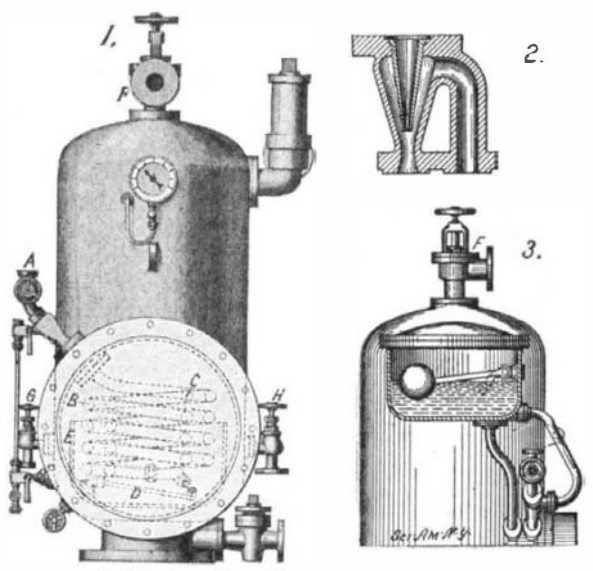
Patent Department

AN IMPROVED VAPOR GENERATOR.

Mr. James Andrews, of 180 W. Regent Street, Glasgow, Scotland, has invented a novel apparatus by which the temperature of one fluid may be transmitted to another without bringing the fluids into actual contact. The prime object of the invention is to effect



A SEA-WATER EVAPORATOR.

a thoroughly rapid circulation of the fluid, the temperature of which is to be transmitted, so that a greater amount of heat may be transmitted in a given time.

The apparatus, as it is shown in Fig. 1, is adapted as an evaporator of sea-water. It consists of the usual shell or receptacle in which the water to be evaporated is contained; a manhole to permit access into the interior; a safety valve; a pressure gage; and a valve-controlled passage *F* for carrying off the vapor generated. The water-inlet valve is indicated by *G* in the figure mentioned, and the valve for drawing off the brine by *H*. A blow-off cock is provided, which appears in the illustration immediately below the valve *H*. A water-tube and connections for indicating the level of water within the shell are provided. Outer and inner coils of pipe, *B* and *C*, are arranged vertically in the lower part of the shell and connected at their lower ends by a bend, from which a drain-pipe passes. The coils *B* and *C* are also connected at their upper ends with the two passages of an injector, which is shown in detail in Fig. 2. One of the passages of the injector is the injecting passage, the other the suction-passage. A steam-nozzle is introduced into the injector and passes into one of the passages, as shown. The other passage discharges into the former outwardly from the mouth of the nozzle. A steam-supply pipe *A* is connected with the nozzle. When steam is introduced into the injector a fluid movement is created through the one passage of the injector into the outer coil of pipe *C*, and simultaneously a suction effect will be obtained in the other passage of the injector. These movements jointly produce a circulation in the pipe *B*. Consequently the pipes *B* and *C* with their appurtenances form a continuous fluid passage, and the injector will enforce a continuous fluid movement through this passage. The excess fluid from the water of condensation may be drawn off from the drain-cock. A cylindrical partition *E* is placed at the lower part of the shell and incloses the coils *B* and *C*. This partition enforces a circulation of the sea water upwardly through the pipes and outwardly and downwardly between the sides of the shell and the partition.

In Fig. 3, a tank and ball-cock arrangement is illustrated which automatically draws off the excess fluid in the circulating coils. The fluid moving through the coils *B* and *C* is forced to pass through the tank. As the liquid in the coils increases by reason of the condensation of the steam, the level of the water in the tank rises. The ball-cock is adjusted to discharge all water rising above a certain level. In this manner the discharge of the water of condensation is automatically effected.

A NEW ELECTRIC CLOCK.

While electricity has so largely been adapted as a motor in modern machinery, large and small, and is so rapidly superseding old-time appliances, is it not a little strange that the old-fashioned weights and spring, with the attending winding apparatus, still constitute the moving power in most clocks turned out at the present time? In other words, in this branch of industry are we not still following in the footsteps of a century ago?

To be in keeping with the times, the modern clock should be an electric clock—a clock which requires no winding and no attention for periods of a year or more.

The electric clock shown, and invented by Mr. George S. Tiffany, of 30 Rose Street, New York city, possesses several unique features. It is extremely simple in construction, the working parts consisting mainly of an electro-magnet, a pivoted armature, a pawl mounted on the armature and engaging a single ratchet wheel, to the arbor of which is attached the minute hand. The ordinary train of wheels is dispensed with.

A slow-beat torsional pendulum carrying a contact arm momentarily closes the circuit of the electro-magnet and a battery, at regular intervals determined by the beat of the pendulum. The armature, moving in response to the influence of the magnet, propels the ratchet wheel and hands. As the pendulum has no mechanical work to perform in operating the clock, and consequently no frictional loads, it is obvious that it can perform its functions as a periodic time interval device in a most perfect manner.

Varying frictional loads, which in the movement of a clock of the ordinary type would seriously affect its operation, are of comparatively small importance in this clock. It is evident therefore that a clock upon this principle may be crudely constructed, yet be capable of keeping good time.

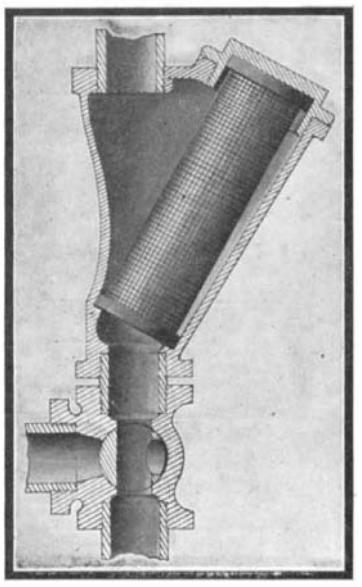
The action of the clock is very similar to that of a secondary clock controlled by an independent pendulum. A number of these clocks may be operated in synchronism by removing the pendulums from all but one clock, and using this as a master clock with the others connected properly in circuit.

The current consumption is very small. One good dry cell will operate the clock for many months, and when exhausted may be renewed at a nominal expense.

The clock is now being made by the Tiffany Electric Clock Company, whose president is Mr. J. Van Inwagen, of Momence, Ill.

STRAINER FOR LOCOMOTIVES.

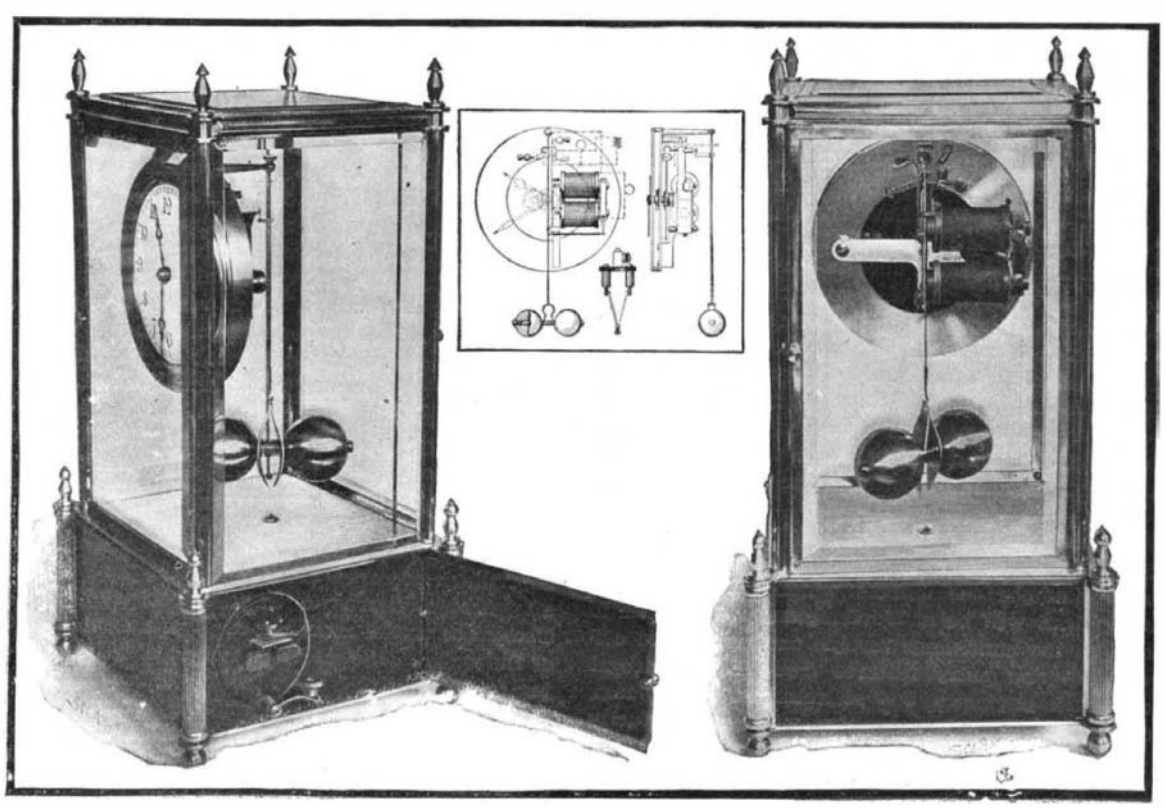
A new form of strainer which has recently been invented by Mr. Francis B. Brown, of Kingman, Ala., will be found very useful for purifying the water in the feed pipes of locomotives. The strainer, as illustrated herewith, is very simple in construction, and the parts are readily accessible, thus facilitating the making of repairs when necessary. Furthermore, provision is made for cleaning the strainer of any accumulated filth without removing any of the parts. The strainer casing is interposed between sections of the vertical feed-pipe of the locomotive. The lower or inlet section is provided with a three-way valve, which is normally turned to allow the water to flow through the strainer, but which, when it is desired to clean the strainer, may be turned to permit discharge of the cleansing fluid. The strainer proper is of cylindrical form, and extends obliquely from the inlet port to an opening near the top of the casing, where it is seated in a cap which closes this opening. The strainer is formed at each end with a metal band, and these fit snugly in their seats, holding the cylinder securely in place, and at the same time spacing it from the wall of the casing. In operation, as the water flows up through the strainer, any impurities will be caught by the meshes of the strainer cylinder. When it is desired to purify the cylinder, the three-way valve is turned to cut off the inflow of water, and connect the strainer with the discharge pipe. Water or steam is then admitted to flow in the return direction to the strainer, to wash the meshes free of the accumulated impurities. In case of any accident to the strainer, the cylinder may be removed by unscrewing the cap which forms its upper seat in the casing.



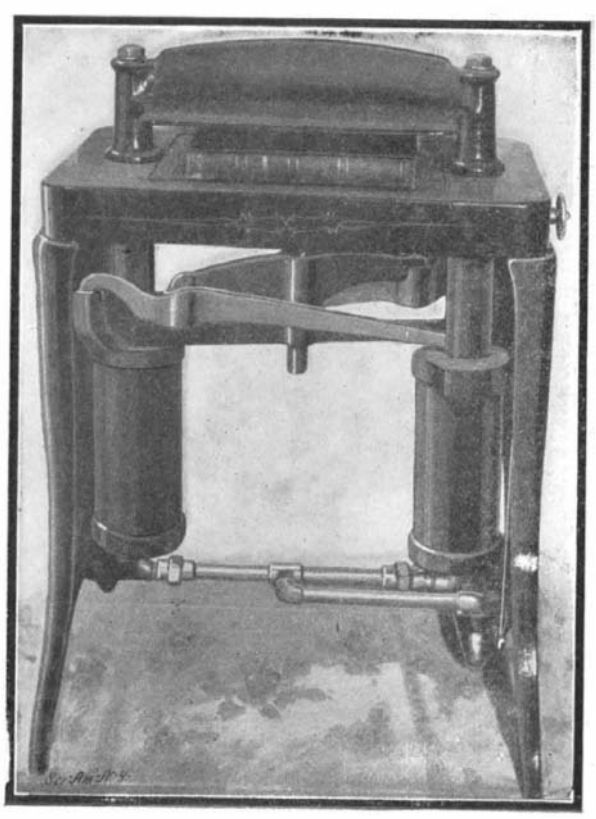
STRAINER FOR LOCOMOTIVES.

THE HYDRAULIC LETTER PRESS.

Letter presses are in such common use in railroad, telegraph, steamship, express offices, etc., that it is really surprising that no one before has thought of rendering them automatic. A patent for such an automatic press has recently been granted to Mr. Walter A. Rosenbaum, of 35 Broad Street, New York city, and the invention offers several important advantages. No physical effort is required to operate it. The pressure applied is equally distributed over the surface. Several tons pressure may be obtained, if desired. The construction is simple, and the power used is obtained



THE TIFFANY ELECTRIC CLOCK.



HYDRAULIC LETTER PRESS.