

is formed of an upper and a lower piece, leaving barely space for the blades to pass through. The points or spikes being steel, and case hardened, standing forward of the blades upwards of two inches, form a complete protection to them, so that there is no danger whatever of breaking or injuring them by coming in contact with stumps, stones, or other hard substances. The blades occupy three inches each on the rod, so there must be as many spikes as blades. The crank which moves the rod on which the blades are attached, has a sweep also of three inches, thus causing all the blades to operate at once, and making each blade vibrate between the spikes for every revolution of the crank. As the blades pass out of one spike into the other, the grain is cut as it comes in between the spikes, something after the style of cutting with shears. The spikes being double, or having an aperture for the ingress and egress of the blades, form a bearing to resist the straw or substance to be cut, both above and below the blades, and therefore, the cutting power of the machine is somewhat governed by the speed of the horses. As the machine moves forward, the motion, where the grain stands thick and heavy, causes the heads to fall backwards on the platform, and when sufficient is cut for a sheaf, the raker pushes off the grain in sheaves or heaps for binding. The raker sits with his face towards the side of the platform, and when sufficient is on for a sheaf, he makes a motion pretty much as a man would in paddling a boat, and shoves it off behind the machine, and directly in its track. The binders follow, and as fast as the sheaves are bound, they are removed a little to one side to make a clear track for the horses. Although the wheat or other grain to be cut may be very heavy, there will be no difficulty in raking it off in separate bundles, and the space of ground between each will be perfectly clean; indeed no system of cutting grain can be more perfect, and the

grain will be delivered in bundles for binding much more perfectly than could be laid by the most experienced reaper. It has already been said that the motion made by the operator on the machine very much resembles that of a man paddling in a boat; where the grain is light this motion will have to be kept constantly up to prevent it from falling forward, and thus the machine would be choked. When the grain is heavy, if cut at the base, its own weight will incline it backwards on the platform, but just the opposite is the case when the grain is light.

To remedy this evil a reel may be attached, such as is used on McCormick's machine, and by its use the man sitting on the machine will have only to watch until sufficient is on the apron or platform for a sheaf, and by a slight motion of the rake it will be shoved off the machine. The reel, being the invention of another, cannot be used by Mr. Hussey, but in this country that restriction is inoperative, neither machines being patented. The writer has used Hussey's machine with and without a reel, and has cut very light as well as exceedingly heavy grain, the latter being laid perfectly flat to the ground, and twisted and twined in every direction, but not so as to even slightly affect the efficient working of the machinery, and he is prepared to give unqualified approval of the reel in light grain, but would consider it perfectly useless in heavy or lodged grain.

This machine is quite durable, not requiring an average of five shillings per annum to keep it in repair, and it may be made with care to last twenty years. A machine cutting a swarth of six feet in width, will cut without difficulty, an acre and a quarter of heavy wheat per hour, and the five foot machine will cut easily an acre per hour. It requires two horses to propel the machine, a boy to drive, a man to attend it, and four binders and a shocker to keep up to it. It is quite within the mark to say that twelve acres is an average day's work with the machine, and in some cases even as high as twenty acres have been cut in a day with it. The horses may almost trot with it when the grain is in good condition for cutting, and of course the faster they travel the more grain will be cut.

MCCORMICK'S REAPER has been before the