A valve constructed thus would read:

Travel of valve	2 inches
Cut off	0 "
Exhaust from end of stroke	0 "
Expansion	0 "
Cushion	0 "
Lap	0 "
Steam port opens	1 "
Exhaust port opens	1 "
Lead	0 "

In other words, our example has been upon a valve without either excess of travel, steam lap, or exhaust lap or lead.

We will now give an example of the use of the calculator for valves having lap:

Diameter of cylinder is 12 inches, stroke 24 inches, ports 12 × 1⅛, which is equal to one tenth of the piston area. Steam supply to the cylinder is to be cut off at ⅔ of the stroke, and the exhaust is to commence when the piston has traveled to within 3 inches of the end of the stroke. Travel of valve is 2¼ inches, the cushion being a result to be determined. Commencing, then, when the valve is on the dead center line, B F, and (as before) on the B end of it, the valve has to be moved ahead to allow for the lap and give steam when the crank pin is in that position. This is done by making the mark, T, on the template in advance, to the amount of the lap from the thick line toward the F end of the line, B F. If we had not known the requisite amount of lap required to cut off at ⅔ of the stroke, we would have to try, say, ⅝ of an inch, and alter it more or less as we found it to cut off too early or too late; but in our experimental case, ⅝ *plus* $\frac{1}{32}$ of an inch is the requisite lap, and we accordingly make our mark on the template that much in advance toward the F end of the line, B F, of the thick line. If the template be now turned, it will be found that the steam port is opened $\frac{7}{16}$ of an inch; and when the mark has arrived at the identical spot it started from (but on the under side of the line, B F), it will be found that the crank pin stands at the ⅔ line, and the piston has proceeded ⅔ of its stroke. The exact distance in inches can be found by counting the curved lines, from F back to the crank pin, along the stroke circle, each space representing 1 inch. It will be found that there are 8 of them, and 8 inches is the distance the piston is from the end of the stroke.

The proper way to find the inside lap is to move the mark around ⅛ of an inch at a time, and at each movement stop and examine the position of the crank pin to see if it is nearing the desired exhausting point. In this case, ⅛ of an inch would bring the mark to within $\frac{1}{32}$ of an inch of the fourth line from the thick one, and the crank pin is some distance yet from the third inch from the end of the stroke (the exhausting point). This shows that ⅛ of an inch inside lap is not sufficient. We then try the addition of another ⅛ of an inch inside lap, and find that the mark is within $\frac{1}{32}$ of an inch of the third line, and still the crank pin is not at the desired spot. We therefore try the addition of another ⅛ of an inch, and examine, and then another, in all ½ of an inch. and find that the crank pin wants a little yet; but by moving the mark another $\frac{1}{32}$ of an inch, we find, by counting as before, that the crank pin has arrived at 3 inches from the end of the stroke. Now it is evident that further movement of the mark will result in opening the exhaust. When it has arrived at the line, B F, the exhaust will be fully open; and when it arrives at the same line again (but on the upper side of the line, B F), the exhaust will be closed. We proceed to move it accordingly, but we may as well observe how much said port is open when the piston is at the end of the stroke. By proceeding as before, counting one ⅛ of an inch after another, we find 6 of them are passed before the piston is at the end of the stroke, showing that the exhaust is ¾ of an inch open by the time the crank pin is on the dead center line. We may now see if the exhaust port is going to be fully opened or not. The mark was ⅛ of an inch from the thick line when the exhaust port began to open, and it will not be fully open until the mark has arrived at the line, B F. Now the space intervening measures 1¼ inches, whereas the port is only 1⅛ inches wide, consequently the valve travels not only over the port, leaving it fully open, but ⅛ of an inch beyond it, showing the exhaust to be sufficiently free.

Now by moving the mark round to the line corresponding to the opening of the exhaust, namely, ⅛ of an inch from the thick line, we find that the crank pin stands at 1¾ inches from the end of the stroke, as the curved lines show 1¾ inches; this, then, is the amount of the cushion. If more cushion is desired, we go over the same ground, after having added a little more inside lap; but this amount, with slight lead, would run well at a piston speed of 300 or 400 feet per minute. Lead would have the effect of opening the exhaust sooner, and of reducing the amount of cushion; but what was lost in this way would be compensated for, so far as the cushioning was concerned, by the admission of live steam, permitted by the lead before the piston had arrived at the end of the stroke, and when the crank pin was consequently on the dead center. The result given by our last experiment would read as follows:

BACK AND FRONT.

	B	F
Travel of valve	2 1-4 inches	2 1-4 inches
Steam lap	21-32 "	21-32 "
Cut off	8 "	10 "
Exhaust lap	17-32 "	17-32 "
Exhausts at	3 "	4 "
Expansion	5 "	6 "
Cushions	1 3-4 "	1 1-2 "
Steam port opens	7-16 inch	7-16 inch
Exhaust opened at end of stroke	3-4 "	3-4 "
Exhaust port opens	Full *plus* 1-8 "	Full *plus* 1-8 "

The B column denotes the back end of the cylinder, and the F the front end; the latter is found in the same way, only the calculator is turned so that the letters B and F will read upside down.

If it is desired to ascertain what effect lead, obtained by moving the eccentric ahead, will have on the engine, we proceed as before; but when the mark, T, has moved forward to the amount of lead required, we move the template no further until we have made a new mark on the template coincident with the line, B F, which new mark will represent the new relation of the crank pin to the old mark; then throughout the operation we employ this new crank pin in place of the old one. By moving the template back to its old position, that is, till the old crank pin is on the line, B F, the new crank pin will denote just how far the piston is from the end of the stroke when the lead commences to act.

By the aid of our illustrations and the given examples in the method of using it, the calculator cannot fail to be understood and appreciated by those who may require to either ascertain what results are being given by the valve of an existing engine, or the proper proportions of a valve for an engine about to be built. JOSHUA ROSE.

Correspondence.

A Charcoal Battery.

To the Editor of the Scientific American:

I enclose a sketch of a cheap and durable form of battery of considerable power; and for many purposes of experiment this battery may be used to advantage. The current is steady, and there are no unpleasant fumes given off, as in many acid batteries. In Fig. 1, the containing vessel, T, is made of tin,

Fig. 1.

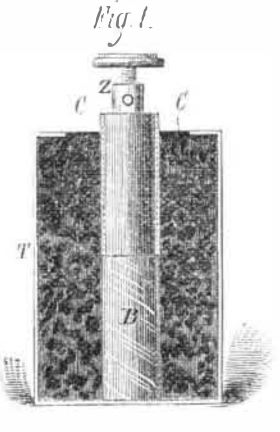
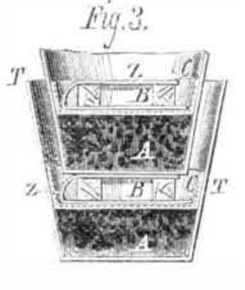


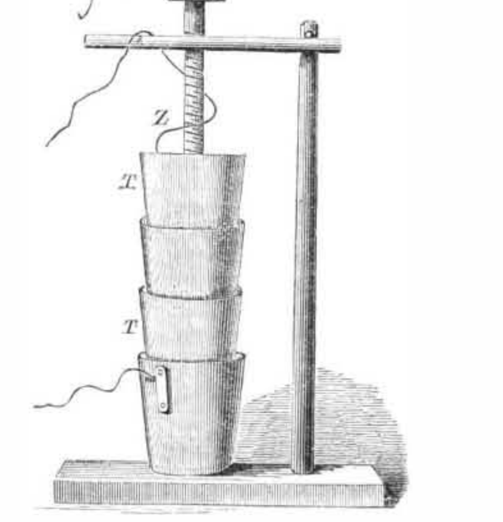
Fig. 3.



into which a rod of zinc, Z, wrapped in canvas, shown at B, is placed. The space between the tin and zinc is then tightly packed with small pieces of hardwood charcoal, C. These cells are charged with a strong solution of potash made in hot water. In making up this battery, the zinc of one cell is connected with the tin of the next. This battery should be placed on an insulating substance.

Another form of this battery is shown in Fig. 2, and a section of two cells in Fig. 3. The containing vessels are made of tin, T T, which are filled with charcoal, A A, to a depth

Fig. 2.



of one or two inches. A piece of canvas, C C, is spread over the charcoal, and on this a plate of zinc, Z Z, is placed. The blocks of wood, B B, are placed on the zinc; a strip of the latter is bent over the blocks so as to connect the zinc of one cell with the tin of the next. In charging these cells, shown in Figs. 2 and 3, the fluid of one cell must not come in contact with the tin of the next; if it be so, the electromotive force would only be that of one cell. The fluid is kept concentrated by placing on the zinc plate of each cell a quantity of potash. JOHN J. BLAIR.

Ardtrea, Ontario, C. W.

The Spider's Web.

To the Editor of the Scientific American:

In your issue of July 3, the question is asked: "How does a spider make its web, the lines of which, crossing at the center, are carried, some of them to the surrounding objects, while others are fastened to an outer circular line, made evidently before the outer circular lines of the woof are formed?" Also: "Where does the spider place itself when it ejects the lines which form the spokes of the wheel?"

The extreme outer line surrounding the web, to which the spokes are fastened, is by no means always circular: this depends upon the position of the surrounding objects to which the web is fastened. The spider first extends lines from one point to another by the shortest route possible, inclosing a sufficient space to build its web; then he extends a line across where he intends to have the center of his web. He next fixes the center by fastening a line thereto on the central line, and, carrying the line at right angles or nearly so to the first line, hitches it to the nearest object, whether that be the outer line of the web, or anything to which the web is fastened. It will be observed here that the spider ejects all the spokes of the wheel (except the first line across the center of the web) from the intended center, placing the first lines at right angles or nearly so, and dividing the distance each time a line is extended from the center until a sufficient number are put up, always stretching the lines alternately in opposite directions until the spokes of the wheel are complete. He then places his left forefoot on the center of the wheel, and hitches the first end of the circular line of the woof to one of the spokes of the wheel, and moves round the center, fastening his thread to every spoke as he goes along, measuring the distance from one line to the other by stretching his right hind foot to secure the web to the spoke, with his left fore foot one line toward the center and moving spirally along from one spoke to the other, until he gets his web sufficiently large for his purpose.

Batavia, Ill. A. M. SPENCER.

The Potato Disease.

To the Editor of the Scientific American:

Having given the potato disease—blight or rot—considerable attention, and made microscopic examinations of the fungus known as the *peronospora infestans* (Berkeley called it *botrytis infestans*), I find that lime is the best cure and preventive. My attention was arrested by the article on page 277, volume XXXII., headed "A Remedy for Potato Blight," referring to the communication of Mr. Lyman Reed, and the process of the action of microscopic parasites attacking the tubers.

It strikes me that Mr. Francis Gerry Fairfield has things a little mixed up. He carefully cleaned the specimens procured by him, and subjected them to heat for 96 hours or more, before he examined them. He finds the ova of the insects on the interior layer of the cuticle of the tubers, and says: "I have no doubt that they commence that *histolytic process* that ends in the destruction of the tuber; but I doubt whether there is any genetic connection between the fungi developed on the stalks in the course of the *degeneration*, and the larvæ in which the *degeneration primarily starts*." The truth of the matter is that these microscopic animalculæ are a secondary product arising in the diseased matter of the tuber. Certain fungi have a nitrogenous substance analogous to diastase, which transforms the starch to dextrin, and finally into sugar, like a ferment, especially under moisture and an elevated temperament, inducing decomposition, forming a *nidus* for the animalculæ. Had he used his microscope to trace the parasitic fungus, he would have discovered the fine threads of the mycelium extending to the tubers, which induces a ferment or gangrenous putrid mass that, like any other animal and vegetable matter, will breed animalculæ in less time than 96 hours. This is easily proved and well known to anyone who has given the subject attention. Consequently, his sage advice "to dip the potato, just before planting, in the solution" (carbolic acid), is, to my mind, all nonsense. When the animalculæ or fungi infest the tuber, it is neither fit for use or planting. However, I may err, and it might be well to see the "copious notes," and "always give Mr. Reed the full honor of the first discovery." J. STAUFFER.

Lancaster, Pa.

Utilizing the Grasshoppers.

To the Editor of the Scientific American:

The grasshoppers, desiccated and ground, would of course be useful as a fertilizer; but when in this prepared condition, they would form an excellent food for all insect-feeding birds. There is no better food for all young domestic fowls. Containing silicic acid in a soluble state, they seem specially adapted for young birds, promoting the growth of feathers. The young prairie chicken flies when only eight days old. The sharp-tailed grouse and the cock of the plains subsist entirely on grasshoppers up to their maturity; and after that, they prefer grasshoppers to other food. I have found in the depth of winter, at the foot of the Rocky Mountains, the gizzard and stomach of the sharp-tailed grouse filled with grasshoppers, when they had to find the dead bodies of them under six inches of snow.

There exists, in fact, no beast or bird of prey on the western plains which would not partake freely of them, whenever they are to be procured. I found, in the season when grasshoppers were plentiful, the stomach of the prairie wolf, the stomach of the little kit fox (*canis cinereo-argenteus*), and the gizzards of all *falconidæ* and owls filled with grasshoppers. Even by man they have been and are used as food. The inhabitants of the interior of Africa use them extensively, and the Pau-Eutaws or Digger Indians of our own country find them very palatable. I do not, however, suggest them for the latter purpose. E. WERNIGK

A Theory of Dissolution.

To the Editor of the Scientific American:

The reason given that a solid will be dissolved by a liquid is that the adhesion between the atoms of the solid and liquid is greater than the cohesion of the atoms of the solid.

The reason the adhesion is greater than the cohesion is that the weight or specific gravity of the atom of the solid is less than the specific gravity of the atom of the liquid: and when the specific gravity of the atom of the solid is greater than the specific gravity of the atom of the liquid, the solid will not dissolve; and when the specific gravity of the atom of the solid is but a little greater than that of the liquid, it will require continual shaking to make it dissolve, or, when dissolved, to keep it from settling to the bottom. The reason that the solid sinks when placed in the liquid is that there are as many more atoms in a given space of the solid than in the same space of the liquid as the weight of an atom of the solid is less than the weight of an atom of the liquid.

It will be noticed that the bulk of the solid that will be dissolved is much less than the bulk of the liquid; which proves that there are a greater number of atoms in a given space of the solid than in the same space of the liquid; for each atom of the solid must come in contact with each atom of the liquid, to make a saturated solution.

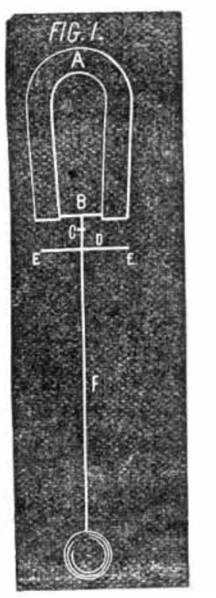
WM. L. DUDLEY.

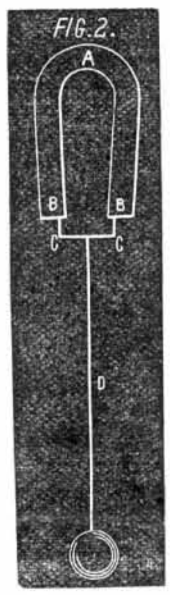
A Frictionless Joint.

To the Editor of the Scientific American:

Is not the following application of an old principle new, as presenting a minimum of friction?

A, Fig. 1, is a horseshoe magnet, having a brass crossbar, B, between the poles, with a short extension, C, in the end of which is fixed an ordinary watch jewel. F is a pendulum, with crossbar, E E, for an armature, terminating in a needle point, D, resting up against the jewel, C. The weight of the pendulum must be just within the power of the magnet; and as gravity is barely overcome, the needle point only touches the jewel, and the friction is infinitesimal.





However, as pendulums left free to vibrate make a revolution in direction in twenty-four hours, it is possible that, when vibrating from side to side, the magnet would hold the crossbar, etc. This would be obviated in part by making the armature, E E, of a circular plate, and would be entirely so by using the following arrangement:

A, Fig. 2, is the magnet, B B jewels in each pole, C C are the needle points, and D the pendulum. The whole is to be placed under a receiver, and in both cases to vibrate to and from the observer, not from side to side.

Waterloo, Ill. HENRY TALBOTT, JR.

Altitude of Thunder Clouds.

To the Editor of the Scientific American:

In your issue of June 30, Mr. David Brooks of Philadelphia has given an interesting little essay on thunder clouds and lightning. Without assenting to his theory of the manner in which the latent electricity is evolved and discharged, as being at all complete or satisfactory, I am indebted to the writer for recalling to my mind some measurements made by me in 1840-43, by way of attempting to determine the hight of thunder clouds. My results were so great as to keep me in doubt as to the reliability of my method. I repeatedly measured clouds of 6 and 8 miles in altitude, and more than once got 10 miles as my result; and in a single instance I measured the altitude of what turned out to be a terrific thunder and hail storm of 13 + miles in hight. I published an account of this one in the Concordia *Intelligencer*, printed at Vidalia, La. Its limited circulation protected me, as I afterwards congratulated myself, from severe scientific criticism. I now believe it was a reliable result, and the method legitimate. Let me state it that others may test the method, which I do not believe is generally, if ever, used by any other observer.

As the cloud developed eastward of my position, and I had a clear horizon, its great altitude began to be remarkable before its companions (usually found touching at the base and ultimately confluent) had fairly established themselves. The rain was visibly discharging at the center of the base when the thunder began. Both head and base were well defined; and I applied my sextant, when above 45° hight were read. The cloud continued to rise and the electricity to be discharged with rapidity; and the rain descended from both sides when nearly 60° were reached. The defined bases merged into the horizon, and I could no longer depend upon my results. The storm, of course, moved from me, as all clouds of great altitude move eastward in this latitude. I took the dew point, and ascertained the altitude of the base of all the clouds (approximately) by imputing 100 yards for every degree Fahrenheit of difference between the air temperature and the point of condensation, by the wet bulb. This gave about 1,600 yards. At 4°, the elevation of the base of the cloud before me, the sine of the angle of elevation, gave about 40,000 feet for the distance of the center of the thunder cloud; and 60° elevation to its summit gave about 70,000 feet, or 13½ miles. Subtracting the elevation of the base, 3,000 feet, we find some 67,000 feet, or nearly 13 miles, for the cloud hight. Subsequent information proved the storm to have been terrific. Its width was but a mile or two in starting, but it spread as it advanced, and did much damage by floods and wind, and many trees were struck by lightning.

If observers will keep a sextant and thermometer at hand, they will find frequent opportunity during summer of testing the hight of isolated clouds, which pierce and pass far above the cirrous clouds, whose elevation is at the base of the permanent southwest upper current—the reciprocal of the trade winds. The development of the thunder clouds lies along that region, and their heads are always borne off to the northeast by its drift. Hence all tornados, hailstorms, and thunder clouds of considerable magnitude travel towards the northeast in these latitudes, 29° to 33° N. C. G. FORSHEY.

New Orleans, La.

Useful Recipes for the Shop, the Household, and the Farm.

To test the soundness of a piece of timber, apply the ear to the middle of one of the ends, while another person strikes upon the opposite extremity. If the wood is sound and of good quality, the blow is very distinctly heard, however long the beam may be. If the wood is disaggregated by decay or otherwise, the sound will be for the most part destroyed.

Paper prepared after the following recipe is said to render the use of the razor strop unnecessary. By merely wiping the razor on the paper to remove the lather after shaving, a keen edge is maintained without further trouble. The razor must be well sharpened at the outset. First, procure oxide of iron (by the addition of carbonate of soda to a solution of persulphate of iron), well wash the precipitate, and finally leave it of the consistence of cream. Spread this over soft paper very thinly with a soft brush. Cut the paper in pieces two inches square, dry, and it is ready for use.

Photographers will find the following a useful glass-cleaning preparation: Water 1 pint, sulphuric acid ½ oz., b-chromate of potash ½ oz. The glass plates, varnished or otherwise, are left for 10 or 12 hours, or as much longer as desired, in this solution, then rinsed in clean water and wiped dry with soft white paper. The liquid quickly removes silver stains from the skin without any of the attendant dangers of cyanide of potassium.

Adhesive fly paper is made by boiling linseed oil to which a little rosin has been added, until a viscid mass is formed. The latter is then spread evenly upon the paper.

A good red or blue ink, suitable for use with stamps, can be made by rubbing Prussian blue or drop lake with fine clay into a thick paste with water.

A tablespoonful of black pepper put in the first water in which gray and buff linens are washed will keep them from spotting. It will also generally keep the colors of black or colored cambrics or muslins from running, and does not harden the water.

Lime slaked just before application and sown by hand is said to be an infallible protection against fly in turnips.

A whitewash made of quicklime and wood ashes will destroy moss on trees.

A mixture of tallow 3 parts, tar 1 part, applied to the bark while hot, will protect fruit trees against mice.

A cubic yard of sand or earth weighs about 30 cwt; mud 25 cwt; marl 26 cwt; clay 31 cwt; chalk 36 cwt; sandstone 39 cwt; shale 40 cwt; quartz 41 cwt: granite 42 cwt; trap 42 cwt; slate 43 cwt.

In small blasts, 1 pound of powder will loosen about 4½ tuns of rock. In large blasts, 1 pound of powder will loosen 2½ tuns. Fifty or sixty pounds of powder enclosed in a bag and hung against a barrier will demolish any ordinary structure. One man can bore with a bit 1 inch in diameter from 50 to 60 inches per day of 10 hours in granite, or 300 to 400 inches per day in limestone. Two strikers and a holder can bore with a bit 2 inches in diameter 10 feet per day in rock of medium hardness.

A 4 horse team will haul from 25 to 36 cubic feet of limestone at each load.

About 270 cubic feet of new meadow hay, or from 216 to 243 cubic feet of hay from old stacks, or from 297 to 324 cubic feet of dry clover, weigh one tun.

To compute the number of tuns an ice house will contain, calculate the number of cubic feet in the house and divide by 35; this gives the number of tuns if closely packed.

To determine the weight of live cattle, measure in inches the girth around the breast just behind the shoulder blade, and the length of the back from the tail to the fore part of the shoulder blade. Multiply the girth by the length and divide by 144. If the girth is less than 3 feet, multiply the quotient by 11. If between 3 and 5 feet, multiply by 16; if between 5 and 7 feet, by 23, or if between 7 and 9 feet, by 31. If the animal is lean, deduct $\frac{1}{25}$ of the result and the answer is the weight in pounds: this multiplied by 0·605 gives the net weight.

To make a glue which will resist fire, mix a handful of quicklime in 4 ounces of linseed oil and boil to a good thickness; then spread on tin plates in the shade. It will become exceedingly hard, but may be easily dissolved over the fire and used as ordinary glue.

The following are good non-poisonous glazes for common earthenware (1) Silicate of soda at 50° B. 100 parts; powdered quartz 15 parts; chalk 15 parts. (2) The same with the addition of 10 parts borax.

Artificial grapes are blown from melted resin and afterwards dusted with a colored powder.

The best homemade fireproof safe is a hole in the ground, well lined with brick and cement.

To restore the color of a marble mantlepiece which has become stained, mix up a quantity of the strongest soap lees with quicklime to the consistence of milk, and lay it on the stone for twenty-four hours. Clean afterwards with soap and water.

Plaster of Paris mixed with a saturated solution of alum, baked in an oven, pulverized, and lastly mixed with water, is an excellent cement for marble.

Slaked lime, placed loosely on a board inside a furnace during the summer, will take up the moisture and prevent rusting.

Iron in Railway Bridges.

Mr. W. Kent, of the Stevens Institute of Technology, has made some analyses of the rapid corrosion of iron in railway bridges. It has frequently been noticed that iron, exposed to the smoke, steam, and heated gases escaping from passing locomotives, shows a greater tendency to corrode than iron in situations not so exposed. A qualitative chemical analysis of iron rust that was taken from a bridge on the Pennsylvania Railroad showed the presence (in a water solution of the rust) of iron, ammonia, sulphuric acid, and traces of sulphurous acid and chlorine. A separate portion of the rust was tested for carbonic acid, which was found in considerable quantities. The escaping gases from the locomotive contain carbonic acid, carbonic oxide, moisture, and, if there is sulphur in the coal, sulphurous and sulphuric acid. The presence of these acids, no matter in how small quantity, is sufficient to promote rapid corrosion.

New Phenomena of Solar Radiation.

M. Desains has recently examined the variations which the calorific solar rays undergo at the same time in point of intensity and with reference to their transmissibility through water. He expresses the results reached in tables which show the quantity of heat arising at noon during one minute, and at different periods of the year, on an area of 1·6 square inches. The numbers vary very slightly, ranging from 1 to 1·3. The minimum was observed in January, 1875, and the maximum in June, 1874. Another table shows how the quantity of solar heat varies in traversing 0·32 inch of water in a minute, at noon. On April 25th last, the sky being clear, sixty-three per cent of the radiation was transmitted. In June and July, 1874, the proportion reached seventy-two per cent. M. Desain deduces from his results the curious fact that an increased transmissibility of the radiations is related to the presence of greater or smaller quantities of watery vapor in the high atmospheric regions. Facile transmissibility indicates cloudy weather on the following day; and on the other hand, when the reverse is the case, permanently fair weather may be expected.

Aniline Black Marking Ink.

To prepare this ink the following solutions are required: (1) Dissolve in 60 grammes of water 8·25 grammes crystaline chloride of copper, 10·65 grammes chlorate of soda, and 5·35 grammes chloride of ammonium. (2) Dissolve 20 grammes hydrochlorate of aniline in 30 grammes of distilled water, and add 20 grammes solution of gum arabic (1 part of gum to 2 of water), and 10 grammes glycerin. If 4 parts of the aniline liquid are mixed in the cold with 1 part of the copper solution, we obtain a greenish liquid, which may be used at once for marking linen; but as it decomposes in a few days, it is better to preserve the two solutions separately. The writing is at first greenish, but is blackened by exposure to steam (for example, by being held over the spout of a boiling kettle). A dry heat renders the tissue brittle.—*Dr. Jacobsen.*

A Preventive for Shafting Accidents.

There are no accidents more common in large manufactories, and few more fatal, than those caused by the engagement of some portion of a workman's garments with a swiftly rotating shaft. The loose dresses of female operatives are especially liable to become entangled in countershafts placed near the floor, or in the revolving shafting of the machines which they may be attending. There is a very simple way of rendering these casualties impossible, and this without necessitating the usual plan of constructing a railing or fender about the moving piece. It is simply to cover the shaft with a loose sleeve along its whole length. The sleeve may be of tin or zinc and made so as to be removable if desired. The friction between it and the shaft would be sufficient to cause its rotation with the latter, but of course, in event of a fabric becoming wrapped around it, it would quickly stop, and allow of the easy extrication of the same. The sleeve should be lined with leather both within and at the ends in order to prevent noise.

The same idea in the shape of loose covers might readily be applied to cog wheels or pulleys, and thus prove a valuable safeguard against loss of life or limb.

IN describing the fireproof houses now in process of construction in Chicago, Ill. (see SCIENTIFIC AMERICAN of June 19), we noted especially the improved method of plastering which has been adopted—the system involving the use of concrete and other materials, supported by galvanized iron wire. Mr. James John, of La Salle, Ill., we should have stated, is the inventor of the system, which has been patented. Mr. John is therefore entitled to the credit of the invention, which appears to be one of considerable value.