

A string of Frost & Woods in a field of Alberta Red.

In 1808, Mr. Salmon, of Woburn, invented the reciprocating cutter, which acted over a row of stationary blades. This machine combined reciprocating and advancing motion for the first time. The delivery of the grain was unique in the fact that the vertical rake actuated by a crank swept the grain from the platform upon which the grain fell after being cut.

In 1822, Henry Ogle, a school master, of Remington, in connection with a mechanic by the name of Brown, designed and built a machine which is worthy of mention. The use of a reciprocating knife had been hinted at by Salmon, but Ogle made it a success. This machine also had the first reel used, and was provided with a dropper. Accounts are not specific, but it is thought that the operator for the first time rode upon a seat.

The next machine was the most successful up to that time (1826). Patrick Bell, a minister of Cannysville, Forfarshire, has the honor of designing it. His machine has oscillating knives, each of which were about 15 inches long and about 4 inches broad at the back, where they were pivoted and worked over a similar set of knives underneath like so many pairs of shears. The rear ends of the movable blades were attached to an oscillating rod connected with a worm flange on a revolving shaft. It presented a new idea in having a canvas moving on rollers just behind the cutting mechanism, which carried the grain to the one side and deposited it in a continuous swath. Bell also provided his machine with a reel and inside and outside dividers. His machine marks the point when the development of the reaping machine was practically

turned over to Americans. It never was very practical because it was constructed upon wrong principles, but nevertheless it was used in England for several years until replaced with machines built after the inventions of the Americans. Hussey and McCormick.

Beginning with the year 1803, a few patents were recorded before Hussey's first patent, which was granted December 31, 1833. These were not of any importance, since they did not add any new developments and were not practical. The only one which gave

and used before Hussey's, whose machine had the priority of the date of patents.

Hussey's first machine was indeed a very crude affair. It consisted of a frame carrying the gearing, with a wheel at each side and a platform at the rear. The cutter was attached to a pitman, which received its motion from a crank geared to the main axle. The cutter worked in a series of fingers or guards and perhaps approached the modern device much closer than any reaper had up to this time.

McCormick's machine was pro-

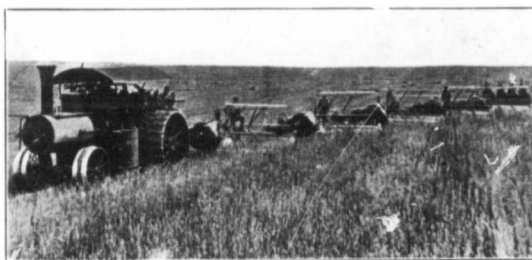
for them the honors for the first successful reaper. Hussey did not have the energy and the perseverance, and hence lost in the struggle for supremacy which followed. At first the honors were evenly divided. In 1878 McCormick was elected a corresponding member of the French Academy of Science upon the ground of his "having done more for the cause of agriculture than any other living man."

Palmer and Williams, July 1, 1851, obtained a patent for a sweep rake which swept the platform at regular intervals, leaving the grain in bunches to be bound.

The next invention of importance was that of C. W. and W. W. Marsh, of Illinois. A patent for this was granted August 17, 1858, and gave to the world the Marsh harvester. This carried two or more attendants, who received the grain from an elevator and bound it into sheaves. The two Marsh brothers in connection with J. T. Hollister, organized a company which built 24 machines in 1864 and increased the output each year until in 1870 over 1,000 machines were built. This company was finally merged into the Deering Harvester Company.

George H. Spaulding invented and was granted a patent on the packer for the modern harvester, May 31, 1870. This invention was soon made use of by all manufacturers. John P. Appleby developed the packer and added a self-sizing device. He has also the honor of inventing the first successful twine knoter. The Appleby knoter, in a more or less modified form, is used on almost every machine to-day.

Jonathan Haines, of Illinois, patented, March 27, 1849, a



Five binders in a string, and a Reeves' steam tractor furnishing the power.

much encouragement was the invention of William Manning, of New Jersey, patented 1831. Manning's machine had a grain divider and a sickle which were similar to those used later in the Hussey and McCormick machines.

It was in 1833 when Obed Hussey, of Baltimore, Maryland, was granted his patent which marks the beginning of a period of almost marvelous development. Though Cyrus B. McCormick was granted his first patent June 21, 1834, it is claimed that his machine was actually built

with a reel and an outside divider. The knife had an edge like a sickle and worked through wires which acted for the fingers or guards of Hussey's machine. The machine was of about 4½ feet cut and was drawn by one horse. The grain fell upon a platform and was raked to one side with a hand rake by a man walking.

One of the two machines, perhaps Hussey's had the more valuable improvement and it was nearer the device which proved to be successful later. Friends of both these men claim



A field of oats being made ready for the thresher by a Frost & Woods.