G. H. GOETZE. 2 Sheets—Sheet 1.

HARVESTER-RAKES.

No. 194,670. Patented Aug. 28, 1877.

fig. 1.

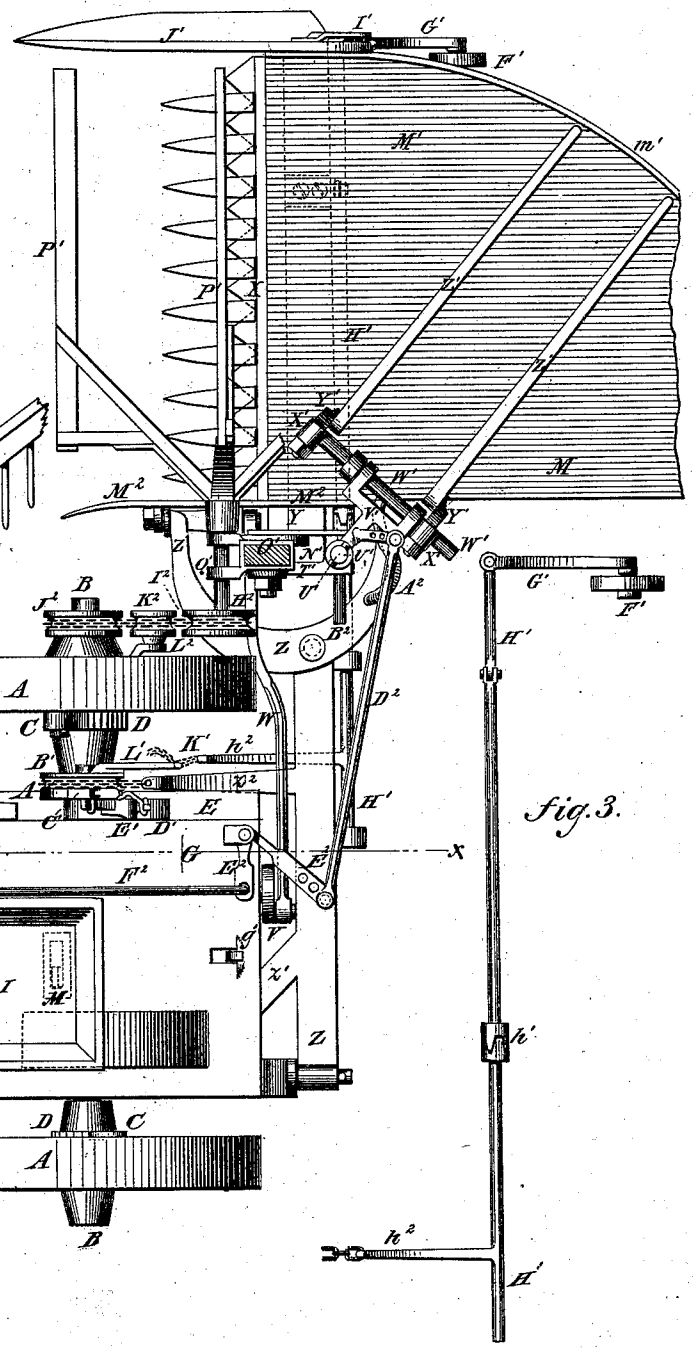

fig. 2.

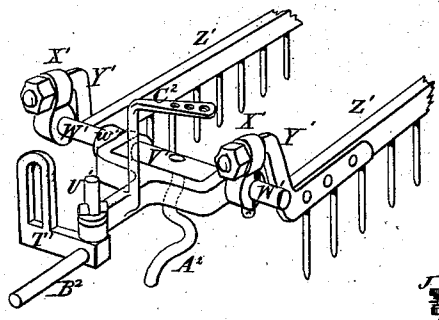

fig. 3.

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2 Sheets—Sheet 2.

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HARVESTER-RAKES.

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fig. 4.

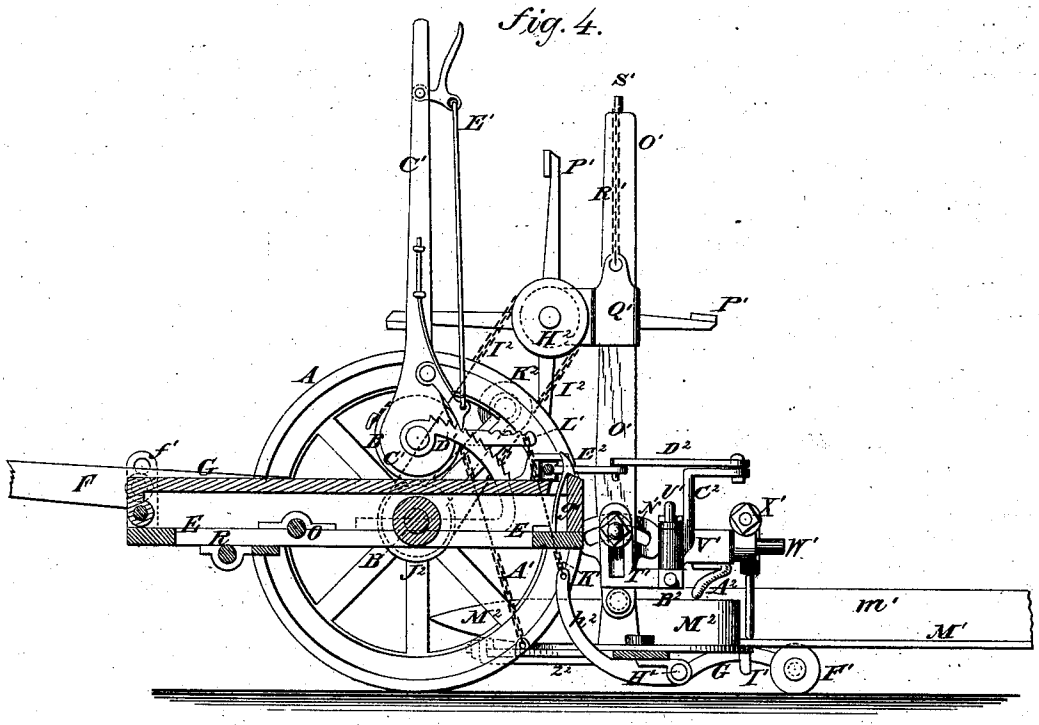


fig. 5.

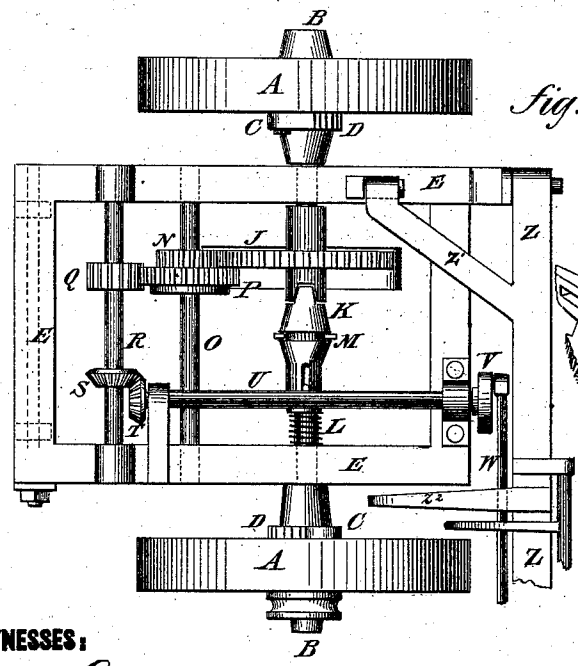
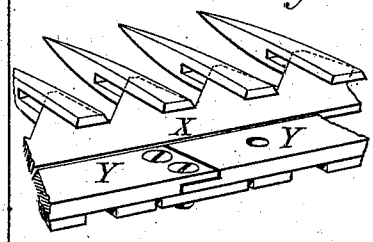


fig. 6.



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UNITED STATES PATENT OFFICE.

GEORGE H. GOETZE, OF LAKE CREEK, MISSOURI.

IMPROVEMENT IN HARVESTER-RAKES.

Specification forming part of Letters Patent No. **194,670**, dated August 28, 1877; application filed January 29, 1877.

To all whom it may concern:

Be it known that I, GEORGE H. GOETZE, of Lake Creek, Benton county, in the State of Missouri, have invented a new and useful Improvement in Combined Reaper and Mower, of which the following is a specification:

Figure 1, Sheet 1, is a top view of my improved machine, part being broken away to show the construction. Fig. 2, Sheet 1, is a detail perspective view of the rake. Fig. 3, Sheet 1, is a detail view of the extension-rod. Fig. 4, Sheet 2, is a vertical section of the machine, taken through the line *x x*, Fig. 1. Fig. 5, Sheet 2, is a view of the under side of the carriage. Fig. 6, Sheet 2, is a detail perspective view of the outer parts of the cutter and sickle bars.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved machine which shall be so constructed that it may be readily adjusted for use as a reaper or mower, as required, and which shall be provided with an adjustable rake for sweeping the cut grain from the platform.

The invention consists in the construction and combination of parts, which will be hereinafter more fully described, and then pointed out in the claims.

A are the drive-wheels, which are placed upon the journals of the axle B.

To the wheels A are attached spring-pawls C, which engage with ratchet-wheels D attached to the axle B, so that the said wheels A may carry the said axle B with them when turned forward, but may be turned back without turning the axle. This construction enables one of the wheels A to turn faster than the other, as in turning, without either of the wheels sliding.

The axle B revolves in bearings attached to the iron frame E, to the middle part of the inner side bar of which is hinged the rear end of the tongue F.

The tongue F is bolted to a slotted arm, *f'*, attached to the inner forward corner of the frame E, so that by loosening the said bolt the forward end of the frame E can be raised and lowered to adjust the cutters to work farther from or closer to the ground, as may be desired.

To the forward end of the frame E is hinged the forward end of the cover or driver's platform G, the rear end of which, when lowered, is secured by a spring-catch, *g'*, and to which are attached the lower ends of the standards H of the driver's seat I.

Upon the axle B is placed a large gear-wheel, J, which is connected with said axle B, so as to be carried around by and with the axle in its revolution, by a sliding clutch, K. The clutch K is connected with the axle B by a slot and pin or other suitable means, and is held forward against the wheel J by a spiral spring, L, placed upon the axle B.

The clutch K is withdrawn from the wheel J, to enable the machine to be drawn forward without vibrating the sickle-bar, by a lever, M, pivoted in a slot in the cover G, and the forked lower end of which rides in a ring-groove in the clutch K.

The teeth of the gear-wheel J mesh into the teeth of the small gear-wheel N attached to the shaft O, which revolves in bearings attached to the side bars of the frame E.

To the shaft O is also attached a larger gear-wheel, P, the teeth of which mesh into the teeth of the small gear-wheel Q attached to the shaft R.

The shaft R revolves in bearings attached to the frame E, and to it is attached a small bevel-gear wheel, S, the teeth of which mesh into the teeth of the small bevel-gear wheel T attached to the forward end of the shaft U.

The shaft U revolves in bearings attached to the frame E, and to its rear end is attached a crank-wheel, V, to the crank-pin of which is pivoted the end of the connecting-rod W. The other end of the connecting-rod W is pivoted to the inner end of the sickle-bar X, which slides upon the cutter-bar Y, with which it is connected in the usual way.

The inner end of the cutter-bar Y is hinged to the branched inner end of the bar Z, the outer end of which is hinged to the rear end of the outer side bar of the frame E.

The bar Z is strengthened against the draft-strain upon the cutter-bar Y by a brace, z^1, the inner end of which is rigidly attached to

the said bar Z, and its outer end is hinged to the outer side bar of the frame E.

To the bar Z is rigidly attached a forwardly-projecting arm, z^2, to the forward end of which is attached one end of a chain, A^1. The other end of the chain A^1 is attached to a wheel or eccentric, B^1, attached to the lever C^1.

The lever C^1 is pivoted to a curved bracket, D^1, attached to the frame E, and is provided with a lever-pawl, E^1, which engages with teeth formed upon the said bracket, to hold the said lever securely in any position into which it may be adjusted.

By this arrangement, by operating the lever C^1 the cutter-bar Y may be adjusted and held at any desired height from the ground. The outer end of the cutter-bar Y is supported by a caster-wheel, F^1, pivoted to the end of an arm, G^1, the other end of which is attached to the end of the rod H^1.

The arm G^1 is held in place by a spring, I^1, placed upon its outer side, and the upper end of which is attached to the dividing-shoe J^1, detachably attached to the outer end of the cutter-bar Y.

The rod H^1 works in bearings attached to the cutter-bar Y, and in it, in line with the hinge at the inner end of the said cutter-bar, is formed a universal joint, h^1, so that the outer part of the said rod can be raised and lowered with said cutter-bar.

The inner part of the rod H^1 works in bearings attached to the holding-bar Z, and to it is rigidly attached, or upon it is formed, an arm, h^2, to the end of which is attached the end of a chain, K^1. The other end of the chain K^1 is attached to an arm, L^1, formed upon or attached to the wheel B^1 or lever C^1, so that, as the said lever C^1 is operated to raise and lower the cutter-bar Y, the same movement may turn the rod H^1 to lower and raise the caster-wheel F^1, and may thus always keep the said caster-wheel in position to support the outer end of said cutter-bar Y.

M^1 is the platform to receive the cut grain, and which is detachably attached to the cutter-bar Y. The outer edge of the platform M^1 is curved in the arc of a circle having its center in the axis of the rake-pivot, and has an upwardly-projecting flange, m', formed around said curved edge, to prevent the cut grain from falling off before it has been carried around to the inner side of said platform.

To the inner end of the cutter-bar Y is attached an upwardly-projecting bar, N′, the upper end of which is widened, and has a slot formed in it to receive the bolt by which the reel-standard O′ is secured to said bar, so that the reel may be adjusted forward or back, as the character of the grain may require.

P′ is the reel, the shaft of which revolves in bearings formed upon or attached to the sleeve Q′.

The sleeve Q′ is placed upon the reel-post O′, and is supported in place adjustably by a chain, R′, attached to it, and which is hooked upon a pin, S′, attached to the upper end of said post O′.

By this construction, by adjusting the chain R′ the reel P′ may be raised and lowered, as the character of the grain may require.

To the lower part of the reel-post O′ is bolted a bracket, T′, to the outer end of which is attached a pin or pivot, U′, to receive the bearing V′ for the rake-shaft W′. The bracket T′ is slotted to receive the bolt, by which it is secured to the reel-post O′, so that the rakes may be raised and lowered, as required.

Upon the end parts of the rake-shaft W′ are placed bearing-blocks X′, which are secured in place upon said shaft adjustably by set-screws, and in the upper parts of which are formed bearings for the shanks Y′ of the rakes Z′.

The shanks Y′ are made crank-shaped, as shown in Fig. 2, and when the rakes are moving to the rearward to sweep the cut grain from the platform the shanks Y′ rest against shoulders formed upon the bearing-blocks, to support the rakes while sweeping off the grain. This construction allows the rakes to swing back while being carried forward over the cut grain upon the platform.

The two rakes may be adjusted wider apart or closer together, according to the length of the grain, by adjusting the bearing-blocks X′ upon the rake-shaft W′. The rake-shaft W′ is secured adjustably in place in its bearings by one of the bearing-blocks X′, and by a collar, w', secured to said shaft by a set-screw.

To the pivoted bearing V′ is attached an arm, A^2, which is curved downward to strike against a pin, B^2, attached to the bracket T′, to raise the rakes as they reach the edge of the platform M^1 and allow the gavel to drop to the ground freely.

To the pivoted bearing V′ is attached a crank-arm, C^2, to which is pivoted the end of a connecting-bar, D^2. The other end of the connecting-bar D^2 is pivoted to the arm of the bent lever E^2, which is pivoted at its angle to the rear part of the cover G, and to its other arm is pivoted the rear end of the connecting-bar F^2.

The forward end of the connecting bar F^2 is pivoted to the foot-lever G^2, which is pivoted to the cover G in such a position that it may be conveniently reached and operated by the driver with his foot, to operate the rake to sweep the cut grain from the platform.

To the end of the reel-shaft is attached a chain-wheel, H^2, around which passes an endless chain, I^2, which also passes around a chain-wheel, J^2, attached to the end of the revolving axle B, so that the reel P′ may be revolved by the advance of the machine.

The chain I^2 is kept taut as the cutter-bar Y works upon its hinge in passing over uneven ground by the idler K^2, pivoted to an arm L^2, pivoted to the axle B, so that the said idler may rest upon the lower part of said chain.

The mechanism at the inner end of the cut-

ter-bar Y is protected from the cut grain and grass by a guard, M^2, attached to the said inner end of the said cutter-bar Y.

When the machine is to be used as a mower, the reel and the rakes and their attachments and the platform are detached, and the cutter-bar is shortened to reduce it to the proper length. The cutter-bar Y is made in two parts, the adjacent ends of which are halved and bolted or otherwise secured to each other, so that the said cutter-bar Y can be readily extended to adjust it for cutting grain, and shortened to adjust it for cutting grass.

In the rod H^1, in line with the splice of the cutter-bar Y, is formed a rigid joint, so that said rod H^1 can be extended and shortened to correspond with the said cutter-bar Y.

The shoe J^1 and caster-arm G^1 are attached to the outer ends of the cutter-bar Y and rod H^1, whether said cutter-bar and rod are extended or shortened.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the parallel rakes Z′, having bent pivot-arms Y′, the shaft W′, having collars X′, and the horizontally-swinging bracket or bearing V′, with the reel-post, grain-platform, and suitable mechanism for moving the rakes over the platform, as and for the purpose set forth.

2. The combination of the adjustable bearing-blocks X′, the adjustable shaft W′, the bearing V′, and the bracket and pin T′ U′, with the reel-post O′, and the crank-shanks Y′ of the rakes Z′, substantially as herein shown and described.

GEORGE H. GOETZE.

Witnesses:
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FRED. ZIMMERSCHIED.