

Tractor Transmission may be Further Improved

By E. R. GREER

WHEN we speak of a tractor transmission, we generally mean the entire power transmitting device, from the engine to the ground, and including the pulley for belt work. Tractor transmissions are still in an early stage of development. They are composed of a number of groups of parts that are arranged differently in nearly every case, so that they cannot be classified without dividing them or making a special class for nearly every tractor now being manufactured.

There are differences of opinion among tractor men regarding many of the most vitally important features of tractor transmissions. Some believe in rough open gearing and large plane bearings as opposed to those who insist on cut hardened enclosed gears and anti-friction bearings.

The question of wheels for traction vs. the caterpillar is far from settled. The right size of wheels for wheel tractors seems to be further from being agreed upon than anything else, and it is one of the most fundamentally important things in tractor design.

The design of a tractor transmission is effected greatly by the design of the wheels or caterpillar tracks which are to give the traction. The matter of traction is of first importance to successful tractor, and it is right here at this point that opinions differ widely. The transmission design is largely effected by the decision as to the kind of traction to be used. The caterpillar with its large surface contact has an advantage on marsh land or sand where the top soil is tougher than the ground beneath. But it is a disadvantage when just after a rain the ground is muddy on top and hard-

er below. It can bridge a small ditch but becomes blocked by one too large to bridge, and side hills or side draft cannot be taken care of as efficiently as when wheels are used.

Wheels which are simple and not very expensive must be of sufficient size and provided with lugs to give good traction. For if a tractor wheel once starts to dig, it will not climb out of its hole unless the load is released. On smooth hard ground a very small wheel gives efficient traction, but on newly plowed sandy soil or on land where there are washed out ditches, a large wheel must be used. The matter of suitable lugs is of utmost importance. On some kinds of ground a spiral cleat at about a 45-degree angle will give double the tractive effort that can be obtained from the same wheels with straight cleats or spikes.

For efficient general farm work with wheel tractors of 8 to 15 draw bar work horse-power, the drive wheels must be five feet in diameter or more, and the problem of the best way to drive the wheel is very important. The effort being applied to the ground, it follows that the rim is the natural place to apply the power, but the rim runs right in the dirt so it is necessary to take some point far enough from the rim to be protected from the dirt. If the drive is carried clear to the axle the torsional strains become very severe and good construction expensive and difficult. From all indications "The Enclosed Internal Gear Drive" is likely to become the standard traction wheel drive.

The next important item is the location of the drive pinion. There is one best location, and that is a



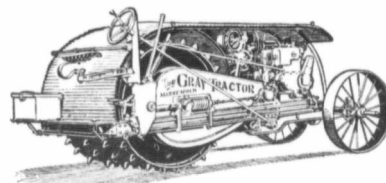
Medical Officer: "My, yes, it's a rather ugly looking carbuncle; nothing serious, but just keep your eye on it."



The Gray does work no other Tractor can do, and on account of its Wide Drum Construction is light in weight, easy on fuel and can pull four plows through any soil.

NO DIFFERENTIAL—NO BEVEL GEARS

Over three-fifths of all Tractor Troubles are in the differential or bevel gears of the transmission. The Gray uses neither, yet turns short and works perfectly.



Exclusive Gray features are the Wide Drive Drum and the side arm hitch—two practical features that every farmer will appreciate. Every feature of the Gray is high class—built for wear, strength and service.

Write for free 50-page Booklet to

GRAY TRACTOR CO. of CANADA Limited

307-309 Electric Railway Chambers, Winnipeg

Are You Going to Build?

We furnish lumber of all descriptions in car lots, shipped anywhere at sawmill prices

WRITE TO-DAY FOR PRICE LIST.

We design and furnish plans for farm buildings, houses and school buildings, etc.

Put your building problems up to us.

Davies Construction Company
Vancouver, B.C.

RAW \$ FURS

ALBERT HERSKOVITS & SON



ALBERT HERSKOVITS & SON

Get the Dollars

We want all kinds of furs and we are prepared to pay highest market prices for them. Ship to us at once. Price lists and tags free. Write for yours now.

We pay Express and Mail Charges

H. YEW DALL, Mgr. 273 Alexander Ave., Winnipeg

Albert Herskovits & Son, 44-50 W. 28th St., New York

Representatives: Any Bank or Mercantile Agency London Paris Moscow

\$ Highest Prices Paid for 'BEEF HIDES, SHEEP PELTS & SENECA ROOT.