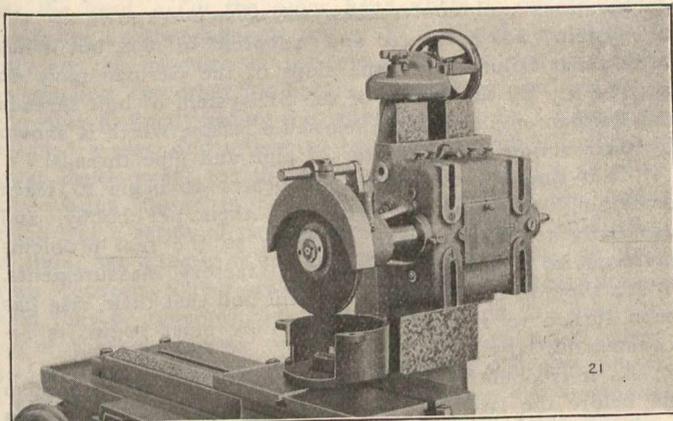
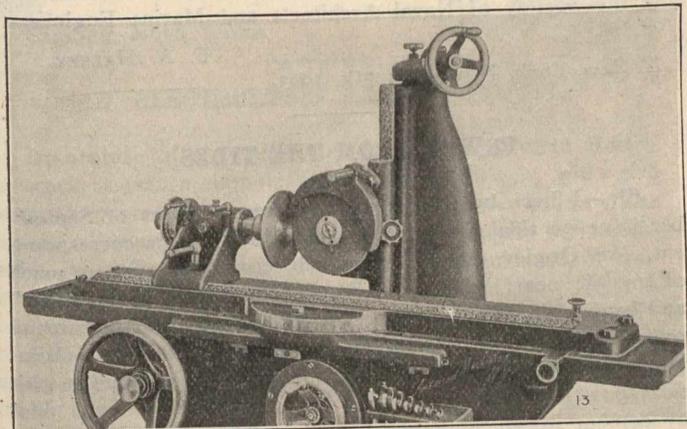


in the universal head shown in Fig. 3. This head is used for a great variety of cutter grinding, as shown in Figs. 4, 5, 6, and 7. The internal grinding attachment, Fig. 8, is used for grinding either straight or taper holes as well as cutters with fine teeth that require small wheels running at a higher speed than can be obtained from the main wheel spindle. Its application is shown in Fig. 9.



No. 14.

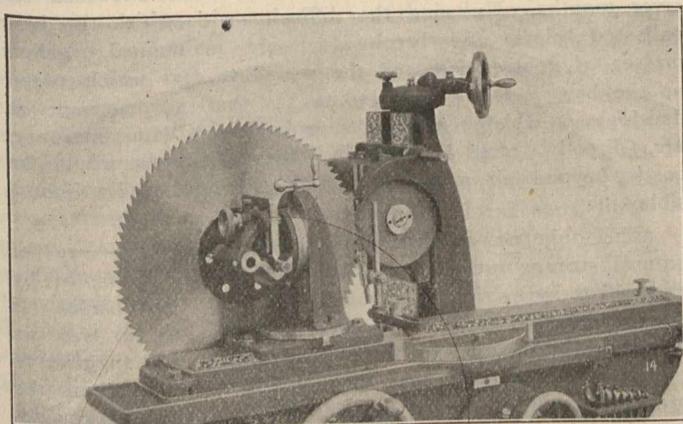
An attachment for grinding convex and concave cutters, Fig. 10, and work of a similar nature is furnished when desired. This attachment consists of a base and two slides, the lower one of which swivels upon a large central stud, and the limit of the movement is controlled by adjustable stops. A series of graduations on the side of this slide pro-



No. 15.

vides for adjusting to the correct radius. Provision is also made for mounting a diamond on the slide to be used in truing off the wheel to the proper radius. Figs. 11 and 12 show applications of the attachment.

The attachment for surface grinding is convenient for



No. 16.

all varieties of surface grinding, as flat gauges, angles, etc., and consists of a wheel spindle extension that fits over end of the main wheel spindle to permit the wheel being used over the entire surface of the table-plate. This attachment is

shown in Figs. 13 and 14. Fig. 15 shows the wheel spindle set at right angles to the table, in position for grinding the sides of a saw or cutter held in the face chuck. Fig. 16 shows the method of grinding large saws to 24-in. diameter. This grinding machine is made by Brown & Sharpe Mig. Co., of Providence, R.I.

THE METRIC SYSTEM.

Editor Canadian Engineer:—

Sir,—Referring to the articles on the metric system in your November issue, I note that you repeat the assertion that the system has been adopted by forty-four countries.

This assertion has been made so often that it has come to be generally believed, and, no doubt, it is repeated in good faith, but, as a simple matter of fact, no man, living or dead, has ever seen the first scintilla of evidence of its truth. The mere repetition of an untruth does not make it a truth, and this statement has no foundation in fact, nor any foundation of any kind, except simple assumption.

Experience has shown that the change involved in the adoption of the metric system is so difficult that in no nation of the world is it complete, nor is the end in sight, but, notwithstanding this experience, the metric advocates start out with the primary assumption that the change is an easy one. According to your count, forty-four countries have adopted laws of some kind that are favorable to the system, and, having assumed the change to be easy, you follow that assumption by another—that because of these laws the people of these countries have dropped their old measures and taken up the new.

Your party have never enquired into the working of these laws, nor into their wording, their scope nor their purpose. Had they done so, they would have learned that in some of these so-called metric countries the laws are simply permissive, exactly as they are in Canada, England, and the United States, and that there is just as much reason for placing those countries in the metric column, as for including some of those which are in that column. They would have found that in many more countries the system has been adopted for Government purposes alone, and that there is no basis for the slightest pretext that it is in common use in trade and commerce. They would have found that in some of these countries the system has led to the most grotesque mixture of old and new units and in none is it universal.

The evidence which I have collected in support of the above assertions could scarcely be contained in an issue of your paper, and for it I must refer you to my forthcoming book,—The Metric Fallacy—which is now in the printers' hands, and from which I shall draw for the remainder of this letter.

Nowhere has the system been adopted by any people except under compulsion, and I am unable to understand why it should be necessary to compel people to use such a good thing as this is claimed to be. Moreover, nowhere has compulsion succeeded in driving the old units out of factories nor in stopping their use in trade and commerce, though it has been far more successful in commercial than in industrial measurements. It is easy to show, and my book will show, why this is so; the basic fact being that in any country in which the individual has any rights whatever, compulsory laws have no jurisdiction over factory measurements.

As an illustration, it is a fact that, while the system has been compulsory in Mexico for nineteen years, the lumber industry of that country is still conducted as it is with you and with us. Lumber is sawn in length, width and thickness to feet and inches, and the price and bargain for a sale of lumber are based on the thousand feet, but, when the purchaser gets his bill, he finds that the bookkeeper, out of respect for the law, has converted the thousands of feet into square metres, and the bill calls for so many square metres of one-inch lumber. The purchaser then converts the figures back to thousands of feet in order to verify his bill, and of course you will recognize the large saving of