How to Cleanse the Waste Pipes.

One of the most frequent and trying annoyances of housekeeping, as many can testify, and which a writer in the Philadelphia *Ledger* freely asserts, is the obstruction to the free, quick outlet of the waste water of the washstand, the bathtub, and the kitchen sink.

This is caused by a gradual accumulation of small bits of refuse material, paper, rags, meat, bones, or other offal, which check and finally entirely stop the outflow of the waste water, and then the plumber is called to remove the stoppage with his force pump.

Sometimes this is effective, at others the offending waste pipe is cut out and a new one put in its place at considerable cost.

But the plumber is not always near at hand or free to come at one's call, and the matter demands immediate attention. A simple, inexpensive method of clearing the pipe is as follows: Just before retiring at night pour into the pipe enough *liquid* potash lye of 36° strength to fill the "trap," as it is called, or bent portion of the pipe just below the outlet. About a pint will suffice for a washstand, or a quart for a bathtub or kitchen sink. *Be sure that no water runs into it till next morning.*

During the night the lye will convert all of the offal in the pipe into *soft soap*, and the first current of water in the morning will remove it entirely, and leave the pipe as clean as new. The writer has never had occasion, in over thirty years' experience, to make more than two applications of it in any one case.

A remarkable example of the value of this process was that of a large drain pipe which carried off the waste of an extensive country house, near Philadelphia, and ran under a beautiful lawn in its front. A gallon of the lye removed all obstruction in a single night, and saved the necessity of digging up the pipe and disfiguring the greensward of the lawn, as the plumber intended, until advised of this process.

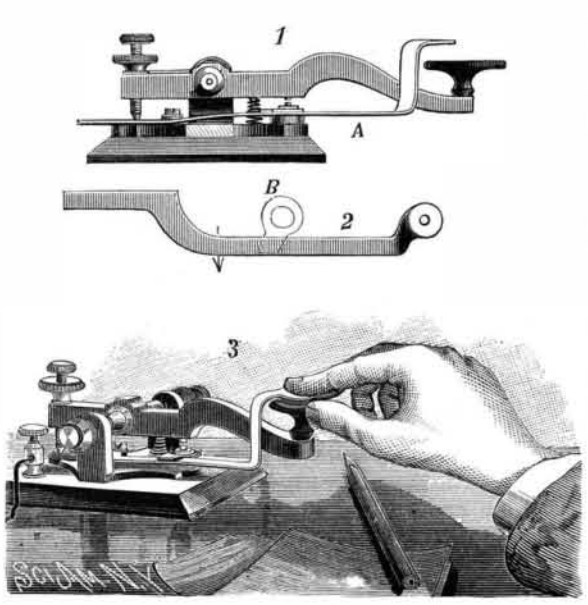
The so-called potash lye sold in small tin cans in the shops is not recommended for this purpose; it is quite commonly misnamed, and is called caustic *soda*, which makes a *hard* soap. The lye should be kept in heavy glass bottles or demijohns, covered with wicker work, and plainly labeled; always under lock when not in actual use. It does not act upon metals, and so does not corrode the pipes as do strong acids.

Typhoid Fever in New York.

The death rate in this city so far this year has been unusually low, and the prospects are that the record for the year will correspond. The greatest danger is from the increasing prevalence of typhoid fever. The impression that the fever infection results only from contamination by ingestion is gradually giving place to the belief that a lodgment may also be effected in the air passages. In conjunction with the Board of Health, physicians can do much toward stopping the advance of the disease by enforcing the immediate disinfection of typhoid fever excreta. The Board has issued circulars giving directions for the best means of accomplishing this object.

AUTOMATIC CIRCUIT CLOSER.

This simple device is designed to automatically close the circuit of telegraph keys, and may be applied to either old or new keys or to keys of various sizes. A spring lever, A, Fig. 1, presses upward, either normally or aided by a spring

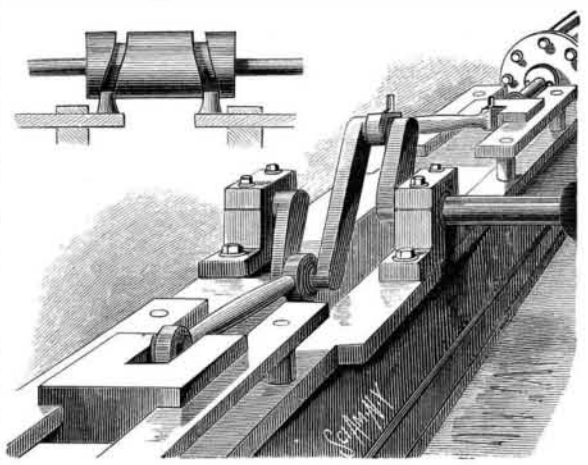


AUTOMATIC CIRCUIT CLOSER.

placed beneath it, against a projection, B, from the side of the key. Fig. 2 is a plan view of the lever and projection. One end of this lever is so bent that its extremity rests about three-eighths of an inch above the finger button of the key. The rear end of the lever is secured to the frame by a screw. When operating, the forefinger is placed on the end of the lever, A, which is pressed down until it rests on the button of the key, which is grasped by the thumb and middle finger. When the lever is released, it presses against the projection and automatically closes the circuit. The device is very convenient, as the operator need not take the trouble to close the circuit every time he stops telegraphing, as it can never be left open. This invention has been patented by Mr. Samuel J. Spurgeon, of Liberty, Missouri.

COUNTERBALANCE.

The counterbalance herewith illustrated can be applied to all kinds of machines having a reciprocating motion, such as saw mills, gig saws, steam engines, grain separators, mowing machines, etc. It consists in the use of a weight connected with the crank or other moving part so that the weight of the parts is counterbalanced and an even and steady motion produced, permitting the machinery to run at a high rate of speed. The counterbalance can be placed upon the same side of the shaft as the cross head or upon the other side, as shown in the engraving, when it runs upon its own slides. When applied to a cam, the cam is made double, or with two grooves inclined in opposite directions and engaged by reciprocating bars that counterbalance



ELWELL'S COUNTERBALANCE.

each other upon the cam, as shown by the small engraving. The principle is applicable to motions obtained by other devices than the crank or cam.

This invention has been patented by Mr. Orlando Elwell, of Van Ettenville, New York.

Biography of a Mosquito.

If the mosquito were a very rare insect, found only in some far off country, we should look upon it as one of the most curious of living creatures, and read its history with wonder—that an animal could live two such very different lives, one in the water and the other in the air. We speak of the mosquito as if there were but one, while really there are over thirty different kinds, all, however, having similar habits, so that a description of one answers for all. The female mosquito lays her eggs on the water. She forms a little boat, gluing the eggs together side by side, until she has from 250 to 350 thus fastened together. The boat or raft is oval in shape, highest at the ends, and floats away merrily for a few days. The eggs then hatch and the young mosquito enters the water where the early part of its life is to be passed. You can find the young insects in this, their larval stage, in pools of fresh water, or even in a tub of rain water which has been standing uncovered for a few days. They are called wrigglers, on account of the droll way in which they jerk about the water. They feed upon very minute creatures, and also upon decaying vegetable matter. Near the tail the wriggler has a tube through which it breathes. If you approach the pool or tub very quietly, you can see them in great numbers, heads downward, with their breathing tube above the surface. If you make the least disturbance, they will scamper down into deep water. After wriggling about for two weeks, and changing their skins sevreal times, the larva becomes a pupa.

You know that most insects in the pupa state do not move, but take a sleep of greater or less length. Not so the lively little mosquito. In its pupa state it becomes a big headed creature which does not eat. It moves about quite rapidly, but not with the same wriggling motion; it now has a pair of paddles at its tail end, and takes in air through tubes near the head. In five or ten days the mosquito ends its life in the water, and becomes a winged insect. The pupa comes to the surface, and the skin cracks open on the back, allowing first its head and chest to come forth, finally the legs, wings, and rest. This is a most trying moment in the life of the insect; if a slight puff of wind should upset it before the wings are dry, it will surely drown; only a small proportion of the whole number succeed in safely leaving the pupa case; the greater share become food for the fishes. If the wings once get fairly dry, then the insect can sail away, humming its tiny song of gladness. How does it sing? Perhaps when you heard its note at night you did not stop to consider. It is a point which has puzzled many naturalists, and it is not certainly known how the note is produced, but probably the rapid motion of the wings and the vibration of the muscles of the chest are both concerned in it. The most interesting part about the insect—the "business part," as some one has called it—is its sting, or sucker. This is not a simple, sharp pointed tube, but consists of six parts, which lie together in a sheath, and are used as one. How sharp these must be to go through our skin so easily! After the puncture is made, it then acts as a sucker to draw up the blood. The insect which visits us is the female. We rarely see the male mosquito. Blood is not necessary to the existence of the mosquito, and probably but a small share of them ever taste it. The countries in which mosquitoes live in greatest numbers—actual clouds—are not inhabited, and there are but few animals.—*Donahoe's Magazine.*

Glycerine as a Preventive of Crystallization in Strained Honey.

Having for several years had considerable trouble and loss in keeping pure strained honey, on account of its tendency, in a short time (particularly in warm weather), to crystallize, I have been ready for any remedy that was feasible. One lot that I purchased in the comb and strained myself soon became almost worthless from this cause. Some two months ago I had a small lot that I found crystallized when wanted for use, although I had taken the precaution to cork tightly and put in a cool place in the cellar. It occurred to me to see what would be the result from melting and adding a small amount of glycerine. Placing the bottle in a water bath, I soon had it melted and added one ounce of glycerine to about one and one-half pounds of the honey, setting aside to cool. It has shown no sign of recrystallization as yet, and I am just using the last of it. I can see no objection to this on the score of adulteration or any harm from its use. In making simple sirup I have occasionally found it crystallized in the bottom of the bottle, causing some trouble to remove, and several times have found some chemical change, which has caused an unpleasant odor, which I have not at all times been able to obviate, although using distilled water and the purest sugar obtainable. Have not as yet had an opportunity of trying the effect of glycerine, but think it might prove beneficial and in no way objectionable. Have been accustomed to add a small amount to my beef, iron, and wine for a long time, and find it prevents souring and, in a large measure, precipitation—*J. W. Colcord, Amer. Pharm. Assoc.*

Novel Rheostat.

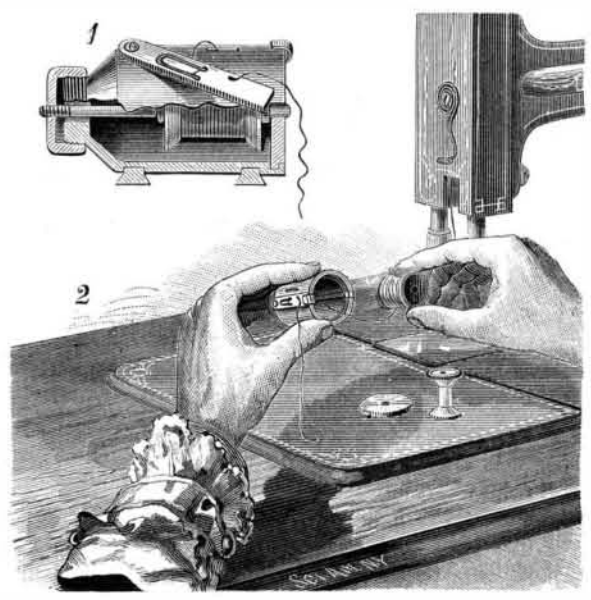
A very useful rheostat has been devised by M. Trouvé, the well known Parisian inventor. It consists of a German silver spring inclosed in a nickel plated tube, the spirals not being allowed to touch each other, and insulated from the tube by a pasteboard sheathing. Inside the spring is a rubbing contact formed of a metal rod split into four parts, like the split plugs of a resistance box. This rod is graduated in divisions. The current enters at one end of the spring, traverses it, the rubbing contact, and the graduated rod. When the rod is deeply inserted into the spiral coil, the current only traverses a few turns, and the resistance in circuit is very small; but when the rod is pulled out, the number of turns inserted is considerable.

The divisions on the scale tell the number of turns in circuit. The device is employed by Trouvé in connection with his polyscopes to regulate the strength of current supplied by a small Plante accumulator.

NOVEL SEWING MACHINE SHUTTLE.

The improved shuttle shown in the engraving is made so that it can hold any ordinary spool of thread or silk, and thus avoid the trouble of rewinding, and save the expense of a number of bobbins. The shuttle is a hollow cylinder tapered at one end and fitted with a screw cap which receives the spindle upon which the spool is loosely mounted. This spindle extends through the opposite end of the shuttle and is provided with washers to hold the spool in place. The plate forming the larger end of the shuttle is retained in place by a spring.

To the upper side of the shuttle is pivoted a bar having a U-shaped slot and an eye for receiving the thread and



IMPROVED SEWING MACHINE SHUTTLE.

giving it a certain amount of tension, and the shuttle is slotted for the passage of the thread, which passes thence to the U-shaped slot and the eye in the bar. The bar is held in working position by a spring catch. The spool is removed from and replaced upon the spindle after taking out the larger end of the shuttle. When it is necessary to remove the spindle, it can be done by unscrewing the cap on the conical end of the shuttle.

Fig. 1 shows the shuttle with a part broken away to exhibit the internal arrangement. Fig. 2 shows the method of removing and replacing the spool.

This invention has been patented by Mrs. E. Chavers, of Seddon, Mich., who may be addressed for further information.