horizontal in a vertical lantern, is arranged as shown in Fig. 5; *i.e.*, with one of its faces at right angles to the beam, and with its reflecting face at an angle of 45° with the beam, or approximately so.

Probably the most desirable source of light for all purposes is the oxyhydrogen or calcium light. The burner shown in Fig. 1 is an excellent one. It is provided with a platinum-tipped jet and is arranged for every adjustment. The lime cylinder can be revolved and raised or lowered. The jet may be adjusted relatively to the lime so as to secure the best results. As the gases are mixed inside the burner, they should be taken from tanks or cylinders in which considerable pressure is maintained. Gas bags are unsafe when used in connection with a burner of this kind.

In the electric lamp shown in Fig. 7, a Jablochkoff candle is employed. It is superior to the calcium light, and gives very little trouble when an alternating current is available. The carbons being presented end on to the object yield nearly all their light in one direction, so that the loss of light is less than in the case of the ordinary arc lamp. The candle is coincident with the prolongation of the axis of a helix supported near the luminous point. The current that supplies the candle passes through the helix. In consequence of this the arc is drawn to the end of the candle in opposition to its tendency to follow the carbon rods. The candle can be moved forward as it is consumed by grasping the insulating handle at the rear end. Electrical contact is established with the rods by two copper springs contained in the revoluble support of the candle. When a direct current is used, a quick-acting current-reversing switch is required, as in this case the current must be reversed frequently to cause the carbons to burn evenly.—*Scientific American.*

MIXTURE FOR WRITING ON GLASS.

The preparation for writing on glass called "diamond ink," says the *American Druggist*, is to be used with a common pen, and at once etches a rough surface on the parts of the glass it comes in contact with. It proves to be a very useful article for labeling bottles which are to contain liquids that will destroy common labels.

At the request of Professor Maisch an analysis was made, which proved it to be prepared ammonium fluoride, barium sulphate, and sulphuric acid. The barium sulphate seems to act as an absorbing medium, and when the semi-fluid mass is used, it makes a white mark, and prevents the spreading of the watery liquid; it also seems to make the acid etch a rougher surface.

It is made by mixing barium sulphate three parts, ammonium fluoride one part, and sulphuric acid a quantity sufficient for decomposing the ammonium fluoride and making the mixture of a semi-fluid consistency.

The sample examined was contained in a glass bottle holding nearly two fluid drachms, and which was thickly coated on the outside with asphaltum, on the inside with a thick stratum of beeswax, and was stoppered with a rubber stopper.

It is claimed by the manufacturer that the mixture contains no hydrofluoric acid and does not corrode a pen; but of course it does corrode a pen, and hydrofluoric acid is the one thing that does the etching. Any one making this mixture and wishing to keep it in a glass, may coat the bottle inside with paraffine, beeswax, or rubber. It should be prepared in a leaden dish, and is preferably kept in a gutta-percha or leaden bottle.

PATENTS.*

The earliest laws of which we have any knowledge, that granted privileges and favors to persons who had made valuable improvements or inventions to relieve suffering and benefit humanity, were enacted in England less than one hundred years ago.

There was a system established during the reign of Elizabeth and the Stuarts that became odious. It was not a legal right, but a royal favor, and related to other things besides inventions, and extended to many articles in common use.

In the reign of James the First a law was passed known as the Statute of Monopolies, declaring all monopolies illegal and void, except copyrights and patents, which were granted for fourteen years.

This system, though somewhat modified, has become the established policy in this country, and is substantially a copy of the English law, in order to secure reward to the inventor.

There are some persons in our profession who think it is unprofessional to take out patents, but what would have been the status of dentistry to-day without the stimulus of reward for useful and improved appliances in the dental art?

Our country is a new world, and the American dentist is comparatively a new man; and the sooner he learns to do business on a plan that corresponds to the age in which he lives, the better it will be for himself and those who seek his services.

The men who invent are thinkers; they are persons of adaptation and consecration; they are, and have been, benefactors to their brethren, and, as a rule, they suggest and give away to their co-workers little suggestions without money and without price, to make dental operations easy, more than all the money they receive for their patents.

Inventions are the products of the brain, and they are just as legitimate as the labor of the hands. A certain orator was once asked how long it had taken him to prepare his oration? he replied, "Just forty-four years, for I am just forty-four years old, and I have given my whole life to this work."

I do not wish to be understood as advocating the giving patents away, for it is never best to give something for nothing, and the Creator does not deal in that way with His children in the various departments of nature. Everything is dual, and inventors are seers in mechanics, their minds become illuminated with visions of uses for the benefit of their fellows, and usually the whole working of the improvement is wrought out in the night, when the body is at rest, and we commune with ourselves without interruptions.

Almost all the improvements that have benefited the race have been first thought out and then wrought out to make us great as individuals or a nation.

It is the function of the brain to think, and the hands to execute the thought. The older men of the profession will recollect the ridicule that was hurled upon Dr. Atkinson and the use of the mallet in impacting gold in filling teeth some thirty years ago, and now we bring to its aid the various machines and electricity.

The unprecedented growth of our profession over either of the older professions is due largely to our freedom from the conventionalities that bind all professions to the past. Any innovations to long-time usages are almost certain to prove disastrous to those who discover the "new and more excellent

* Extracts from an article by J. A. Robinson, D.D.S., in the "Archives of Dentistry."