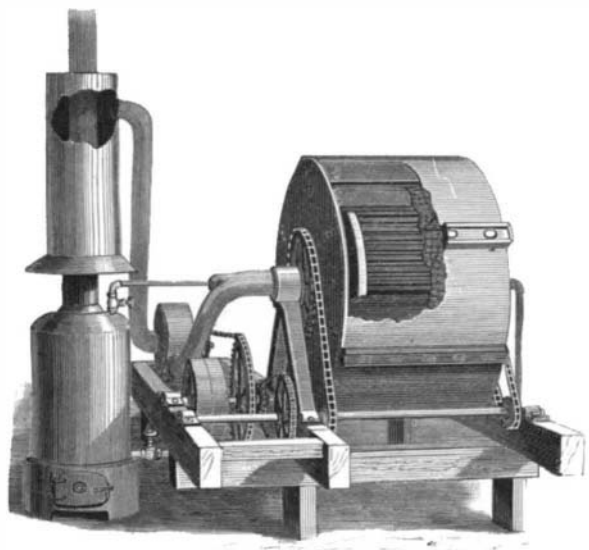


## AN EFFICIENT COFFEE DRIER.

The illustration represents a steam and hot air heated drier so constructed that all the contents of the drying chambers must be thoroughly and similarly heated, the hot air being centrally introduced to the cylinder of the drier and necessarily escaping through the material being dried. A patent has been granted for the improvement to Emilio Cabrero y Echeandia, Las Marias, Porto Rico (address in care of C. A. Delgado,

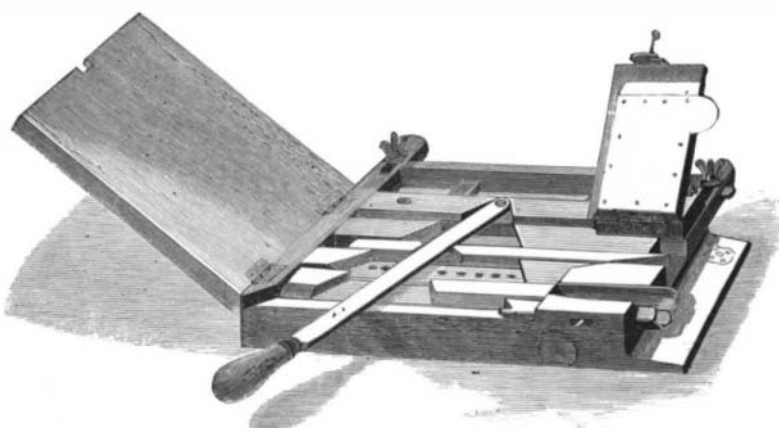


ECHEANDIA'S COFFEE DRIER.

76 Broad Street, New York). The drier cylinder has closed ends and axial sleeves rotating on an air pipe, the sleeves having sprocket wheels driven by chains from a drive shaft. The material to be dried is received in circumferential compartments, formed between perforated walls, the inner one of which is made of wire gauze and supported on cross pieces secured to the end plates, while the outer wall, preferably perforated only on horizontal strips, is similarly supported on cross pieces, which divide the space between the inner and outer walls into compartments, to cause the grain to be held more evenly in the revolving cylinder. There are also holes or openings in the cross pieces to facilitate the circulation of heat, and the compartments are filled and emptied through circumferential holes over which moves a slide plate. Through the axial sleeves passes a central perforated air pipe connected with a hot air supply by a pipe in which is a blower, to drive the hot air received from a furnace funnel into the drier. Supported on the air pipe in the upper half of the cylinder is also a framework with hollow heads carrying a cluster of steam pipes, connected at one end with a steam supply and at the other end with an exhaust pipe leading back to the boiler. The cylinder is thus heated by the hot air forced into it through the central pipe and also by direct radiation from the steam pipes, quickly and evenly drying the coffee, grain, or other material held in the compartments, as the revolutions of the cylinder tumble about the contents of the several compartments, and bring them all equally under the influence of the heat.

## A MACHINE FOR PACKING CIGARETTES.

A machine of simple construction to facilitate the packing of cigarettes, and readily adjustable for packing different numbers, is shown in the accompanying illustration, and forms the subject of a patent issued



NORIEGA'S CIGARETTE PACKER.

to Mr. Eloy Noriega, of Apartado 516, city of Mexico, Mexico. A suitable base is recessed to form a box to which is hinged a lid, shown raised in the engraving, and at the front side of the box is a slideway for a plunger, the rear side of the slideway being formed by an adjustable cross bar, the plunger and the cross bar being recessed on their upper faces to permit the movement over them of a lever pivoted to the rear of the box. At the right of the plunger is a cigarette receptacle whose rear wall is formed by block drawn rearward by a spring and pressed forward by a wedge

operated by the movement of the lever, the wedge sliding between the front cross bar and another adjustable cross bar. The rear cross bar has rearwardly extending arms connected by a cross bar moving in extensions from the casing, and the latter cross bar is adjusted to the desired position by means of screws and wing nuts.

The cross bar next the plunger has a series of apertures registering with apertures in the bottom of the casing at different distances from its front, screws being placed in different apertures as the bar is moved backward, while numerals adjacent to the apertures indicate how many cigarettes the receptacle will take when the fastening screws are inserted in the different apertures. Plungers of different widths are used for each position of the bar. The cigarette receptacle has outer projections over which a paper bag may be placed, and has a separate lid opened by a spring, the catch of the lid being released and the lid opening automatically, after the lever has been moved its full stroke to actuate the plunger and push the cigarettes out of the receptacle into the bag or wrapper inclosing the package. The cigarettes are inserted by hand before the lid is closed and the bag or wrapper placed in position.

## The War Telephone.

An interesting experiment of installing a telephone by trotting cavalry was recently successfully undertaken by some Prussian Uhlans between Berlin and Potsdam. Two sets, of one officer and two non-commissioned officers, proceeded in the early morning respectively from Berlin and Potsdam. Each set was equipped with a complete telephone apparatus, which one of the men carried in a leather case on his chest, besides the requisite quantity of thin wire. The end of the wire was connected with the respective towns' telephone station and the wire was, by means of a fork fixed at the end of the lance, thrown over the tops of the trees along the road. As each kilometer of wire was thus suspended a halt was made, and it was ascertained whether there was connection with the station. A new kilometer of wire was then connected with the former, and on went the men. The two sets met at Teltow. The wires, having been respectively tested with their respective stations, were connected, and telephonic connection between Berlin and Potsdam was established. The distance is about twenty miles, and the whole thing was done in about four hours.

## Tellurium.

Tellurium is found in small quantities all over the United States, commonly combined with gold, silver, and bismuth. When present in ores of silver and gold, it renders their reduction by the process of amalgamation impracticable, so that smelting has to be resorted to. Copper bullion sometimes contains tellurium. Even when amounting to only 1-400 of 1 per cent, it renders the copper so brittle as to be unfit for the finer uses, though it is good enough for castings. The business of freeing copper from the objectionable metal is conducted on a big scale, the largest works being located at Baltimore and at Bridgeport, Conn. From the copper in solution is precipitated a slime, consisting of gold, silver, arsenic, selenium and tellurium. The tellurium may be separated out by chemical means, but ordinarily it goes with the rest of the precipitate after the gold and silver have been saved.

Tellurium forms a remarkable alloy with aluminum. When the two are melted together in certain proportions, they suddenly combine with a loud explosion, forming a very brittle substance. This substance, when dropped into water, gives forth a peculiar and abominable odor. The same odor is communicated to the breath of anybody who swallows a small quantity of the alloy. The smell, in fact, is one of the worst producible in the laboratory, surpassing even sulphureted hydrogen.

Recently many experts in the science of chemistry have been trying to break it up, being convinced that it is in reality not an element but a compound of several elements unknown.

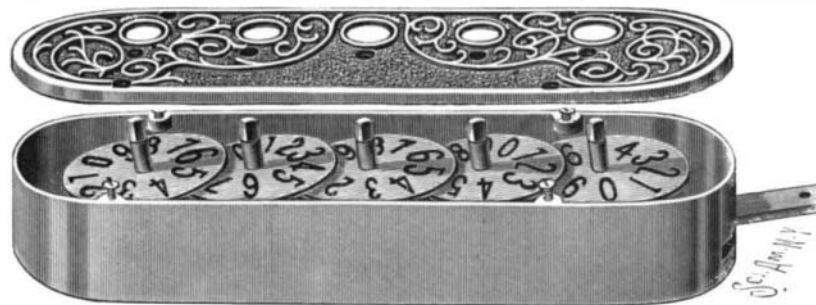
It is found in the Cripple Creek district, Colorado, and in Shasta County, California. One of the Cripple Creek camps is named Telluride.

A peculiarity of tellurium is that a bit of it as big as a pin's head mixed with a pound of gold will make the latter as brittle as glass. Gold ordinarily is extremely tough, being so ductile that 900 square inches

of ordinary commercial leaf are beaten out from a single dollar's worth. One of the most striking characteristics of tellurium is its extreme brittleness, as noted both as regards copper and gold. It looks somewhat like silver and is very crystalline. It is slightly less heavy than iron.—Min. and Sci. Press.

## THE "BRISTOL" COUNTER.

The illustration represents a simple, efficient and low priced counter, manufactured by C. J. Root, of Bristol, Conn. Its movements are positive, noiseless, exact, and it may be absolutely depended upon to



THE "BRISTOL" COUNTER.

keep a perfect register of every piece or article delivered from any machine to which it is attached. Our engraving shows the cover removed from the case of the counter, and it will be seen that the several numbered counting disks overlap each other, which brings the figures close up to the openings in the cover and facilitates reading them, all the figures being at equal distances from the openings. A spring-pressed catch engaging teeth on the disk-carrying shafts prevents their rotation except at the proper time. The whole device is very compact and the wearing surfaces are arranged to reduce the friction to a minimum. The dials are white, have  $\frac{5}{8}$  inch figures plainly marked in black enamel, and by the use of a key they may be instantly set at zero or at any desired starting point. The counter is made in three sizes, counting, respectively, 10,000, 100,000, 1,000,000.

## FERNANDEZ'S MARINE AND LAND BICYCLE.

The illustration represents a bicycle construction designed to travel with equal facility on land and ice, and in the water. The improvement has been patented by Evaristo Fernandez, of No. 1819 Dumain Street, New Orleans, La. The wheels are preferably of copper, their side plates inclosing a large central air space, as shown in the sectional view. The rear wheel, forming the drive wheel, has on its sides lateral blades to engage the water when the bicycle is so used, and its felly is toothed to enable it to take hold of ice when the rubber tire, which is only designed for land use, is removed. To hold the bicycle upright when used in the water, side weights are connected by suitable bails to the wheel axles, but when the machine is used on land these weights are raised by chains which pass through a tube depending from the frame bars, links of the chain engaging a stop or pin to hold the weights raised. The saddle of the machine is of a form de-



A MARINE AND LAND BICYCLE.

signed to prevent the water from splashing up against the rider, and has at its rear end a lateral mud and water guard.

AUSTRALIAN TIN.—The stanniferous or tin-bearing area in New South Wales is estimated at 5,500,000 acres or 8,500 square miles. Up to the present, most of the tin has been obtained from the New England district. The value of the tin and tin ore raised in the colony and exported, from the beginning of 1872 to the end of 1894, was \$51,287,250.