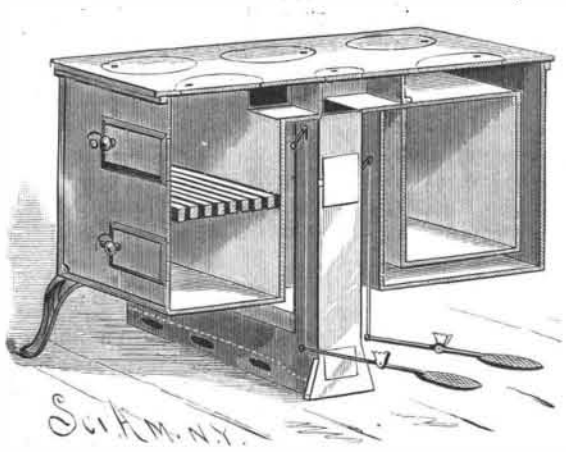
IMPROVED STOVE.

The accompanying engraving represents a stove, one-half being cut away in order to show the interior, constructed to form a fire box, three ovens, and the central main outlet flue. Within the stove are suitably arranged passages and dampers, by means of which the heat from the fire may be guided so that all of the ovens, or any one or none of them, may be especially heated. The rods by which the dampers are operated extend to the outside of the stove, within convenient reach. This stove is economical in the use of fuel, as the products of combustion, passing from one oven to



BEKOFSKY'S IMPROVED STOVE.

another, are retained a long while in the stove, so that all the available heat is utilized. The convenience of having several separate and independent ovens in each of which the degree of heat can be regulated as required is apparent.

This invention has been patented by Mr. Vladimir S. Bekofsky, Isaakiefsky, Pl. N. 6/13, care Restaurant, Mrs. Michel, St. Petersburg, Russia, who will furnish all further particulars.

STATION INDICATOR FOR CARS.

This practical mechanical device is for indicating the stations on railway trains, and giving other information—such as the distance between stations, the direction the train is going, etc. The box or case is placed at any appropriate part of the car, so as to be seen by the passengers. On the front of the box the words "Next station" are painted, below which are slots, as indicated in the engraving. The names of the

CURRIE'S STATION INDICATOR FOR CARS.

stations and such other information as may be deemed necessary are printed upon a ribbon, placed close to the inner surface of the front of the box. This ribbon is wound upon suitable drums, journaled within the box, which are adapted to be revolved by a coiled spring acting through suitable gearing. The center gear is so arranged that it can be shifted to mesh either with the next upper or next lower wheel. When it engages with the upper wheel, the upper drum will be revolved in a direction to move the ribbon up; and when it engages with the lower wheel, the lower drum will be revolved to move the ribbon down or in the reverse direction. Suitable levers, engaging with notches formed in the rollers, insure the stopping of the ribbon in the proper position to display the words at the slots in the front. To start the machine in motion, these levers are lifted simultaneously by means of a rod to which their free ends are attached. When thus raised, the machine starts instantly, so that the finger piece on the lower end of the rod need be held in an elevated position only for an instant. The machine will continue to run until the points on the levers enter the notches in the rolls. It is evident that the center gear wheel need only be moved at the end of the route, when the car will travel back over the road in the opposite direction. At each movement of the ribbon, a bell is struck to attract attention to the indicator.

This invention has been patented by Mr. William W. Currie, of Smith's Falls, Ontario, Canada.

Measuring the Bulk of Solids.

Mr. Klumann, of Halle, has devised a simple and easily constructed little apparatus for measuring the bulk of a solid body without immersing the latter in water and without weighing it.

The instrument consists of a graduated glass tube, 1 in. in diameter, which is closed at the upper extremity with a rubber stopper, while the lower extremity is fixed in a copper box, 2¼ in. in height and 4 in. in diameter.

The apparatus is filled with sand up to the zero of the graduation. Then it is turned upside down and the bottom of the box is unscrewed, and the object inserted. After the box has been closed, it is placed in its upright position. It is then only necessary to observe the level of the sand in the tube. The volume sought for will be read upon the graduated scale.—*Chronique Industrielle.*

Cutting Glass Tubes by Electricity.

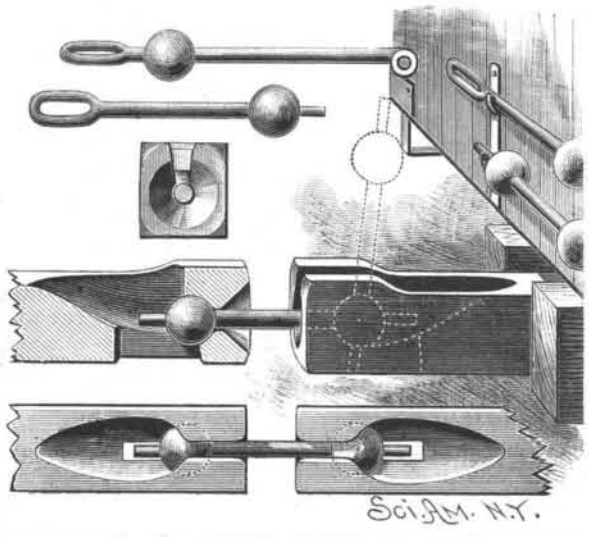
Mr. Estere, of La Reoli, describes in *La Nature* the following process of cutting glass tubes of wide diameter by means of electricity:

The tube is surrounded with a fine wire, and the extremities of the latter are put in communication with a source of electricity. It is necessary to see that the wire adheres closely to the glass. When a current is passed through the wire, the latter becomes red hot and heats the glass beneath it. A simple drop of water deposited upon the heated place will cause a clean breakage of the glass at that point. Contrary to what happens with the usual processes, the thicker the sides of the tube are, the better the experiment succeeds. It is unnecessary to say that this process is perfectly applicable likewise to laboratory bottles.

IMPROVED CAR COUPLING.

By means of the simple device shown in the accompanying engraving, cars may be coupled without the use of a coupling pin. In the upper surface of each drawbar, near its outer end, is formed a concave recess, inclining downward toward the extremity of the bar, and terminating in a cavity which is adapted to receive one of the balls of the coupling bar. In the recess and cavity the drawbar is slotted outwardly, and opposite the center of the cavity a flaring recess is formed in the end of the drawbar. In the bottom of the inner recess is a mortise extending downward through the drawbar. The coupling bar is a straight bar of iron, having its ends reduced in diameter, and having a ball upon each end. Coupling is effected by dropping the balls of the bar into the recesses of the drawbar, as shown in the two lower views, the lowest view being a plan. The coupling bar is held in position for coupling by standing it perpendicularly in the cavity, as indicated by the dotted lines, so that when the cars come together the jar will cause the bar to fall over and engage the empty drawbar. The drawbar may be formed with an eye at one end and ball at the other, when it is desired to use this improvement with the ordinary drawbar requiring a link and pin. The coupling bar shown in the top figure is designed to be attached to a locomotive, and is provided with a ball and eye, so that it may be used in connection with this or with the common drawbar. This device will couple on every ordinary curve and when one drawhead stands higher than the other, while the strain upon the bar is always a direct pull, no matter how sharp the curve may be, or how much difference there may be in the heights of the drawheads. In this coupling there is but one part to look after, instead of the link and two pins of the ordinary coupling.

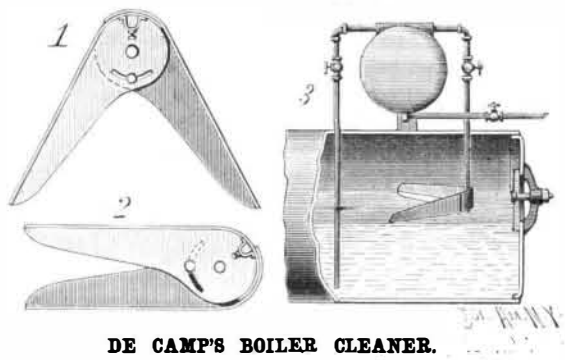
This invention has been patented by Mr. G. R. Mavis. Particulars can be had by addressing Messrs. Mavis & Burkhalter, of Wymore, Neb.



MAVIS' IMPROVED CAR COUPLING.

BOILER CLEANER.

The accompanying engraving represents an invention which has been patented by Mr. Albert De Camp, of Chattanooga, Tenn. The impurities in the water of the boiler are removed by a skimmer of novel form, thus preventing the formation of scale, etc. The skimmer con-

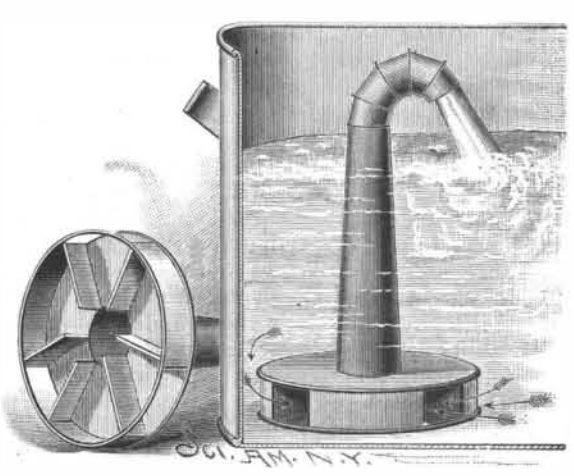


DE CAMP'S BOILER CLEANER.

sists essentially of two leaves, formed with rounded ends, and partially surrounded by upwardly extending flanges, which reach partly around the rounded ends. The sections are united by a rivet, and each is formed with a circular slot, through which a clamping bolt is passed, in order that the two leaves may be held together in any desired position. To the flange of the upper section is secured a strap having a set screw.

The skimmer is employed in connection with a blow-off attachment—illustrated in Fig. 3—in which the settling drum has a blow-off pipe provided with a valve. To the drum are secured two pipes, furnished with valves, and arranged as shown in the drawing. The skimmer is introduced through the manhole, and attached to the lower end of the shorter pipe by means of the strap and set screw.

After the skimmer has been secured, its two sections are spread apart until their ends strike the walls of the boiler, thus reaching across the water level at the rear of the boiler. As the circulation of the water is from the front to the rear end of the boiler, the impurities carried by it will be intercepted by the flanges and car-



DENNIS' WASH BOILER FOUNTAIN.

ried upward by a current passing through the short tube and into the drum, where they will settle. They may then be discharged through the blow-off pipe. The clear water at the top of the settlings passes back into the boiler through the other pipe. In Figs. 1 and 2 the leaves of the skimmer are shown extended as in use, and folded ready to be introduced through the manhole.

WASH BOILER FOUNTAIN.

The object of this invention, which has been patented by Mr. Charles W. Dennis, of 177 Jarvis Street, Toronto, Canada, is to provide a simple device to be applied to an ordinary wash boiler, for creating a circulation of the water through the clothes in the boiler. The hollow drum is provided with a series of internal radial partitions, which extend from the inner surface of the wall of the drum toward the central aperture. A hole is formed in the drum between each pair of partitions, and the chambers between the pairs of partitions communicate with the central aperture, around which, upon the upper surface of the drum, is a collar for receiving the discharge pipe. The drum is placed in the boiler with the open side down, and the discharge pipe curves over toward the center of the boiler.

The steam from the boiling water beneath the drum carries the water up through the pipe, while the cool water enters the drum through the holes in the wall, and is heated and carried upward in the pipe. In this manner a circulation is continuously maintained, the water entering below becoming heated and rising, and then, as it becomes cool, falling and passing on its way downward through the clothes contained in the boiler. The steam is generated principally in the chambers in the drum, in which the circulation is not strong, while the body of water employed in cleansing the clothes flows continuously through the rim openings and between the pairs of partitions, and is carried upward by the steam generated in the chambers.