the end of the clamp, with the latter fulcrumed.

The set of tools used on the passenger car wheel lathe is shown in fig. 3, which, it will be observed, shows the set for both ends of the lathe. The practice in these shops is to use formed tools of high speed steel mounted on soft steel bodies as shown, with the exception of the roughing operation, performed with a plain forged tool. The first operation with the plain forged tool is to rough to approximate shape, with the two tools like a. The flange is then formed with tools b, the tools being fed in until the correct thread diameter is given on the wider portion of the face of the tool. The treads are then formed with the tools x, feeding in the tread diameter set in the previous operation. The final cuts are made with tools d, heeling the tread, finishing in this operation to the M. C. B. wheel gauge, when the wheels are completed. The production averages about a pair of wheels per hour. With the use of the tools shown, a considerable saving in steel results. The soft steel bodies are recessed on the forward end, into which the high speed steel cutters are set by screws. The tools are ground to shape,

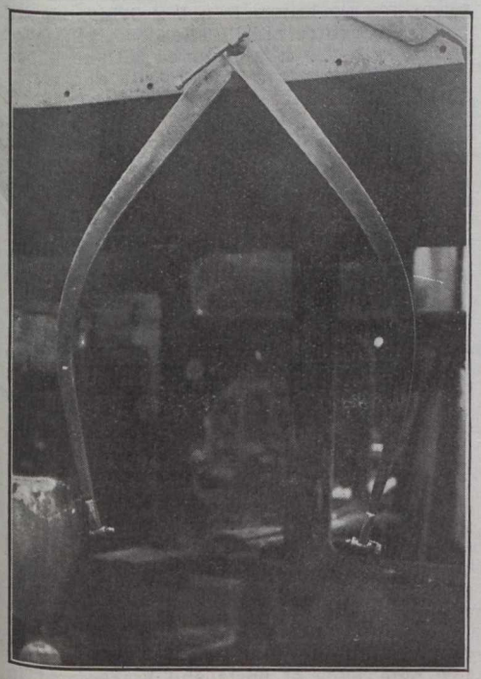


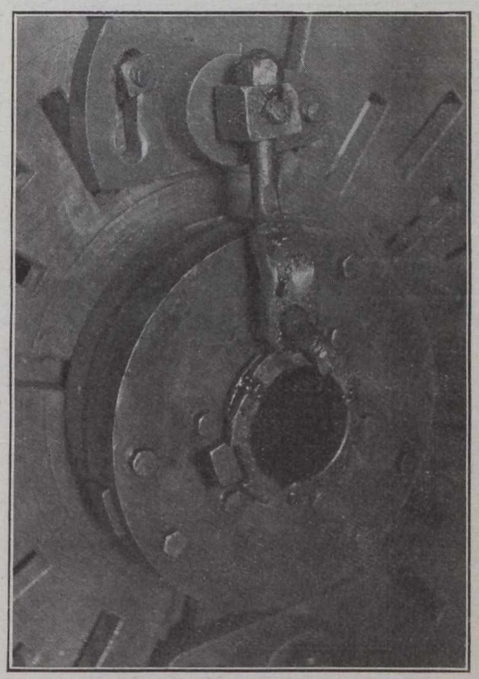
Fig. 4.—Calipers for Passenger Car Wheel Lathe.

and correctly backed off to shape, so that they may be used a very long time with only a grinding on the upper face from time to time.

It was formerly the practice in these shops to caliper all wheels with the pointer from the cross bar above the lathe. This method is accurate if nothing happens to disturb the position of the crossbar. Trouble was experienced on this score, with discrepancies in the diameters of the pair of wheels, with the result that this method has been abandoned for final measurements, the cross bar only being employed for the roughing stages. The calipers used for the final work are shown in the accompanying fig. 4. They consist of two curved arms of the usual shape, secured together by a screw, the latter with a tightening handle for rapid and accurate adjustment. In the ends of the arms are bearing pins, one of which is stationary, with the other adjustable, consisting of a small knurled headed screw with locking nut, passing through the end of the arm. Through this screw final adjustments may be secured. The whole arrangement is very rigid, with little chance for errors to creep in.

Wheel Lathe Driver in Michigan Central Railroad Shops.

The accompanying illustration shows a handy wheel lathe drive as used in the M. C.R. car shops at St. Thomas, Ont. They are used in pairs, diametrically opposite each other on the face plate of the lathe, the driving pin entering the core holes in the outer face of the wheels. Each driver consists of a base casting, bolted to the face plate, and carrying a square headed swivel pin, through the head of which passes a swivel bolt. A pin through the opposite end of the latter passes into the holes in the driving wheel. Such a driving mechanism is handy for wheel work, as so many wheels are placed in and taken out of the lathe in the course of the day that any small saving in time means much in the ultimate economy. From the arrangement of holes in the base casting, the position of the drive may be varied to suit varying sizes of wheels.

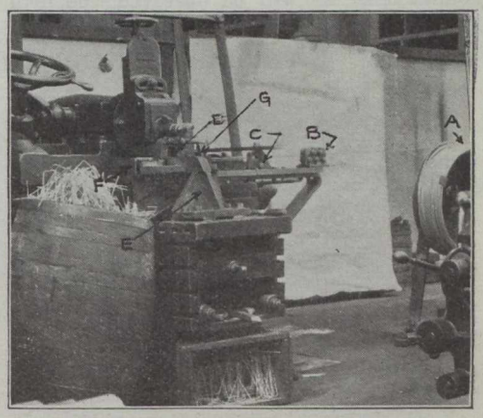


Wheel Lathe Driver.

Automatic Wire Staple Bending Device in Intercolonial Railway Shops.

The accompanying illustration shows a device designed in the Intercolonial Railway shops, Moncton, N. B., for making wire staples on a shaper. The staples made are about 7 ins. long, 2 ins. wide, are made of ⅛ in. galvanized wire, and are used as roof board locks on box cars. By the mechanism shown the staples are formed in a very complete manner at the rate of about 500 an hour.

A shows a holder on which is mounted the coil of wire, the latter on unwinding from coil, passing through a straightener B, which is supplied with 5 steel rollers to straighten and remove all kinks from wire. At each stroke of the shaper head the clutch C grips the wire and draws it forward until the end strikes stop F. At the point G a cutter is placed and so arranged that it engages with projecting arm on shaper head, at each forward stroke of shaper head, cutting the wire at the desired point. E shows the staple former die which is bolted to the shaper table. D shows the former, which is held in the tool post holder, at each stroke of the shaper head, this forms a staple over die E. Upon completion of the staple it drops on the incline plane below and is carried into a receptacle. A barrel which has been filled with these staples is shown on the left. We



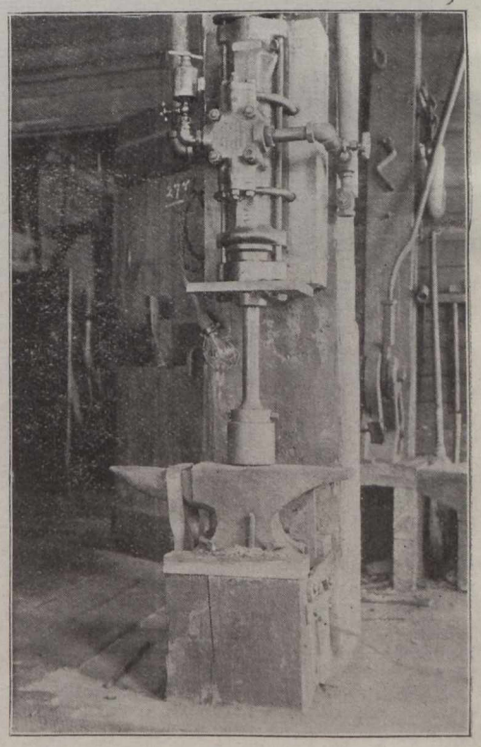
Automatic Wire Staple Bending Device.

are indebted to G. E. McCoy, Assistant to Chief Draughtsman, Canadian Government Railways, Moncton, for the foregoing information.

Air Hammer in a Blacksmith Shop.

By W. S. Bazore, Master Mechanic, Rapid Transit Subway Construction Company, New York.

The accompanying illustration shows an air hammer in use in our blacksmith shop: It consists of an E52 Ingersoll-Rand reciprocating drill, from which the piston has



Air Hammer for Blacksmith Shop Work.

been removed and the chuck turned to a taper to fit the block used as the hammer. The tapered end of the piston is inserted in this block and driven home, using two set screws to fasten it. There is a square plate under the front head, which is not necessary as this hammer was originally used for driving sheet piling. The rotation