



Showing Simplicity and Accessibility of gearing. Removing the body. Housing exposes the gearing and lower bearings of the Simplex.

So Simple  
So Easy to Run  
So Easy to Clean  
So Perfect in Skimming  
So Quick in Separating

Would you milk 22 cows twice a day for 15c. Well hardly. But a "B-L-K" is doing it for Mr. Wm. Kaufmann, Tavistock, Ont., and in less than an hour at each milking too.

If you'll drop us a card we'll gladly send you literature covering any or all of our line.

## D. Derbyshire & Co.

Head Office and Works - BROCKVILLE, ONT.  
Branches: PETERBOROUGH, Ont. MONTREAL and QUEBEC, P. Q.  
WE WANT AGENTS IN A FEW UNREPRESENTED DISTRICTS



## The Strength

of any Farm Paper is of three parts,—wide circulation, strong editorial influence and a wealthy class of readers.

The possession of all three qualities in large measure is the source of power of your advertisement in the regular issues of

## Farm and Dairy

Our New Rates take effect August 1st. Better send in your Contract early, in order that you may be protected for one year at our present low rate.

## Would You Buy Anything But The Best?

Certainly not. Then why hesitate any longer in deciding in favor of

### A "Simplex" LINK BLADE Cream Separator

or a

### "B-L-K" Mechanical Milker

Here are several of the features embodied in a "Simplex"—

So Pleasing in Appearance  
Self Balancing  
Seldom out of Repair  
Soon Pays for Itself  
LASTS A LIFE TIME



### Can a Woman Run a Gasoline Engine?

H. P. Blanchard, Hants Co., N.S.

WHY do you read it? Of course she can! And now I hear the young lady, who would rather go to school another year than stay at home and help wash dishes, say— "Certainly she can; for a man can run an engine; a woman can run a man (if the man does not run); therefore, a woman can run an engine. Q. E. D." Another young lady also vehemently affirms the fact, for she would blow ourselves to pieces. Next thing you will expect us to run the binder. But truly, Mother, it is easier to run a gasoline engine than to manage that big kitchen range of yours and turn out that lovely flakey white bread, just done exactly right and never a fail.

BREAD MAKING VS. ENGINE RUNNING. Think that in making that loaf you have carried out a complex chemical operation, transforming starch and the like to their co-relative materials; utilized the science of bacteriology to cause the carbon dioxide which creates the heavy dough to "rise"; a most complex experiment. And you think you cannot run a little gasoline engine.

One day I brought home and put in the back kitchen a little 1 1/2 H.P. motor. It was to drive a power washing machine. The young woman who was to run it had never before seen an engine. When it was all ready I started it for her, showed her the levers that ran the washer, how to pull a little switch to stop the engine and left everything running nicely. When I returned before dinner, the wash was on the line.

A GOOD START ENDS WRONG. Next Monday I showed her how to throw in the switch, put a few drops of gasoline into the air opening (to prime the engine), and then told her to take hold loosely of the handle on the fly wheel, turn it round twice and let it go as the engine pulled and it would start. Sure enough, it started all right; and to the tune of its tip-tap, tip-tap-tup-tup, I went cheerfully out of hearing. When I returned for dinner, there was no line full of clothes, but the young lady, good and cross, and finishing up on the wash tub.

Alas! I had started that engine with only a few drops of gasoline; and for want of fuel it had stopped. That never happened again. I need not say. Finally, I concluded that the longest was the shortest way, and there and then sat down and gave a lesson on engineering to that young lady.

THE MECHANISM OF A GASOLINE ENGINE. Imagine a tube, with a plug sliding into it. A crank on the axle of the engine shaft will cause this plug to go in and out of the tube as the shaft is turned, or, reversely, the going in of this plug (or piston) in the tube (called the cylinder) causes the crank to turn the shaft and the belt

wheel on it. By a system of valves little doors opening from the inner end of the cylinder, gas is allowed in, and smoke is let out. Now these are so arranged that, as the piston begins to come out of the cylinder, one valve opens and lets in gas. The wheel continues to turn, the crank starts ultimately to push the piston back in to the cylinder to its limit; and, the wheel continuing, would again commence to pull the piston out again.

But just at this instant an electric spark is made to burn in where the gas is; the gas is exploded and violently pushes against the piston, driving it out against the crank and giving more speed to the shaft. Just as the piston reaches its limit and will begin to move back, impelled by the crank driven by the flywheel, another valve opens, and lets out that explosive gas with a bang. The piston returns and pushes out this dead gas, the valve shuts again and the first one opens when the piston is in to its limit; and the process of sucking in a whole charge is repeated. This is a nice process; a charge of proper gas, an electric spark strong enough at the right instant to explode the charge.

HOW TO FEED THE ENGINE. Now, strange to say, "more gasoline more power" is not true. Pure gasoline vapor will not explode at all. There must be mixed with it a certain proportion of air; too much makes a smoky explosion, if any, too little a sickly explosion, if any. It needs a little art to discover just how much air; and in summer a little more can be admitted than in winter.

Follow the directions that come with the engine, and also watch the smoke. A smoky exhaust means too much lubricating oil or too much gasoline, usually the latter. But this is easier to judge than when bread has properly "rised."

The next thing is the spark that ignites the charge, and, first, don't monkey with that big thick wire where the switch is closed.

A STUDY OF THE ELECTRIC SPARK. Just sit down and study the electric outfit. The current, the electric force, is made in these round cells or batteries. There are two kinds. Suppose you joined them with a wire. The current would come up through the carbon, along the wire, down into the zinc, through the cell interior and so in a circle. It goes just one way. Join two cells, each one of one volt, carbon of the one and zinc of the other, the same force or voltage; but the same in quantity or amperage. If you joined zinc to zinc, and carbon to carbon, you have one kicking against the other; no power. So watch this in joining cells.

Then in your outfit you have a wire that buzzes. You notice your wire lead in and out again of 'em as also a big third wire goes from the coil to the spark plug. The result is do as much work as five volts of current, turning your five volts into

HOW THE SPARK HAPPENS. Now notice the plug. The electricity in the big wire goes to the interior of the porcelain to be kept and down through clean porcelain cannot escape through clean porcelain or mica. It would like to get out or plug tip into the big metal of the engine. But this is a little at the end of the plug, just big enough for the electricity to jump; and when it jumps, it makes a very hot spot where the spark explodes the gas in which the engine machinery turns.

If there was a short cut for the electric current to take; for instance, rust coated on the porcelain in a bit of dirt or drop of oil on the tip, it would of course take the

(Continued on page 39.)



W. W. W.

Trade Increase

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THE harder necessary of power to farmer who has kerosene engine. He may start by pumping and pouring. As time goes on well run the warehouse, churn, horse power, grinding grain, wood and running engine cutter. Farmers who had moderate ideas the gasoline engine their houses with electricity power.

Right here is a purchaser of a serious mistake, that may be large they have in mind thinking of the future for the engine from actual experience and conventional out of 10 it will purchase an engine that at first you find that a large work as easily as realizing the engine them. And of course large engine investment do as much work as steadily the increase.

A question which prospective engine the dollars and cents of farm? It depends a question. It does and the number of put. I have, however, relations made by Ontario Co., Ont., about the size that in making his estimate help with \$1.50 a day. His outfit for his life at 15 years, one hour a day or so can be seen that to \$20 a year, or