New Inventions.

Collision Preventer.

The latest new idea for preventing the sad effects of collisions on railroads is to have a track laid across the tops of the cars, with inclined tracks upon long cow-catchers placed at the front and rear of the train. The approaching train upon the same track, moving in whichever direction, instead of coming in collision, would run up the inclined tracks, pass safely over the tops of the cars that stood in the way and down upon the main track again, all in the twinkling of an eye. Mr. W. L. Pursall, of New York City, is the originator of the above happy contrivance.

Waterproof Transparent Photographs.

It is a well-known fact, says the London *Times*, that photographs on paper are, after a certain time, dimmed by a kind of colored film, which is sometimes formed on the surface, and sometimes in the texture of the paper itself. M. Gandinet, in a paper presented to the Academy of Sciences, obviates this inconveniences by rendering the paper waterproof before exposing it to the action of the sun. His process is as follows:—Having dissolved a certain quantity of gutta percha in benzole, the solution is decanted, after a few day's rest, to obtain it clear. Sheets of paper are then dipped into it, one by one, and immediately taken out again, and hung up by one of their corners to dry. These sheets are afterwards found to be covered with a kind of what may be termed powder of gutta percha, there not being sufficient adhesion to give it the quality of a varnish. To obtain this, the sheets are exposed to the action of a good fire, which makes the particles of gutta percha glue together, covering all the fibers of the paper, which thus becomes waterproof without losing its transparency. The paper then receives a solution of albumen (albumen, 100 parts; water, 25; chloride of sodium, 6), which is allowed to dry, and then rendered sensible to light by a solution of crystallized nitrate of silver of the strength of 15 per cent. The rest of the operation is quite the same as usual, only shorter, the photograph being fixed in a few minutes; the washing, which generally lasts from 12 to 24 hours, is reduced to a quarter of an hour. The photograph obtained is transparent, and the paper retains its former whiteness.

New Signal Lantern.

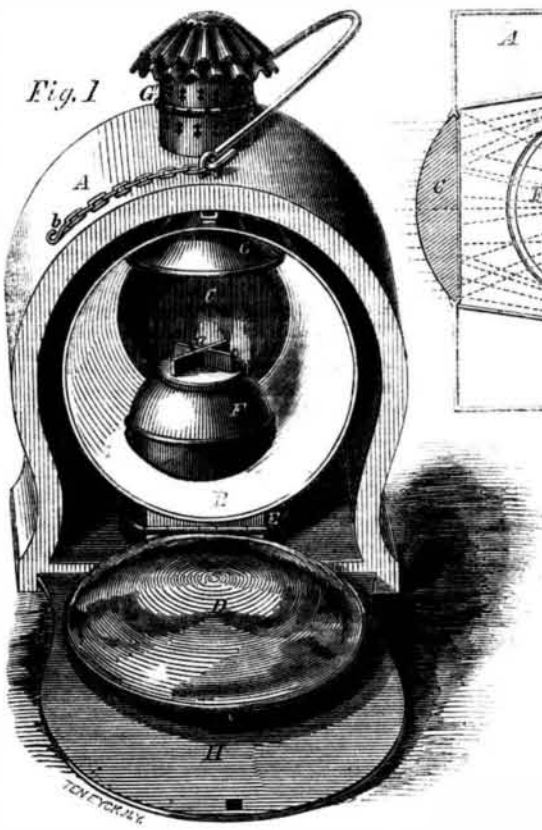
One of the most important requisites for a locomotive, steamboat or signal lantern is, that it shall throw the luminous rays emitted by the lamp to a great distance, and it has been found that the more concentrated these rays are the further they are visible. It is therefore highly desirable that a lantern should be constructed, which, instead of diffusing the light, would throw a column or bundle of rays in a concentrated form, and thus penetrate the surrounding darkness for a great distance. By the arrangement of reflectors in the subject of our engraving, such a concentration is effected, and we will now proceed to describe this lantern, the invention of Wm. Howard, Flushing, L. I.

Fig. 1 is a perspective view of the device, with the door and back reflector open to show the interior.

A is an ordinary lantern, inside which is a conical shaped reflector, B, having at its narrowest end a plano-convex lens, C, and at its broadest part a convex reflector, D, which can open and shut as a door to light the lamp. This reflector is supported on a perforated stand, E, through the center of which rises a pin, *c* (Fig. 3, which is a section of the lamp), and on this is supported the lamp, F, by a hollow cone, *f*, so that it can swing, and always maintain its perpendicular in any position of the lantern, and also obviates the necessity of gimbal rings, which are generally employed for the same purpose, but as they obstruct the light of the lamp passing to the lens, they are objectionable. The lamp passes through a hole in the reflector, B, through which there is also room to admit air to feed the lamp whose wick tube, *a*, is placed in the form of a cross in order that a great amount of light may be obtained from a small lamp. The products of combustion pass through a funnel, G, to a chimney, G′, and all the parts inside which the light touches are plated. The door of the lantern, H, is kept closed by a chain and hook, *b*. Fig. 2 is an horizontal section of the lantern above the lamp and shows the shape of the reflector, which, from its conformation, collects the rays of light from the lamp, and throws them in a very condensed form upon the lens which sends them forth in all their intensity and brightness to illumine the darkness for a great distance.

This form of reflector is entirely new, and has been found to give a very superior light to any of the signal lanterns now in use, far exceeding them in the distance which it can be seen by an observer, rendering it therefore especially applicable for all uses where this is the purpose of the light. It was patented June 2, 1858, and any further particulars can be obtained by addressing the inventor and patentee, W. E. Howard, as above.

HOWARD'S SIGNAL LANTERN.



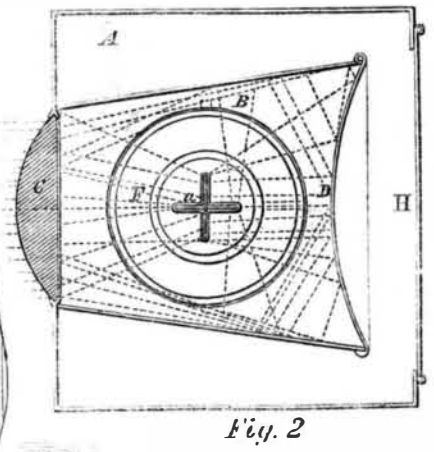


Fig. 2

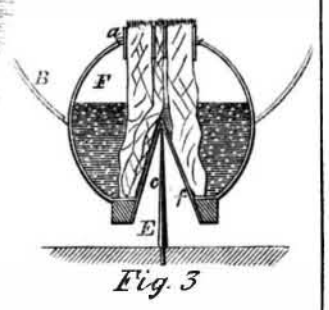
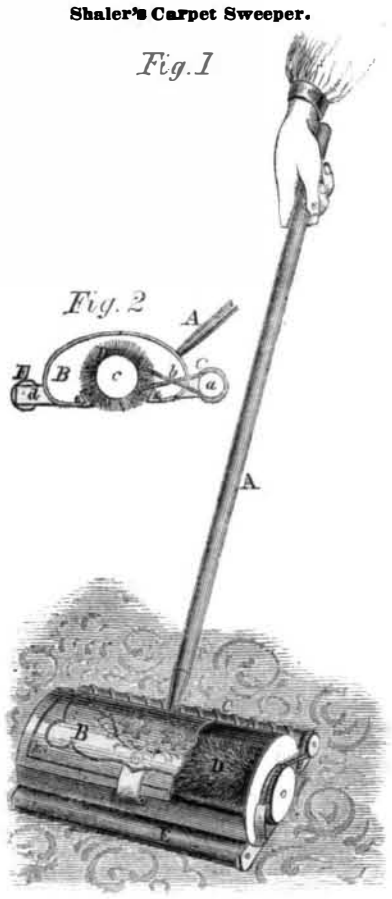


Fig. 3

Shaler's Carpet Sweeper.



A pleasant feature in the character of man is the love of home, and it is creditable to the genius of inventors that while the steam engine and electric telegraphs have engaged their attention, home wants have not been forgotten. We have an illustration of this in the invention we are about to describe—a carpet sweeper—which substitutes an elegant little contrivance requiring no more labor than a few walks up and down the room for what is now, a laborious dusty operation.

Fig. 1 is a perspective view, and Fig. 2 a section of the device, which is the invention of R. Shaler, of Madison, Conn., and was patented by him Sept. 7, 1858.

A handle, A, has a box, B, attached to its lower end; at the rear of the box and parallel with it is placed a roller, C, with a band of rubber run spirally around it. On the end of C is a small pulley, *a*, around which an endless band passes, connecting is to another larger pulley, *c*, on the shaft of a circular brush, D, in the box, B; there is also a roller, E, in front of the box, and connected with it by means of its bearings, *d*, similarily to the bearings of C. The box has a hinged top, so that the dust can be removed from it, and it is turned back as seen at *e* to prevent the dust escaping when brought in by the brush.

The operation is simple and perfect. The box is placed on the carpet, and moves either backward or forward, it matters not which, the rubber spiral "bites" on the carpet and the roller is rotated, and by the endless band and pulleys it rotates the brush, the bristles of which entering into the pile of the carpet give it a thorough brushing and deposits the dust, pieces of paper or bits, in the box without raising the cloud of dust that is the usual accompaniment of carpet sweeping.

To the excellence of this device we can personally testify, and we have no doubt that it will be hailed with gladness by many a housekeeper as one of the most useful additions to home labor-saving machines that has yet been made.

Any information concerning the invention can be obtained by addressing Shaler's Patent Carpet Sweeper Company, 69 Fulton street, New York.

Tallow Candles.

Palmer's tallow candles, which require no snuffing, are made in England, and not in this country, so far as we know. One-third of the wick is first impregnated with sub-nitrate of bismuth ground up with oil, the whole is then bound round in the manner called "gimping;" one, two, or more of these wicks are wound round a thin rod in a spiral manner, and placed in the center of the mold, which is then filled with tallow, and when the tallow cools, the rod is withdrawn. On burning these candles the wicks uncurl, and form so many separate flames, and the ends coming into contact with the air at the edge of the flame, are consumed.

Johnson's Adjustable Hanger for Shafting

The shafting of mills has to be supported in close contiguity with the roof, and often, from its great length, it is subject to vibration, the result of its rapid motion, which throws it somewhat out of a true right line, and if its journal box be rigid, it becomes soon uneven, and wears the shaft itself quickly; in fact, the use of rigid hanging bearings is attended by so many inconveniences that a remedy in the shape of an adjustable hanger has long been wanted.

The subject of our illustration is an adjustable hanger constructed on the principle of the universal joint, which allows and accommodates any of the positions which a shaft may take in its vibration; always keeping the bearing in a right line with the shaft, thus diminishing friction, and also affording support to a shaft passing through it at any angle. The following description will explain the invention:—A is a roof, beam or any piece to which the hanger, B, can be secured. C is the shaft passing through the box, H, which has two holes, I, in it, for the purposes of lubrication and the oil which leaks from the box is directed by a lip, J, into the cups, D,

cast with the hanger, so that there is no dripping of the oil. The box is rounded at the exterior of its surface, G, and these rounded surfaces are placed with the curves of the two sides, at right angles with the top and bottom, and the box is supported by screw pins, F, passing through collars or extended nuts, E, which press against the curved faces of the box. By screwing these tight, it can be made rigid and fixed, and by slightly loosening them the box is allowed free play in all directions, thus making it a perfect self-adjusting bearing, suitable for all cases where a shaft has to be supported from the roof of the building or room in which the power is required.

It is the invention of William Johnson, of Lambertville, N. J., who will be happy to afford any further information concerning the device. It was patented June 15, 1858, and one of them was on exhibition at the Crystal Palace at the time of its destruction.

CORRECTION.—On page 40 of the present volume of the SCIENTIFIC AMERICAN, in our description of Hawley's Rotative Planter, we make Mr. R. N. Hawley reside at New Haven, Conn. This is a mistake, as his abode is at Hawleyville in the same State, and the date of the patent is 1858 not 1857.