A steel tank, 18 ins. diam. by 8 ft. long, is sunk into the ground, with only the upper 2 ft. above the floor level. Across the top of this tank there is a frame carrying a bearing bracket vertically, in which a long brass spindle is carried, this spindle being of such a fit that it may be raised or lowered. On the lower end of this spindle there is attached an offset arm, with an upwardly projecting centre. An adjustable arm of similar design is secured on the upper length of the spindle, but may be adjusted in position by means of a clamp. The centre on this arm projects downwards. It is a sliding fit in the arm, and is held in its lowest position normally by a coiled spring around the lower part of the centre, bearing against a head on the end of the latter.

An oil furnace heats the tap to the requisite temperature, when it is removed, and the tank spindle raised and the tap placed between centres, these latter being first adjusted to the length of the tap to be tempered. Between these centres the tap can be revolved and its truth determined. If out of true, it can be removed for straighten-This is accomplished by the device ing. attached to the cover of the adjacent oil box. A flat loop of bar stock is bolted to the cover of the box and a roller placed in front of the loop. By the combined use of the loop and roller the tap can be bent at any desired place and then replaced between the centres for verification. Once true, the whole supporting vertical spindle is lowered into the tempering bath, with which the tank is filled, where it is kept as long as This vertical spindle is counternecessary. weighted by a weight, and in consequence moves freely. Any length of tap up to 73/4 ft. can be treated. The whole equipment can be placed in the corner of the tool room, out of the way of the general work, and away from the lathes.

end jaws are adjusted in and out by the bolts, which are threaded in the bottom of Four sections of the chuck will the jaw. hold from 8 to 11 shoes. It is said that by the use of this combination, the cost of machining per shoe has been reduced to 4 cents.

The outside angular tools are adjusted to the outside dimensions of the shoe, and the inside tool is made in one piece to the size and shape of the frame fit. A further tool,



Fig. 2.-Gang Tool for Planing Shoes and Wedges.

 $\frac{34}{4}$ by $1\frac{1}{2}$ in. is attached to the outside of the tool holder and is used to plane out the bottom of the shoes or wedges, thereby removing the sand and scale, preparatory to entering the sizing tool. Thus all operations are accomplished in the one setting, and at one operation. The foregoing is abstracted from the Railway Age Gazette, mechanical edition.

Terms and Definitions for Yard Tracks, Canadian Northern Railway.

Following are the terms used by Mackenzie, Mann and Co.'s engineering depart-ment, Toronto, for yard tracks, with their



Fig. 1.-Chuck for Holding Shoes and Wedges for Planing

Planing Shoes and Wedges.

The practice of the Central of Georgia Ry. in the planing of shoes and wedges is somewhat similar to that in the C. P. R. and C. N. R. shops at Winnipeg, especially with regard to the use of the gang tool for The chuck and combination the planing. tools employed are shown in figs. 1 and 2, the combination being such that both frame fit and the outside of the flanges may be planed in one operation. The chucks are made in 4 ft. sections, and as many as possible are placed end for end on the planer, and if the latter has two heads, a double The tool used is shown in row is possible. fig. 2. The shoes are clamped by tightening the nut A on the chuck rod, holding them tight enough to take off any cut. The

definitions, for which we are indebted to A. F. Stewart, Chief Engineer of Construction, and H. E. B. Smith, Engineer of Yards and Terminals:-

AUXILIARY .--- For storing plough or wrecking train.

BLIND.-Stub end for storing cars.

BODY .- Each of the parallel tracks of a yard upon which cars are switched and stored.

DOUBLE .- Two main tracks upon each of which the current of traffic is in a specified direction, and upon the other in the opposite direction.

FAN TAIL.-Stub end for storing cars.

HOUSE.—A track alongside of, or en-tering, a freight house, and used for cars receiving or delivering freight at the house. HUMP YARD.—Switching cars by grav-

ity; track passes over a mound so as to rise to a summit.

INCLINE.-An inclined track, or tracks, on-a river bank at a protected landing place with adjustable apron and cradle, for connecting to the track on a car float, for transfer of cars.

INDUSTRIAL .- A track serving one or more industries.

IN GOING .- For use of locomotives into roundhouse.

LADDER.-A track connecting successively, the body tracks of a yard.

LEAD.-An extended track connecting either end of a yard with the main track. LOOP .- For turning trains.

MAIN.---A track extending through yards and between stations, upon which trains are operated by timetable or train order, or the use of which is controlled by block signals.

OUT GOING .- For the use of locomotives from roundhouse.

OVERFLOW.-Intended for use in case the distribution tracks become filled.

POLING .- Switching by pole method.

long RELIEF.—An extended siding enough to allow an inferior train to continue running.

RUNNING .- A track reserved for movements through yard.

SIDING .- A track auxiliary to the main track for meeting, or passing, trains, limited to the distance between two adjoining telegraph stations.

main track upon which SINGLE.-A trains are operated in both directions.

SORTING .- For arranging the cars of a train in station order.

SPUR.-A stub track of indefinite length diverging from the main line.

STORAGE.-Hold for order cars.

STUB.-A track connected with and other at one end only.

SWITCHING OR SHUNTING LEAD.-A track connecting with groups of sidings to enable shunting to be carried on without running out on the main line.

TEAM.-A track where freight is transferred direct between cars and wagons. THREE OR MORE.—Main tracks upon

any of which the current of traffic may be in either specified direction.

TRANSFER SLIP.—A protected landing place for car floats with adjustable apron or bridge for connecting the tracks on the land with those on car float.

Y.-A triangular arrangement of track⁵ used for turning locomotives, cars, or train5.

SPECIAL.-In a typical yard there will be several tracks devoted to special purposes, varying with local conditions. These will include caboose tracks, scale and coaling tracks, ashpit tracks, sand tracks, icins tracks, feed tracks, stock tracks, transfer tracks, depressed tracks, etc.

The C.P.R. Pension Fund, which was tablished in 1903, has now 605 men on its payment list, 73 being under 60 years of age, 294 between 60 and 70 and 238 over 70. The payments last year aggregated \$169. 326, all of which is borne by the company. the men contributing nothing. No pension is less than \$20 a month.

Tests have shown that economy results from the better utilization of the coal in the modern locomotive than in the older types, as the range of temperatures at which the locomotive works, that is, the difference between the temperature of the furnace and of the stack with the long tube locomotive is greater.

In a locomotive boiler, the distance from the water level, measured at the top gauge cock to the outside of the largest course, equals the diameter of the largest course multiplied by 0.15.