(No Model.) 2 Sheets—Sheet 1.

S. D. MADDIN.

HARVESTER.

No. 395,284. Patented Dec. 25, 1888.

Fig. 1.

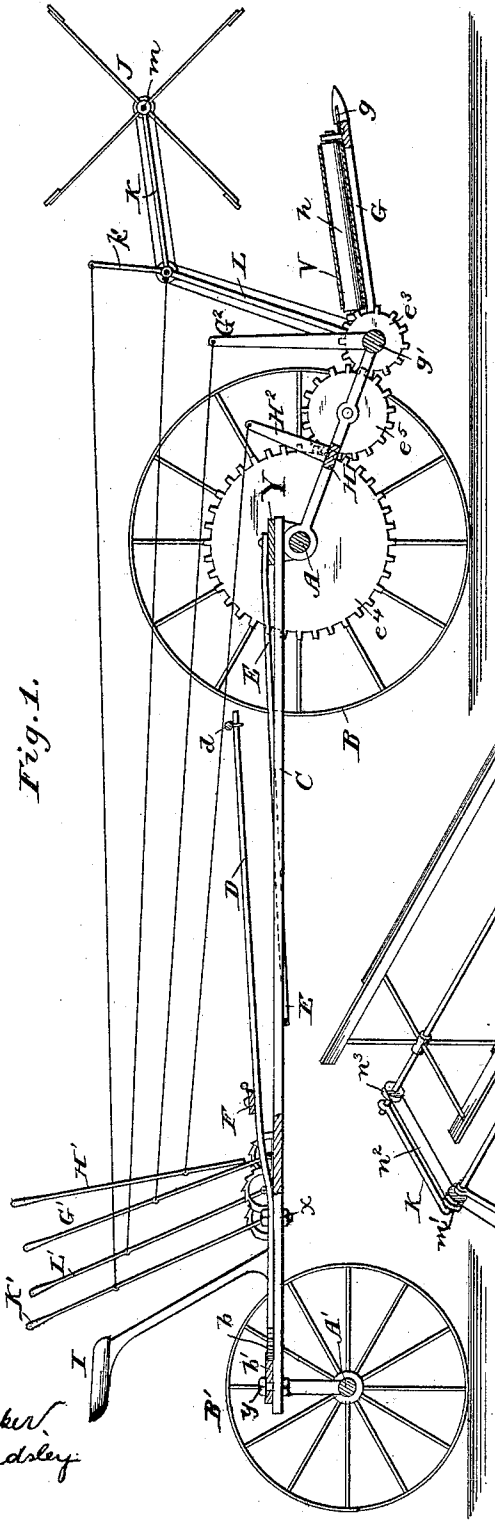
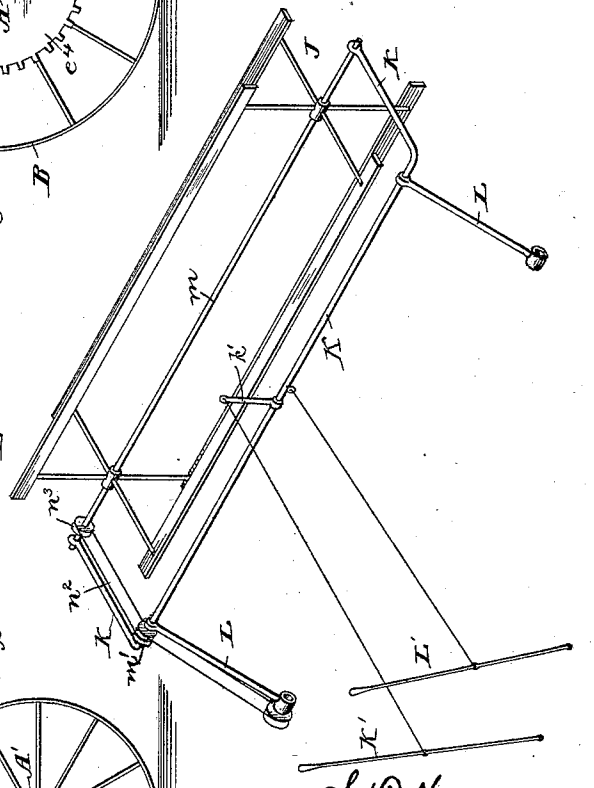


Fig. 3.



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(No Model.) 2 Sheets—Sheet 2

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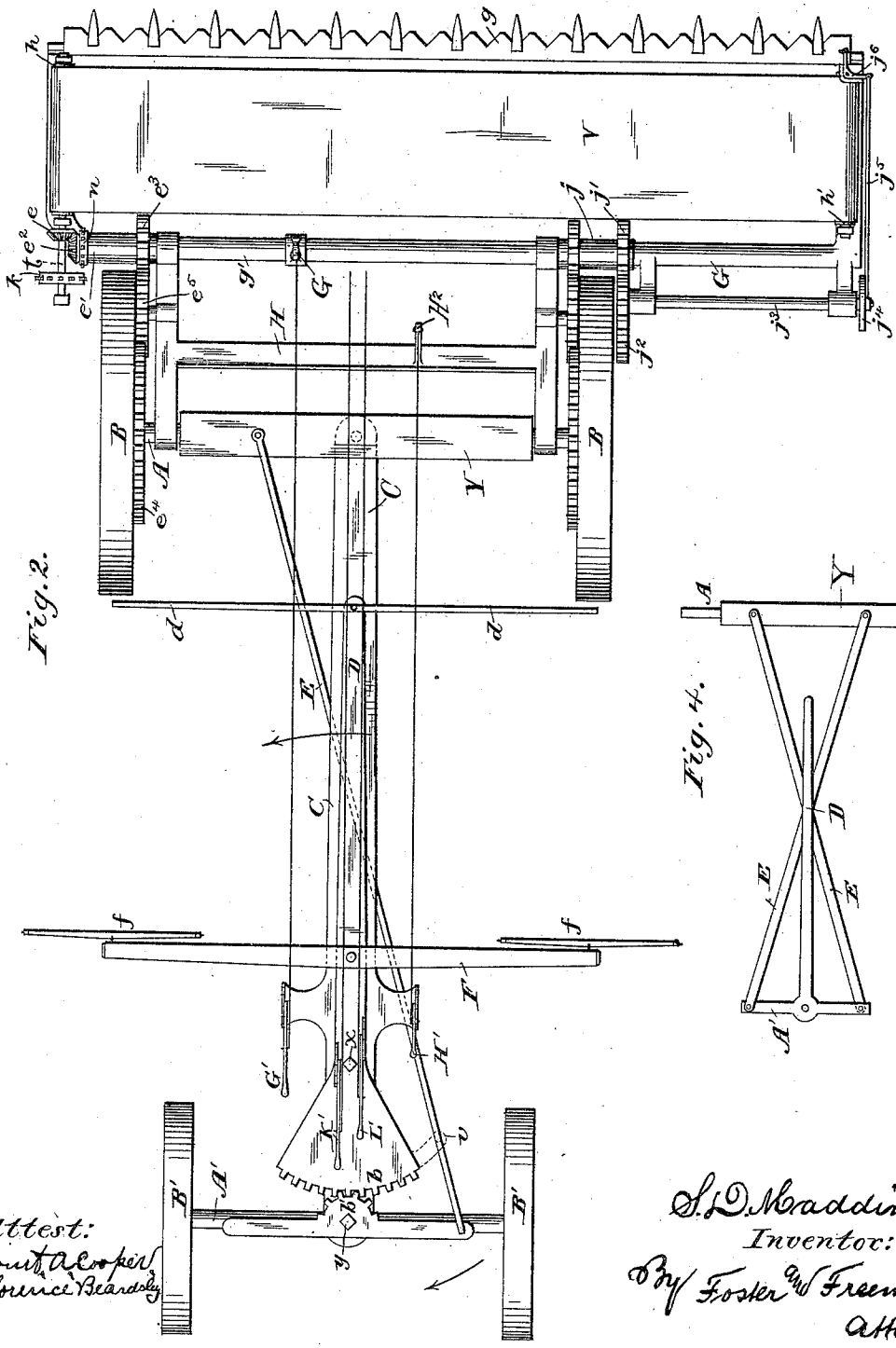


Fig. 2.

Fig. 4.

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UNITED STATES PATENT OFFICE.

SAMUEL D. MADDIN, OF MIAMISBURG, OHIO, ASSIGNOR TO MARY MADDIN, OF SAME PLACE.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 395,284, dated December 25, 1888.

Application filed October 31, 1883. Serial No. 110,446. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL D. MADDIN, a citizen of the United States, and a resident of Miamisburg, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Harvesters, of which the following is a specification.

My invention relates to certain improvements in harvesters specially adapted to what are known as "thrust-cut machines;" and it consists in certain appliances, fully set forth hereinafter, for facilitating the guiding of the machine, the adjustment and driving of the cutter-bar and reel, and the connection with the driving-wheels, whereby the operation of the operative parts of the harvester are unaffected in the adjustments of the cutter-frame.

In the drawings, Figure 1 is a sectional elevation of a thrust-cut harvester embodying my improvements. Fig. 2 is a plan. Fig. 3 is a perspective view of the reel and connections. Fig. 4 is a plan of a modification.

The axle A supports a bar, Y, comprising part of the main frame and carries the front supporting-wheels, B, and turns in hangers or supports projecting downward from the bar Y, to the center of which is pivoted the forward end of a reach, C, supported at the rear end by and pivoted at y to an axle, A′, carrying wheels B′.

A tongue, D, is pivoted near its rear end by a bolt, x, to the reach C, and terminates at the rear end in a toothed segment, b, gearing with a half-pinion, b', concentric with the pivot y of the axle A′, and a connecting-rod, E, extends from the axle A′, at one side of the center to the main frame at the opposite side of its center, so that by swinging the tongue D upon its pivot in the direction of the arrow, Fig. 2, the rear axle will be turned in the direction of its arrow and the front axle in the opposite direction. By this connection of the axles the machine may be turned in less space and upon a shorter curve than is possible when the rear or front axle only is pivoted, while each axle is so set in respect to the other that the rear wheels will travel in a curve concentric with the path of the forward wheels.

In order that the movement of the horses may be made the means of swinging the axles, I connect the horses to the tongue D in any suitable manner, so that the movement of the team to the right or left will swing the tongue in the same direction. Thus the doubletree F may be pivoted to the tongue D, in front of the pivot x, the singletrees f being connected to the doubletree, so that each animal will occupy a position directly at the rear of one of the wheels B, the harness at the front being connected to a neck-yoke, d, attached to the end of the tongue. The same result may be accomplished without the use of a reach, C, by connecting the axles by cross-rods E, as shown in Fig. 4; but in this case by moving the horses to the right the machine is turned to the left.

In order to better control the position of the cutter-bar g, I joint the frame G, which supports said bar, to the forward edge of a frame, H, swinging freely upon the axle A or jointed to the main frame, the frame H being raised and lowered by means of a lever, H′, arranged adjacent to the driver's seat I and connected by a rod to a standard, H^2, fixed on the frame H, and a standard, G^2, on the frame G being connected by a rod to a similar lever, G′.

By manipulating the levers G′ H′ the frame H may be brought to any angle to the ground and the frame G at any desired angle to the frame H, thereby cutting the grass or grain at any desired height and presenting the platform at any required angle for the grain to fall back upon. The frame G carries the rollers h h', around which passes the canvas or chain carriers V, and the shaft of the roller h carries a bevel-pinion, e, gearing with a bevel-wheel, e^2, upon a sleeve, e', turning upon the rear bar, g', of the frame G. The sleeve also carries a pinion, e^3, which is driven from a gear-wheel, e^4, upon the driving-wheel B through the medium of a pinion, e^5, turning upon a stud carried by the frame H. The shaft t is thus driven from the driving-wheel without interruption from any change in the relative positions of the frames G H.

A sleeve, j, near the opposite end of the bar g', is driven from the opposite wheel, B, through the medium of gears similar to the

gears e^3 e^4 e^5, and carries at its outer end a pinion, j', gearing with a wheel, j^2, upon a shaft, j^3, carried by the frame G and carrying a crank-disk, j^4, from which the cutter-bar is driven through the medium of a bell-crank lever, j^6, and connecting-rod j^5. The shaft t carries a sprocket or other driving-wheel, k, from which the binder is driven, and the frame G at the side opposite the binder is carried to a greater extent beyond the wheel B at that side, so as to compensate for the draft of the binder.

It will be seen that the cutters and grain-platform apron are driven from the main drive-wheels by spur-gears carried by the frame H, thus avoiding the use of beveled gearing, counter-shafts, and the like, which has heretofore been commonly employed, and thereby simplifying the construction of the apparatus.

The reel J is connected to a shaft, m, which turns in the outer ends of a frame, K, hinged to arms L, that are hung to the rear bar, g', of the frame G, and is driven from a pulley, n, on the sleeve e', which imparts motion through a belt to a double pulley, m', turning at the joint of the frame K and arm L and carrying a belt, n^2, passing to a pulley, n^3, on the reel-shaft m.

By adjusting the frame K and arms L the reel may be brought to any desired relation to the cutters.

The arms L are adjusted by means of a cord connected to a lever, L′, adjacent to the driver's seat I. A similar lever, K′, connected by a rod to an arm, k', serves to adjust the frame K.

By the construction above described the machine, pushed from behind, may be turned upon sharp curves, the cutter-frame being extended so much beyond the position of the team that the latter neither trespass upon the cut or the standing grain, the draft of the binder connected at one side is equalized, the front platform may be set at any desired height and angle, and the movements of the traveling canvas or conveyer, the binder, and the cutters are not affected by the adjustment of the cutter-frame, and the driver has all the adjustments perfectly under control.

The structure of the frame and the connections may be varied without departing from the main features of my invention. Thus the intermediate frame, H, may consist of independent arms swinging on the axle, the cutter-bar may be driven through different appliances, and the rod E may be connected at the rear end to a lateral arm, v, projecting from the rear end of the tongue D, as shown in dotted lines in Fig. 2, in which case the machine would be guided solely by the lateral movements of the team in turning the front axle, but in a reverse direction.

Any well-known elevating appliances may be substituted for those shown for lifting and lowering the frames G, H, and K and the arms L. It will be evident that some of the features described are applicable to front-draft machines.

Without limiting myself to the precise construction shown, and without disclaiming any novel features not specifically claimed, I claim—

1. The combination of the jointed frames G H, sleeve j, concentric with the joint between the frames, gears between the wheel B and said sleeve, and shaft j^3, carried by the front frame, geared to the sleeve, and connected to drive the cutter-bar, as set forth.

2. The combination, in a thrust-cut machine, of a reach jointed to the center of the main frame and supported by wheels at the rear, a tongue pivoted to said reach, means, substantially as described, connecting said tongue to the rear axle, and a diagonal connecting-rod, E, whereby the swinging of the tongue is made the means of swinging the front axle, substantially as set forth.

3. The combination of the main front frame, reach jointed to the frame, rear axle jointed to the reach, tongue pivoted to the reach and terminating in a segment geared with a half-pinion on the rear axle, and diagonal connecting-bar, substantially as specified.

4. The combination of the front frame, rear axle, reach jointed to the frame, connecting-rod, pivoted tongue geared with the rear axle, and doubletree and neck-yoke connected to the tongue, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

S. D. MADDIN.

Witnesses:
CHARLES E. FOSTER,
L. C. YOUNG.