

MACHINE SHOP NOTES FROM THE STATES.

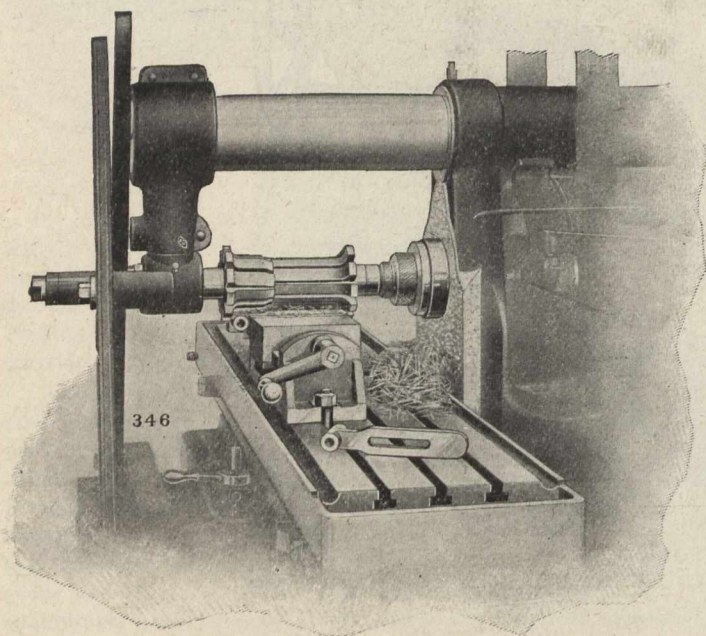
By Charles S. Gingrich, M.E.

XXIV.

The illustration herewith is a good example of present day practice in forming irregular pieces on a miller.

The cutter is of the formed or patent relieved style. Such cutters are sharpened by grinding the faces of the teeth, and maintain their original contour practically correct throughout their entire life. They differ in this respect from the form commonly known as "gun-shop" cutters, a process which is very difficult and almost certain to change the form of the contour of the cutter. This style of cutter is rapidly disappearing in the more advanced shops. In some American gun shops they have been almost entirely replaced by cutters with patent relieved teeth of the style shown in illustration.

This particular cutter is 6 1-2 in. wide on its working face. It finishes the one side and half way down the two ends of pieces 6 1-2 in. long, 1 1-4 in. wide. It is 3 1-4 in. diameter, and takes this cut at a table travel of 1 1-2 in. per minute, running 50 r.p.m., and feeding .030 in. per turn, leaving a good finish.



One of the drawbacks to the universal adoption of this style of cutter is the fact that its teeth are spaced farther apart than on the older form, and therefore each tooth has more work to do, which requires a more rigid machine than those formerly used. The principle of using milling cutters with the teeth spaced wide and with wide spaces between them so as to give ample chip room, is being applied to all styles of cutters at the present time, the idea being to give each tooth a chance to take a good-sized chip and then have plenty of room to accommodate the chip. This means heavy cutting, requiring stiff millers.

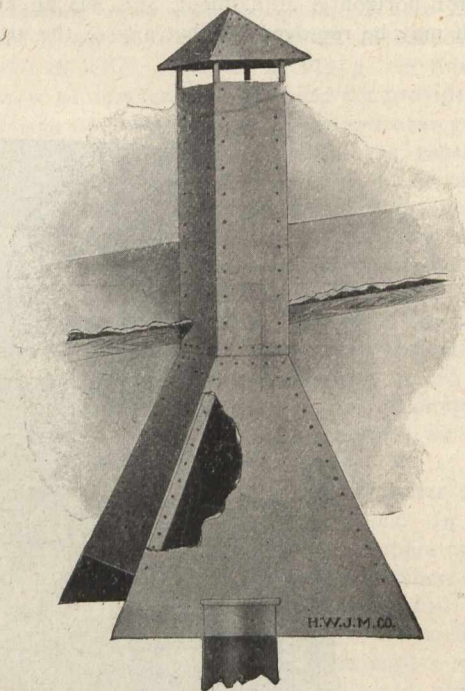
The designs of these machines have been rapidly changing to meet the new conditions of modern cutters and the new high speed steels. The job shown in the illustration was done on a No. 3 Plain Cincinnati Miller.



FIRE AND ACID-PROOF SMOKE JACKS.

The use of metal and wood smoke jacks has always been more or less unsatisfactory; so much is this the case, that many users, especially the various railways, have turned to **asbestos** as the only solution of the problem. The "Transite" asbestos smoke jack, as manufactured by the H. W. Johns-Manville Co., New York, N.Y., meets all requirements in a most satisfactory manner. Metal jacks deteriorate very rapidly under the effects of gaseous vapors, whilst a wood construction is not desirable on account of its inflammability. Heavy cast iron jacks necessitate a heavier, and consequently more costly superstructure. In the jack illustrated is realized at once durability, coupled with light-

ness of construction. "Transite" will last as long as the building itself, is fire, gas and weather proof, and is unaffected by expansion or contraction. It is only one-fifth the weight of cast-iron and can be worked and handled in the same manner as wood. The material from which these



jacks are manufactured was originally designed for fireproofing flooring, and insulation of electrically propelled cars, being first used by the Interborough Rapid Transit Company of New York City, both in their elevated and subway cars. The lumber, as the name indicates, is made of asbestos, varying in thickness from 1-8 inch to 1 inch, and is made in standard sheets 40 in. x 40 in. or 42 in. x 48 in.



A BABY AUTOMOBILE.

One of the greatest attractions at the recent automobile shows in New York and Chicago was the baby motor car illustrated below. The car is complete in every detail, being an exact model of a 16 h.p. touring car, the parts being only one-eighth the size of those in the larger machine. The motor consists of two water-cooled horizontal cylinders, and will develop two h.p. It is placed in the centre of the chassis, and the gasoline and water tanks are situated under the hood. Ignition is by jump-spark from electric batteries. The engine is lubricated mechanically by a pump. The car



has two speeds forward, and one reverse, power being transmitted to the rear axle by a Cardan-shaft. The tonneau is detachable, has two side-doors, and accommodates four passengers as shown in the picture. All levers and pedals necessary for a perfect control are provided, also two brakes and five lamps. As will be noted, a baby-chauffeur has been trained to run the automobile, which is the smallest working model ever produced, weighing only 243 pounds.