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Self-Raking Reaper.

The annexed engraving is a perspective view of the Automaton, or Self-raking Reaper of Jearum Atkins, of Chicago, Ill., for which a patent was granted on the 21st of last December. This Self-raking Reaper is on exhibition at the Crystal Palace, in the gallery near the east end, in the Agricultural Implement Department. The inventor is a millwright by trade, and a very ingenious man. About three years ago, while residing in Will County, Ill., and when confined to his couch by a severe fall, an opportunity was given him to examine, from his bed, the first reaper brought into his neighborhood. A farmer who was present, knowing his inventive skill, said, if he could only attach a raker to it, he would make his fortune. This remark awakened his attention and excited his ambition. On his bed he planned and invented every part of his improvement before ever a single piece of his model was put together. For ingenuity, his raker does him great credit.

The rake, Q, in the engraving, is operated so as to draw the grain, when cut and laid on the platform, from the left to the right hand side, then take a half rotary turn, lift out the gathered wheat, and lay it on the ground, behind the machine, move over to the left hand side of the platform again, and perform the same operations.

Description of frame—*a a*, are two long wooden hounds, joined together at their forward ends, and attached by an iron bolt to a pair of front wheels, like those of a common wagon, to the tongue of which the horses are attached, for working the machine. To the under side of these hounds, the sills are secured, to support the platform, made of boards and sheeted with zinc, on the upper side of which the grain falls, and remains until a suitable quantity is collected for a bundle. *C C* are two posts, framed into *a a*; these posts are well braced, and support the machinery. *d* is a long iron bar, secured to the posts by iron straps; this cross bar extends over the whole platform, and is united to the brace *o*, which stands upon the platform, and is supported by another brace, the foot of which is framed into one of the sills. *n'* is a brace secured to *o*; it is adjustable at different heights. *n* is a bar in which the axis, *m*, of the reel works. *l l* are the arms of the reel. Owing to the bar, *n'*, being adjustable, the reel can be elevated or lowered, for grain of different heights.

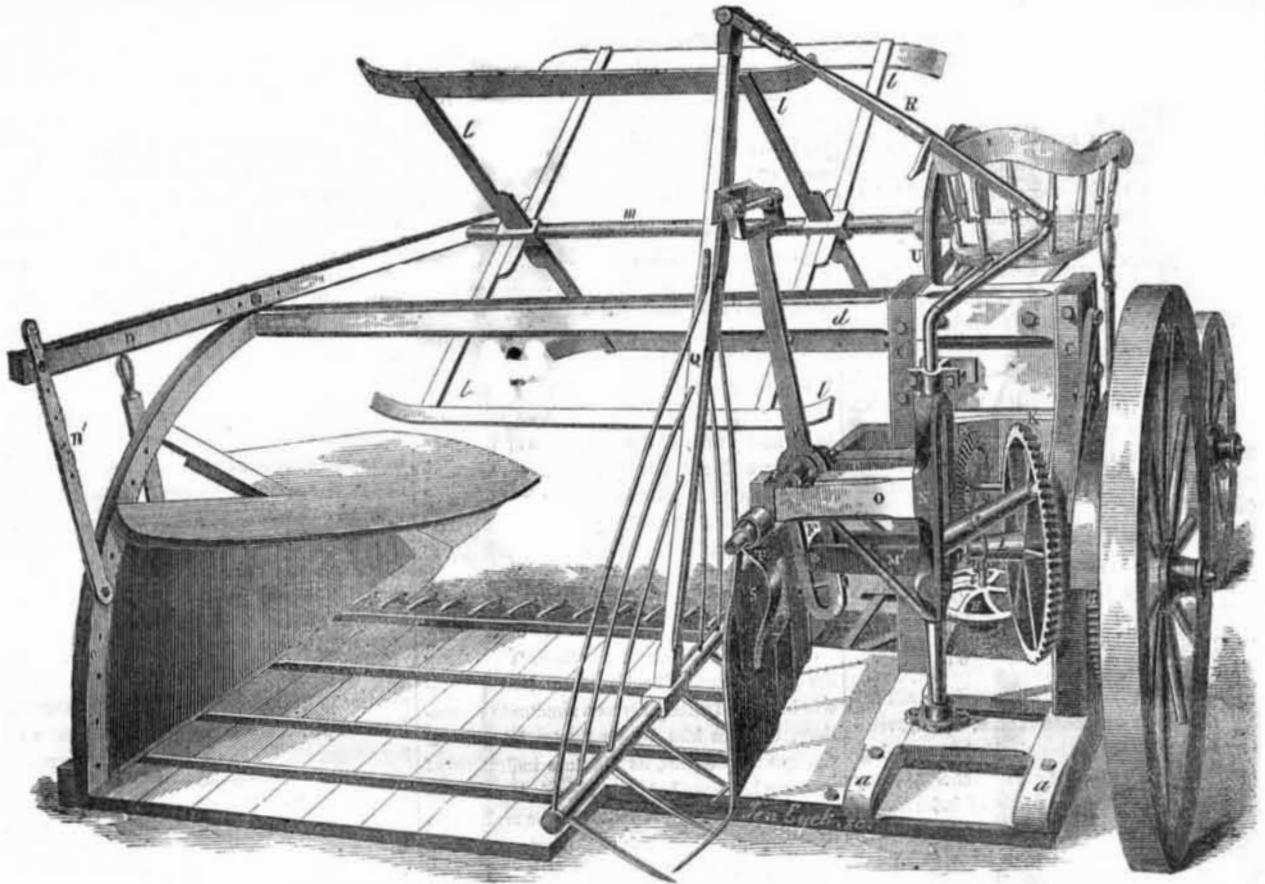
Sickle Gearing.—The large wooden wheel, *A*, is secured on a strong axle, protruding from post, *C*; it supports one end of the machine. There is a small wheel, not seen, on the other end, under the platform. *B* is a spur wheel, bored and keyed on the hub of *A*, and turns with it by the forward motion of the machine. This wheel gears into a spur pinion on the shaft on which is the bevel wheel, *E*, which gears into the bevel pinion on the same shaft, *c*. On the lower end of this rod is a crank, which is united to the connecting rod of the sickle, and gives it a reciprocating motion. *H* is a small fly wheel on the shaft, *c*, for giving a steady motion to the crank.

Raking apparatus.—Behind the post *C*, opposite wheel, *A*, is a bevel wheel, *K*, on a stud pin,

L, it receives motion by gearing into a bevel pinion, (not shown) on the shaft of *B*. In the same vertical plane with the center of the stud, *L*, and at a distance from wheel, *K*, of one half its diameter, is a vibrating iron post, *N*, which turns in a foot step bearing, and is secured in a pillow block at the top; this post has a large slot through the center. Through this opening there passes a lever, *M M'*, pivoted in the post, *N*, and attached at one end to wheel *K*, by a socket on its rim, into which the end of said lever is fitted, and turns freely as the wheel revolves. In the forked end, *M'*, is a roller, *F*, which turns upon a pin, and rolls freely through the slot in the lower end of lever *P*. There are two short bars, *O*, framed to post, *N*, and connected at their outer ends. The lever, *P*, is suspended between these bars, on a short axis. To the top end of lever *P*, the rake, *Q*, is attached by an iron clasp, in which is a pin, on which it turns. The rod, *R*, connects the upper ends of the rake bar with the upper end of the arm of post *N*. To the cross bars of *O* is suspended, by hinges, a broad plate, *S*, furnished with long teeth on its lower edge, which extend down nearly to the bed of the machine. On the back of this plate is a small staple into which a link is inserted, and its upper end fastened by a pin screwed into the side of lever *M'*. The plate is prevented from turning loosely on its hinges by a spring, *T*, fastened to the bar, and pressing on the back of *S*, to keep the link spoken of tight. *I* is a spring united to the round upper part of post *N*, to steady the connection rod, *R*, as it approaches the lower point of its descent.

OPERATION.—The end, *M*, of the bent lever, which is inserted in a socket in wheel, *K*, moves in a true circle, and has a uniform velocity; this lever, from its fulcrum in post, *N*, to wheel, *K*, describes the surface of a cone, whose depth is equal to one half of its base, and whose apex is its pivot in *N*. Supposing the bed of the machine to be covered with cut grain, and the raking apparatus to be set in motion by turning wheel, *K*, while said wheel makes about one-sixth of a revolution, the action of the levers, *P*,

ATKINS' SELF-RAKING REAPER AND MOWER.



and *M'*, will have operated the rake, *Q*, and made it sweep from the left to the right side of the platform, collecting the grain in a compact bundle against plate, *S*. While this operation has been going on, the position of post, *N*, has sensibly changed, and as the wheel, *K*, continues to revolve, the lever, *P*, is carried through the upper part of its circumference, and the post, *N*, and its connecting arms are made to vibrate through a quarter of the circle. The rake, *Q*, is then swung off from the bed entirely, carrying off the grain, when by the continued motion of wheel, *K*, a reverse action to that described for gathering up the grain causes it to open out its full length behind the machine, and deposit the grain on the ground. As the lever, *M*, is carried through the lower circumference of wheel *K*, the post, *N*, is turned back a quarter of a circle, and the rake, *Q*, made to swing around over the bed of the machine into a position at the left of the platform for collecting a succeeding bundle of cut grain. These operations are continuous as the machine moves forward. For different fields of grain, light and heavy, the plate, *S*, is so arranged as to be pressed forward by the spring, *T*, to make the rake, *Q*, press a small as well as a large bundle. The velocity of the rake is greatest when sweeping across the platform to close the bundle of grain. The parts of this raking apparatus can easily be taken out, and the machine altered to mow grass as well as reap grain. This self-raking reaper is certainly a grand desideratum; we have seen a number of certificates from respectable parties, certifying to its good qualities, and it has been awarded premiums by the Ohio, Michigan, and Wisconsin Agricultural Societies. The cutting arrangement is similar to others in use. In the Crystal Palace we have noticed that it attracts the attention of our agricultural friends from the country more than any other reaper on exhibition.

The general construction of this machine—something which every farmer should carefully regard, independent of its nature and principle of operation—is good. The main driving wheel is large (4 feet diameter, and 4 inch fel-

loe) and gives steadiness of movement in passing over rough ground, and a good support in the soft. The frame work is well braced and stiff, and properly banded with iron. The gearing is compact and well boxed in. The team is released of side draft, by the hounds, *a a*, resting upon a pair of front wheels, and these enable the machine to be turned with great ease. The economy of the raking apparatus, considering the parts to be well made and on a correct principle, is just as great for saving the expense of rakers, as cutting the grain by horse power, is in saving the expense of mowing by manual labor.

These machines are manufactured and sold by J. S. Wright, Prairie Farmer Warehouse, Chicago, Ill. The price for them is \$160.

It was our intention to present, in this number, an abstract of the paper on Reaping Machines, which was read before the British Scientific Association, but it is delayed for want of room, until next week. Since our last number was issued, we have received a copy of the "Caledonian Mercury," published in Edinburgh, Scotland, which gives an account of another trial which took place near that city, between one of Mr. Bell's and one of McCormick's reapers—the latter superintended by McCormick in person. The grain operated upon was a heavy wheat crop. The praise is awarded by the Editor of the "Mercury," to the American Reaper, as having done its work with more ease, and as well as Bell's, besides having the advantage of greater simplicity. He makes use of nearly the same language we employed, last week, in speaking of the advantage of the sickle cutter over the scissor cutters of Bell's Machine. A great many farmers and engineers were on the ground, and he says, "the general opinion was in favor of McCormick's machine, for all practical purposes, not only on account of its simplicity, easy draught for horses, and non-liability to get out of order, but also for the really excellent style in which its work is accomplished."

This testimony to the American reaper by a countryman of Mr. Bell is candid and impartial.