

then you will wonder that our tractors last as long as they do. We must make things easier to do than we ever thought possible. We have got to study the matter of tools to go with the tractor, how to chain them, on to the tractor, so the farmer cannot use them for fixing the binder or the pump. We must print on the handle of that tool what it is to be used for. We made two sets of tools for our little farm lighting system. On one the names of what that wrench had to do were printed on its side; on the other there was nothing printed. The farmers never use a spark plug wrench once in a hundred times to take the spark plug out. They could not get the engine apart because they would pick up the wrong tools. Simply putting the names on the sides of those wrenches and tools has saved us worlds of trouble.

Simplified Instructions

The next thing the engineers should do is to write and help write for the sales' department a real simple commonsense instruction book, and it cannot be seventy-two pages long, because no one will read it. The place to write the instruction book is right on the tractor. If a certain kind of oil is required, print right on the tractor, "Use this oil here," and don't print it in such little letters that the grease and dirt will cover it up, because the man who reads the directions may not be the one who will operate the tractor. The instruction book is not inherited down the line as is the tractor. Therefore, it is important that the instructions go with the tractor.

There is one thing in the tractor that is not true about the automobile. A tractor pulling three plows in heavy soil doesn't coast most of the time. And while a lubricant system may be fine on the automobile engine, it will not work on the tractor. The atmosphere is not so very clear, especially if the tractor is traveling

four miles an hour and a wind of four miles an hour is blowing in the same direction. The problem is a new one; we must go at it in a new way, and get many new angles on the situation.

Farm Implements Will be Improved

But there is a wonderful prospect in the mechanical tooling of the American farm for the tremendous work that it has to do.

But with the tractor coming on we must build better farm implements, and they will do for the farm implement business just what high-speed steel did to the automobile business.

I was talking to a certain-plow manufacturer, and he told me, "We made a great improvement in our plow last year. We put a roller bearing in the roller coulter." I said, "Well, didn't that add a lot of expense to your plow?" "Oh, well," he answered, "We didn't mind the expense of the bearing so much, but we had a devil of a time to cast the holes in the bearings smooth enough for the roller bearing to work in them." "Well," I asked, "how did you do it?"

He said, "We couldn't do it; we had to use a file. So I inquired, 'Why didn't you put in a big drill press and ream the holes?' He replied, 'We can't afford to do things like that on farm implement work.'"

In the tractor development work we must make sure we do not get to making an inferior type of apparatus. The tractors that are standing up are not the cheapest tractors. The tractors that are giving good service are not necessarily the highest priced tractors, but we have to study this problem, as we have never studied any problem, because the farmer who has put eight hundred or a thousand dollars into a tractor, is making a tremendous investment, and if the tractor doesn't do what he expects of it we will hear from him, and he will complain a great deal.



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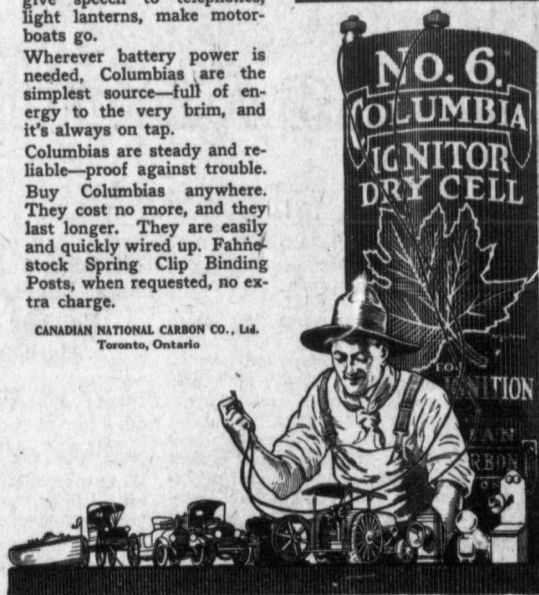
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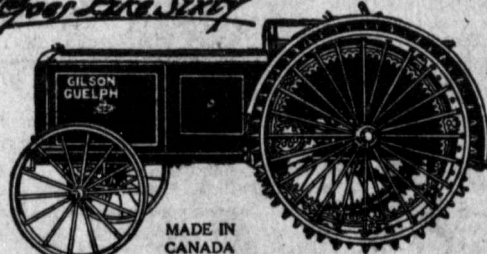
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