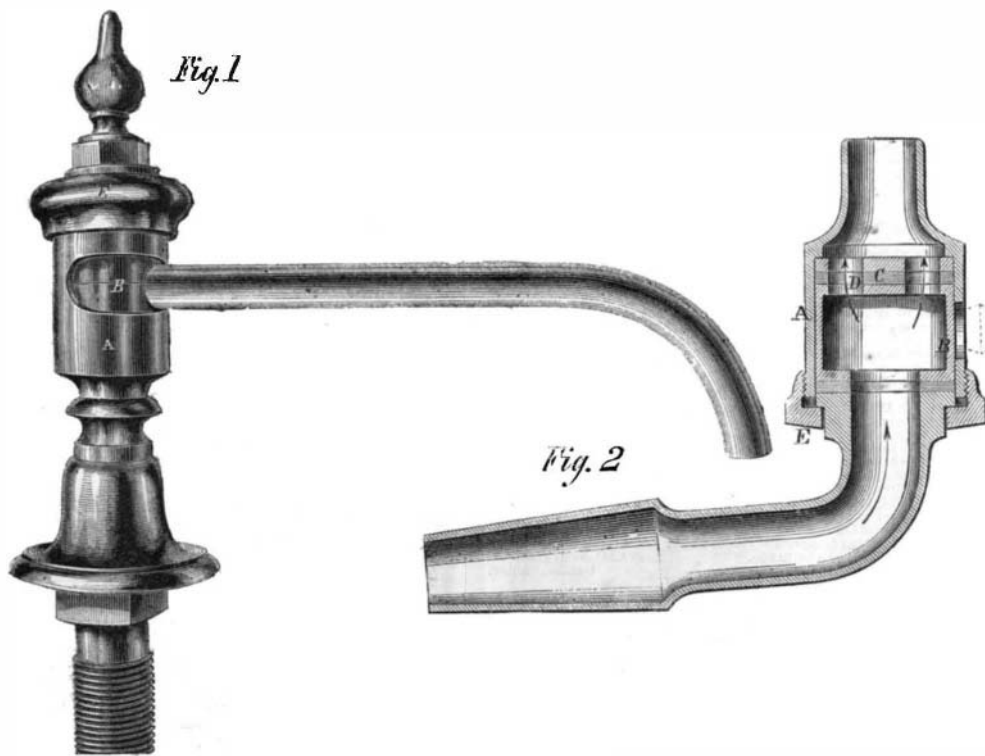


**Improved Faucet.**

One of the most annoying of the minor troubles of life is the incessant leakage of faucets attached to water-pipes. Water is so universally introduced into the cities and towns throughout the country that a durable and tight faucet is a public necessity. Very often much damage to ceilings and merchandise occurs through the imperfections of water faucets; the one illustrated herewith is an improved form of water faucet and embraces some novelties in the arrangement of its parts. It is also economically manufactured, as all of it can be made in a lathe. In Fig. 1, we have a perspective view which represents the external appearance of the faucet, and in Fig. 2 a section through the middle. The chamber, A, of the

**BROUGHTON'S IMPROVED FAUCET.**

cock is bored out inside, and has a shell or valve, B, fitting easily within it; this valve and the chamber are faced off truly at the bottom and set upon a leather washer, C. In the bottom of the chamber and valve are two holes, D, through which the water rushes, when they are turned in line with each other by the handle screwed into the valve as shown, which also serves as the spout; there is also a leather washer between the chamber and the elbow-pipe. This faucet will wear a long time without getting leaky, and by simply screwing up the nut, E, the valve is forced down upon its seat again. This is a very neat and durable article, and will give good satisfaction. It was patented through the Scientific American Patent Agency, on Sept. 8, 1863; for further information address the inventor John Broughton, Chicago, Ill., or J. W. Oakman, 192 Fulton street, New York.

**Agassiz's Museum.**

Professor Agassiz, who is at once a wise and a modest man, said in the *Atlantic Monthly*, not long ago, that all his investigations in science had served only to convince him how little he really knew. Yet this great man, who lacks self-assertion while he enriches the store of our knowledge, is daily doing useful work for American science. He not only delivers a regular course of lectures in the Lawrence Scientific School at Cambridge, but prepares magazine articles and writes masterly volumes on natural history, finds time to undertake long journeys for scientific observation and directs the affairs of the Museum of Comparative Zoology in Boston.

The last report of this museum, just published in Massachusetts, shows some curious facts. Professor Agassiz, in his account of its operations for the year 1862, says that its collection embraces 100,000 specimens, representing 6,000 species, all preserved in alcohol. In the collection of the British Museum, which is now superior to that of Paris, there are but 20,000 specimens. This numerous collection in Boston necessarily permits an extensive system of exchanges, so that the whole country receives benefit from the

operations of an institution which owes its foundation to Professor Agassiz's private gift of his own collection. Of birds, there are now in the Boston Museum more than 3,000 specimens; of reptiles, there are 174 different species; of fishes, 374 species and 2,799 specimens—ichthyology being Agassiz's specialty. This is a remarkable exhibit of the wonderful growth of a collection which is only four years old, but which is already the finest existing picture-gallery of the animal kingdom.

**Firing Cannon Under Water.**

Last year it was reported that an engineer in Boston had perfected a contrivance by which a gun of any size could be fired under water. Some interesting ex-

periments on this subject at Portsmouth, England, are thus described:—

"A stage was erected in the harbor within the tide-mark; on this an Armstrong 110-pounder was mounted, loaded, and aimed, at low water, at a target placed also within the rise of the tide. When both gun and target were covered by the water to a depth of six feet the gun was fired by means of a tube. The targets were placed at from twenty to twenty-five feet from the muzzle of the gun. One was composed of piles and oak planking of a thickness of twenty-one inches; another consisted of the hull of an old vessel, the *Griper*, laid on a mud-bank; a third was made up of three inches in thickness of iron boiler-plates, bolted together and backed with timber. On all these the effect of shot and shell from the submerged gun was very startling. The wooden target was pierced through and through, the iron target was broken into pieces and driven into the backing, the solid shot passed right through both sides of the vessel, making a huge hole through which the water poured in torrents. A shell, with percussion fuse, burst in entering, opening up a chasm of five feet by three in the planking, shattering the ribs and bursting up the deck beams above."

Our ordnance bureau ought to look to this matter. If it is practicable to load and fire cannon under water, then the defence of harbors will receive a new help; and iron-clads, no matter how heavily they are armored above water, will be as weak and defenceless against such a submerged battery as the merest shell of a wooden frigate.

**Steamboating on the Lakes.**

The *Cleveland Herald*, in speaking of the changes that are taking place in the construction of steam vessels for the navigation of the great Northern Lakes says:—

"The days of 'floating palaces' and side-wheel steamers on our lakes for passenger travel, have almost entirely passed away. There is, we believe, at this time but one regular and exclusive line of side-

wheel steamers (the Michigan Central Railroad Line between Detroit and Cleveland) now on our lakes. The screw steamers, or propellers, have superseded all others, for passengers as well as freight, and it will not be many years before a 'side-wheeler' will be looked upon with as much curiosity as a 'stern-wheeler' is at the present time. The change from stern and side-wheels to the screw has been rapid and successful. It is now very seldom that we hear of the building of any other description of steamboat on the whole line of lakes. They have proved themselves to be more safe, substantial and economical as carriers of freight, and are now being built with all the accommodations and luxuries of the old-time 'floating palaces' for passengers. In fact our lakes are now covered with a fleet of 'propellers' that combine the convenience, beauty and swiftness of the old side-wheel steamers, with the safety, durability and great carrying capacity of the 'screws.'

An eight-day clock whose machinery is made from soup bones is among the novelties of the Cincinnati sanitary fair.

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