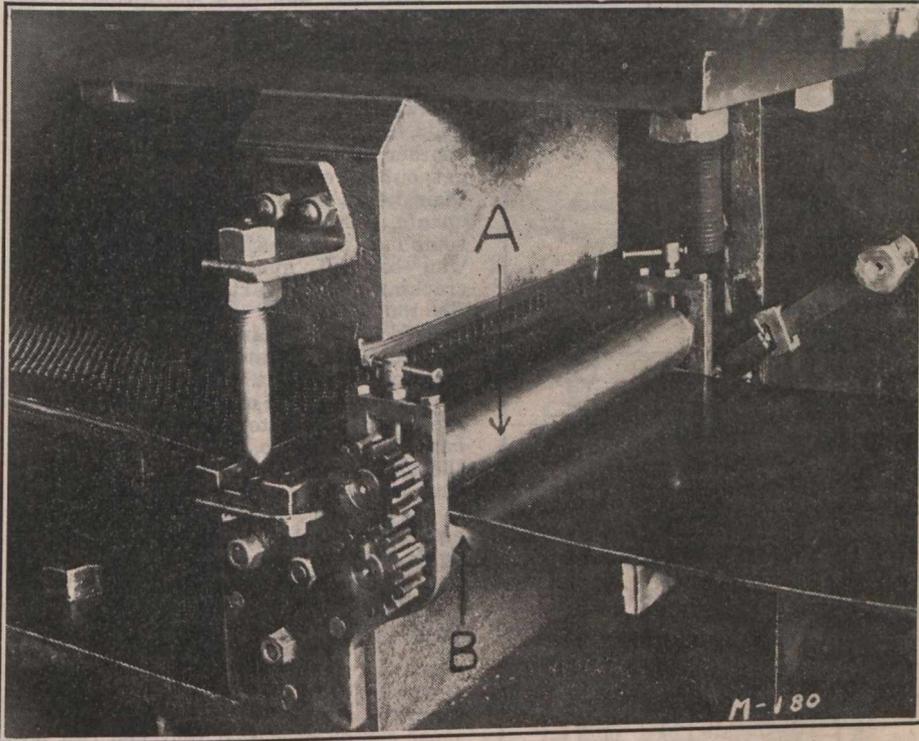


Railway Mechanical Methods and Devices.

Perforating Plates in Railway Shop.

The device shown in the accompanying illustration is in use for perforating plates used in connection with grease cellars in driving boxes. The largest plates perforated are 15½ in. wide, and can be made any convenient length, the standard length used being 8 ft.

For punching, the sheets are placed on a guideway and entered between the feed rolls A and B, which control the movement of the sheet into the punch at each opening stroke. After starting the oper-



Punching device for making perforated plates.

ation, the sheet is automatically fed the proper amount by each successive stroke of the punch.

There are 4 rows of ¼ in. punches, each row containing 25, so that a total of 100 holes are punched at each stroke of the machine. The punches are staggered as to length, so as to break up the force of the blow. The die is a solid steel plate, in which holes have been drilled, reamed and counterbored, for relief on the bottom side, to suit the position of the punches. With this device, one man handles the work without aid, and gets out the plates at the rate of about 10 an hour, making a cost of approximately 6c a plate. One of the plates upon which the punching has been finished is shown at the base of the punch press. From paper read at American Railway Tool Foremen's Association's meeting, by J. J. Sheehan, Roanoke shops, Norfolk & Western Rd.

The Dominion Atlantic Ry. has had prepared a series of films on agricultural operations along its lines. The films, together with projecting machines, operators and lecturers are being offered to farmers' clubs and other organized meetings throughout the country.

Standardization of Tools.

In this day and age, the individual idea should be subordinated to such an extent that we should adopt practices that would give better efficiency, reduce the cost of output and on the other hand simplify the tool situation whenever possible. It has been plainly shown that the adoption of standard practices by the Railway Master Mechanics' Association was a good move. When a standard practice was adopted by that body, it was carried out to the letter on all railroads and considered standard.

In the past eight years the members

practice is to get the tools made to the standard, before starting production, and these tools are maintained to an extremely high standard of accuracy. If this is found to be good practice from a manufacturing standpoint, why is it not a good practice in the railway shops? There is only one solution and that is co-operation and the insistence on the adoption of practical methods and standards.

On the Atchison, Topeka & Santa Fe, in order that we may get the proper results, it has been found very essential that the tools be standardized, and, whenever possible, drawings are made of the tools and then submitted to the tool room foreman, so that they will be made up in a standard way. It is further found advisable that only tools which cannot be secured from the manufacturer for a reasonable price should be made in our tool room. It is not good practice for a railway shop tool room to manufacture tools that can be secured from the manufacturers for the same price or less than it would cost to make them locally. In some shops such tools are made, but I consider it false economy, due to the fact that there is a certain amount of loss incurred by the tool room, and when standard tools are secured from the factory all the possibility of loss is overcome, due to the fact that all tools are furnished in first class condition and free from flaws and defects.

There is a vast difference of opinion between railways in regard to a standard locomotive frame reamer. The greatest difference seems to be in the length over all and in the taper. If a standard length and taper of locomotive frame reamer could be universally agreed on, it would be possible to eliminate the excess cost due to ordering reamers of special type from the manufacturer as well as eliminating the carrying of many different lengths of reamers locally in the tool rooms.

For illustration, on the Santa Fe lines a standard reamer has been adopted, with a left hand spiral flute, and of a standard length that will take care of the maximum and minimum requirements. Heretofore, there were a great number of different lengths which have been eliminated by standardization. By the adoption of the left hand spiral fluted reamer, the breakage has been reduced to about 20%. While using the straight fluted reamer, trouble was encountered due to the chipping out of portions of the flute and also chattering, while now this has all been eliminated, for the left hand spiral retards the reamer to such an extent that it does not gouge or seize, especially while reaming steel frames on locomotives. All our reamers are tapered 1-16 in. in 12 in. and I feel confident that with the proper co-operation of the mechanical heads of the various railways throughout the continent, this point could be agreed upon. This standardization not only pertains to reamers, but also to all other tools and equipment.

The foregoing paper was read before the American Railway Tool Foremen's Association recently, by E. J. McKernan, Supervisor of Tools, A.T. and S.F. Rd., Topeka, Kan. In the discussion which followed, several questions were raised regarding standard forms of reamers. There was some difference of opinion regarding the relative advantage of flutes in the form of spirals having short and long pitches. The majority favored long

of the American Railway Tool Foremen's Association have attended meetings and returned to their respective homes and made reports to their local officers on these subjects but unfortunately they did not get the co-operation that they should have received. As all the tool foremen who attend these conventions receive instructions from their superiors to attend, they should be invested with such confidence that when they make a report to their superiors that a certain tool has met with the approval of the association and been adopted as standard, the higher officers should put forth an effort to put this into practice. If we could standardize the tool equipment on all American railways and use the same methods and practices there is no question that it would eliminate a great deal of the making of unnecessary tools. While I appreciate the fact that the tool room foremen and the superintendents of motive power have a certain amount of self-pride in the making of all tools for their respective railways, nevertheless, the progressive man of today must be able to give and take whenever necessary in order that he may develop a method that will get proper production.

In the automobile industry, where all parts must be interchangeable, the first