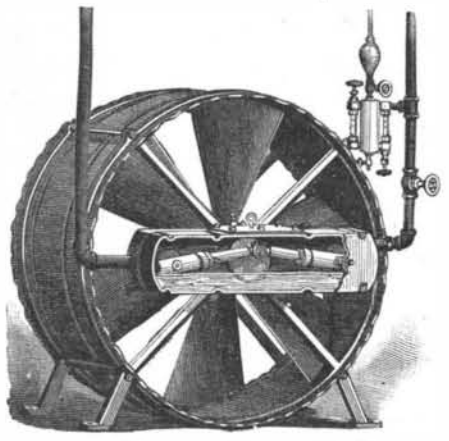
WING'S HIGH SPEED ENGINES FOR FANS AND OTHER USES.

A neat, compact, and light engine, designed to be placed on the frame and shaft of a ventilating fan, where it can be run with little or no attention, is illustrated herewith, as applied to the Wing disk fans, made by the Simonds Manufacturing Company, of No. 50 Cliff Street, New York City. The engine is entirely incased, a portion of the casing being broken away in the illustration, to show the arrangement of the working parts. In connection with the steam supply pipe, at the right, is a sight-feed lubricator, in which a heavy, greasy cylinder oil is used, and supplied, drop by drop, with the steam, there being no oil cups used

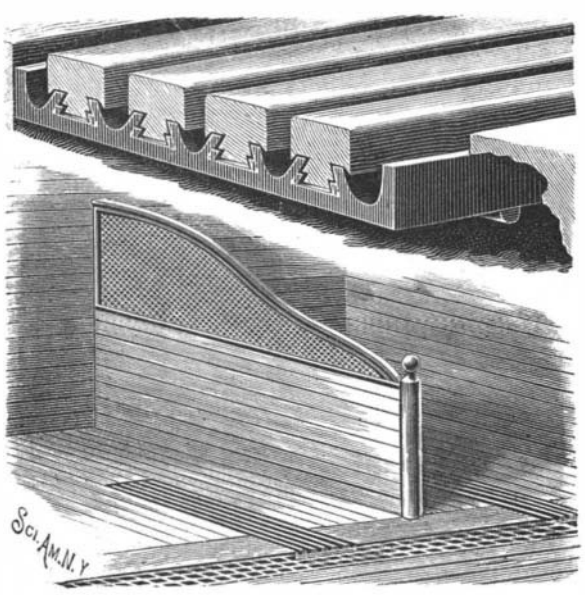


WING'S COMBINED FAN AND ENGINE.

in connection with the engine. The cylinders are single-acting, and hung on trunnions, oscillating with each stroke, as each piston communicates its impulses to a crank disk connected with the fan shaft. The exhaust is into the inside of the casing, in the bottom of which a considerable proportion of the discharged steam is condensed, the water bearing on its surface the oil that has been supplied with the steam, and in this way the lubrication of the parts is effected. The exhaust pipe leads from the middle of the casing, from the end opposite that at which the live steam enters, thus leaving a space across the entire lower half of the casing for condensed steam and oil. With the lubricator set to supply about six drops per minute, a perfect lubrication of the parts is, in this way, always maintained. The stuffing boxes and crank connections are tightened in the usual way, and it is not designed that the engine shall be separated from the fan, as they are both light and can be readily handled together. The fans require a comparatively small power to run them with the best effect. The blades are curved, and have an expanding pitch, thereby increasing the amount of air moved and reducing the slippage, while the blades are also adjustable to suit varying conditions. By its form and light weight the fan can be readily put in almost any position desired, and can be run horizontally or perpendicularly, while it is practically noiseless. For use in connection with the fan where parties have steam but no engine, or for running at night when the large engine is shut down, the small engine described admirably fills a most important need, being especially adapted for night drying in factories, heating and ventilating of all classes of buildings, and many other industrial uses.

AN IMPROVED DRAIN FOR STALLS.

A drain for stalls designed to be thoroughly effective, easily cleaned and detached from the stall, and not in-



LOGAN'S DRAIN FOR STALLS.

jurious to the feet of the stock, is illustrated herewith, and has been patented by Mr. Martin Logan, of No. 164 East Seventy-seventh Street, New York City. The floor of the stall is made with a flat central recess extending downward to the main floor of the stable, and to the general drain, and in this recess is fitted a metal drain having longitudinal side flanges and spaced longitudinal ribs, the outer faces of which are shaped to form gutters, the other faces forming essentially dovetailed grooves. Wooden slats are adapted to the contour of the grooves, in which they are slid, and firmly yet detachably held, the ribs having small horizontal lugs near the bottom corners on their forward ends, to make a stop for the outer ends of the slats, so that the animal cannot paw them from their position. The entire drain can be readily lifted out from the stall, or, from the peculiar shape of the gutters, they can be readily kept clean when the drain is in position.

A Chemical Water Level Indicator.

A convenient device for indicating the water level in wells, bore holes, etc., is described in the *Journal de l'Eclairage du Gaz*. It is recommended as a very simple process, and is employed by the engineers of the service of the Ponts et Chaussees for their new tide indicators. It consists in covering a small copper tube, which is the sounding instrument, with a sheet of paper impregnated with a solution of sulphate of iron, rubbing it over when dry with a pad dipped in powdered gall nut. The paper thus prepared takes, when plunged into water, a very pronounced black tint, in consequence of the reaction of the iron salt upon the tannin, forming ink. It is remarked that this process is susceptible of many modifications, and may find several applications in connection with gas apparatus. It is suggested, for example, that it could be used to record maximum pressures in water gauges, and in other hydraulic appliances employed in gas works. In the case of pressure gauges, to convert an ordinary gauge into a recorder of maxima it would suffice to insert a strip of sensitized paper into the branch communicating with the air. If, in consequence of the capillarity of the paper, the water line indications became a little confused at the end of a prolonged immersion, strips of parchment or parchmentized paper treated in the same way could be used instead of plain paper.

EUREKA DIAMOND REAMER.

This reamer is particularly adapted to the use of gunsmiths, gas engine and hydraulic pump makers. It is largely used by gas engine makers in Europe as well as in this country for truing the interior of cast iron and casehardened cylinders where a perfectly

EUREKA DIAMOND REAMER.

smooth, true surface is required. In the cut A shows the shaft, which is a tool shank for lathes. B is a circular bit in which the diamond, H, with semicircular cutting edge, is set and secured firmly in position by screw, E. The advantage of the circular bit is obvious, as the cutting edge can be revolved to suit the work by presenting new cutting surfaces when the other is worn. These points are also valuable for reaming out journal holes when indispensable to a scale. Additional particulars can be obtained by addressing John Dickinson, 64 Nassau St., New York, the well known manufacturer of diamond and carbon points.

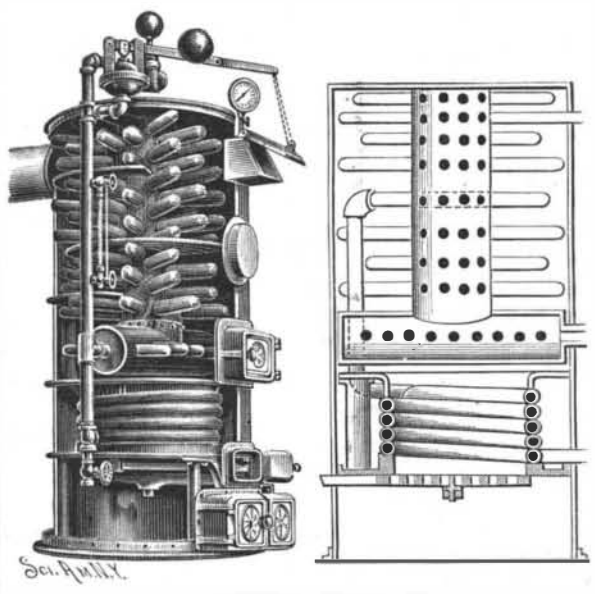
Protection from Lightning.

In his recent lectures on protection against lightning, Mr. Oliver Lodge said: "A wire netting all over the house, a good earth connection to it at several points, and a plentiful supply of that barbed wire which serves so abominably well for fences, stuck all over the roof, and you have an admirable system of defense. Now let us see how far most people agree, and where they begin to branch out and differ. The old and amusing political controversy between knobs and points has disappeared. Points to the sky are recognized as correct; only I wish to advocate more of them, any number of them, rows of them, like barbed wire—not necessarily at all prominent—along ridges and eaves. For a point has not a very great discharging capacity. It takes several points to discharge readily all the electricity set in motion by a moderately sized Voss or Wimshurst machine; hence, if you want to neutralize a thunder cloud, three points are not so effective as three thousand. No need, however, for great spikes and ugly tridents, so painful to the architect. Let the lightning come to you, do not go to meet it. Protect all your ridges and pinnacles, not only the highest, and you will be far safer than if you built yourself a factory chimney to support your conductor upon. At present the immediate neighborhood of a factory chimney or steeple is not a safeguard, but a source of mild danger."

TELEGRAPH poles are preserved in Norway by making an auger hole about 2 ft. from the ground, in which four or five ounces of sulphate of copper in coarse crystals are placed, and plugged in. The chemical is gradually absorbed by the wood, until its whole outer surface turns a greenish hue. The sulphate requires an occasional renewal, and is said to be a perfect preservative.

AN IMPROVED STEAM HEATING BOILER.

A wrought iron, portable, tubular boiler, for steam heating, with either high or low pressure, has been patented by Mr. Samuel P. Hedges, of Greenport, N. Y., and is illustrated herewith, one figure showing the internal arrangement, the casing being removed, and the other being a vertical central section. The fire box consists of an interiorly flanged ring upon which rests a coil of pipe. the upper end of the coil support-

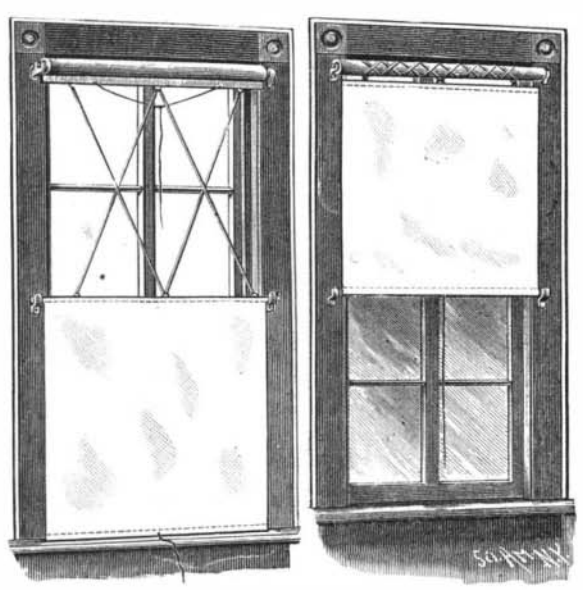


HEDGES' STEAM BOILER.

ing a cap plate, and the interior of the fire box being preferably provided with a lining to prevent burning of the coil. Above the fire box is an inverted T-shaped stand pipe, tubes projecting horizontally from its horizontal member and radiating from the entire circumference of the vertical member. The upper end of the fire box coil is carried up at one side and connected with a branch pipe from the vertical member of the stand pipe at the water line, while its lower end is connected with a perpendicular supply pipe. There are baffle plates arranged upon each side of the stand pipe to compel the products of combustion to pass upward in a circuitous course, the products of combustion being utilized to the greatest extent while a constant and perfect circulation is effected, making this boiler a rapid and economical steam generator. These boilers are made in several sizes, and are tested up to 300 lb. cold water pressure.

AN IMPROVED WINDOW SHADE.

A shade which is made in sections, connected by cords, tapes, or other suitable strips, or by a square of gauze, and which is so constructed that it may cover the lower, the upper, or intermediate portions or the whole of the window, has been patented by Mr. George L. Castner, of Memphis, Tenn., and is illustrated herewith, one figure representing the tape connecting the two sections as it will appear when the lower section is drawn down to cover the lower sash, and the other showing the lower section of the shade covering the upper sash, the upper section and tape being wound around the roller. To suspend the lower section of the shade in position when it is desired to cover the whole window, the projecting ends of a rod or bar in its upper edge are adapted to rest in hooks on the casing at the sides, the connecting tapes then hanging down behind the shade. The shade may also be made in several sections, so that different parts of the window may be shaded, and a device is provided with which the sup-



CASTNER'S WINDOW SHADE.

porting hooks at the sides may be arranged to be adjustable on a sliding bar.

MILK which has changed may be rendered fit for use again by stirring in a little soda.

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