Fifth:—The cost of building a plant of a given capacity is very much less than a plant for regular O. H. practice on account of the elimination of all producers, checker work, underground flues, etc., the electric furnace being nothing more than a large sized ladle lined.

Sixth:—The attendance required should be less, as the material is simply charged into the furnace, the furnace is closed up tight, and the power applied; owing to the character of the material that is charged, and the electrical control of the operation, no attendance is required until the melt is made, it therefore becomes a mechanical proposition throughout, in which the materials are all handled by machinery, and the furnace is self-regulating; it is possible to charge a large size furnace in less than two minutes. These facts, when compared with the pig and scrap proposition, which takes considerable labor to handle, are apparent to those familiar with the steel business.

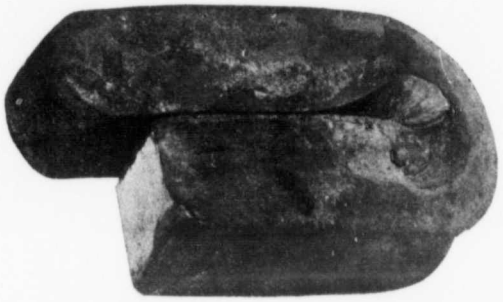

Fig. 9—Photograph of a Piece of the Lash Steel, Forged from an Ingot to One Inch Square, Bent Cold Steel is 0.24 Carbon, Showing a Tensile Strength of 73,000 Pounds. Attention is called to the Flow of metal at the Bend.

Seventh:—The cost of refractories, repairs, etc., will be very much less, and there should be no interruption to continuous operation of a plant, because a complete furnace fully lined, ready to go into operation, can be kept as a spare, and with the proper crane arrangements can be set in the place of the furnace needing repairs, which furnace can be taken to another building for this purpose, therefore, it is apparent that the cost, and the care of checker work, producers, flues, etc., are entirely eliminated, owing to the construction of the electric furnace the roof is very much stronger and better maintained.

Finally:—The control of the heat for the elimination of impurities, and the handling of the steel, and the fact that the amount of impurities charged into the furnace is always known, gives a condition for the making of a high grade material that cannot be obtained by any other known process.

The Band Saw as a Machine Tool

By Philip Bellows.

While passing through a large American machine shop recently I was impressed by the presence of a band saw that seemed to have missed its way from the pattern shop and got entangled among the milling machines, planers, etc. Upon inquiry I was told that the master mechanic, who was comparatively new to the place, had caused the machine to be installed about six months before to handle a certain class of work that had formerly been done in the lathe.

In the shop referred to, a large amount of rolled brass is used for various purposes and previously this was handled in the shears and on the face plate of the lathe, or in the drill press according to which one suited the particular job in hand. A great deal of zinc plate is also used, about $\frac{1}{2}$ inch thick, which is turned into disks. Previously the method of procedure was to bolt a plate on the face plate of the lathe and cut out the disk with a tool. Now however, all rolled brass up to $\frac{1}{8}$ inch thick and zinc plates up to $\frac{1}{2}$ inch thick are marked and brought to the band saw, which saws them like soft pine boards.

The best kind of saw blade for this work is one about $\frac{1}{2}$ inch wide, $\frac{3}{32}$ inch thick and with the teeth set very fine; that is, to make the width of the cut about $\frac{3}{64}$ of an inch. The teeth should be small so that the work upon each individual tooth will be light. Such a tool is in reality a straight milling cutter. Rolled brass up to the thickness mentioned may be cut very fast; when cutting thicker plates a slower feed should be taken, but the saw should not be expected to cut thick plates in any case. Cast brass and bronze should not be used.

Some difficulty was at first experienced through the cuttings passing through the saw slot, coming between the saw and the lower wheel and becoming imbedded in the rubber band cemented to the wheel. As soon as this was discovered, connection was made with the compressed-air line and a fine jet of air blown onto the surface of the wheel where the wheel and band saw meet and this keeps the former clear of all small specks of metal.

Tests made in my presence showed the following results: The wheel of the saw ran at 460 revolutions per minute for the saw blade. A strip of brass 13 inches long was fed to the saw and was split down the middle in three sections, equivalent to a cut of 21¾ feet per minute. A cut 2 feet long in a zinc plate $\frac{1}{2}$ inch thick occupied seven seconds by a stop watch, or equal to a cut of 17 feet per minute.

The saws used last on an average a little more than a month apiece, which is very remarkable considering the fact that in that time their cut runs up to a total of from 40,000 to 70,000 feet. One thing that favors the metal-cutting saw is the evenness of texture of the material; no knots and no false spots, as in wood.—American Machinist.

When The Lights Went Out

A few years ago when I was on the road as an electrical salesman, I stopped over night in a small town in Maine. A bunch of us were sitting around the stove in the bar of the little hotel when the electric lights flickered and went out.

From the darkness came a solemn voice that said: "Electric lights out, b'gosh, and yet it ain't blowin' hard either. Something's happened to the dynamo, maybe."

I had been selling electrical supplies to the little lighting companies for several months, but I had never heard this particular idea expressed before. I laughed long and loud, and was all the more amused when no one joined me.

After they had lighted a big kerosense lamp, I proceeded to explain to the crowd that incandenscent lamps can't be blown out by the wind. When I had finished, the old rube who had commented on the lights said:

"Look here, young man, if you knew a little somethin' about local conditions and about your own business, you'd know that the wires in this township are hung up slack on the poles in some places and that they get to slatting in a good stiff breeze. When they do, there's a short circuit that puts the line out of business."—System.