

MACHINE SHOP NOTES FROM THE STATES.

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XXXIV.

In the manufacture of small duplicate parts such as are used in the manufacture of fire arms, sewing machines, typewriters, and similar small and accurate mechanisms, it has been the practice to use Lincoln pattern millers. This

$3\frac{1}{2}$ -inch diameter, with nicked teeth. The total width of the cut is $4\frac{3}{4}$ inches—removes about $\frac{1}{8}$ -inch of metal—at a table travel of nearly 2 inches per minute. The finished pieces are accurate within .001 inches, ready for assembling without any additional handwork. This machine is turning out these pieces at a rate of one jig full, or 24 pieces, in 15 minutes. This includes chucking and handling.

In addition to repetition work, this type of machine is adapted for doing a greater variety of milling work than any other type.

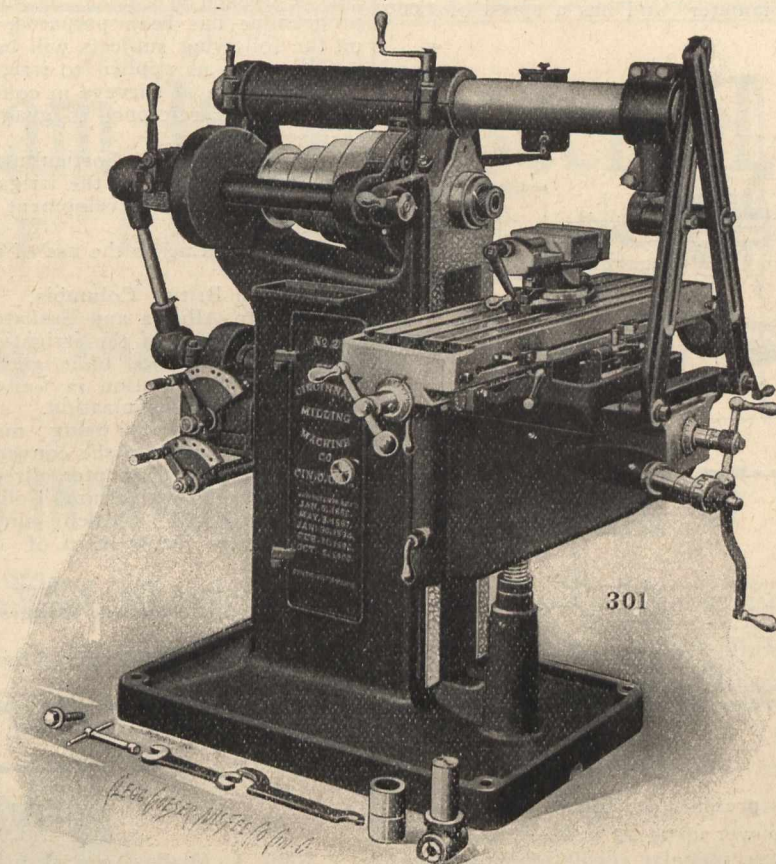


Fig. 1.

is the old original form of small manufacturing milling machine invented by Francis A. Pratt while superintendent of the Lincoln Foundry and Machine Company, and from which it took its name, "Lincoln Miller." This was away back in 1854. Strange to say, this type of machine as in use to-day, has very few improvements over the original one.

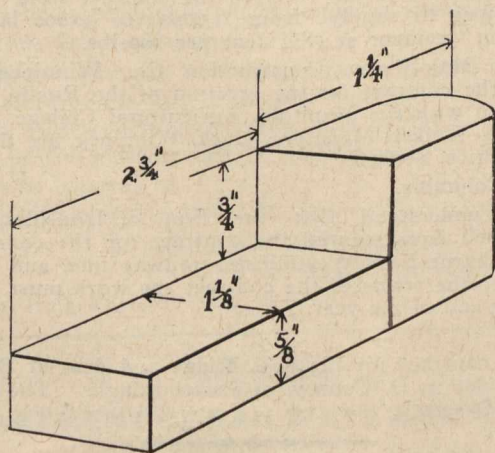


Fig. 2.

There is a strong tendency, however, to get away from these old-fashioned machines and methods. The column and knee type miller, shown in Fig. 1, has been proven very much more productive and a more economical machine to install in every way. One of these machines now at work in the shop of the Cincinnati Milling Company, turns out 24 pieces of small iron castings of the dimensions shown in Fig. 2. The cutters are high-speed steel, $4\frac{1}{2}$ and

PIG-IRON PRODUCTION FROM NORWEGIAN ORE.

In the "Meddelelser fra Norges Oplysningskontor for Noringsveiene" (a government institution), there appears in the edition for March 16 an article which will interest Canadian mine owners, etc. The following is a translation:

"Attempts to produce pig-iron from Norwegian ore reduced with Norwegian carbon have for the first time met with success, the carbon being in the shape of graphite, which is found in great abundance in different parts of the country, mostly in the north, where deposits to the extent of 10-20 metres and more are found close to the sea.

"This mineral has hitherto remained practically unnoticed, it being sufficiently pure for crucibles, pencils, etc., whereas it cannot be used as fuel. Now, however, Mr. Albert Hiorth, C.E., has succeeded in producing good iron from poor ore, unsaleable for the use in blast furnaces. During experiments, which took place at the new electro-chemical establishment of the Technical School of Christiania, iron sand containing 13 per cent. titanous acid was smelted together with graphite as a medium of reduction, and lime as slaggy material. With these materials, which are rather impure (the graphite thus contains about 20 per cent. silica), the iron produced, when analyzed, showed only a trace of titan and 0.01 per cent. silica. The experiment has thus proved that graphite can be used for the reduction of ordinary iron ore to good pig-iron, even of highly titaniferous ores, in which Norway is so rich, and which are now without value.

Work on the Brandon gas plant has been started, and, it is understood that the work will be completed as soon as possible.