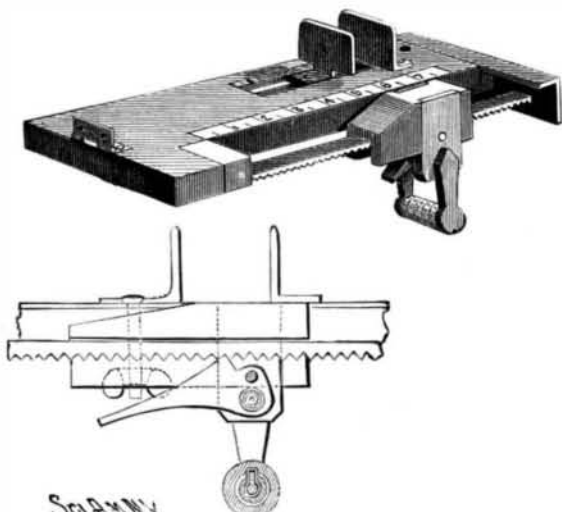


**AN IMPROVED CIGAR MEASURE.**

The illustration represents a simple and easily operated device, by means of which cigars may be accurately measured, and which is provided with a locking mechanism that prevents the measure from being tampered with. It has been patented by Mr. José Cruz Fernandez, of Key West, Fla. The picture shows a front perspective view of the measure and a broken longitudinal section taken through the slide block. The base has at one end a hinge, for attachment to the workman's bench, and in a recessed portion of the front edge of the base is a toothed bar, on which slides a block having opposite depending ears, pivoted be-

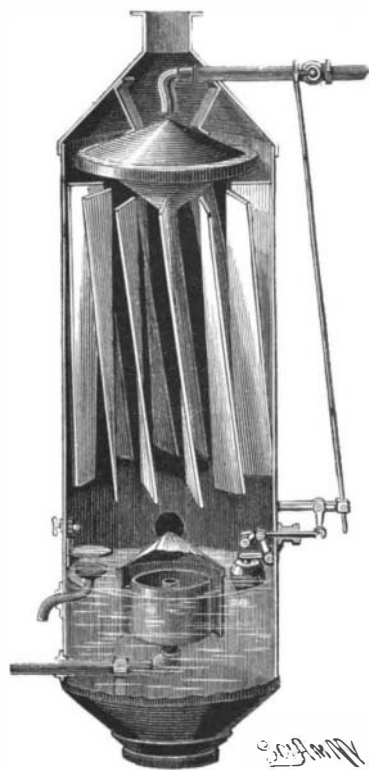


FERNANDEZ'S CIGAR MEASURE.

tween which is a locking lever which has on its upper side a tooth adapted to engage the teeth of the toothed bar, and hold the slide block in a fixed position. The pivoted end of the lever is enlarged so that its lower portion will project beyond the bottom of the slide block, and this portion is perforated to receive the sleeve of a lock. When the lock is applied to the measure, the locking lever is raised into engagement with the toothed bar, and is held by the lock in locked position, so that the slide block cannot be moved. Different forms of locks may be used, or a thumbscrew may be used, if desired, instead of the lock. The base also has a slot, at one side of which is a measure, there being at one end of the slot a fixed jaw, opposite which is a similar jaw having a bottom flange sliding on a slideway in the slot. The flange has a depending screw with a thumbnut, by tightening which the movable jaw will be clamped in place. These jaws on the top of the measure are used to regulate the thickness of the cigar, while the slide block is used to measure their length, it being necessary for the cigars of a certain brand to be of an exact length in order to be merchantable. The measure for the length of the cigars can be conveniently adjusted as desired, it being designed that this shall be done only by the operator who is using the measure, when the measure cannot be changed without the express permission of the operator.

**AN IMPROVED FEED WATER HEATER.**

The heater shown in the illustration is arranged to heat the feed water by means of the exhaust steam of



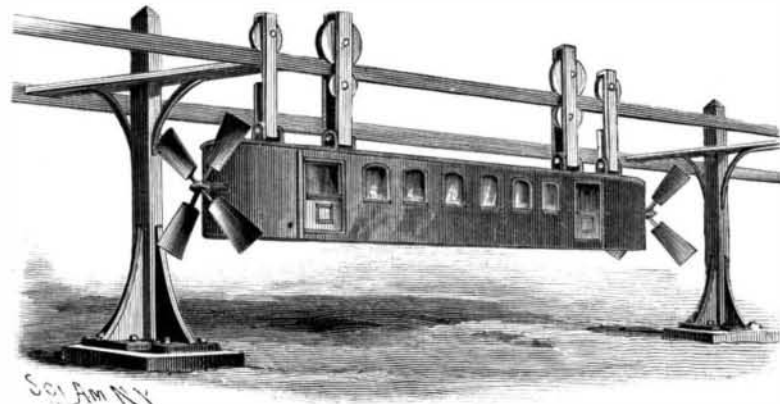
BELL'S FEED WATER HEATER.

the engine. It has been patented by Mr. Joseph Bell, of Troutdale, Oregon. The exhaust pipe discharges into the lower part of a casing which is open at the top, and above the point of entrance of the exhaust pipe are spirally arranged plates, so that the exhaust

steam in rising receives a rotary motion by coming in contact with the plates. Above the upper ends of the plates is a water distributor, made in the shape of a double cone, a water supply pipe discharging upon the apex of the upper cone. In this pipe is a valve connected by a link with a bell crank lever, the latter being in turn connected by a rod with another bell crank lever carrying a float controlled by the accumulating water in the lower part of the casing, whereby the valve in the water supply pipe is actuated to regulate the amount of water passing into the casing. In the lower part of the casing is a water outlet, having an exterior cylindrical casing open at the bottom and having on its top a cone-shaped cap, while an inside cylinder is closed at the bottom and open at the top, whereby the water in the lower part of the casing passes between the cylinders, and flows over the upper edge of the inner cylinder, finally passing to a pipe leading to the boiler, the scum, oil, and other impurities being thus prevented from passing into the boiler feed pipe. A suitable discharge pipe is arranged at about the height of the water level to draw off impurities, a plate protecting the inner end of this pipe from the water flowing down the spirally arranged plates, and the casing is provided with a gauge cock. The water flowing over the cone and the spirally arranged plates of the casing is thus brought into effective contact with the exhaust steam rising in the casing. The lower part of the casing has suitable doors or man holes for cleaning out sediment whenever necessary.

**AN IMPROVED ELEVATED RAILWAY.**

The illustration represents a form of elevated railway construction and method of car propulsion designed to permit of conveniently regulating the speed of the car, while the arrangement is such as to reduce friction to a minimum. The improvement has been patented by Mr. Anders Anderson, of Blossburg, Montana. Cross-beams supported at the upper end of posts carry on each outer end a rail, preferably of T-shape, the rails extending from one cross-beam to another, and forming a continuous track of a single rail on each side of the post. On the rails travel grooved pulleys, journaled in hangers pivotally connected at their lower ends with the top of a car, each hanger also having a small pulley engaging the under side of the rail to prevent the car from jumping, and there being safety pulleys to engage the rail if one of the main pulleys breaks. It is designed that the car shall be driven by a motor, preferably actuated by electricity, in each end of the car, each motor rotating propeller wheels. The propeller shafts are so set as to have a slightly lifting tendency upon the car, whereby the friction of the pulleys will be reduced as the car moves forward. The speed is regulated by different adjustments of the fans or wings of the propeller wheels.



ANDERSON'S ELEVATED RAILWAY.

**Climatic Effects of the New Lake in Southern California.**

The famous Salton Lake of Southern California, which was reported drying up, has not decreased to an area of less than 145 square miles since its formation last year. Early freshets in the Colorado and Gila rivers are causing the waters of this lake to rise again, although reports to the contrary have been freely circulated. As a matter of fact, the climate of the country near by this lake has undergone a distinct change since the waters appeared. Fogs, unusually low temperature at Yuma, Walters, Banning, and elsewhere are traceable to the influence of the lake. Cloud bursts at Banning in the dry season and the exceptional coolness of the winter in Southern California are other indications which competent climatologists accept as proof that Salton Lake exerts a climatic influence. Frosts in December injured the orange crop considerably. Some say that 25 per cent of the fruit was lost. No exact statements of the loss are obtainable.

**PHOTOGRAPHIC NOTES.**

*Blue Transparencies.*—Beautiful blue transparencies may be produced, according to M. Rossel, in the following simple way: Commercial cyanotype paper is exposed beneath a negative until the image will be very intensely visible, when it is thoroughly washed and placed for fifteen minutes in a ten per cent solution of bichromate of potash. After the print has again been well washed, it is allowed to dry, and then rendered transparent by placing it on a warm glass plate and treating it carefully with paraffine. The print is then framed between two glass plates. The above mentioned cyanotype paper, giving white lines on a blue ground, may be prepared by placing plain photographic paper in a solution of 25 grammes of ammonio-citrate of iron and of 25 grammes of potassium ferricyanide in 150 c. c. of water, and then drying it in the dark.

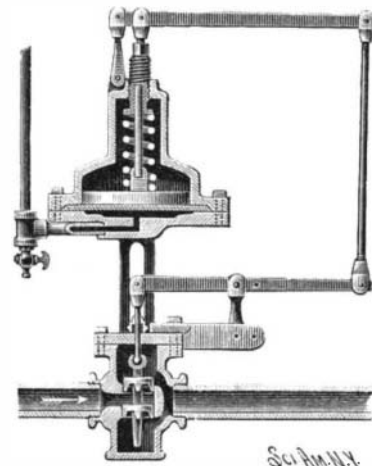
*A New Restrainer.*—It is a well known fact that po-

tassium bromide, if added to the developing solution, tends to produce harsh negatives with too dense lights and glass clear shadows. The following mixture, which is recommended in the *Wochenblatt*, is said to give much more harmonious and softer negatives. From 7 to 8 grammes of potassium bromide and from 2 to 3 grammes of potassium iodide are dissolved in 100 c. c. of water, and the solution thus produced is employed in the same way as the ten per cent solution of potassium bromide which is generally used.—H. E. Gunther, in *Photo. News*.

**AN AUTOMATIC PUMP REGULATOR.**

The regulating device shown in the illustration is applied on the steam inlet pipe of a steam pump, whose discharge controls and actuates the valve in the steam pipe, to increase or diminish the flow of steam in the pipe according to the force of the discharge of the pump. The improvement is the invention of Mr. John Acton, of Nos. 191 and 193 Worth Street, New York City. In the valve body in the steam supply pipe is fitted to slide a piston valve connected at the upper end of its stem by a ball and socket joint with a rod passing through a suitable stuffing box, the upper end of the rod being pivotally connected

by compound levers with a rod passing through and guided in a screw in the upper end of a casing supported from the valve body. The lower end of this rod engages the hub of a piston in the casing, the under side of the piston resting on a metal diaphragm pressed upon on its under side by the fluid discharged by the working machinery. On the top of the piston is a spring whose upper end bears against a washer engaged by the lower end of the screw through which the rod passes, whereby the tension of the spring may be increased or diminished to give the desired pressure on the piston. In the pipe leading from the discharge of the working machinery to the chamber below the diaphragm is a discharge cock for draining the pipe and the chamber. The flow of the liquid discharged actuates machines or apparatus to be driven, such as elevators, etc., but when the pressure is increased beyond the normal the diaphragm is pressed upward, and, through the motion of the piston, rod, and compound levers, the valve in the steam inlet pipe is partly or wholly closed. As soon as the pressure of the discharge diminishes, the diaphragm is forced downward by the spring, when the valve in the steam inlet pipe again opens, the slightest change of pressure in the discharge of the working machinery actuating the valve to increase or diminish the supply of steam. This valve is now also extensively used for regulating the



ACTON'S PUMP REGULATOR.

pressure of water in supply pipes from pumping stations, or from elevated reservoirs where the natural pressure would be sufficient to burst the usual pipes, it having been thus employed in one instance to give 30 pounds pressure in a service pipe and 150 pounds pressure in a pipe to run elevators, where the original pressure was over 700 pounds. These regulators are likewise used in all the electric light stations in New York City to control the pressure from the boiler to the engines.