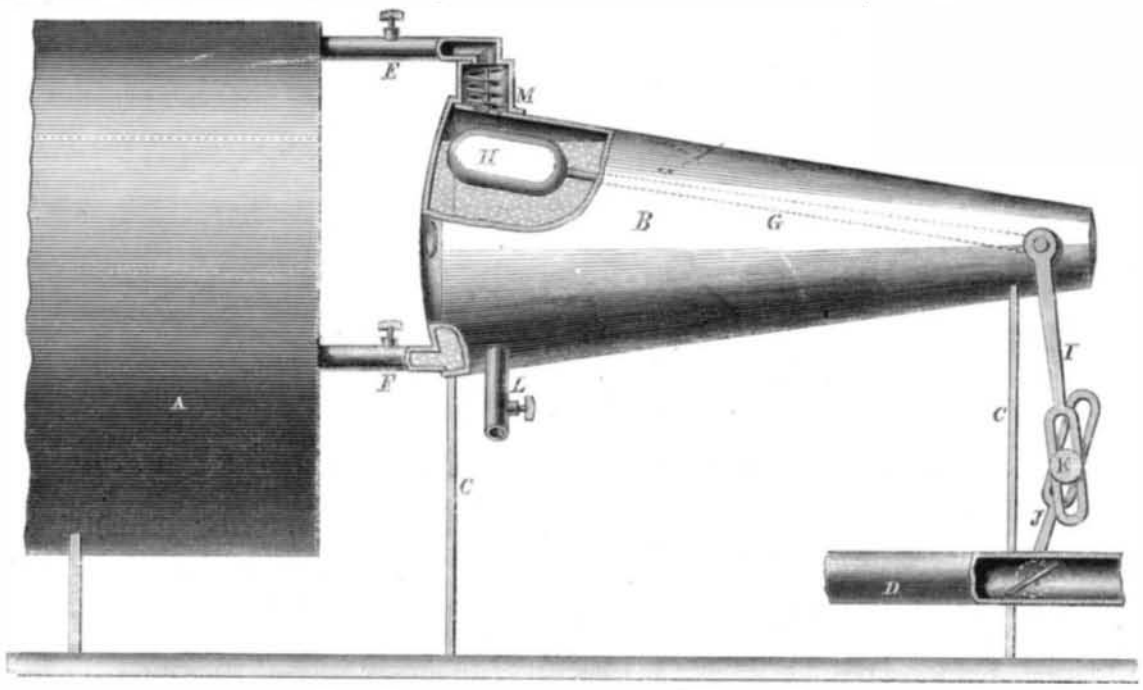
Device for Regulating the Amount of Water fed to a Boiler.

Not a few of the boiler explosions that occur are directly attributable to lowness of water, and often this state of water cannot be detected by the gage, on account of some fault either of construction or operation. Under such circumstances an automatic, absolute, and reliable device for regulating the amount of water fed to the boiler is a desideratum. The inventor of the device shown in the accompanying engraving is confident that this is what is needed. A is the boiler to which is connected the water reservoir, B, which is a cone-shaped vessel supported by the standards, C. The water is fed into this reservoir by the pipe, D, and to all intents and purposes the reservoir is a portion or extension of the boiler, being connected with the steam space—seen above the dotted water line in A—by the pipe, E, and with the water space by the pipe, F, both of which are furnished with cocks. Inside this reservoir is a lever shown by the dotted lines, G, having at the large end of the cylinder a float, H, which rests upon the water, and is secured to a transverse shaft at the other end which has keyed to it the arm, I, that is slotted, as is also the valve arm, J, and both are connected and adjusted by a bolt, K. In the pipe, D, is a valve worked by the float, H, through the medium of these arms, I and J. L is a waste pipe with cock for drawing off the water when desired. The dome, M, attached to the steam pipe, E, contains a coil of copper wire intended by the inventor for the purpose of preventing incrustation in the reservoir.



JORDAN'S STEAM BOILER REGULATOR.

The operation is apparent. As the water lowers in the boiler the float, which rests on its surface, descends, opens the valve in the feed pipe, D, and permits a greater inflow of water from the pump, while the contrary result occurs when the water rises. Of course, if the accuracy of the apparatus is at all to be depended upon, this is a perfect regulator of the water in a boiler. The inventor also introduces in the lower end of his pipe a ball valve, which, when the pump is attached to the reservoir into which the hot water or condensed steam passes, prevents all the thumping experienced when pumping hot water.

This device was patented Sept. 24, 1867, through the Scientific American Patent Agency by R. J. Jordan, assignor to himself and E. Darling, of Elkhart, Ind. Address for particulars the former at Elkhart, Ind., Box 264.

Public Improvements in Paris.

Mr. Wales, in a recent, private letter, thus speaks of the progress in public and private improvements now going forward in Paris :—

"A new cattle market has just been opened in the outskirts of Paris, which covers a space of nearly three-fourths of a mile square. It is solidly built in dressed, cream-colored stone, and enclosed by strong walls, with a very handsome entrance. Every accommodation that modern experience has suggested is provided,—offices, fountains, water for the cattle, stalls, pens, and storehouses. A railway connects with the circular one that runs around the city, so that cattle from any point in France can be brought straight in without transhipment. The whole space is covered by a roof, but open at the sides. From 5000 to 6000 cattle, 20,000 sheep, 2500 calves, and as many pigs, can easily be accommodated. A communication by bridges connects the market with the new slaughter houses on the opposite side of a canal. No animals for slaughter are ever seen in the streets of Paris, and the streets are always kept perfectly clean. The Scientific American recently published an elaborate account of the Paris markets, which certainly surpass those of any other city in the world. The municipal government exercises the most rigid inspection over every article exposed for sale, and no poor, half-decayed meat or vegetables are allowed to be sold or offered for sale.

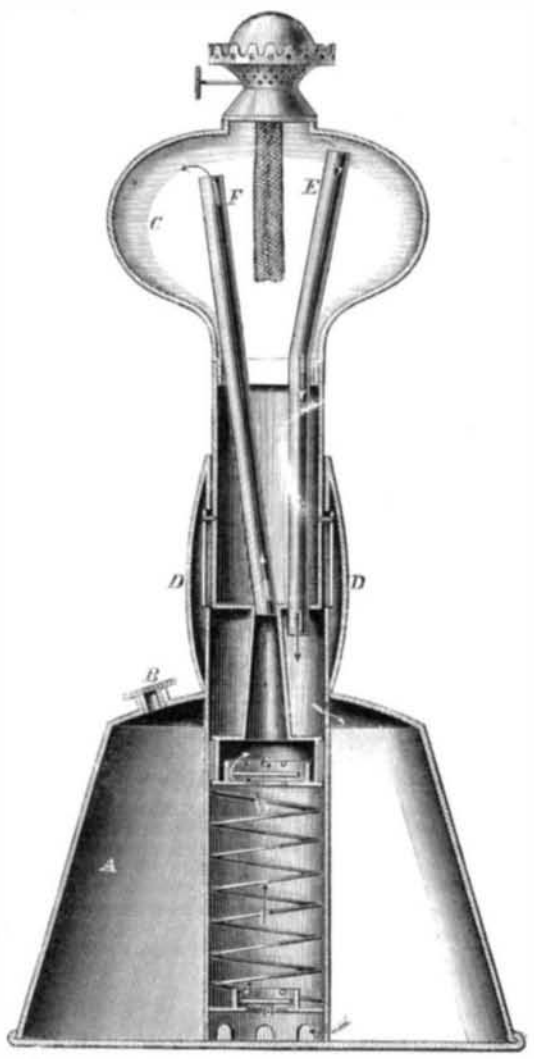
"Nothing in Paris so much impresses an American as its splendid public buildings, and the perfect order that prevails in its busy thoroughfares. At this moment a new opera house is nearly completed, which is the most elegant building of the kind in the world. It will cost forty million francs, the expense being equally divided between the Imperial Government and the municipality of Paris. It is also a great mistake to assert, as many do, that the private residences of New York are finer than those in Paris. During the ten years past Paris has improved wonderfully in this respect, so that now she outrivals all other modern cities. I wish the authorities in New York could be induced to copy some things which are so valuable to the people of Paris."

Antiseptic Properties of the Sulphites.

At the recent Dundee meeting of the British Association Dr. Polli communicated a paper bearing on this subject containing facts which he had obtained as the results of extended observations. Sulphurous acid was said to be the most active agent in preventing or arresting all organic fermentation. As the acid, however, was not sufficiently applicable in experiment, Dr. Polli had undertaken an investigation as to the action of the sulphites of lime, hyposulphite of magnesia, sulphate of magnesia, sulphide of soda, and granulated sulphite. These substances were found to possess all the properties of sulphurous acid, with the advantage that their action was more uniform and certain and constant. In experimenting on animals and himself, he found that large doses could be taken without risk. On killing animals treated with sulphites, and others not so treated, he found that the former were most slow to decompose, and, indeed, remained quite fresh when the others were putrescent and offensive. Another series of experiments showed that in one class the administration of the sulphites, was sufficient to effect a more or less rapid cure in cases where blood poisoning was present, as in fevers, but this fact he did not attribute to any curative power in the sulphites, but to the fact that they arrested decomposition, and by so doing allowed the animal to recover by the recuperative power existing in its own constitution. The author thought his observations conclusive as to the excellent influence of the sulphites on the septic diseases, and remarked that it was for the purpose of thus benefitting others that he had brought his researches under the attention of the scientific world.

HOFFMANN'S IMPROVEMENT IN LAMPS.

The intention of the inventor of this lamp is to construct one not liable to explosion if kerosene or similar fluids are used, to keep the outside of the lamp perfectly clean, to save much of the labor of filling and trimming, and to prevent the evaporation of the oil by heating. It may be constructed either of metal or glass. A is the oil reservoir, the oil being poured in at the cap, B. Into this reservoir is fixed a tube which supports the lamp or wick holder, C. This is also secured upright by the braces, D. From the upper vessel descend two tubes, E and F, one of which, E, returns any excess of oil in the upper vessel back to the reservoir, and the other, F, leads the oil up into this wick holder. The spiral spring in A sustains the upper cup in position. In the tube are two loose valves, G and H, held to the seats by transverse bars or snugs, and packed with rubber. The apertures seen under H permit the oil to flow into the lower part of the tube. From these references to the engraving—which, it will be noticed, is sectional—it will be seen that the internal details form a pump. By pressing down the upper vessel, the valves, G and H, are worked, and the oil in the reservoir is forced up through the tube, F, to feed the wick. Before this vessel can fill, the oil will flow over into the pipe, E, and pass back in the direction indicated by the arrows, to the reservoir.



By these arrangements the oil, being so far removed from the flame of the lamp, can never become heated, thus preventing the generation of gas from the oil; not a particle of oil can escape from the inside of the lamp to soil the outside, and all danger of explosion from the communication of the flame to the oil is avoided.

The arrows in the engraving show plainly the course of the oil from the reservoir to the upper vessel, and its return, if too much is pumped up. By a change in the wick tube any burning oils or fluids may be used in this lamp. The lamp, or the oil reservoir may be filled while the lamp is lighted without danger, and it is believed that this separation of the lamp proper from the oil reservoir will entirely prevent explosions.

Patent papers for this invention were obtained through the Scientific American Patent Agency, Oct. 1, 1867, by Peter Hoffmann; who desires to sell rights to vend and manufacture.

Makers of lamps, and others interested, will please address him at Constableville, Lewis county, N. Y.

Machine for Extracting Tannin from Hemlock Bark.

Mr. Langley, at the November meeting of the Massachusetts Institute of Technology, described a machine for the above purpose, now in process of construction at the South Boston Iron Works, under his superintendence, and from his designs. By this machine much time and labor will be saved, and the old tedious process of long contact of the coarsely ground bark with the skins to be tanned considerably shortened.

The hemlock bark, in pieces of half an inch to an inch thick, and several inches long, is soaked for about fifteen minutes in water at 200° Fah.; it is then fed into a hopper, which conducts it to a three-rolled machine, something like the rollers of a sugar or cane mill, through which it passes, coming out lacerated and compressed: it then falls into a vat of hot water, where it is agitated by a wheel, that the tannin from the crushed cells may be dissolved in the water; it is then raised by a series of buckets on an endless chain, somewhat in the manner of a grain elevator, to another hopper, whence it is fed to another series of three rollers; here it receives its final compression, and comes out in flakes or sheets, like coarse paper, and almost free from tannin. The buckets are made of coarse wire, that the water may drip through during the elevation. In order to avoid the blackening action of iron, wherever this metal is brought into contact with the solutions, it is thickly coated with zinc.

The extracts thus obtained are of a fine crimson color, highly concentrated—indeed almost saturated solutions of tannin; they require to be largely diluted, being from three to six times too strong for application to the skins; thus the tanning principle of a cord of bark, which the machine can treat in an hour, is concentrated into a barrel of the extract. Even supposing that the tanning process cannot be shortened, as far as the best quality of leather is concerned, any one will see the immense advantage of taking a machine to the hemlock woods, and bringing back tanning extract by the barrel instead of so many loads of bark. This process will open an immense and profitable commerce between this country and others where tanning materials are not indigenous.

The Spread Locomotive Truck.

In No. 17, current volume, page 263, a reply to J. P. J., of Pa., states that the locomotive truck was invented in 1831, and that Wm. Mason, of Taunton, the well known inventor and manufacturer, improved it by spreading the wheels to admit of the use of a cylinder on a level with the center of the driving wheels. This referred to outside cylinders, of course.

A correspondent from Massachusetts states that he was in the employmont of Mr. Mason when he delivered his first engine, and that previously he had superintended the construction of spread truck locomotives in another establishment.

We knew only that the Mason engines achieved a deservedly wide-spread popularity mainly for this and possibly for other minor improvements, and had always supposed he was the first builder to spread the truck sufficiently to allow of the cylinders on an "outside" engine to be leveled to the centers of the drivers. The statement of our correspondent, however, is conclusive on this point. To whomsoever it may be accredited it was a long step in the right direction.