

FIG. 2.—ELECTRIC GENERATOR.

[FOR THE DOMINION MECHANICAL AND MILLING NEWS.]

TREATING MIDLINGS BY THE LONG AND SHORT SYSTEMS.

By XXX.

THERE has been of late considerable talk and opinion expressed among the milling fraternity as to the merits of a shorter system of milling than has usually been adopted by the better class of mills that were erected when roller flour was in good demand and margins better than at the present time. There are many diagrams published in the milling journals showing the separations and the different ideas in regard to handling the material, and all claiming that good results can be obtained with a less number of reductions, and that a saving can be made in the first cost of the plant and the power consumed. Of course, if such were the facts, there would be a great inducement for millers to adopt the short system in preference to the long one; but, thus far, the mills that have been fitted up on the short system have not produced the results that the public was led to expect from them. When we consider the two systems, there are many faults and objectionable points to be found in the short system; and the greatest objection is concerning the manner of treating the middlings. And even if middlings are in good shape coming from the scalping reels after each break, if they are not then properly dusted, graded, purified, reduced and separated into flour, the mill cannot do good work.

In the short system, the middlings are taken from all the breaks and sent to a dusting reel, and after the break flour is dusted out, the material that passed over the tail of the reel is sent to a purifier, where the finest are drawn off for to be reduced to flour, and the middlings that pass through the coarse cloth on tail of purifier are sent to the so-called (in this system) sizing rolls, and the tail of this machine to bran rolls, or to the feed bin.

As the system is short, the number of machines limited at each reduction, there must be heavy pressure used to make as much flour as possible, and not allow

most short system mills produce a large percentage of poorly dressed low grade, which will bring on the market but a small advance over the price of feed. If the miller, in order to reduce the amount of low grade flour, sends the same into the family flour, he then has a product about as good and no better than a good grade of flour made by using the burrs.

In order to shorten up the system as much as possible, some millers advocate the use of a stone or scratched roll on the middlings from the purifier. The practice is a bad one, as, when using a limited amount of machinery, the middlings are not pure; and the action of a stone or scratched roll on such stock will grind the impurities up, and they cannot be again separated from the flour; and again, as the sizing of the middlings has in this system been done in a crude way, there are particles of germ left with the middlings, which are reduced and go into the flour.

To sum up the short system, we find that we have an ordinary grade of family flour, a large percentage of low grade, heavy feed (hence a poor yield), and a system that, at the end of the year, has made no money for the party that operates it, the only saving being in the cost of a few machines to carry out the different separations.

In the long system of milling, the middlings can be taken from the first four breaks and sent to the dusting or grading reels, the material that passes over the tail of the first reel being sent to the aspirating purifier, and then to the sizing rolls. After the middlings have passed between the sizing rolls, which are set with light pressure and very little differential, they should go to another set of dusting reels, which are to be clothed so as to take out all the flour that was made in sizing, and grade the middlings again, as there will be some midds. from the operation that are pure enough to reduce on the smooth rolls without purifying, the larger and impure middlings

to go on another set of purifiers to be cleaned, and the tail of same to be sized again. When the middlings are cleaned and in shape to be treated on the smooth rolls they should be passed through the rolls with light pressure and more differential than is used in sizing. After each reduction, dust, grade and purify up to the fourth grade of middlings. In this way, the impurities can be removed, and the grade of flour will be good from each separation, while the percentage of low grade flour will be small,

as the good stock has been reduced and sent to the packer before commencing the work on material for the low grade rolls. The middlings from the 5th and 6th reductions, after being separated from the other materials on the scalping reels, should be sent to a dusting and grading reel especially clothed to handle such stock, and then to the purifier clothed to clean such stock. The reason for not sending this grade with the four first breaks is, that the last break rolls, being set closer, their middlings are finer and not in as good shape to purify as the other grades, and will waste more under a strong suction. After being purified, this grade should be sent to the smooth rolls running with more differential motion than those working on the better grade of middlings. The writer's opinion is that centrifugal reels are the best for taking care of this material after it has been reduced. As the material is softer and flattened out in the former reduction, the action of the centrifugal tends to round up the product, and prepare it for the following reductions and separations.

Now we find, by comparing the work done on one part of the material in the two systems, that the results obtained for the long system are very much better than those from the short one—that in the long system we have a large percentage of good flour, a small percentage of low grade, and a close yield. In the short system we can see nothing but the opposite results, and we are of the opinion that millers will find, after trying the short system, that their mills are not complete—that they need more machines and more separations, and that a poor mill is poor property at any price.

In the future the writer will endeavor to illustrate the difference between the two systems by publishing some diagrams showing the separations on each system.

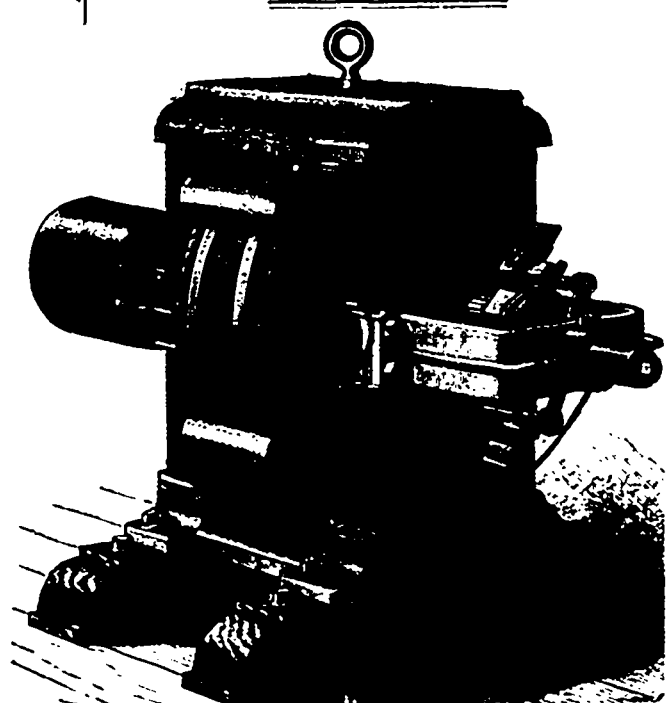


FIG. 3.—ELECTRIC MOTOR.

IMPROVED PUDDLLED IRON AND STEEL.

Job Gilligan, a forge manager in Mammoth county, England, is the inventor of an improved method for the manufacture of puddled iron and steel which consists in submitting the molten metal in the puddling furnace to the action of a blast air. The action of the blast upon the molten iron or steel, as is well known, purifies and refines it, and he constructs his furnace in such a manner that the process of refining and puddling may be carried on simultaneously. In carrying out his invention in practice he constructs a puddling furnace having one or more holes in the breast or front or in any other suitable part such as the back or sides through which the blast is introduced to the molten metal, and he thus dispenses with the use of the ordinary tuyers for conveying the same. As soon as the iron or steel begins to sink to the bed of the furnace, the blast is shut off and the iron or steel is made into balls and removed from the furnace to the hammers or squeezers as the case may be.

We are indebted to the *Napanee Express* for the following flattering notice of this journal:—The exhibition number of the DOMINION MECHANICAL AND MILLING NEWS is an exceedingly fine one. Full of useful information and neatly gotten up, it is a number worthy of preservation by the milling fraternity.

The superabundance of wheat harvested during the last two or three years reduced the price to a figure that left little or no margin to the producer and exporter. This year, however, crops are short in almost all wheat growing countries, and there would seem to be good ground for the belief that we shall before long see an advance in prices.



FIG. 4.—WINDSOR, ONT., ELECTRIC RAILWAY.