

THE NEW LECLANCHE BATTERY.

The Leclanché battery is now more generally used for open circuit lines than any other, and its peculiar adaptability to the telephone service has given it an immense field of application. In the battery shown in the annexed engraving the porous cup used in the ordinary Leclanché element is dispensed with, and a pair of compressed prisms, containing all the materials formerly used in the porous cup, are substituted for it. These prisms are placed upon opposite sides of the carbon plate, and are kept in place by rubber bands.

The negative pole consists of a pencil of amalgamated zinc, and the two poles are suspended from the cover in a solution of sal ammoniac and water.

The zinc being indefinitely preserved in the sal ammoniac solution, and the peroxide of manganese being insoluble in the solution, no action can take place when the battery is not in use.

After thorough tests by the various telephone companies, this battery has been universally acknowledged to be better than any other for telephone purposes, as all of its parts are visible, and any derangement may be at once discovered. The battery is readily taken apart, cleaned, and set up again. To do this requires no special knowledge of electrical apparatus. When the elements become exhausted from long service, they may be renewed by taking off the prisms, soaking the carbon below the head in hot water, attaching new prisms, and setting it up with a new zinc and a fresh sal ammoniac solution.

Further information will be furnished by the Leclanché Battery Company, 40 West Eighteenth street, New York.

STEEL IN AGRICULTURAL TOOLS.

Steel is rapidly taking the place of cast and wrought iron in the manufacture of agricultural implements, and being much stronger than iron, it admits of making the tools not only a great deal lighter, but stronger, and better calculated to resist wear. Our sketch, which we take from one of the departments of the Anderson Steel Works of Pittsburg, Pa., represents one of the processes in the manufacture of rotary colters for plows. The workman has mounted upon the end of a rotating shaft, a disk of tempered steel, which, as it revolves, is pressed forward against the periphery of a huge grindstone revolving in the wooden casing and constantly supplied with water.

The face of the stone is divided into three steps or sections of different diameters, one section being used for roughing the disk, another for shaping it, while the third is reserved for finishing. As the disk is pressed against the stone, the shaft that supports it is oscillated by means of the vertical lever held by its workman. This movement gives the disk its lenticular form.

Messrs. Anderson & Co. make a composite sheet for agricultural tools and other purposes, consisting of an iron central portion faced on both sides with steel. The method of making this article is extremely simple. The mould into which the steel is poured contains a thick plate of iron, which divides it equally and forms the central iron portion of the composite ingot which is afterward rolled into sheets. As the hot steel is poured into the mould it is perfectly welded to the sides of the iron plate.

THE opinion of travelers that there is no danger in bathing in the Dead Sea, because one cannot sink in its heavy waters, has met with a rude shock. A lady's maid ventured out beyond her depth, and floated face down. She was turned over and brought ashore with great difficulty, after having swallowed enough of the acrid water to make her dangerously sick.

The Largest Haddock Fare Ever Landed.

The schooner Martha C., Captain Charles Martin, arrived at Boston recently with a fare of 72,000 lb. haddock, the largest amount ever landed on a single trip, which sold at \$25 per 1,000 lb., giving her a stock of \$1,803. She was absent seven days, and engaged in fishing two days. The expenses of the trip were \$137, and the crew of fourteen men shared \$76 each. The largest fare before reported was

Fig. 1

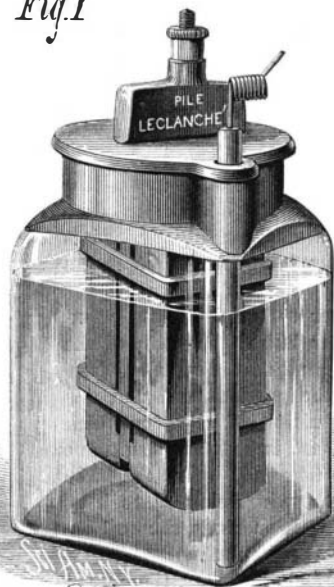


Fig. 2

**THE LECLANCHE PRISM BATTERY.**

70,380 lb., taken on Georges, in 1878, by schooner E. L. Rowe, Captain Sewell W. Smith, on a five days' trip. The largest fare ever taken in one day's fishing was 54,200 lb. by schooner Paul Revere, Captain John Bentley, in 1877.—*Cape Ann Advertiser.*

ACID PROOF CEMENT.—Make a concentrated solution of silicate of soda, and form a paste with powdered glass. This simple mixture will sometimes be found invaluable in the operations of the laboratory where a luting is required to resist the action of acid fumes.

Then and Now.

Owing partly to the improvement in tools and shop appliances, and partly to the system of subdivision of labor, there is no parallel by which the workman of to-day can be gauged or compared with the workmen of thirty or forty years ago. Then the apprentice was taught—crudely, perhaps, but still taught—all the mysteries of his calling, from the preparation of the crude material to the finish of the completed result.

The carpenter hewed his timber from the tree trunk or limb by means of chalk line and broadax. He bored, and mortised, and cut tenons, erected the frame of the building, boarded and shingled, and clapboarded and lathed. The blacksmith shod horses and oxen, tired wheels, made bolts and nuts, chipped and filed and drilled, forged and tempered axes and chisels, and performed numberless jobs of a variety of forms and for a variety of purposes. The machinist sometimes made his own patterns and often his own tools, worked at the vise and the planer, the lathe and the forge, and was ready to undertake any job, from repairing a broken stove to building an engine.

Our venerable contemporary, the Boston *Journal of Commerce*, remembers when the above practice was universal. We congratulate it on surviving to see all this changed. Now timber is sawed and not hewed; mortises and tenons are machine cut; houses are built by the shinglers, the lathers, and the joiners, as well as by the carpenters; and the doors, windows, window and door frames and sashes are factory built. The horseshoer does nothing else. The forger of steel seldom works iron. The tool maker is nothing but a tool maker. The machinist is a bench man,

a lathe man, a planer, a fitter, or he has a specialty in cotton machinery or woolen, or never works but on steam machinery.

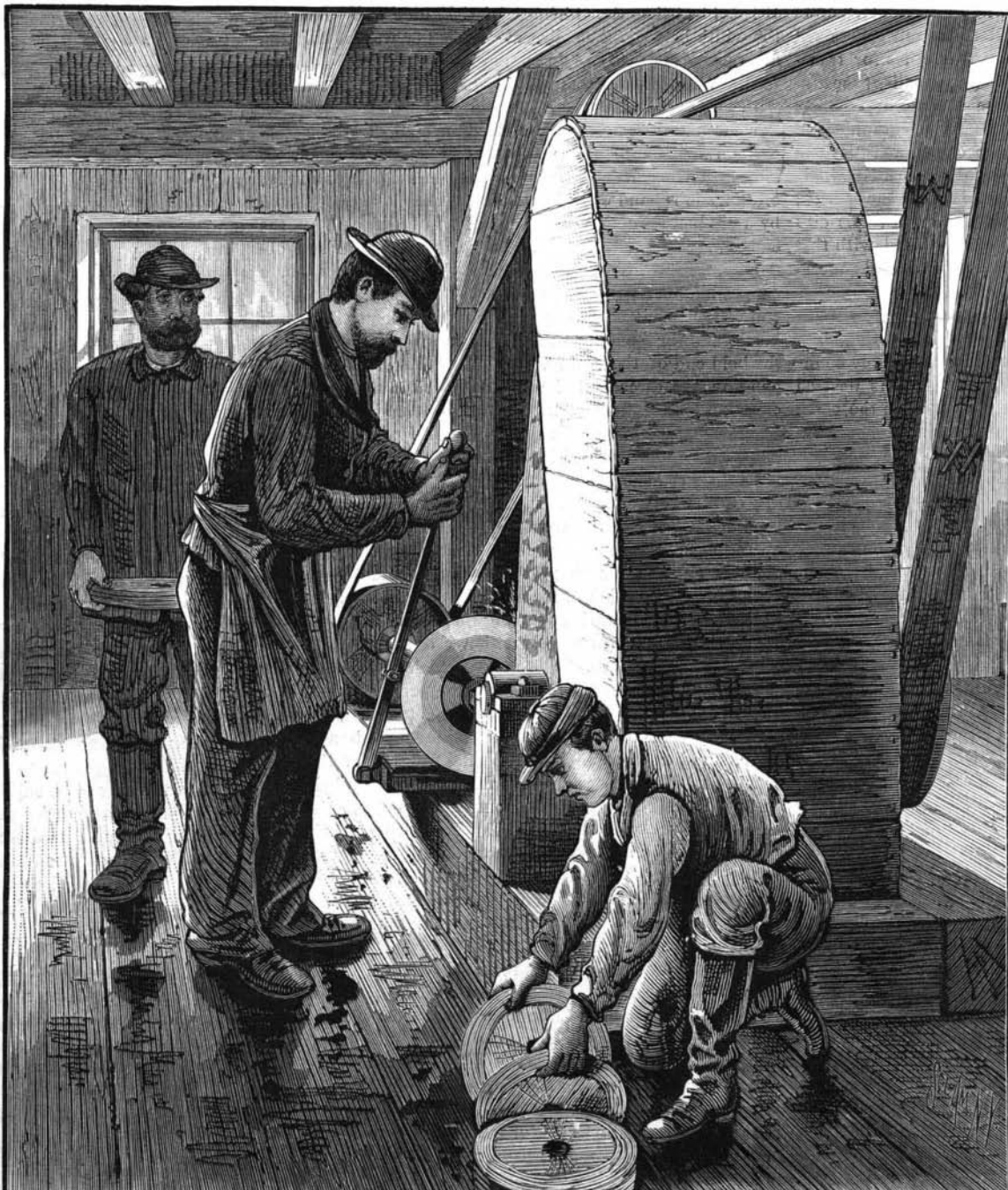
It cannot be expected that the man who has worked only in a certain department will be entirely at home in others; but, on the other hand, he who has worked at all branches will not be likely to be an expert in any one branch. In versatility and in contriving makeshifts, he who learned his trade when the arts were young, and performed a portion of all the work, is better than the specialist; he may be an invaluable man in a crisis. But the lather can prepare a room

for the plasterer with much greater rapidity and in better shape than the carpenter who turns from making a door to lathing a room. The tool forger can temper steel better than the blacksmith who turns from the forging of a mill crank to the tempering of a turning tool. The machinist who has worked for years on steam engines can sooner put a disabled engine to work than one who learned his trade at building cotton machinery. In the one case, the man is an expert; in the other, simply a workman.

Meteoric Iron in Snow.

Observations of snow collected on mountain tops, and within the Arctic circle, far beyond the influence of factories and smoke, confirm the supposition that minute particles of iron float in the atmosphere, and in time fall to the earth. By some men of science, these floating particles of iron are believed to bear some relation to the phenomena of the aurora. Gronemann, of Göttingen, for instance, holds that streams of the particles revolve around the sun, and that, when passing the earth, they are attracted to the poles, thence stretching forth as long filaments into space; but, as they travel with planetary velocity, they become ignited in the earth's atmosphere, and in this way produce the well known luminous appearance characterizing auroral phenomena.

Professor Nordenskjöld, who examined snow in the far north, beyond Spitzbergen, says that he found in it exceedingly minute particles of metallic iron, phosphorus, and cobalt.

**GRINDING ROTARY COLTERS.**