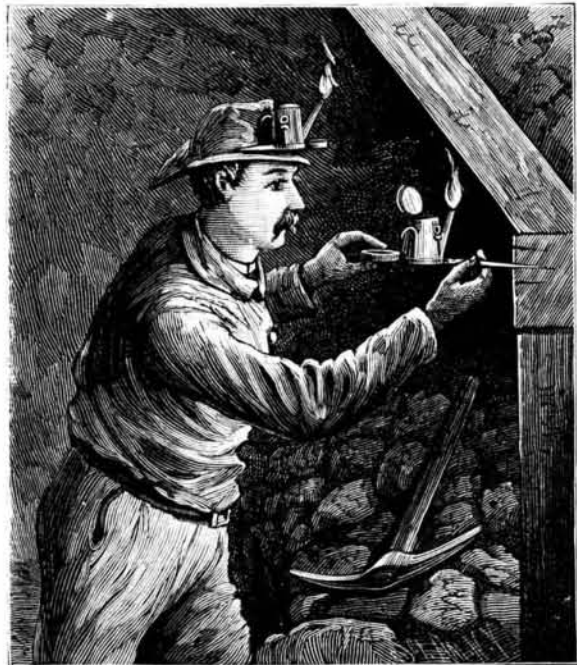


## MINER'S LAMP.

A miner's lamp has been invented by Mr. Charles A. Lee, of Silver City, Grant Co., New Mexico, which may be attached to any wooden structure in the mine, to a crevice in the rock, or to the earthen wall, and when attached to the hat or clothing of the miner will not swing nor turn out of proper position. The body of the lamp fits in a ring provided with a handle upon one side and a steel point upon the opposite side, and between the two is a hook by which the lamp may be fastened to the clothing or hat of the miner, or hung upon any projection. A wick adjuster is bent so as to be securely held when inserted in the loop which projects



LEE'S MINER'S LAMP.

from the side of the lamp body. The handle part of the attachment serves as a convenient means of handling the lamp generally, and, in connection with the point, furnishes a broad base for the lamp to rest upon.

## Experiments with Steam Whistles.

Messrs. Lloyd & Symes, of Boston, writing to the editor of the *Railroad Gazette*, describe certain interesting experiments which they have carried out. They were made on a locomotive, and with steam varying from 60 pounds to 135 pounds pressure, and most of them with a whistle having a bell  $4\frac{1}{2}$  inches diameter,  $3\frac{3}{4}$  inches long from lip to head—inside—and an annular steam opening of one-sixteenth inch wide. This whistle, at 60 pounds pressure, gave the sound of E natural, at 80 pounds of F sharp, at 90 pounds of G, at 110 pounds of A, and at 125 pounds to 130 pounds of C sharp in alt. The distance between the steam opening and the edge of the whistle was  $1\frac{1}{2}$  inches; when this was raised to 2 inches the power of the sound was sensibly lessened, but its pitch was altered relatively but half a tone. When, on the contrary, it was diminished to 1 inch and to seven-eighths inch, the whistle would sound nothing but its supertones, or "squeal" as the boys call it.

The bell in these experiments was made of cast brass of medium, not a hard character, and the lip or edge carefully chamfered down to a thin edge, set so as to stand exactly over the steam opening. The quality of its sound was very clear, penetrating, and even "reedy," owing to its thin, elastic shape. The power may be estimated by the fact that on a clear, still night it has been heard at Mansfield from Attleboro, a distance of over six miles. They afterward repeated the experiment with a bell of the same dimensions, but made of brass tubing, annealed, hammered, and then heated again, with somewhat the same results, the intensity of the sound and the pitch being somewhat heightened. The next experiment was made with an iron whistle of the same size, which was unsuccessful, the traveling quality of the sound being greatly reduced.

The last trial was made with a whistle  $6\frac{1}{4}$  inches diameter,  $3\frac{1}{2}$  inches long, and set over an annular opening  $5\frac{1}{2}$  inches diameter, blown at a pressure of 150 pounds. The sound given by this whistle was greatly inferior to that of the first one, lacking power and resonance of tone, which they attribute to the size of the bell, which was so much larger than the diameter of the steam opening as to make of it what Professor Henry calls a "resounding cavity." As confirmation of this, they add that they took a bell of the size first named, and cut into it three longitudinal and three perpendicular slits 3 inches long, which had some effect on the character but none on the power of the sound. With regard to the penetration of the sound obtained from the whistle in distinction to other sounds or noises made at the same time, the greatest effect was obtained by "dragging" the whistle, as it is termed; that is, gradually opening and closing the valve, by which means a gradation of five semitones can be obtained, the ear seeming to have peculiar ap-

preciation of this change of relation—as in an organ the effect of power is gained more from the crescendo of the swell than from the full organ itself.

## Composition of Different Amalgams.

Arrington amalgam: silver, 40 per cent; tin, 60 per cent. Diamond amalgam: silver, 31.76; tin, 66.74; gold, 1.50. Hood's amalgam: silver, 34.64; tin, 60.37; gold, 2.70; iron, 2.90. Johnson & Lund's amalgam: silver, 38.27; tin, 59.58; platinum, 1.34; gold, 0.81. Lawrence's amalgam: silver, 47.87; tin, 33.68; copper, 14.91; gold, 3.54. Moffitt's amalgam: silver, 35.17; tin, 62.01; gold, 2.82. Townsend's amalgam: silver, 40.21; tin, 47.54; copper, 10.65; gold, 1.6. Townsend's improved amalgam: silver, 39.00; tin, 55.65; gold, 5.31. Walker's amalgam: silver, 34.89; tin, 60.01; platinum, 0.96; gold, 4.14.—*Monatsschrift des Vereins deutscher Zahnkünstler.*

## Poisonous Wood.

The use of a wood from Panama called cokobola in the manufacturing interests in Bridgeport, is attracting the attention of the Connecticut State Board of Health. The wood is cheap, takes a brilliant polish, is easily worked, and is used extensively for knife handles and ornamentation. Workers in the material are poisoned somewhat after the manner of sumac, although some are free from any defect. Swelling of the face, closing of the eyes, appearances of being burned on the hands, are the usual symptoms. Some are attacked with distress in the stomach, with loss of appetite. One person, who was a confirmed smoker, after being poisoned, has been unable to smoke or even stay in a room where there is any tobacco smoke. Children playing in the sawdust of this wood, which had been dumped, were badly poisoned about their feet. At a large factory on Elm Street, where this wood is extensively worked, chickens in the adjoining yards are said to have all died from eating the dust that settles on the grass.

## IMPROVED STATION INDICATOR

A simple and effective device for announcing to passengers on cars and boats the name of the next station or landing, is shown in the annexed engraving. It consists simply of a box containing a revolving drum made of light material, and having printed upon or attached to its face the names of the several stations of the route, arranged in the order in which they occur. There is in the front of the box a window through which the names may be read as they are brought into position by the pawl and ratchet mechanism at the end of the box.

Upon the shaft of the drum are secured two ratchet wheels whose teeth stand in opposite directions, and the pawl lever is provided with two pawls, one for each ratchet wheel. These pawls are attached to a common pivot and are actuated by a single spring. Either pawl may easily be made to act on its own ratchet.

The pawl lever is connected with a registering bolt which is moved whenever the indicator is operated, and projects between pins at the end of the drum limiting the motion of the drum to one step.



PHILLIPS' STATION INDICATOR.

The pawl lever is connected by a cord with the handle by which the indicator is operated. The lever is also connected with a gong, so that whenever the indicator is operated attention will be attracted to it by the striking of the gong.

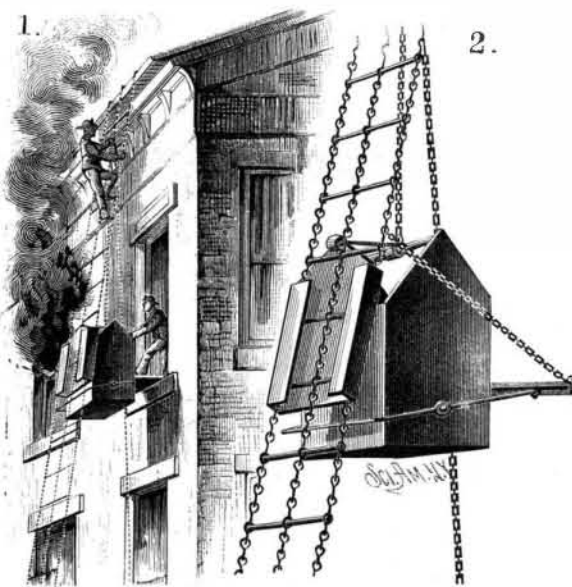
A brake spring is applied to the top of the drum to prevent it from moving too freely. The direction of the rotation of the drum is changed by shifting the pawls at the end of the route. The names of the terminal stations are inscribed at the ends of the box.

This invention has been patented by Mr. I. N. Phillips, of 5 and 7 N. College Street, Nashville, Tenn.

## FIRE ESCAPE.

The invention herewith illustrated refers to that class of fire escapes in which a car is guided on stretched cables and suspended by a rope passing over a pulley and down to a windlass. Two or more chains are united by rounds, forming a ladder. One end of the ladder is secured to the roof of the building, or is passed over the roof of the building and held securely on the ground, and the other end is secured to a winch on the ground, by means of which the ladder can be drawn as taut as may be necessary. After the ladder has been drawn taut, a person ascends it and hangs the hook of a pulley on the ladder above the window from which people are to be rescued.

Through the pulley runs a chain, one end of which is



CHRISTIE'S FIRE ESCAPE.

wound about a windlass on the ground, the other end being attached to the car or box. The car is made of sheet iron or wire netting, and on the side toward the house is provided with a downwardly swinging platform, which is held from swinging down too far by chains. A frame pivoted to the ends of the car holds the platform in place after use. A cross bar unites the top of the car with the top of a guide plate whose edges are bent over the side chains of the ladder, thus forming grooves which permit the plate to slide freely up and down the ladder. The chain ladder can be readily moved to any desired window.

Further information can be obtained by addressing the inventor, Mr. Richard Christie, Truro, Nova Scotia.

## What Tongue Did Christ Speak?

Some students of this question, which the revision of the Old Testament has beset with renewed interest, are of the opinion that the population of Palestine at the time of Christ's mission was Greek. The Rev. Alexander Roberts, D.D., recently published a book on the Old Testament revision, in which he gives some reasons for this conclusion. For centuries preceding the coming of Christ the Greek language permeated the countries bordering on the Mediterranean. The old Hebrew, in which the law had been written, had become a dead language, and only the learned men of that period were able to read the Pentateuch. The pure Hebrew race in Palestine spoke Aramaic, which was unlike the Hebrew of Moses and Isaiah. The Greek language and Aramaic were, then, the tongues spoken in that country at the time of the coming of our Lord. Hence Dr. Roberts argues that while teaching the people Christ would address them in a language that they understood. Even if he knew the Scriptures in the original Hebrew, he would no more be likely to use them in that way than a modern preacher who knows the New Testament in the original Greek would give his text in that.

The evidence that the common people understood Greek our authority considers conclusive. As examples of facts which led him to this opinion he quotes the epistles which were written in Greek by some of the apostles to the Hebrew Christians. Paul's epistles to the Greeks were, of course, written in Greek. "But," asks Dr. Roberts, "why should Peter, who was a strict Hebrew, write his epistles in Greek unless the Hebrews understood Greek? Why was the Epistle to the Hebrews ascribed to Paul written in Greek?" The apostles appear to have spoken in Aramaic and in Greek, as the occasion seemed to demand. Christ did not address himself merely to a province, but to the world, and his utterances were, therefore, in the language that was best understood. Greek was the language of civilization; moreover, "it was the civilization of that era which accepted him, while the Hebrews rejected him."

THE H. W. Johns Manufacturing Co., New York, have been awarded the silver medal over all competitors at the Amsterdam Exposition for their asbestos materials, liquid paints, roofing, boiler coverings, steam packings, millboard, etc., etc. A substantial victory for American goods