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MANUAL PREVIEW

J.I. Case

Service Manual

Grain Threshers

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CA-S-THRESHER

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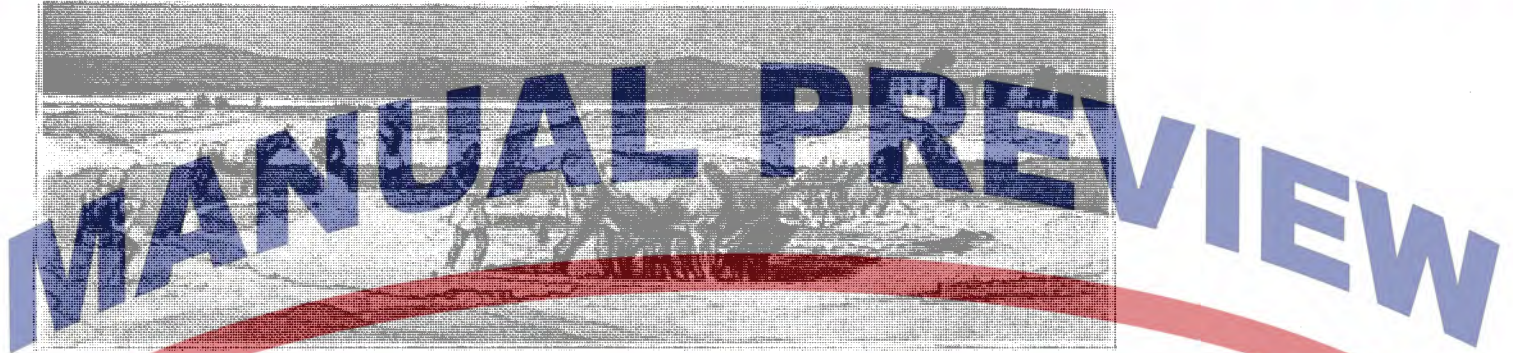
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THRESHING

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That which required hours to perform
and the toil of many men and animals is
now accomplished in a few minutes by a
few men, with ease and comfort, all be-
cause of the development of Modern
Machinery.

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CHAPTER I

Threshing

Threshing is one of the most important operations in the production of grain. In this operation the entire crop of grain raised by the average farmer—the product of a whole year's labor is handled several times by the threshing crew and put thru the threshing machine in one day. In this brief time about one-fifth of the total man labor required in producing the grain is expended and about one-tenth of the horse labor, when grain is shock threshed. The responsibility of the thresherman who is in charge of this machinery and crew is, therefore, a big and an important task.



Fig. 1. Flail Threshing

The Grain Thresher

The modern grain thresher is a wonderfully efficient machine and when properly operated and given reasonable care it is durable and perhaps more nearly perfect in its operation than any other machine used on a farm. The grain thresher not only threshes, separates and cleans the grain thoroughly, but accurately weighs it and delivers it into bags, the wagon box or granary and the straw is delivered in a stack or into mows. All these processes from the time the sheaves are delivered into the feeder are accomplished in about 30 seconds.

With the modern machine one man accomplishes more than thirty men did in the days of the flail and the work is performed better and with less waste of grain.

The Thresher Parts

The first step in the process of threshing grain is to loosen the kernels of grain from the straw and this is accomplished by means of the cylinder and concaves which may be called the threshing apparatus. The next step is to separate the grain from the straw which is the function of the straw rack. Finally the chaff is removed from the grain and the grain is cleaned which is accomplished in the shoe. Thus the machine itself may be separated into three component parts and these parts will be taken up in this book in their logical order as follows:



Fig. 2. The Process of Separation

Threshing Apparatus

- Cylinder
- Concaves
- Teeth

Separating Apparatus

- Grates
- Beater
- Straw Rack
- Grain Conveyor

Cleaning Apparatus

- Conveyor Sieve and Extension
- Shoe
- Sieves
- Fan
- Tailings Elevator

In addition to the threshing mechanism itself all machines are equipped with some attachments such as

- Feeders
- Grain Handlers
- Straw Stackers

CHAPTER II

The Threshing Apparatus

The first step in the process of threshing is to loosen the kernels of grain from the straw and this is the function of the cylinder and concaves. This is accomplished by the cylinder teeth striking the grain with sufficient impact to shatter the kernels from the head. This action is assisted by the concave teeth which project between the cylinder teeth in such a way that the grain heads are knocked against these stationary teeth with great force. Experience

has shown that the best results are obtained when the teeth travel at a certain speed depending on the kind of grain being threshed. For the small grains such as wheat, oats, barley, etc., a circumferential speed at the tip of the teeth of slightly over 6200 feet per minute has been found to give the best results. This means that a machine having a cylinder $31\frac{5}{8}$ " in diameter must be run at approximately 750 R.P.M. Machines having smaller cylinders must be run at a higher speed to obtain the same tooth speed. The size of the pulleys on the other parts of the machine are so proportioned as to give them the right speed to function properly.

Fig. 5. The Process of Threshing

Cylinder Speeds

The following table gives the normal cylinder speed in R.P.M. at which Case separators when equipped with the regular pulleys should be run.

Case	9 Bar	$21\frac{3}{4}$ "	Cyl.	1100 R.P.M.
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"	12 "	$22\frac{1}{4}$ "	"	1075 "
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"	20 "	$31\frac{5}{8}$ "	"	750 "
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It is very important that the proper cylinder speed be maintained if good work is to be expected. (See Page 7).

Effects of Improper Speed

The speed of the separator should be frequently observed to insure best results. If the cylinder speed is too slow the grain will not be properly threshed from the heads and the separating and elevating mechanism will not have sufficient motion to do good work. If the speed is too high cracking of grain will result; the straw will be cut up too much which will interfere with the work of the sieves and shoe, and grain will be wasted