

PRACTICAL SUGGESTIONS TO BE OBSERVED IN RUNNING DYNAMOS.

PLACE the oil catchers under the drip of the dynamo bearings, and never allow them to overflow on the floor.

Keep the floor of the dynamo room swept clean, so that no nails or other small pieces of metal can be drawn into the armature.

Never use or leave iron or steel tools near the machine, while at work, as these are also likely to be drawn into the armature if left too near it.

Oil cans made of copper or zinc are best for use about electrical apparatus.

Never allow oil to accumulate on the armature or shafts of the dynamo.

When the wires coming out of the shaft to the commutator become bare from cleaning, they should be re-covered with kerite or okonite tape, or gum cloth, and shellaced, and allowed to dry for about eight or ten hours before being used.

If the shellac on armature bobbins, or field magnets becomes worn off, these parts should be re-shellaced.

A good bellows will be of service in getting dirt out of the crevices of the armature, and around the commutator and rockers.

If the rocker springs are fastened to a wood base, see that the screws which hold them are kept tight as the wood dries.

See that all thumb screws in the binding posts are kept screwed down tight on the wires. Special care should be exercised in regard to this in the case of incandescence machines.

In placing brushes, take pains to clamp them firmly in position allowing them to rest squarely and evenly on the commutator. Be very careful not to screw down one side of the clamp tighter than the other, but clamp them evenly, so that both edges of the brushes will be held in place.

The clamps holding the brushes must be perfectly clean, so as to make good contact.

Brushes must bear on the commutator with a reasonable pressure, not too hard, nor so lightly as to allow them to flap or chatter. Occasionally, by accident or otherwise, the brushes will get bent, or sprung, and bear too lightly on the commutator. This condition of affairs is always attended with many sparks, and a very rapid cutting, or wearing, of commutator segments. In fact, segments may be worn out in a few days in this way.

If brushes are perfectly straight when put into the clamps, sufficient pressure will usually be obtained.

In an arc light, or high-tension machine, if the brushes are rocked too far forward in the direction of rotation of the commutator, the sparking will quite disappear, but the lights will go out occasionally, each extinction being attended by a few very long sparks on the commutators. This trouble may be corrected by rocking the brushes backward a short distance. If brushes are moved too far back, there will be sparking, and a consequent diminution of light in the lamps, and occasionally extinctions of the lamps, similar to those which occur when the brushes are too far forward.

The proper point for the brushes is as far forward as possible, so as to make the sparks small, and yet back of the point where flashing will occur. In low-tension, or incandescence, machines, the brushes should be adjusted to show no spark, or only a very minute one, otherwise the wear on the commutator and brushes will be very heavy.

Too much oil on the commutator will cause sparks similar to those which appear when the brushes are not properly adjusted.

When brushes are worn nearly through, clip them off squarely at the worn ends, and move them up to the same position as before.—*Western Machinist.*

SPARKS.

Electric propulsion has gained favor rapidly among the enterprising population of British Columbia. A line runs (four miles) from Victoria to Esquimalt; a line is projected to Saanich, a farming section, a distance of eight or ten miles; an electric tramway is being constructed from Vancouver to Westminster, 12 miles, to carry freight and passengers, another line has been surveyed south from Vancouver to Ladner's Landing; electric tramway charters have been obtained for Nanaimo, Vernon, Nelson and other places in the province.

A few days ago a middle-aged man entered the office of the Pittsfield, Mass., electric light station on business bent, says the *Journal* of that city. He produced a quart bottle and asked to have it filled with electricity. The genial manager of the concern soon discovered that the purchaser was in dead earnest, and further questioning revealed to the electrician, always on the alert for something new in his line, that the middle-aged man aforesaid had discovered a new use for the mysterious and, as Webster calls it, "subtle fluid." He with the bottle went on to explain that he had been told it was the best remedy known to remove lice from cattle, and that it could be bought in Pittsfield at the electric station for six cents a gallon. He only wanted a quart of it and was anxious to get it and be off. He was finally convinced that he had been imposed upon, but did not express himself on the subject of practical jokes. It is understood that the imposer has left Pittsfield.

A correspondent of the *Montreal Star* publishes the result of a recent interview with Dr. Selwyn, director of the Dominion Geological Survey, who is engaged experimenting on a new material for insulating purposes. The doctor was found with a long narrow box before him, which was filled with lumps of a peculiar black earthy substance glittering with sandy particles. It was not unlike lumps of brown, sodden coke. "This," he said, "is a sample of petroleum saturated sand which is found in almost immeasurable quantities in the Athabasca district, and for which, I believe, I have found excellent and practical use. It can, I have no doubt, be used to great advantage for insulating electric underground wires. Its insulating power has already been tested by Mr. Gisborne, Dominion Electrician, who says it makes a perfect insulator, and I am now about to make further tests to see how it will stand the frost and weather. The discovery of this sand is not new it having been known to and described by Sir Alexander Mackenzie, a hundred years ago. It has already been referred to in the Survey reports, and petroleum experts have given it as their opinion that a large amount of petroleum could be extracted from this great body of sand if the proper appliances were secured. It has also been referred to as a possible fuel, but its projected use as an insulator is new. It is about 170 miles from Edmonton to the sand regions, and as the Calgary and Edmonton road is now being built to Edmonton, it would, I believe, be built to Lake Athabasca, should the sand prove useful, as expected. In the Athabasca district are also found good indications of sulphur, gypsum, salt and lignite coal.

COPPERINE

Superintendent's Office, Water Works Dep't,
TORONTO, January 6th, 1891.

ALONZO W. SPOONER, ESQ.,
Port Hope, Ont.

DEAR SIR: I am pleased to say that after nearly three years' constant use day and night, on our largest engine, your Copperine has stood its work well. I have not had to renew any of the heavy bearings yet, so I consider that speaks for itself. I am pleased to recommend it to any one in need of metal to stand heavy work.

I am, your truly,

J. C. FERGUSON,
Chief Engineer Toronto Water Works.



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