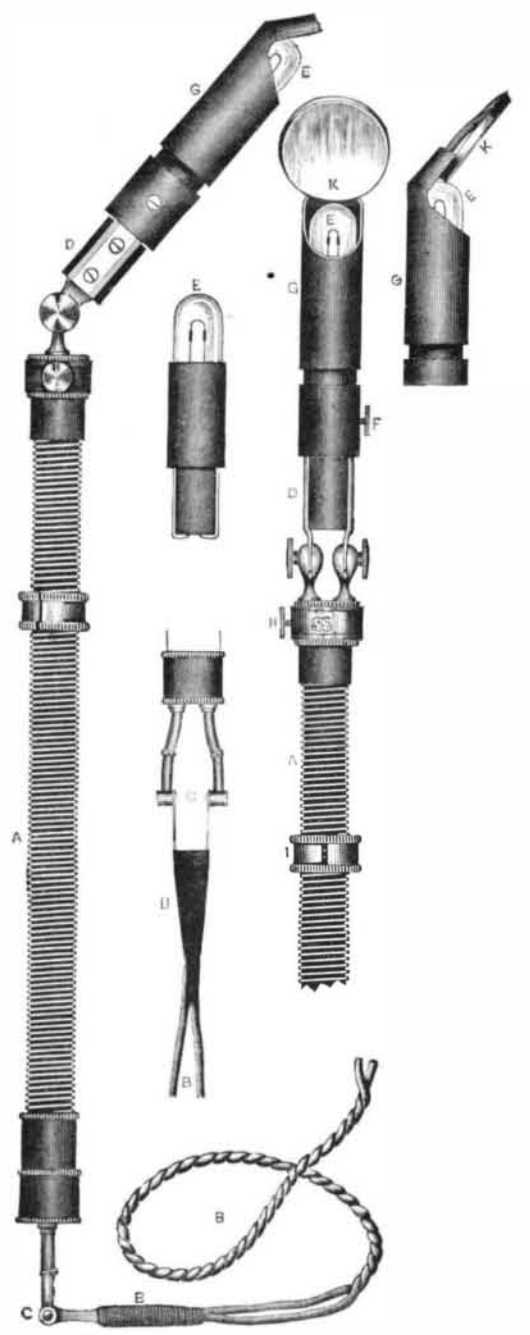
ELECTRIC MOUTH LAMP AND LARYNGOSCOPE.

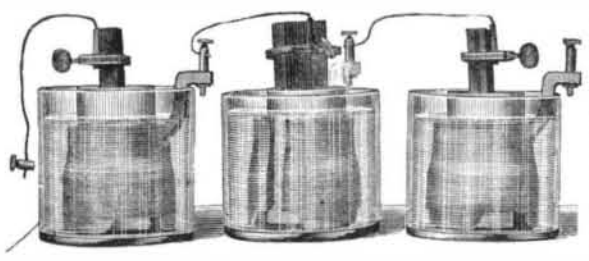
In diagnosing lesions of the teeth and associated parts the small electric lamp shown in the accompanying engraving will be found an invaluable assistant to the dentist, and by its aid the exact location of the disease may be determined. By the use of the appliances heretofore in vogue this could not be accurately ascertained, and as a consequence many sound teeth have been sacrificed in the fruitless search for the seat of neuralgic pains for which, owing to the insufficiency of the means of diagnosis, no satisfactory cause could be established. This lamp illuminates the oral cavity so brilliantly that any departure from normality can be unerringly detected; and as it is placed within the arch, behind the object to be lighted, its rays fall upon the lingual surfaces of the teeth while the eye of the operator is directed to the labial surfaces, and thus every portion of the teeth and gums is thrown into strong relief—the sound teeth appearing translucent and showing no variations in texture, while the unsound teeth have an opaque or dark appearance.

The lamp, E, is an incandescent electric light mounted permanently in a non-conducting case of hard rubber, and provided with metal conductors which pass outside of the smaller section of the case. The lamp is carried in another hard rubber cylinder, D, called the lamp holder, which is also supplied with metal conductors fitting those on the case, the two parts when adjusted being clamped together by the set screw, F, thereby holding the lamp firmly in its socket. The conductors of the lamp holder are connected to the handle, A, by hinged joints, so that almost any desired adjustment can be readily secured. This handle is called a resistance handle because it is wrapped with wire of a low conducting power, by which, through the agency of the ring, I, the flow of current is regulated. When the ring is placed at the end of the handle nearest to the battery cord, the resistance is reduced to the minimum, and the current from the battery flows freely to the lamp. Sliding the ring to the opposite end of the handle compels the current to travel through the wire with which the handle is wrapped to the ring and back again, thus forming a resistance. The connection to the battery cord, B, is made by the spring coupling, C. A non-conducting shield, G, is placed over the lamp globe for the double purpose of preventing the radiation of heat and of directing the light to any desired point. At H is a screw for breaking the circuit, which should be broken occasionally during a prolonged examination, and also, whenever the lamp is not in use, to prevent its becoming so hot as to be unbearable in the mouth. In order to admit of the examination of posterior cavities a mirror, set at an angle of forty-five degrees, is attached to the end of the guard. With this attachment the lamp forms a perfect laryngoscope.



ELECTRIC MOUTH LAMP AND LARYNGOSCOPE.

The battery to operate this lamp consists of three improved Bunsen cells having large carbons. The porous cups are filled with the bichromate solution (made in the following proportion: One-half gallon of boiling water, in which is dissolved half a pound of bichromate of potash; when cold, there are added ten fluid ounces of chemically pure sulphuric acid), and the glass jars with water to which two ounces of chemically pure sulphuric acid are added. This battery is



specially adapted for the work required of it, and produces a strong current of great constancy.

This useful device, which the surgeon and physician, as well as the dentist, will find of great value in the examination of the mouth and throat, is made by The S. S. White Dental Manufacturing Company, of Philadelphia, Pa.

Hardening Steel Mill Picks.

When it is desired to harden a piece of steel, it should be known to a certainty for what specific purpose the material is to be used; for instance, it is very reasonable to suppose that a tool that is made to do its work by blows, as a cold chisel, a knife that cuts by means of an even, constant pressure, a tool that must combine strength with cutting qualities, or one intended for soft, another for hard work, must not receive the same treatment in manufacture in order to be good tools for their respective uses.

Take for example the matter of mill picks; these are ordinarily made of cast steel hardened and tempered in an anthracite forge. Double refined cast steel is used, and should be manufactured for this express purpose. In drawing out the steel great need of caution is essential, inasmuch as, if the iron is not worked right, it seems really impossible to temper subsequently. The plan generally followed by the best makers is to draw out the pick with an anvil and hammer, both of which have very smooth faces, and the steel is heated not above a dark cherry red. When it comes to finishing, the best artisans claim the steel should be hammered only on the flat side, and the lighter and more rapid the blows the better the resulting tool, the blows, light and quick, being continued till the steel is quite dark. For tempering, a bath made of two gallons of soft water and two pounds of salt is used; this will last for tempering a dozen picks, but some care is needed not to have the bath too cold, as it tends to chill; hence the workman often dips a hot iron in his bath before he begins to temper his picks. When the pick is at a dark cherry heat, it is dipped just at the point, the rest being cooled in the ordinary way. We suggested mercury to a skilled workman as a good thing with which to temper, but the great trouble is to control this substance for this purpose; it makes the steel so hard that it is brittle, the entire edge often cracking off, so sudden is the reaction.

As to the comparative merits of American chrome and English steel for making picks, opinions vary; though American steel seems to have the most friends. When English steel is used, the tool is heated only moderately in forging—not sufficient to scale—and when the redness leaves it is not hammered; it is hardened by heating to a low red heat, dipping in warm salt water, and tempered to a brown; while with the American steel it is heated to a yellowish color for forging, to a low red for hardening, and at once quenched.

The best weight for a pick seems to be about four pounds, and to be perfect should be ground only with moderate pressure, with plenty of water, down to the edge, but not sharpened on a large stone.—*Midland and Industrial Gazette.*

Value of Hay for Stock.

Experiments have been made in England as to the comparative value of good hay for stock, with the result that it is estimated that 100 pounds of hay are equal to 275 pounds of green Indian corn, 400 pounds of green clover, 442 pounds of rye straw, 360 pounds of wheat straw, 160 pounds of oat straw, 180 pounds of barley straw, 153 pounds of pea straw, 200 pounds of buckwheat straw, 400 pounds of dried corn stalks, 175 pounds of raw potatoes, 504 pounds of turnips, 300 pounds of carrots, 54 pounds of rye, 46 pounds of wheat, 59 pounds of oats, 45 pounds of mixed peas and beans, 64 pounds of buckwheat, 57 pounds of Indian corn, 68 pounds of acorns, 105 pounds of wheat bran, 167 pounds of wheat, pea, and oat chaff, 179 pounds of mixed rye and barley, 59 pounds of linseed, and 330 pounds of mangel-wurzel.

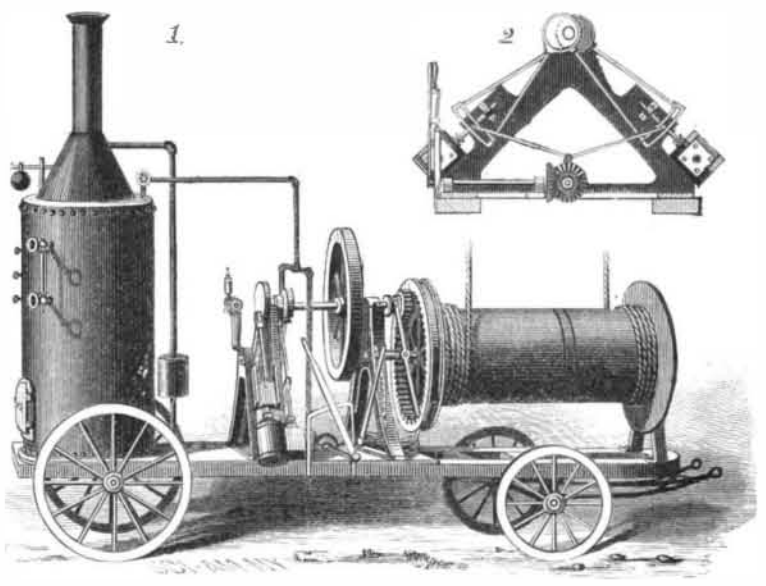
Acorn Bread.

The Indians scattered along the foot-hills of the Sierra are a quiet, inoffensive people. They do not appear to be governed by any tribal laws, yet adhere to many of their old traditions. One or two men of superior ability and industry form a nucleus around which others less ambitious gather. Hence they fence with brush and logs a tract sufficient for their requirements of hay-making, pasturage, etc. Although they often indulge in the food of civilized nations, the acorn is still a favorite article of diet in every well-regulated wigwam. The process of converting this bitter nut into bread is curious. Under the branches of a grand old pine I found them at work. They had shucked and ground in the usual manner a large mass of the acorn meats. A number of circular vats had been hollowed out of the black soil, much in the shape of a punch-bowl. Into these was put the acorn pulp. At hand stood several large clothes-baskets filled with water, and into these they dropped hot stones, thus heating the water to the required temperature. Upon the mass of crushed bitterness they carefully ladled the hot water, making it about the color and consistency of cream. Not a speck appeared to mix. A buxom *muhala* stood by each vat, and with a small fir bough stirred the mass, skillfully removing any speck that floated upon the surface. The soil gradually absorbed the bitter waters, leaving a firm white substance, of which they made bread. I asked to taste it, at which they said something in their language, and all laughed. I asked again, and after more laughter I was handed a small particle on a fig leaf, and found it sweet and palatable. They began to remove it, and so adroitly was this done that but a small portion adhered to the soil. They spread it upon the rocks, and in a short time it was fit for use. This, I am told, they mix with water, put it into thin cakes, and bake before the fire.—*San Francisco Chronicle.*

HOISTING MACHINE.

The boiler, engine cylinders, the hoisting drum, and all the other parts of the machine are supported upon a truck resting upon wheels. The bed plate carrying the boiler and engines is formed with rear stands on which the cylinders are attached at an inclination of forty-five degrees. The stands are made with guides for the crossheads, and the rods are connected to the same wrist pin on the crank disk of the shaft, so that the engines work at right angles and carry each other over the dead center. The driving shaft carries two eccentrics for operating the valve rods of both engines through the medium of links. (The construction and arrangement of these parts are shown in Fig. 2.) By the movement of a lever the links are simultaneously shifted to reverse the engines.

On the driving shaft is a pinion, attached by a feather, so that it can be moved on the shaft by means of a lever to engage with the internally toothed rim on the end of the drum. The rim is provided with flanges, between which is



VIERNOW'S HOISTING MACHINE.

a brake strap operated by a lever. The drum is in two parts, the larger portion fixed on the shaft and the smaller end portion fitted to slide on the shaft, the two parts being connected by pins in a middle head. A nut holds the sliding part up to place, so that when it is necessary to take up or let out the hoisting rope the nut is screwed back and the part moved on the shaft, and then rotated to wind or unwind the rope. The ropes pass off from opposite sides of the drums over pulleys, and to the platforms, so that in operation one platform is raised as the other is lowered. By this construction and arrangement the machine is rendered very compact, and can be conveniently operated, especially for supplying material to buildings in course of erection, and it can be easily moved from place to place.

Further particulars concerning this machine may be obtained by addressing the inventor, Mr. G. M. Viernow, Room 33, S. E. corner Olive and Fifth Streets, St. Louis, Mo.

GOVERNOR BEGOLE, of Michigan, in a late address asserted that he had found, from an accurate study of statistics, that 91 per cent of the crime and pauperism of the State came directly from the use of intoxicating drinks.