New Inventions.

Epidemics and their Causes.

Dr. Southwood Smith has been giving a very important series of lectures in Edinburgh, on the subject of epdemics. Dr. Smith dwelt particularly, in his introductory lecture, on the fact that all epidemic diseases—the plague, black-death, sweating-sickness, cholera, influenza, &c.—were fevers. Cholera was usually preceded, he stated, by influenza. In cholera, if the patient be saved three days, the fever and other symptoms were curable. Dr. Southwood Smith seemed to say that very active animal and epidemic poisons were generated by over-crowding of human beings, and when to this were added deficient electricity in the atmosphere, unusual prevalence of mist, haze, or fog, stillness of the air, and augmented barometric pressure, then we had an epidemic constitution of things, and would have most probably cholera.

Improvement in Seeding Machiness.

The annexed engravings represent an improvement in seeding machines, for which a patent was granted to H. R. Smith, of Massena, N. Y., on the 9th of October last.

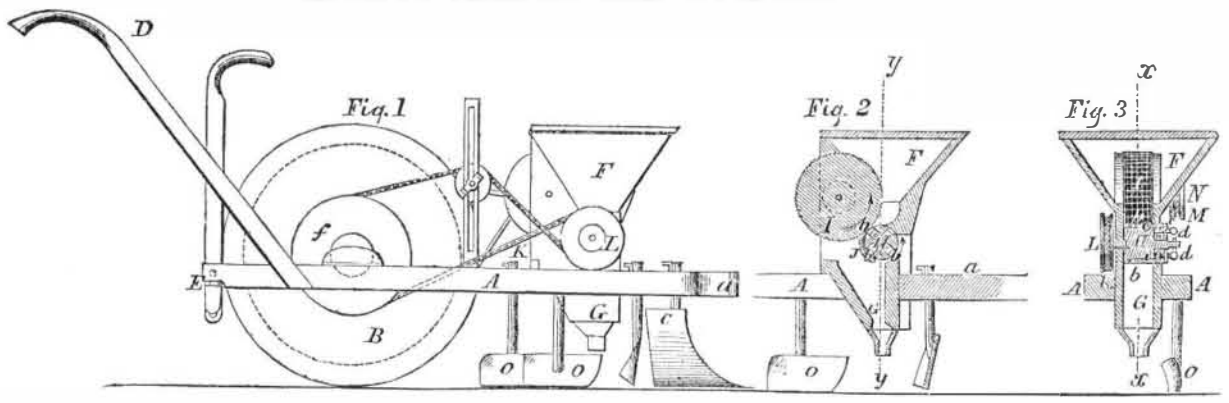
Fig. 1 is a side view of the seeding machine; fig. 2 is a detached vertical section of the hopper, and seed distributor taken at *x x*, fig. 3, and the latter figure is a transverse vertical section of fig. 2, taken at *y y*, showing the plane of section. Similar letters refer to like parts. The nature and peculiarity of the improvement on this machine relates to the means employed for distributimg the seed, which will be better understood as we proceed in the description.

A A represent two beams, the front ends of which are connected angularly to a strip, *a*, so that the two beams will be of V-form. The back parts of the beams are supported by a wheel, B, and to the strip, *a*, at the front end of the beams, there is attached a share, C, formed with two mold boards. To the back ends of the beams, handles, D D, are attached, and a brake, E, is also attached to the back ends of the beams, which brake may be made to act against the periphery of the wheel, B. F is a hopper which is secured upon the beams, A A, near their front ends. The lower end of this hopper is provided with a spout, G, which projects a short distance below the beams, A A. Within the hopper, F, there are placed two wheels, H I, one of which, H, is considerably smaller than the other, I. The wheel, H, extends across the whole width of the lower part o the hopper, and has recesses or holes, *b*, made in its periphery. One end of the wheel, H, has a metallic plate, *c*, attached to it through which screws, *d*, pass horizontally, and the inner ends of these screws are attached to slides, *e*, which fit in the recesses or holes, *b*, in the wheel, H, as shown in fig. 3. The slides are of the exact depth and width of the recesses or holes, *b*, and by turning the screws, *d*, the slides may be made to close the recesses or holes, *b*, partially or entirely, that is, the portions of the recesses or holes that are within the hopper, for one end of the wheel passes through one side of the hopper. At the back part of the wheel, H, there is a concave, J, the ends of which are secured to the sides of the hopper. This concave is fitted quite closely to the wheel, H, but not so as to interfere with its easy rotation.

The back part of the wheel, I, projects through the back side of the hopper, F, and is placed at one side of the wheel, H, its periphery nearly or quite touching the periphery of the wheel, H, as shown in fig. 2. The width of the wheel, I, corresponds with the portion of the wheel, H, within the hopper, and the periphery of the wheel, I, is slightly corrugated. The wheel, H, is rotated by a cross band, K, which passes around a circular projection, *f*, on one side of the wheel, B, and around a pulley, L, on the journal of the wheel, H. The wheel, I, is rotated by a cross band, M, which passes around a projection, *g*, on the opposite side of the wheel, B, and around a pulley, N, on one of the journals of the wheel, I.; the arrows in fig. 2 show the direction in which the wheels rotate. Directly back of the spout, G, and to the beams, A A, there are attached two covering shares, O O. These shares are formed of metal plates, the front ends of which are rounded or curved and the back upper ends are curved or bent inwards. The drill for making the furrow is placed between the share, C, and spout, G.

As the machine is drawn along, the double share, C, clears a space a foot in width with a light furrow or ridge on each side, in the center of which the drill makes a narrow furrow or mark for the seed to fall in, and the wheel, B, rotates the wheels, H I, and the seed being placed in the hopper, F, will pass into the recesses of the wheel, H, said recesses or holes being made of the desired capacity. By turning the screws, *d*, the seed is carried round by the wheel, H, underneath the wheel, I, which, as it rotates, serves to crowd or press the seed forward, filling the recesses, and at the same time preventing the clogging or choking of the wheels.—

SMITH'S PATENT SEEDING MACHINE.



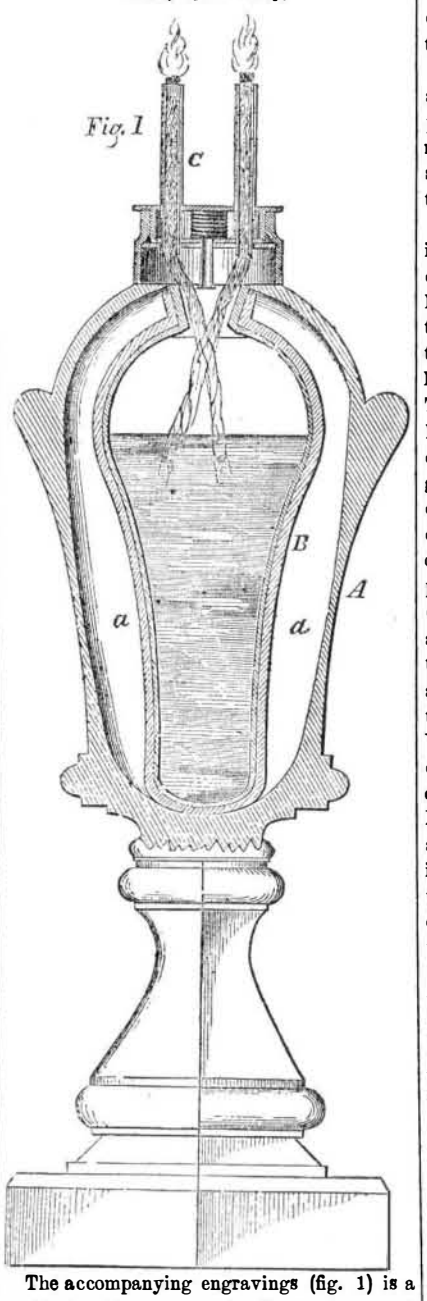
The concave, J, prevents the seeds falling in too scattering a manner as it drops through the spout, G, into the narrow furrow made by the drill, and is covered by the shares, O O said shares within the space cleared by the double share, C, and the wheel, B, passes over and presses the earth on the seed.

The seeds in a hill are not dropped in a bunch, but scattered a little, as they should be, nearly in a straight line in the direction in which the rows are planted, so that in cultivating the light furrow left on each side of the row, by the double share, C, dresses in and covers the spaces between the hills, and hills up the grain as well as it does to cultivate both ways when planted in the usual manner. The depth which the grain is covered is governed by the distance the drill and shares, O O, work below the double share, C.

The brake, E, can be made to act against the periphery of the wheel, B, so as to prevent the seeds dropping when turning around at the ends of the row, or in passing any obstacle that may be in the way. The machine is drawn by one horse, and does the work well as fast as a man can walk.

More information relating to this seeding machine may be obtained by letter directed to the patentee—H. R. Smith—Racket River P. O., St. Lawrence Co., N. Y.

Safety Spirit Lamp.



The accompanying engravings (fig. 1) is a vertical section representing the improvement in fluid lamps for which a patent was granted to Wm. Bennett, of Brooklyn, on the 27th of of Nov. last, and fig. 2 is a vertical section of the patent safety tube—for spirit fluid lamps—the patent having been assigned to the Union India Rubber Lamp Co., office No. 284 Washington st., this city.

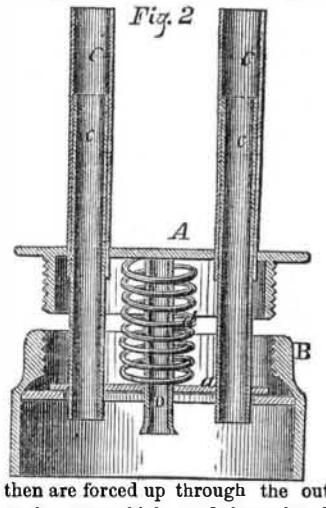
The nature of the improvement in the lamp consists in placing within an ordinary glass or metal lamp, or within a suitable frame or support, an india rubber receptacle to receive and hold the spirit gas or other fluid, said receptacle having the usual wick tubes attached to the wrench in manner.

A represents a lamp of ordinary construction, and B represents a bag or receptacle which is placed within the body of the lamp, and is made of india rubber, lined inside with a substance which protects it from the action of the fluid.

The upper part of the bag or receptacle, B, is attached in any proper manner to the sides of the orifice of the lamp, and a space, *a*, is allowed between the outer side of the bag and the body of the lamp as shown. The wick tubes, C, are attached to the upper part of the lamp so as to communicate with the bag, B. The ordinary fluid lamps, or those which burn hydro-carbon fluids, often burst in consequence of the pressure exerted against them by the gaseous substance generated within the body of the lamp by the heat of the flame. Various plans have been devised to obviate this difficulty. A metallic reservoir has been placed within the body of the lamp, and encompassed by water in order to keep the fluid at a low temperature, but this plan augmented the cost of the lamp to a considerable extent, and did not provide a perfect remedy, because the metal is liable to be crushed itself.—Vents have also been made in the upper part of the lamp to allow the vapor or gas to escape, but this caused a great waste of fluid. By this improvement the difficulty is obviated at a small cost, and without any waste of fluid, for the bag or receptacle will expand under the pressure of the gas or vapor, and consequently will not break or burst, and in case the lamp should be casually broken, the bag will retain the fluid, and prevent accidents, which frequently occur from that cause.

This improvement may be applied to any form of lamp constructed of either of the materials now employed, or the bag or receptacle may be encompassed by a framing or support, and not be placed in a lamp. The placing of the bag or receptacle within an ordinary lamp is preferable, however, and it is thus that the lamps are made.

Accidents are frequently taking place by filling spirit fluid lamps while burning, by unscrewing the cap and pouring in the fluid under it. The improved cap represented by fig. 2, obviates, for a certainty, any danger that may arise from a careless person filling a lamp while lighted, for the very best reason, the cap always extinguishes the light when unscrewed. B is the collar which is secured on the lamp. A is the cap which screws into the collar. D is a small hollow pin soldered to the underside of the cap, A; *d* is a small coiled spring around the pin, D. *a* is a small disk into which the ordinary wick tubes, *c c*, are soldered, instead of being as in ordinary lamps, soldered to the cap; the pin, D, passes through a hole in the disk, *a*, and the wick tubes, *c c*, pass through the interior of outside tubes, C C, which are soldered to cap A. When the lamp is ignited the top of the wick tubes, *c c*, are on a level with the outside tubes; that is when the cap is screwed down into its collar, B. The figure shows the cap unscrewed, and the outside tubes above the inside ones, enclosing them, and extinguishing the light, as if the lamp had been previously lighted and the cap unscrewed for refilling. Around the throat of collar, B, there is an inside ring or flange against which the disk, *a*, is pressed when the cap, A, is screwed down. The wick



tubes then are forced up through the outside tubes to the proper hight, and the spring, D, is compressed between the cap lid, and its disk, *a*. When the cap, A, is unscrewed to fill the lamp with fluid, and when the last thread is turned, the coiled spring, D, forces the disk, *a*, down, and thus the wick tubes, *c c*, are drawn into the outside extinguisher tubes, C C, and the light is at once eclipsed. This is a very simple and certain method of obviating any danger arising from replenishing the lamp with fluid. The disk, *a*, also prevents the fluid arising in the neck of the lamp to be evaporated by the heat of the cap or lid, and thus another cause of explosions is prevented, besides that of filling the lamp with the wicks lighted.

Two patents have been granted for these improvements in safety tubes, illustrated on page 24, Vol. 6, Scientific American, and the other represented by fig. 2 embracing the coiled spring and its movable disk, *a*. All these improvements are used in the construction of these lamps.

A lamp for burning spirit fluid, embracing these improvements appears to us to be perfectly safe for common use.

More information may be obtained by letter—or otherwise—directed to the Company, at their place of business given above.