THE HOLLY SYSTEM OF STEAM HEATING.

These are the days of large enterprises, when things are done by wholesale, by a massing of labor and a concentration of capital Many of our daily wants are supplied not by the simple, single-handed ways of our forefathers, but by a system of supply which economizes labor and lessens expense. Our light comes to us through pipes in the streets; the water used by the thousands of families in any of our large cities comes from a single source of supply; many of our other needs are supplied in a similar way; and now, at last, our dwellings and places of business, our churches and public buildings, are to be heated from a common center.

We have on one or two former occasions alluded to the Holly system of steam heating, controlled by the Holly Steam Combination Company, of Lockport, N. Y., and now we are able to present our readers with engravings representing some of the details of the system. Heating by steam has been practiced for years; but it has been accomplished by placing the steam generator as near the radiators as possible. This has demonstrated the desirability of steam as a heating agent, and at the same time has proved its hygienic and economic superiority over other methods of heating. The Holly system goes a step further and increases the measure of economy and safety, and decreases the labor connected with steam heating by generating the steam at a central station, and supplying a large area with steam for heating, for cooking, and for power, through underground pipes, thoroughly protected against radiation, and provided with expansion joints, steam meters, pressure regulators, and other apparatus necessary to the perfect working of the system.

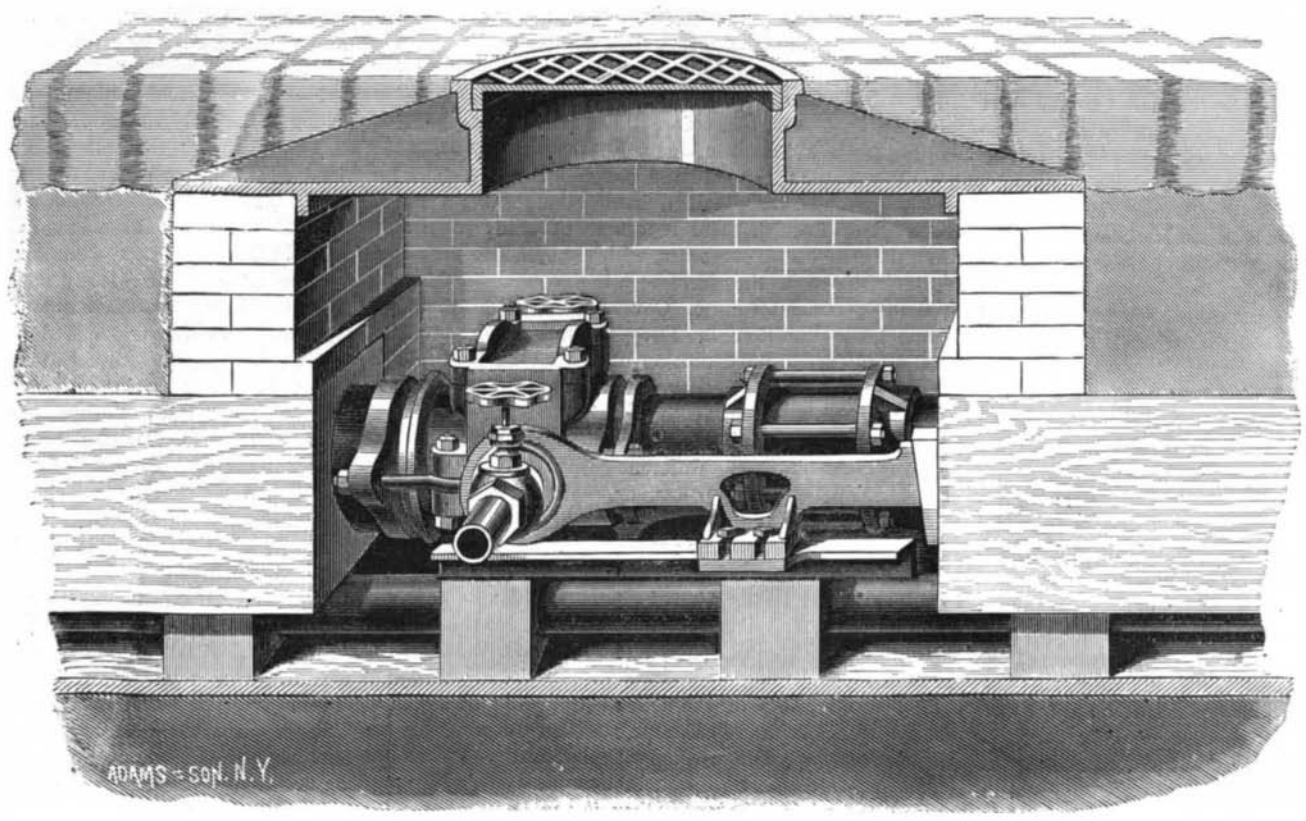


Fig. 1.—EXPANSION SERVICE BOX.

The first experiment on a grand scale was tried in January, 1877, in the city of Lockport. Three miles of underground pipe were employed to thoroughly test the feasibility of the project. It proved a complete success, and the company is now engaged in introducing the system into several of the larger cities in this country.

In the pipes used in this system, an expansion junction service box, Fig. 1, is placed at intervals of 100 to 200 feet. This provides for the free longitudinal expansion and contraction of the mains, and from this box the service pipes are carried underground to the basement of buildings to be heated. The service pipes, having an adjustable hood inside the junction box, may be turned downward, thus taking up the water of condensation as fast as it accumulates, and carrying it forward to the regulator valve inside the cellar walls, as shown in Fig. 2. At this point, the water of condensation being at the degree of heat due to 50 lb. pressure to the square inch, is wire drawn, and by this reduction of pressure it is largely reconverted into steam, and is carried on to the radiators, where it is again condensed. By this device it will be seen that although 50 lb. pressure is carried in the mains, it may be reduced to one or two pounds in the building, and therefore in a house two or three miles distant from the boiler there will be precisely the same result as in a building only a few feet away. The consumer living near the boiler house will have no advantage over the consumer living a mile away, since each will ordinarily carry the same house pressure—and consequently at the same temperature.

This system admits of the use of all kinds of radiators; but the new atmospheric radiator invented by Mr. Holly (shown in Fig. 3) is probably preferable to anything else, as the internal pressure and external atmospheric pressure are equal, admitting of the use of thin sheet metal in their construction. Steam may be admitted to the radiator so that it will cover any proportion of its inner surface, and being very thin, the same amount of surface will give off more heat than the ordinary heavy cast iron or wrought iron radiators.

The distributing pipes are freed from water by a steam trap (Fig. 4) invented by Mr. Holly. The water resulting from condensation in the building is delivered to an accumulator, from which it may be forced by steam pressure at any time to a tank in the attic, to be distributed through the house for general use as it may be required. A vertical section of a dwelling, provided with this heating apparatus, is shown in Fig. 5. The supply pipe and expansion joint are seen under the sidewalk. The regulator stands in the basement, and the radiators are shown in position on the several floors.

The steam used by each consumer makes its own record upon a strip of paper moved by the clockwork of the meter (Fig. 2). The pencil denotes the quantity of steam used, and the time of day at which each radiator in the house was put on or taken off. Thus each consumer pays for what he uses, and for no more. In this way equitable dealing is maintained between the company and its consumers.

The steam may be used to great advantage in cooking. In many large hotels the greater part of the cooking is done by steam and gas, but the apparatus is too expensive to go into general use. A stove, made of sheet copper, galvanized iron, or tin, at a slight cost, is used in connection with this system. The center opening is nine inches, and those around the outside six inches, making seven openings in all. The central steamer may be quite long, extending downward, with compartments, so as to cook several kinds of vegetables at the same time. There are receptacles for cooking oysters, custard, tea, coffee, puddings, etc., all at the same time. Cooking can be done more quickly and better than by a wood or coal stove, and without danger of burning, and avoiding extreme heat in the room during warm weather. The steam made with one pound of coal will cook these articles in less time than it would take to start a good coal fire. The steam can be taken from the air valve of the radiator through a small rubber hose, into the bottom of the central column of the stove.

In addition to the uses already enumerated the steam may be used as a source of power. Steam fire engines used in

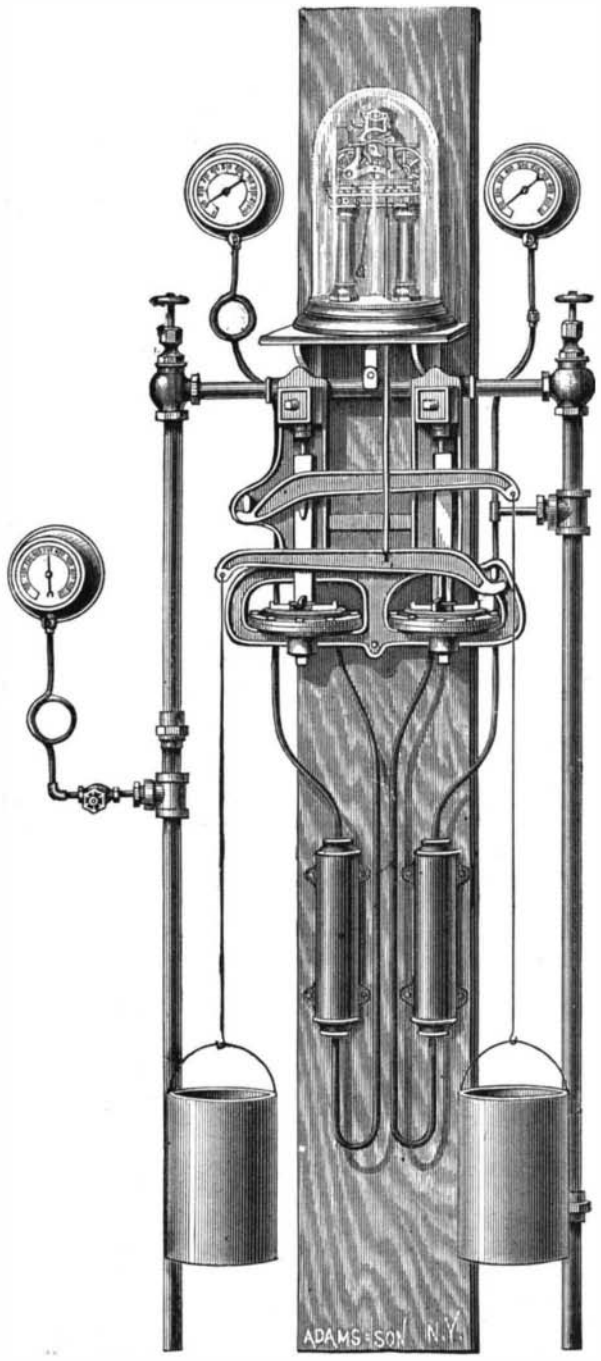


Fig. 2.—REGULATOR AND METER.

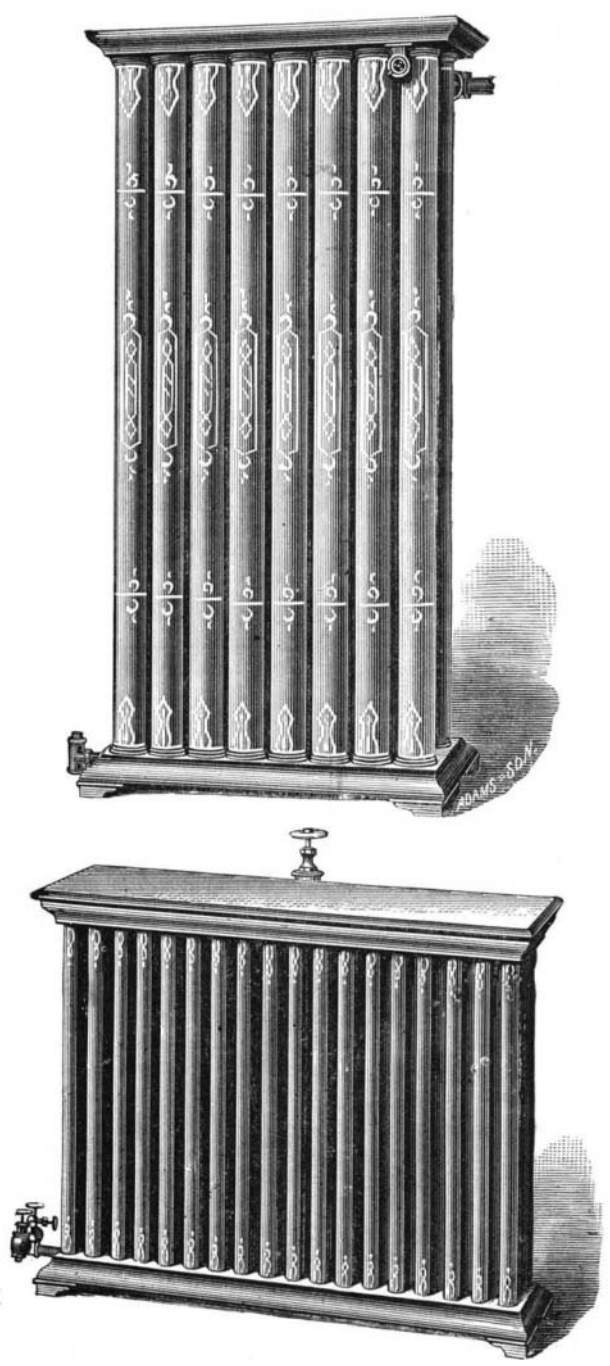


Fig. 3.—HOLLY'S RADIATORS.

connection with the system will need no boiler, and may therefore be made very light and portable, and one of the principal items of expense will be avoided.

Snow and ice can easily and cheaply be removed by steam from streets and sidewalks, where in large cities it is frequently a serious obstacle to ordinary locomotion and traffic. A receptacle one by six feet, near the curbstone, with a steam coil at the bottom, will melt the snow as fast as delivered therein, and the water will be conveyed to the adjacent sewer. Experiments show that the cost in fuel of melting a ton of snow in this manner will not exceed five cents.

The matter of steam supply for large districts is no longer a question of experiment. Two or three years of actual test have established this system as one of the institutions that conduce to the comfort and safety of the masses; and we may expect at no distant day to see the inhabitants of our cities and villages enjoying the comforts of an equable temperature, a healthy atmosphere, and a safe and convenient power for driving machinery either small or large.

European Railway Speeds.

A paper has been published in Germany showing the different rates of velocity at which railway trains travel in different countries. According to this table, the swiftest runs are in England, between London and Dover, London and York, London and Hastings, where the average reaches 80 kilos—50 miles—an hour. In Belgium some trains travel as fast as 67 kilos—nearly 42 miles. The express trains from Paris to Bordeaux, Orleans line, average 63 kilos—39½ miles; the same speed is attained by the express trains between Berlin and Cologne. Between Bologna and Brindisi the average maximum is 50 kilos—nearly 31¼ miles. The average Austrian express speed is from 40 to 48 kilos—25 to 30 miles. On the Moscow and St. Petersburg line one travels at the rate of 43 kilos—nearly 27 miles—per hour; the same speed is observed in Switzerland between Geneva and Lausanne, and between Zurich and Romanshorn. But on the other Swiss lines one must be content with a slower pace. Thus from Zurich to Basel the highest speed is 38 kilos, and between Basel and Berne, 34—nay, between Soleure and Bergdorf the moderate gait of 25 kilos, or a little more than 15½ miles an hour, is observed. There are in Switzerland no purely "through" trains.

Havana the Pest-Breeding Place.

Dr. Chaillè, chairman of the Havana Commission, has lately written to the National Board of Health as follows:

As to the sanitary condition of Havana and of its harbor it would be difficult to devise conditions more favorable to propagate disease. Built upon a thin layer of earth which covers extremely porous coral rocks, this foundation is deeply saturated with the excrements of many thousands of human beings and of animals, continuously deposited throughout a long series of years. Nothing can be worse or more offensive than the privy system of Havana. Associated with the evil hygienic conditions of the city the harbor is, if possible, in even fouler condition.

This harbor, about one mile long, two thirds of a mile wide, and some thirty feet deep in the deepest places, has a difference between its minimum low and its maximum high tide of less than two feet; and into this almost stagnant pond is daily poured the sewage of the city, the offal of the slaughter houses, and the refuse from at least two large hospitals habitually infected with yellow fever and located on the very edge of the harbor. The fœcal odor from this harbor is often distinctly perceptible.

Among other things done, at the suggestion of Dr. Daniel M. Burgess, of Havana, to whom I owe much, I have inspected the ballast sold to and transported by ships from this port. Repeatedly has the ballast from this port been accused of causing outbreaks of yellow fever in ports of the United States, and as repeatedly has this been discredited. I have no hesitation in asserting, as the result of personal examination, that if there be anything whatever which can serve as fomites to transport yellow fever poison, the ballast from this port appears to be eminently fitted for this purpose. In my opinion, the National Board of Health should at once adopt such measures as may be needful to protect our ports against the dangerous risks they are subjected to by all ballast from this port.

New Use for Cocoanut Milk.

Dr. George M. Sternberg, Secretary of the National Health Commission, now at Havana, says:

I find that the air of our laboratory is loaded by minute spherical organisms, and contains bacteria not distinguishable from *bacterium termo*. I have made some experiments for testing apparatus designed for the purpose of keeping putrible fluids germ-proof, using for my test the liquor from the interior of an unripe cocoanut. This liquor possesses properties which will, I believe, make it of great value. . . . It is transparent as water when the nut is not too ripe, is contained in a germ-proof receptacle (the cocoanut), and when exposed to the air, bacteria and other organisms develop with astonishing rapidity. In my first experiment two portions from the same nut were placed in small beakers, one exposed to the air and the other protected by the glass cover and bell jar (Lister's apparatus), with previous precaution of heating apparatus to 320°. The following morning the portion exposed to the air was milky in appearance and loaded with bacteria large and small, and had upon its surface a pellicle containing the cells of some fungus; the portion under the bell jar was clear as water. I have succeeded in keeping this liquor in quantity for three days in a Florence flask, made germ proof by heating to 320° Fah., and provided with a cotton germ filter. I have made several good negatives of bacteria developed in cocoanut liquor for the purpose of testing my lenses and apparatus. I propose to continue the experiments commenced during the ensuing week.

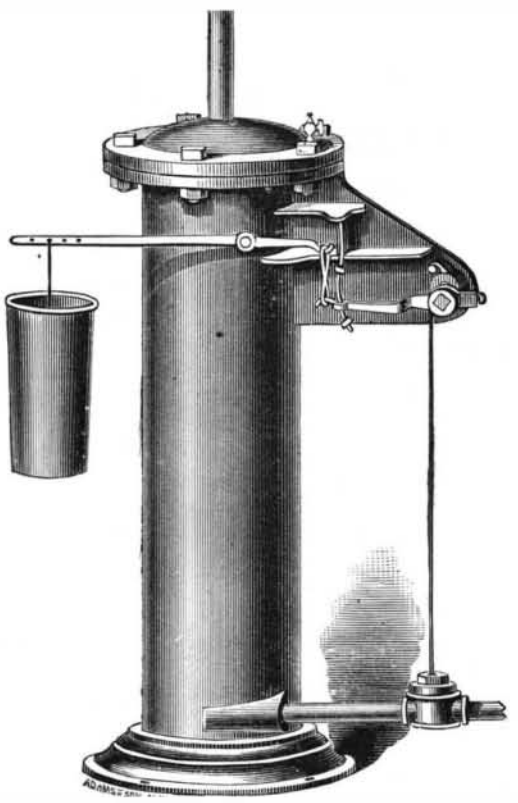


Fig. 4.—STEAM TRAP.

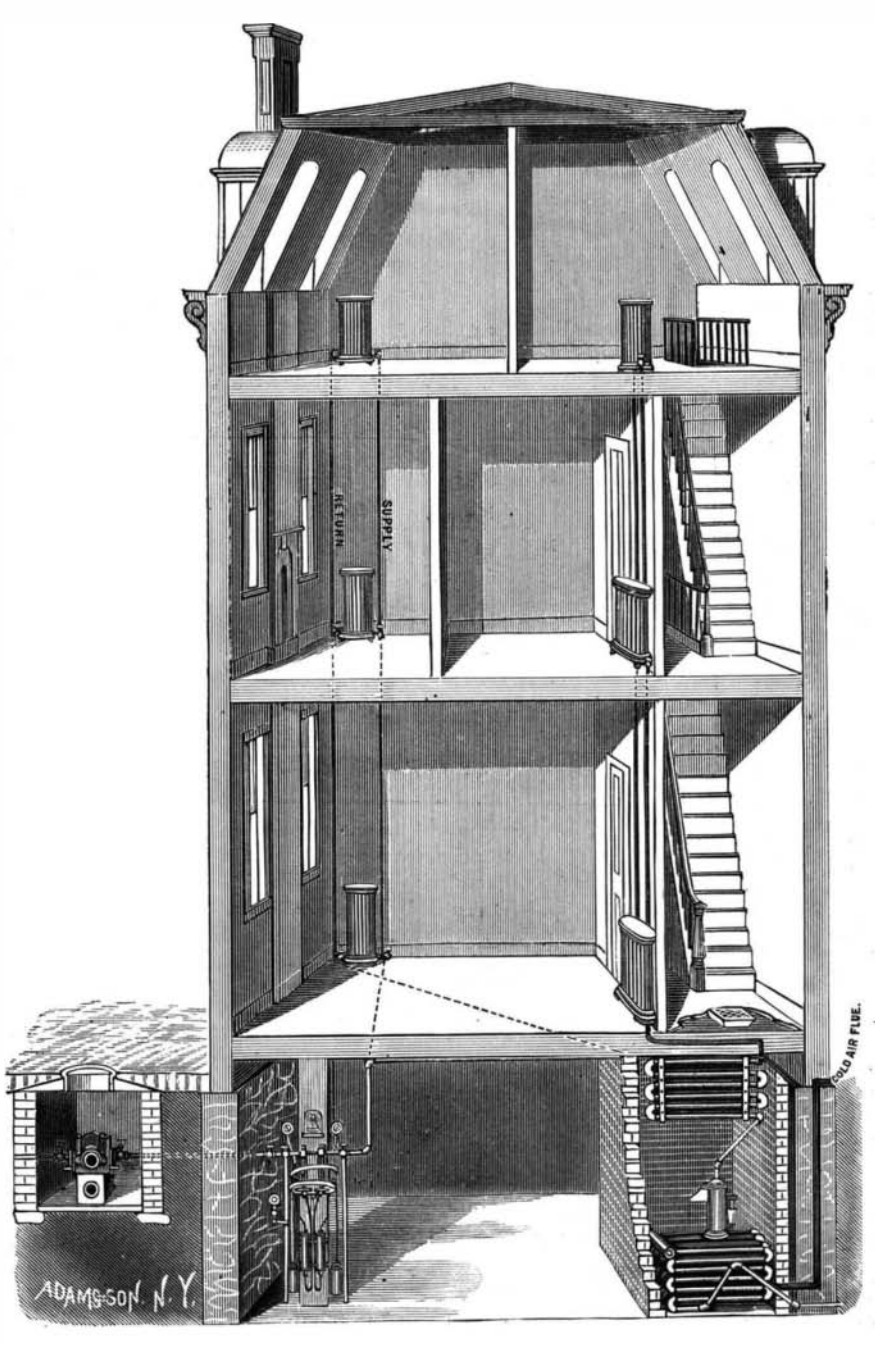


Fig. 5.—INTERIOR ARRANGEMENT OF HEATING APPARATUS.

Hollway's Metallurgical Process.

The Council of the Society of Arts, London, in their annual report, state that, looking at the character of all the papers brought before the Society during the year, the Council feels that they will compare favorably with those of any previous session. It would take too long to discuss the respective merits of all the papers which have been read since Christmas, they were all of considerable value; but amongst them are some deserving special mention, and in Mr. Hollway's paper on "A New Process in Metallurgy" were embodied the results of some of the most important experiments which have recently been made in that science. Mr. Hollway proposes to reduce metallic sulphides by using the ore itself as the chief fuel for the reduction. This is done by forcing a current of air through the molten sulphides. At first the combustion is started by using coke, but afterwards it is found that sufficient heat is generated by the oxidation of the sulphides, without any further addition of carbon. The process has not yet passed beyond the experimental stage, but should it prove a commercial success, it will effect a most important economy in one of the largest industries in this kingdom. So great was the interest aroused by Mr. Hollway's paper, that it became necessary to devote a second evening to its discussion; on both occasions the room was crowded, and the discussion was of an important and influential character, the opinions expressed being almost uniformly favorable. Of all the papers read before the Society during the year, Mr. Hollway's is the one the Council consider the most remarkable and the most important. Should the process at all carry out the expectations of its inventor—and he is supported by some of our leading chemists—it will add one more to the many great inventions which it has been the constant aim of this Society to introduce to the world.

Gelatine.

Gelatine, it is said, has a peculiar action on gum; if gum be added to gelatine, and the mixture sensitized with ammoniacal potassium bichromate, the behavior of the latter substance is very little altered by the addition of the former. Its solubility in hot water is somewhat increased, and to obtain the same degree of insolubility for the image as with pure gelatine the exposure must be longer. But if the mixture be acidulated with acetic acid, the film after exposure and desiccation is less soluble than one consisting of chromated gelatine only with acetic acid. Gum, therefore, renders an acid solution of gelatine less soluble, and the reason for this is believed to be that glutin and arabic acid form a compound solid only with difficulty Borax thickens a gelatine solution, and the alkaline reaction of the same substance tends to render the chromated gelatine more insoluble. Calcium nitrate gives to gum an enormous power of adhesiveness.

Gas Lighting Experiments.

Colonel Haywood, C E., the engineer to the City Commissioners of Sewers, London, has reported to them the results of an experiment now being made in a portion of Queen Victoria street, between Mansion House Station and the Poultry, with new gas burners, by the Gas Light and Coke Company, at their own expense.

The experiments commenced on the 6th March. The new lamps are fitted with Sugg's London Argand "Governor" burners, with glass chimneys. They are of two sizes—one consuming 22 cubic feet of gas per hour, the other 50 cubic feet. The gas is consumed in the smaller burners in two concentric columns or rings of flame, and in the larger burners in three rings. The burners are so arranged as to be self-lighting when the gas is fully turned on. They are in lanterns of an improved description, the smaller in lanterns octagonal in plan, and the larger in twelve-sided lanterns. Both lanterns are larger than those ordinarily used, and have the upper parts glazed with a new kind of white glass, which partly reflects and partly transmits the light. The lower portions are glazed with ordinary clear glass.

Proper means are provided for ventilation and preventing down draughts. There are 30 of the smaller and 5 of the larger lamps, and they supersede 55 ordinary lamps. The length of the street lighted is 353 yards. The burners consuming 22 feet of gas per hour have an estimated illuminating power of 80 candles, and thus 30 lamps are equal to 2,400 candles. The 50 foot burners have a power of 200 candles, and five lamps are thus equal to 1,000 candles. The ordinary lamps temporarily superseded are equal to 770 candles, or 4½ times less than the experimental lamps. The cost of the 55 ordinary lamps superseded is £4 17*s.* 6*d.* each per annum, or £268 2*s.* 6*d.*

in all. The cost of the smaller experimental lamps is £19 1*s.* each per year, and of the larger £41 2*s.* 6*d.*, or £777 2*s.* 6*d.* in all. The new system, therefore, is nearly three times more costly than the old. The general result, therefore, is that the new system gives nearly 4½ times as much light as that in general use, and costs about three times as much. It should be added that the experiment is being conducted at the sole cost of the company.

Correspondence.

An Invention Called For.

To the Editor of the Scientific American:

There is one invention which is very much needed by the farmers of America, one which would add millions to their income, millions to the commerce of our country, and one which, if it can be invented and successfully operated, will make the inventor a millionaire. It is some kind of a machine by which the loss in the wheat crop will be reduced to, say, one fifth of the crop.

I will give you an idea of the loss in the crop by stating an experiment which I have tried this summer to test the loss. A neighbor had a field of 85 acres near my house, which was judged to make 10 to 20 busbels per acre. When fully ripe I selected one square yard, which I was sure was less than an average of the field, cut, dried, and rubbed it out very carefully. It weighed 6 oz. Calculating from that datum, the field made 2,571 bushels. When the crop was cut it was saved as clean as is usual, and was as cleanly thrashed as any I ever saw; and yet he only got 1,050 bushels, which shows a clear loss of 1,521 bushels; in other words, he saved about two fifths and lost three fifths of the crop.

I have never known more than one half of a crop saved even by the most careful management. It seems to me that one fifth, or 500 bushels, in 2,500 would be a beavy loss, but when it is 1,500 in a crop of 2,500, it is unbearable.

I think if you will present this subject, through the SCIENTIFIC AMERICAN, to the inventive geniuses of our country, that some of them will probably invent machinery by which tbis tremendous loss will be at least greatly reduced. It may be proper to say that the wheat was cut with cradles, and cut very clean, the field thoroughly raked, and it was thrashed by an A No. 1 steam thrasher. Will the farmers who see this try similar experiments next harvest and note their losses? Very respectfully,

F. W. CONNOR.

King George Co., Va., July 29, 1879.

[The foregoing is suggestive, to say the least; and we should be glad to hear of further experiments to determine the amount and the occasion of the discrepancy described. The loss of ripe grain by the depredation of birds, squirrels, rats, mice, and other vermin, is unquestionably considerable. There is a further loss by wastage in the process of harvesting, especially when any portion of the crop is over-ripe, due to tardy barvesting or to irregular ripening. But the assertion that three fifths of an entire crop—the actual returns of which exceeded the farmer's expectation—should be lost in harvesting, or that more than half our annual wheat crops are regularly lost that way, is simply incredible. We fear—no, not that; we are glad to believe—that our correspondent has but added another illustration of the too common habit of drawing sweeping conclusions from slender observation. One square yard is too small an area on which to base a judgment of the yield of over 400,000 square yards; as a test for the probable loss on millions of acres its value is inappreciable.—EDS.]

The Inductive Action of Lightning.—A Note from Professor Mayer.

To the Editor of the Scientific American:

The following account of experiments on the inductive actions of lightning, may be interesting to your readers, when viewed in connection with the remarkable experiments of Mr. George M. Hopkins, which were described in the July 19 number of the SCIENTIFIC AMERICAN, under the title "The Telephone as a Lightning Indicator."

These experiments of mine were made at my mother's residence, in the northwestern portion of the city of Baltimore, during the summer of 1863. The account of them here given is taken from a review of Professor Rood's investigations on the time of duration of the electric spark, written by me for the New York *Evening Post* of September 8, 1871.

Astonishing as is the fact of the concentration of the power of a lightning flash into such a minute interval, yet, as wonderful is the extent of the earth's surface affected by it; as will be seen from the following experiments of the writer, never before published: A galvanometer consists of a delicately suspended magnetic needle surrounded by a coil of copper wire, through which a current of electricity can pass; whenever this passage takes place the needle rapidly turns around its point of suspension. This being understood, I connected one end of the wire coil of the galvanometer with the water pipes of Baltimore, while the other end of the wire coil was joined to a gas pipe of the house which is situate in the northwestern part of the city. Thus a vast system of metallic wires stretched away three miles to the northwest, to the reservoir, and also extended to the gas works, distant two to three miles to the southeast.

A thunder storm was raging at the time, at so great a distance in the north that only the illumination of the clouds told when a flash occurred. Yet, whenever that flash took place, the needle of the galvanometer was instantly deflected through 10 to 20 degrees. The two occurrences were simultaneous, apparently, for I could detect no difference in the instant of their manifestation. Indeed, so sure an indicator of the flash was the galvanometer, that when I shut myself up in a dark room, signaling to an observer of the storm when the needle moved, and receiving from him a signal when a flash of lightning occurred, our signals were simultaneous. The next day it was ascertained that the storm was twelve miles distant to the north; therefore, at least five hundred square miles of the earth's surface had its electrical condition changed at each flash of the lightning.

ALFRED M. MAYER.

South Orange, N. J.

Swift's Comet of 1879.

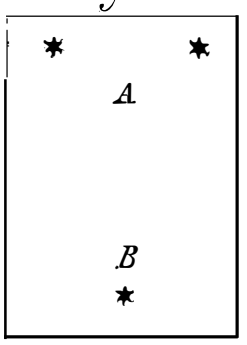
To the Editor of the Scientific American:

It has been my pleasure to obtain several excellent observations of Dr. Swift's comet of 1879.

Observations have been made with a Newtonian reflecting telescope of 5 inches aperture and 50 inches focal length, with B and C ordinary Huyghenian eyepieces, giving powers of 40 and 60 diameters respectively. One of the most interesting observations was made on the night of the 16th and 17th inst., when the comet was between three and four degrees to the left and slightly upward (at midnight) from Polaris or the Pole Star. Although a faint, misty object it was nevertheless quite conspicuous and unmistakable. For a comet it bears magnifying well, as it was much more satisfactorily seen with a power of 60 than 40 diameters. Later in the evening I applied a "solid" E eyepiece, giving a magnifying power of 140 diameters. This eyepiece, owing to the absence of reflections, which take place in the ordinary negative eyepiece, gives an intensely dark field, the sky appearing an almost jet black, and under this power the nucleus was quite bright and sparkling, although much of the outer, more hazy part was lost. The comet was also visible in a reflector of only two inches aperture, with powers of 30 and 45; and in clear weatber I think no one could fail to see it with this aperture if possessed with keen eyesight, although I consider it a severe test with ordinary eyepieces.

During the three hours in which I had the comet under observation (with only occasional rests to render the eye more sensitive to details) I had a most beautiful and awe-inspiring view of its motion among the stars. The observations extended from 10 o'clock P.M. to 1 o'clock A.M. When first seen it formed, with three faint stars, a rather condensed Y, the comet being at the center or fork, but at 1 o'clock it had moved to tbe foot of the same, thus: A (Fig. 1) shows its first position and B at the close of observations. Tbis was the inverted or telescopic appearance. During its passage from A to B the comet passed over a very faint star, which, although somewhat dimmed thereby, could still be seen through the hazy body of the comet. On the morning of the 23d inst. and this morning very interesting observations were made from about midnight until 1 o'clock. It has moved some distance from its position first referred to, and is now on a line drawn from the Pole Star to Beta Ursa Minor, and pointed at by Zeta and Eta of the same constellation (see Fig. 2). C shows the present position of the comet. It was first discovered 5° north

Fig. 1.



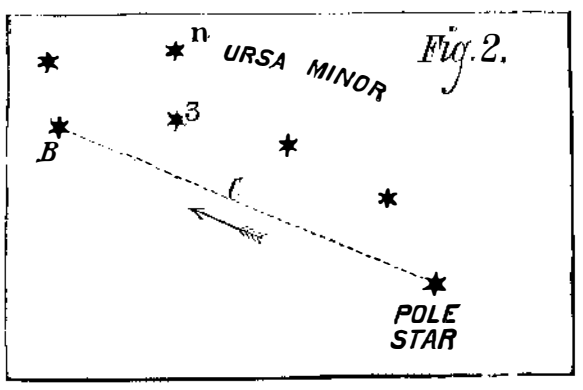


Fig. 2.

of the Great Cluster in Perseus, moving toward the north celestial pole of the heavens, over which it almost directly passed between the 13th and 14th of the present month. Its direction of motion is indicated by the dotted line and arrow in Fig. 2. It is moving a little more than 1 degree daily, and by taking C for its present position (25th of July) any reader with moderate telescopic aid and careful search may find it.

It is somewhat oval in form and with slight condensation, which to me does not appear central but nearer the forward or preceding limb. It is also my impression that under large apertures like the Washington telescope a somewhat blunted tail must be visible, the same cut away in the center, in other words double. WILLIAM ROBERT BROOKS.

Red House Observatory,
Phelps, N. Y., July 25, 1879.

ELECTRICAL LETTER BOXES.—Among the recent applications of electricity is an attachment to street letter boxes, so arranged that if an attempt is made to rob the box an alarm will be instantly sounded at the nearest police station.

MISCELLANEOUS INVENTIONS.

Mr. Edwin N. Cowdery, of Kalamazoo, Mich., has invented a windmill having its wheel and vane hung upon horizontal trunnions, so that the wheel will be balanced normally by the vane, and may be swung to present the edge of the wheel more or less to the wind. A weighted arm is connected to the vane-staff so as to move with the staff and wbeel, and balance the parts in whatever position they may be turned by the wind.

A device for preventing saws when they are in motion from deviating from their proper course, and thereby producing boards of irregular thickness, has been patented by Messrs. 1. N. Kendall, of Buckingham, and R. Hall, of Gatineau Mills, Quebec, Canada.

An improved cigar-box has been patented by Mr. Charles Heylmann, of Chicago, Ill. This invention relates to an improved construction of cigar-boxes, by which the cigars may be more advantageously exhibited for retailing, and the boxes arranged without any loss of space or inconvenience in the show-case.

Mr. William H. Allen, of No. 18 West 11th Street, New York city, has patented an improved automatic grain weigher and register for weighing grain, flour, and other similar substances as they flow from a spout into a bopper or receiver. The apparatus is so constructed as to deliver the substance in exact and uniform quantities and accurately register the quantity delivered. Tbe invention consists in an arrangement of an open bottomed suspended vessel having a pivoted partition and supported upon a scale beam of peculiar construction. The relation of the supply spout and pivoted partition is such that tbe latter is held in position by the former until the vessel contains the required amount, when the downward movement of the vessel releases the pivoted partition, the grain escapes, and the recording mechanism is operated. The parts automatically regain their normal position and the vessel again fills and discharges.

Mr. Emanuel J. Trum, of Brooklyn, N. Y., has patented an improved calendar, which will display two successive months and days of the week in their proper order opposite figures indicating the days of the montb. The invention consists in placing the figures of the calendar on a card, and above and below these strips of paper or card, on which are printed the month, year, and days of the week, one strip indicating the month last past and the other the current month.

Mr. William Wilmington, of Toledo, Ohio, has patented improvements in the moulds used in casting car wheels. The invention consists in inclosing the outer periphery and a portion of the bottom of the chill in a suitable ring, while a portion of the top of the chill is embraced by the bottom of the cope, provided with mechanical devices that will retain the chill in place when moulding the wheel, and at a later period will permit the chill to expand freely during the operation of casting.

Mr. Henry R. Robbins, of Baltimore, Md., has patented an improved letter box of the kind ordinarily located upon lamp-posts, which indicates the time of the collection of the mails throughout the day, provides an increased security for the letters, and keeps the letters and papers separate from each other.

Mr. Zelotes McKinley, of Camden, Mich., has invented an improvement in the class of washboilers constructed so that when placed over a fire a circulation of water is induced through the clothes, the hot water from below being raised by the steam and poured over the clothes in a stream or cascade to again find its way back to the chamber in the bottom of the boiler. The invention consists in the peculiar construction of the false bottom of the boiler.

An improvement in the class of middlings purifiers, in which an air blast passes through a sieve or screen for the purpose of carrying off the dust, fuzz, and light particles of bran, has been patented by Mr. Jacob Fitz, of Hanover, Pa. It relates to the construction and arrangement of parts, which cannot be readily described without an engraving.

A device adapted for attachment to a churn for the purpose of catching the cream that escapes through tbe dash opening and returning it to the churn, has been patented by Mr. Homer A. Noe, of Republic, Mo. The invention consists in a trapping device that is placed upon the dash rod and rests on the churn cover.

Mr. Fredrique R. Lewis, of Troy, N. Y., has invented an improvement in water coolers, wbich consists in furnishing a water cooler with a central water tube or chamber, the upper end of which is carried to the side wall of the cooler, and communicates through an aperture in the inside lining with a box provided with a filter and connected with a water supply pipe. The space between the walls of the cooler and the water chamber receives the ice. The water passes from the supply pipe through the filter to the water chamber, is cooled by the surrounding ice, and drawn off through a faucet in the bottom.

Mr. August Witte, of Kansas City, Mo., has invented an improved device for holding a door open, which consists in the combination of a base plate provided with lugs, a pawl provided with an arm and a hook, and a catch-plate provided with the flange, the parts being arranged so that the device may be readily operated by the foot.

In an improvement in extension stovepipes, patented by Mr. Robert R. Pattison, of Terre Haute, Ind., the inventor makes use of pipe in lengtbs, fitted together to move telescopically upon each other, and fitted with a spring catch of peculiar construction, wbereby the pipes are held securely in any position to which they are adjusted.