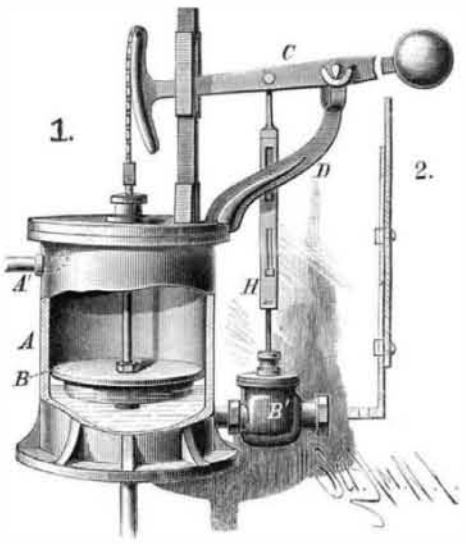
STEAM TRAP.

The engraving represents an improved steam trap for steam heating apparatus. The cast iron receiver, A, is connected by a coupling, A′, with the steam coil, and fitted in one side is the outlet valve, B′; the space in the receiver below this valve serves as a trap for sediment entering with the water of condensation. The weighted float, B, is connected with the lever, C, by a chain and rod which passes through a stuffing box. The lever is fulcrumed upon the upright, D.



TAYLOR'S STEAM TRAP.

and is furnished with a weight that may be adjusted to balance the float. The valve, B′, is connected with the lever by an extensible connection, shown in section in Fig. 2. The lever is prevented from moving too far upon its fulcrum by a guide and stop plate secured to the top of the receiver.

The water of condensation, entering the receiver, raises the float until the upper water level is reached, at which point the valve begins to open by the further movement of the lever; the surplus water in the receiver is thus allowed to pass out the cock. It will be seen that the float is kept constantly moving, to prevent the liability of its sticking. The valve is always closed at a point below the low water level, thereby preventing at all times any escape of steam. By opening the blow-off pipe at the bottom of the receiver, all sediment and foreign matter trapped out of the water can be removed. By using a heavy float counterbalanced by a heavy weight, a positive action of the trap is obtained, as the water in receding from the float will give a great difference in weight over the counterbalance.

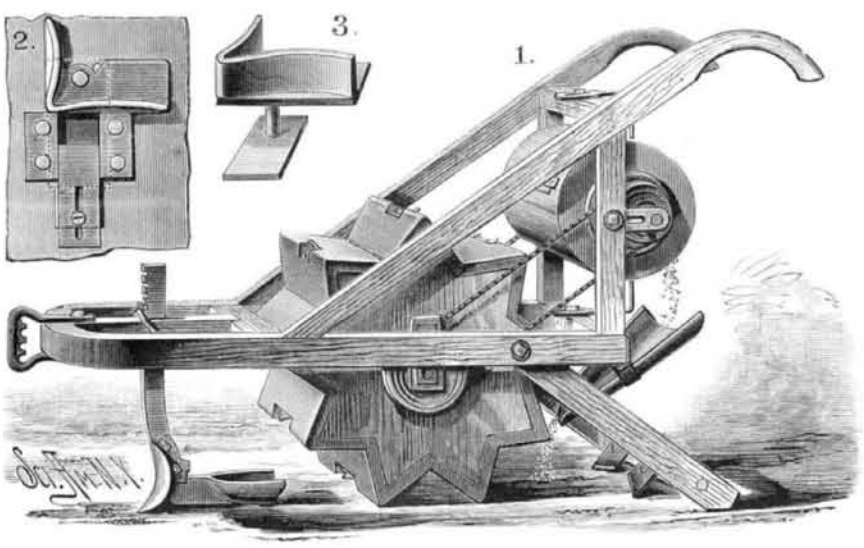
This trap is the invention of Mr. W. W. Taylor; particulars can be had from Messrs. Taylor Brothers, 124 to 128 St. Joseph Street, New Orleans, La.

IMPROVED SEED PLANTER.

The seed planter herewith illustrated makes a clean furrow and evenly ridges the earth on the dropped seed, plants two or more kinds of seed at once and at any desired distances apart, and also drops seed and a fertilizer simultaneously. The machine frame has a bowed front and cross bars, between which is a longitudinally ranging beam through which the standard of the furrow opening plow passes; the plow and its drag are so supported that it can be held at any desired height, to work deeper or shallower in the ground. The drag is connected to the plow so that it lines with the longitudinal center of the plow; lateral play of the drag is prevented, and if at any time it is not needed, as in planting some crops, it may be quickly swung up out of the way or removed. The opposite sides of the drags are formed with diverging plates which pack and smooth the furrow opened by the plow, and insure the dropping of the seed to the bottom of the furrow and at a uniform depth in the soil. The seed or fertilizer holding drum has closed ends, and a periphery formed in a series of projecting angles, one of which is hinged to allow the seed or fertilizer to be placed in the drum, which, as it rolls over the ground, also acts as a clod crusher when the drum is used to plant cotton seed in lumpy soil, at which time free vertical play of the drum is obtained by journaling the shaft in boxes sliding vertically in slotted plates fixed to the side bars of the frame.

Provision is made for preventing this vertical movement when it is not necessary. On the drum shaft are cone chain pulleys, from which the driving chains lead to pulleys on the shaft of the upper seed cylinder. This cylinder may be adjusted to or from the other, so that the chains may always be kept taut when set to give varying speeds to the drums for dropping the seed at different distances apart. The rear seed drum is made with a central lengthwise partition, so that two kinds of seed may be planted in alternate hills; this partition is removable. The lower drum at the center of its angles, and also the other at two or four diametrically opposite points, are provided with pockets from which the seed is discharged by the action of valve plates. By means of properly arranged tappet arms, the valve plates are shifted to open the pockets toward the interior when the pockets are up; the pockets become filled as the drums revolve, and when at the lower points, the valve plates are shifted by other tappet arms to open the pockets and permit the seeds to drop. The seed can be dropped in a bunch or scattered, as desired, and the size of the pockets can be varied so as to drop any quantity of seed. The seeds in the furrow are covered by right and left hand hoes or blades attached to a crossbar connected pivotally to the side bars of the frame in the rear of the lower drum. If not needed, the upper drum can be removed; and when both drums are used, seed may be dropped from either, while a fertilizer is dropped from the other.

This invention has been patented by Mr. Joseph Laude, of Monticello, Ark.



LAUDE'S IMPROVED SEED PLANTER.

Simple Method of Cutting Glass.

Most of our readers are familiar, either by practice or reading, with the method adopted often in the laboratory or elsewhere for dividing glass by a hot rod. If a bottle is to be cut into two pieces, a notch is filed in its side. Then, by applying a hot iron or glass rod, first on one side then on the other of the notch, a smooth crack half an inch long will sometimes form. But as this does not always take place, and as in cutting glass only one of the pieces is wanted, a crack may be started well away from the desired place. Assuming such a crack to be formed, it may be led in any direction by slowly moving in advance of it, and in contact with the glass, the end of a pipestem, of an iron or a glass rod, heated to a full red heat. The speed with which the rod is to be moved depends on the crack. It should be kept about a quarter of an inch in advance thereof, and should be moved continually away from the end, as the crack extends itself. In this way a flask can be cut into a spiral, or heavy plate glass divided with fair accuracy.

The great point is to have the line of the cut well marked. If a bottle is to be cut off, to make a battery jar for instance, a string tied or a rubber band sprung around it about a quarter of an inch from the place of division forms a convenient guide. The cut may be carried around parallel with the string or band. Then a half hour's grinding on a horizontal pane of glass, with sand, camphor, and turpentine, will finish the edge perfectly. In marking the place for cutting, a pointed piece of soap may be used, as a string can only be employed on cylindrical objects. This method of working is attended with one inconvenience. Unless a rod of large size is used, continual reheating is necessary. A glass rod as thick as a penholder will carry a cut about two inches at a heat. A pipestem or tenpenny nail will do the same. To obviate waiting, several rods may be used, some heating while one is in use.

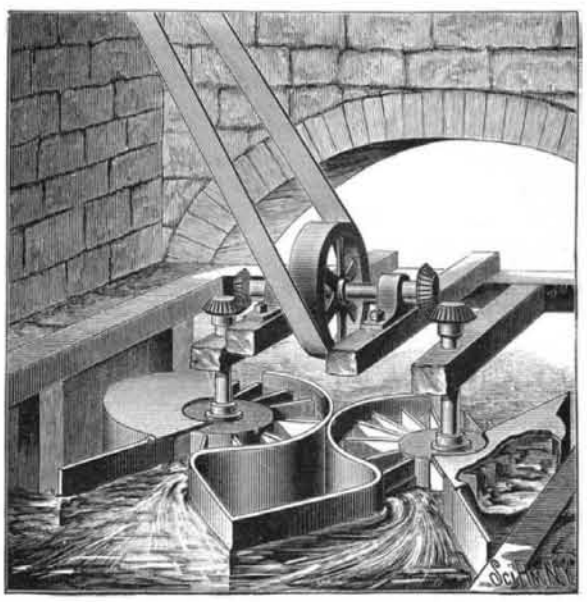
A fine gas jet, burning from a fine glass jet at the end of a rubber tube, has also been suggested, but is inconvenient. A receipt is given for making little carbon pencils, that burn with flameless incandescence, to be used instead of a heated rod. These, however, are troublesome to make.

The use of what is sold by the fireworks dealers under the name of punk was suggested by a consideration of the points given above. This substance burns slowly, without flame, and maintains a strong incandescence until quite consumed. The incandescent part takes the shape of a cone, like a sharpened pencil. As long as the piece lasts, its burning end maintains this form. By blowing upon it, the heat can be materially increased. On trial, it was found to cut glass perfectly. The only objection to it is that if rubbed against the glass the ash soils its surface, so that the progress of the crack cannot be conveniently watched. But in practice it is not necessary to hold it in contact with the glass, as it radiates heat enough to lead the crack, if held very close and not in absolute contact therewith.

By using punk, the trouble of shifting from rod to rod, and the necessity of a source of high heat, a Bunsen burner generally, is obviated. The punk can be lighted with a candle, or even with a match, and is ready for use immediately. A long stick will last for half an hour, enough to do a great deal of work. The only difficulty is in starting the crack. It may be done by heating the glass, and touching it with a drop of water. This generally starts several, and the one pointing in the most convenient direction may be chosen, and carried where desired. The method first spoken of as applicable to bottles, that of filing a notch and heating the glass first on one side and then on the other, cannot be depended on. S. T.

WATER WHEEL.

The current of water entering the sluiceway divides its force equally between the wheels. Each of the wheels is provided with buckets pivoted to the hub, which is mounted on an upright shaft rotating in bearings on the frame; these shafts transmit their movement by beveled gear wheels meshing in wheels on the ends of a horizontal shaft carrying the driving pulley. The sluiceway is divided by an angular partition in such a manner that each of the wheels receives an equal share of the water. The partition rounds off into rims partly encircling the wheels, holding the water upon them and preventing any waste. The folded returning buckets are inclosed in a case provided at its forward end with a stationary entrance partition, which, in connection with hinged gates which may be closed across the main entrances, directs the current of water on the buckets. The buckets are provided with curved hinges forming stops, and are hinged in such a manner in an annular groove of the hub that they open radially when struck by the current, and fold when the water leaves them at the rear. By closing one of the gates, the full force of the water will be directed against the other wheel. It will be seen that the current will exert its force against nearly half of the buckets, and will only cease to act when leaving them. This invention has been patented by Mr. Joseph B. Collins, of 127 North Front Street, Grand Rapids, Mich.



COLLINS' WATER WHEEL.

Great Waste of Oil.

According to Mr. Edward Atkinson, nearly the whole wool clip now comes to market unwashed; and out of the 320,000,000 lb. of domestic wood now used, there must be 25 per cent at the least, or 80,000,000 lb., of a very valuable oil now thrown into the rivers and wasted, while polluting both the water and the atmosphere.

When the "suint" is refined, a thick, viscous oil is obtained, which is absolutely free from oxidation, and which is, therefore, the most valuable oil for currier's use which can be found. The residuum of wool scourings is largely imported from Europe for curriers' use, under the name of "de gras," and the substance also forms one of the ingredients of a mixture which is used for oiling wool preliminary to carding. "De gras" is recovered from wool scourings in Europe by a chemical process; it is very inferior to the fine oil which can be recovered from the wool by the naphtha process, but it may be cheaper.