gravity, which oftentimes cause a sudden obstruction of the flow of gas at the moment when the stoppage is most inconvenient to the consumer. A liquid free from these objections has long been desired, and after numerous experiments I had reason to suppose I had discovered it in the solution of neutral chloride of calcium. Accordingly, in the year 1843, I introduced this liquid into several hundred meters, for the purpose of giving it a fair, practical test. It did not freeze at the lowest natural temperature of our climate, and the strong affinity of the salt for water prevented rapid evaporation; while its specific gravity being greater than that of water, gave full support to the valve-float, and effectiveness to the hydraulic sealing. The results of the first year of trial were entirely satisfactory, and the liquid was then used in all the exposed meters, with equally good results. But the expectations raised by two years of trial were dissipated at the end of the third year; by which time the metals of the meter showed such unmistakable evidences of the destructive action of the solution as led to its abandonment.

"More recently I have been giving trial to another liquid, with encouraging prospect of success. It is the inert substance obtained from fatty bodies, and known by the name of glycerine; it is capable of resisting our lowest natural temperature, maintains its fluidity very pertinaciously, and is considerably heavier than water. Should it manifest no injurious action on the meter metals, or other defects, it will completely meet the wants of the instrument. A more direct method of escaping these liquid imperfections has been attempted in the so-called dry meter, working on the principle of the ordinary bellows, with diaphragms connected by flexible joints. A trial of these, on a large scale, during the years 1847 and 1848, revealed imperfections which impaired their trustworthiness so greatly as to require their entire disuse. Within a few years sundry improvements have been made in the construction of the dry meter, intended to remove the imperfections before mentioned, which seem to have sufficient merit to justify another trial. This has been in progress for nearly three years, with results, thus far, quite favorable, and if these shall be confirmed by longer and more extensive trial, the annoyances that have so long attended this part of gas machinery, may be happily terminated."

**IMPORTANT TO COTTON SHIPPERS—BEWARE OF BULLS' EYES!**—It has been observed (says the *New York Tribune*) that the fires which have occurred so frequently in vessels laden with cotton, have been confined principally to American ships, in which the convex side-lights called bulls' eyes, are a peculiarity. Foreign vessels rarely use these lights, and not a single fire has occurred in them at our cotton ports. The theory based on these facts is that the bull's eye acts as a burning lens, whenever the sun chances to shine through it, and will ignite any combustible article that lies within its focus. An incident which lately occurred at Richmond, Va., seems to support this idea. While the schooner *Roseweath*, of Boston, Capt. Baker, was lying at that port, smoke was discovered issuing from the mate's state-room. On opening the door, the mate's coat, hanging there, was found to be on fire, and extinguished. Some experiments were made, which proved that a bull's eye, on which the sun was shining, was the cause of the fire.

## IMPROVED CHURN.

The microscope reveals the fact that butter exists in milk in the form of globules, a portion of which are broken by the process of churning, causing the fatty mass to adhere together, and in this way separating it from the fluid milk; no chemical change taking place. Consequently, a grinding and crushing process accompanying the usual agitation is found to shorten the time required for the separation. The temperature, too, exerts a very great influence on the rapidity of the process, the proper point being somewhere from 55° to 65°, the statements of different makers ranging between these extremes. Since these facts have become generally known, a large number of churns have been invented with a view of rendering them practically available. The one which we illustrate in the annexed engraving is deemed by the inventor more convenient than any heretofore in use.



It is a modification of the barrel churn, the dashers, *a a*, being fashioned to fit very nearly the inner surface of the barrel, and with concave sides for beating the cream. Fig. 2 represents the construction of the tubes, by which a circulation of air is produced, the air entering through the tube, *c*, and passing out through the tube, *d*. Fig. 3 illustrates the step or pivot for supporting the dasher at the tube end of the barrel, it being made to stand out from the barrel head to give room for the entrance of the air behind it. The temperature of the air entering the churn is regulated by the simple plan of placing the apparatus at a greater or less proximity to the stove or fire in the room.

The patent for this invention was issued Dec. 6, 1859, and persons desiring further information in relation to it will please address the inventor, Henry Rohrer, at Strasburg, Lancaster county, Pa.

**A FRENCH VELOCIPEDE.**—A foreign correspondent informs us that a Frenchman has invented what is called a *barotrope*—a sort of human locomotive—on which a man has sat, walked and wheeled himself along five miles in 35 minutes on the Boulevard Bazar, of Paris, at noon, when the street was most crowded. At another time the same man made 13 miles in 96 minutes, the exercise being so easy that he offered to keep it up alternate hours, day after day, and thought he could without difficulty average about 50 or 60 miles a day. It beats the best "turn-outs" in the streets, if the latter present a paved surface.

**A CHICAGO MACHINIST IN CUBA.**—We learn that K. McDonald, who left the Eagle Iron Works of Messrs. P. W. Gates & Co., Chicago, last November, with machinery for Cuba, has now in operation one of Mr. Ives Scovill's steam quarry drills, and is working it to entire satisfaction. We also learn that the natives visit him daily and are quite surprised to find such a working piece of ingenuity and skill, and its being so well adapted for the island of Cuba. Success to our Chicago machinists and their enterprise in Cuba!

## PROSPERITY &amp; GRATITUDE OF PATENTEES.

It is cheering to receive intelligence of the prosperity of our friends; and as another evidence of the present demand for patent property, we publish the following letter, as a sample of many which are constantly being received at the office of the Scientific American Patent Agency. While we congratulate the writer in his prosperity, we would thank him for his complimentary remarks:—

MESSRS. EDITORS:—Your kind favor of Jan. 24th came to hand, informing me of your success in procuring my Letters Patent. In a few days after, I received the papers from Washington; and although it is but ten days since they arrived, it is with pleasure I state that I am in receipt of upwards of \$3,000 for territory sold and all paid. Please accept my thanks for your promptness and perseverance in getting my case through in so short a time; and any future business that I may have for the Patent Office, it will give me pleasure to place in your hands, and at the same time recommend cheerfully all who are in the patent business to do likewise.

W. D. BUNTING.

Cleveland, Ohio, Feb. 13, 1860.

After the foregoing was in type we received the following grateful acknowledgements of our professional services:—

MESSRS. EDITORS:—On Feb. 2nd, your note reached me, informing me that my Letters Patent had been ordered to issue; and on the 9th I had the pleasure of receiving the document itself from Washington. I have reason to congratulate myself that, on the occasion of this, my first application for a patent, I confided the case to your hands. I consider the result now attained as a proof of ability on your part, and as an instance of promptitude and diligent attention to matters comparatively small, which demands my warmest acknowledgements.

W. A. GIBSON.

46 South-street, New York City, Feb. 13, 1860.

MESSRS. EDITORS:—Your message of the 24th ult., was received in due time, announcing the gratifying news that the Letters Patent were ordered to issue. No one could have been more happy than myself, on the receipt of this cheering intelligence. Fourteen days elapsed before I received the documents from Washington; but then my surprise reached its climax. Such accurate drawings! Such a clear specification! The claims all so perfect! Truly you do take an interest in the welfare of your clients. My Letters Patent were received a great deal sooner than I anticipated. I shall recommend your Agency and the *SCIENTIFIC AMERICAN* to all my friends, whom I can assure will receive marked attention at the offices of Munn & Company.

I have distributed 100 copies of the *SCIENTIFIC AMERICAN* (No. 7) among my acquaintances—principally mechanics and printers.

I hope, one day, to see your establishment doing the entire business of preparing papers for the Patent Office, too much of which is now done by men unfit for that profession, both in principle and ability. I cherish a deep sense of gratitude to you for your very valuable services in my case, and the gentlemanly manner in which I was treated at your office.

JOHN W. LATCHER.

Northville, N. Y., Feb. 17, 1860.

MESSRS. EDITORS:—My Letters Patent for an extinguisher for street lamps came to hand on the 17th inst., and would have been acknowledged ere this but for want of opportunity. You have my thanks for the able manner in which you have conducted all the cases I have entrusted to you, and can rest assured that I shall recommend you to all my friends in need of the services of a patent attorney.

H. K. SYMMES.

Newton, Mass., Feb. 20, 1860.

The last testimonial comes from a source to which more than usual importance is to be attached, for the writer is not a novice at procuring patents, as the records of the Patent Office, for the last few years, show:

WATER may, under some circumstances, be cooled without freezing to 22°, or even lower. If then suddenly agitated a portion is immediately converted into ice, and the temperature of the whole is raised to 32°.