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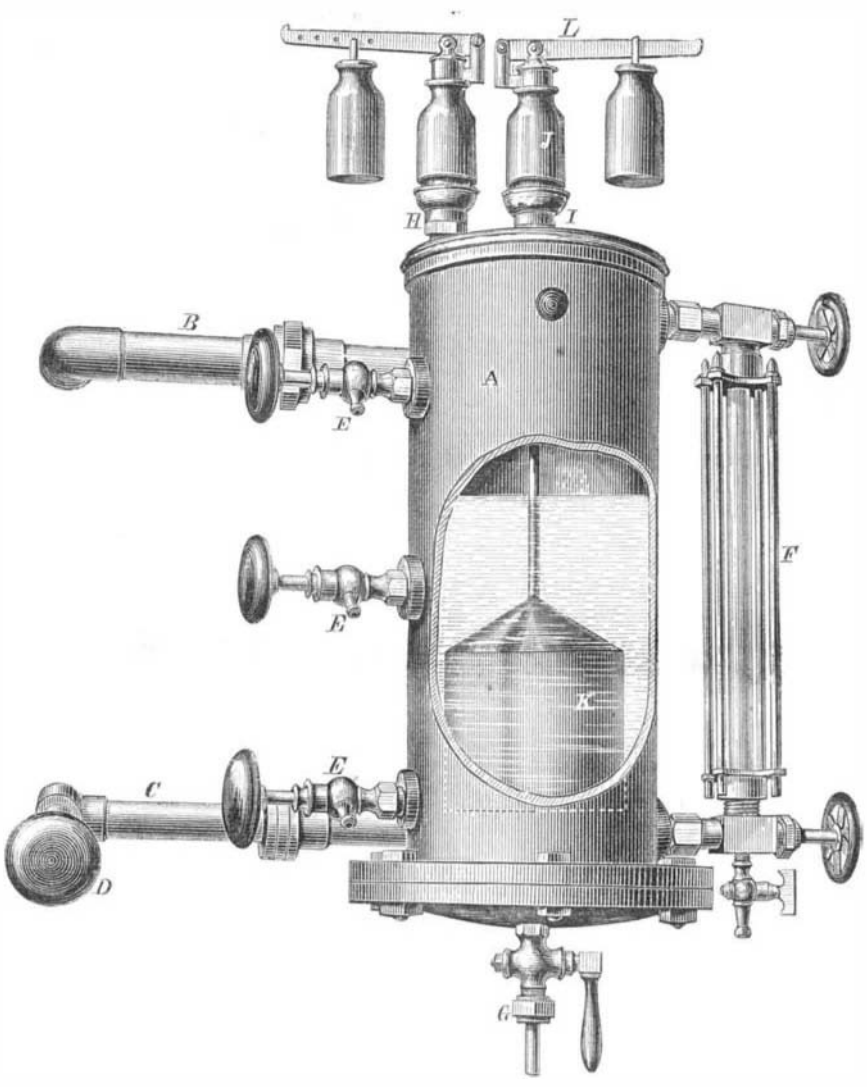
Improvement in Steam and Water Indicators.

Difficulties attend the use of safety valves, water indicators, try cocks, and alarms, as applied to steam boilers, owing to corrosion, clogging by sediment, and other causes not always readily detected. Every engineer knows that, ordinarily, eternal vigilance is the price of his safety and of those whose lives are under his care. Frequently this vigilance must be exercised by attention to several devices, not arranged together, although intended to operate in concert. The engravings present views of a patented indicator and alarm, which, we are satisfied from a close examination of the device and its working in actual practice, is well calculated to show the condition of the water and steam in all cases, and and may be made to give an alarm for either low water or high steam, or any inconvenient or dangerous condition of the contents of the boiler. The testimony of Messrs. Pratt, Whitney & Co., the well-known tool builders of Hartford, Conn., who have used one on their boiler for six months, and have just ordered another for a new boiler, is of the most favorable character, and ought to satisfy all who know the standing of that firm.



BERRYMAN'S STEAM AND WATER INDICATOR AND ALARM.

An upright cylinder, A, is attached to the head of the boiler by pipes, B and C; one of which, B, enters the boiler in the steam space, and the other below the water line. The lower pipe, C, has a cock, D, to prevent the accumulation of mud or sediment in the elbow. The cylinder, A, thus becomes a part of the boiler, and has the ordinary water and steam gage cocks, E, attached, and also the common glass indicator, F, for water, on the front. The use of the blow-off cock, G, at the bottom of the cylinder, will need no explanation to engineers.

Two valves are arranged in the upper part of the cylinder, one of which, H, opening upward, is raised by the excessive pressure of steam, and acts as a safety valve, while the other, I, opening downward, is lowered by a weight when either the pressure of the steam, or the level of the water falls below a given or determinate point. This valve, as well as the other, may have attached, as seen in the engravings, whistles, J, intended to sound an alarm. If not wanted, these whistles may be dispensed with. The steam safety valve, H, is governed in its pressure, as ordinary valves, by a lever and an adjustable weight, the fulcrum, however, that receives the end of the lever being seated on the guide of the valve spindle, so that it may be turned to any position, and the play of the valve is governed by the screw thread on the hollow guide. The stem of the valve, I, extends down through the center of the cylinder, and receives on its lower end a weight, K, either of hollow metal or disks of soapstone, or other suitable material. This valve opens downward, and like the other, its lever and fulcrum may be moved into any position most convenient.

The weight, K, is adjusted to the pressure of steam required and the hight of water. When the water is at the low water line, the weight, K, will open the valve and sound the alarm. As the water rises, the weight diminishes (being supported by the water), and closes the valve. If the pressure of steam is reduced, its force on the valve is correspondingly reduced, and an alarm is given, by the dropping of the valve, for low steam. It will alarm for high water on the same principle, as too much water in the boiler diminishes the steam pressure, and prevents the rapid generation of steam. The reliability of the indicator can be tested by pressing on the lever, L. The cone-like form of the weight, K, combined with the blow cock, G, insures perfect cleanliness in the cylinder, as all sediment must settle, and can be blown off through the cock. The steam pipe, B, is larger than the water pipe, C, which prevents the water from rising when the indicator alarms for low steam or high water. There are no springs, levers, or movable joints in the cylinder or chamber to become corroded, and no valves between the chamber and boiler; thus the chamber becomes virtually a portion of the boiler, and under no circumstances of lowness of water or foulness of boiler, can the indicator fail to represent the actual hight of water and condition of steam.

Patented through the Scientific American Patent Agency, July 28, 1868, by Robert Berryman, who may be addressed at No. 219 North Third st., Philadelphia, Pa., for the instrument, and for State or manufacturing rights; where, also, the indicator may be seen in operation.

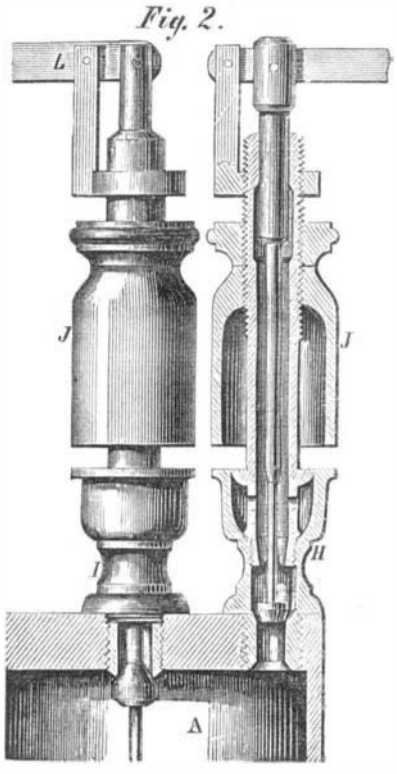
Concentrated Progress of the World.

Few phenomena are more remarkable, yet few have been less remarked, than the degree in which material civilization—the progress of mankind in all those contrivances which oil the wheels and promote the comfort of daily life—has been concentrated in the last half century. It is not too much to say that in these respects more has been done, richer and more prolific discoveries have been made, grander achievements have been realised, in the course of the fifty years of our own lifetime than in all the previous lifetime of the race, since states, nations, and politics such as history makes us acquainted with, have had their being. It is in the three momentous matters of light, locomotion, and communication that the progress effected in this generation contrasts most surprisingly with the aggregate of the progress effected in all generations put together since the earliest dawn of authentic history. The lamps and torches which illuminated Belshazzar's feast were probably just as brilliant, and framed out of nearly the same materials, as those which shone upon the splendid fêtes of Versailles when Maria Antoinette presided over them, or those of the Tuileries during the Imperial magnificence of the First Napoleon. Pine wood, oil, and perhaps wax, lighted the banquet halls of the wealthiest nobles, alike in the eighteenth century before Christ and in the eighteenth century after Christ. There was little difference, except in finish of workmanship and elegance of design—little, if any advance, we mean, in the illuminating power, or in the source whence that power was drawn—between the lamps used in the days of the Pyramids, the days of the Coliseum, and the days of Kensington Palace. Fifty years ago, that is, we burnt the same articles, and got about the same amount of light from them, as we did five thousand years ago. Now, we use gas of which each burner is equal to fifteen or twenty candles; and when we wish for more can have recourse to the electric light or analogous inventions, which are fifty-fold more brilliant and far-reaching than even the best gas.

The streets of cities, which from the days of Pharaoh to those of Voltaire were dim and gloomy, even where not wholly unlighted, now blaze everywhere (except in London with something of the brilliancy of moonlight. In a word, all the advance that has been made in these respects has been made since many of us were children. We remember light as it was in the days of Solomon; we see it as Drummond and Faraday have made it.

The same thing may be said of locomotion. Nimrod and Noah traveled just in the same way, and just at the same rate, as Thomas Assheton Smith and Mr. Coke of Norfolk. The chariots of the Olympic Games went just as fast as the chariots that conveyed our nobles to the Derby, "in our hot youth, when George the Third was King." When Abraham wanted to send a message to Lot he despatched a man on horseback, who galloped twelve miles an hour. When our fathers wanted to send a message to their nephews, they could do no better and go no quicker. When we were young, if we wished to travel from London to Edinburgh, we thought ourselves lucky if we could average eight miles an hour—just as Robert Bruce might have done. Now, in our old age, we feel ourselves aggrieved if we do not average forty miles.

Fig. 2.



Everything that has been done in this line since the world began—everything, perhaps, that the capacities of matter and the conditions of the human frame will ever allow to be done—has been done since we were boys. The same at sea.

Probably, when the wind was favorable, Ulysses, who was a bold and skillful navigator, sailed as fast as a Dutch merchantman of the year 1800, nearly as fast at times as an American yacht or clipper of our fathers' day. Now, we steam twelve and fifteen miles an hour with wonderful regularity, whether wind and tide be favorable or not; nor is it likely that we shall ever be able to go much faster. But the progress in the means of communication is the most remarkable of all. In this respect Mr. Pitt was no better off than Pericles or Agamemnon. If Ruth had wished to write to Naomi, or David to send a word of love to Jonathan when he was a hundred miles away, they could not possibly have done it under twelve hours. Nor could we to our friends 30 years ago. In 1868 the humblest citizen of Great Britain can send such a message, not a hundred miles, but a thousand, in twelve minutes.—*Spectator*.

Death of the German Chemist Schonbein.

The telegraph announces the death of another eminent philosopher, whose labors have conduced greatly to the progress of science during the last half century. Christian Friedrick Schonbein was born in Würtemburg, Oct. 18, 1799. At the age of twenty-five he was a professor of chemistry at Reihau. After visiting and spending considerable time in France and England, for the purpose of completing his scientific education, he commenced a brilliant career in the university of Basel. His first experiments in this celebrated institution, led to important voltaic and electro-chemical investigations, which resulted in the demonstration of important principles. In 1839, his attention was attracted to certain peculiarities in the chemical action of oxygen, and its existence in the allotropic condition to which the name of ozone has been given, was made by him the same year. In 1845 he invented gun-cotton. The later portions of his life have been devoted to experiments with oxygen, and the production of numerous works upon abstruse physical and scientific subjects.

THE value of the SCIENTIFIC AMERICAN as an advertising medium can scarcely be over-estimated.