(No Model.) 3 Sheets—Sheet 1.

M. H. MELROSE.

HARVESTER.

No. 482,968. Patented Sept. 20, 1892.

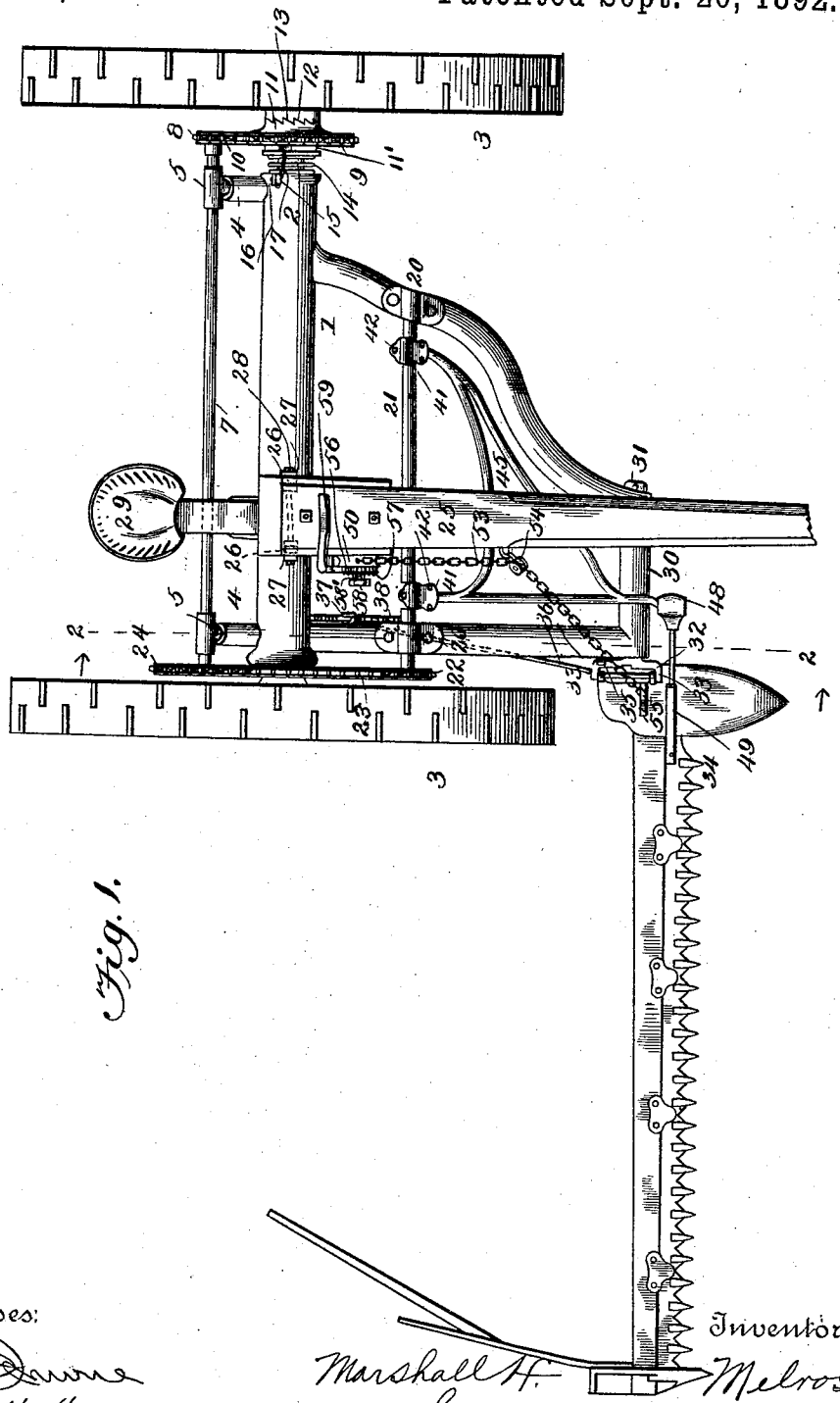

Fig. 1.

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Fig. 2.

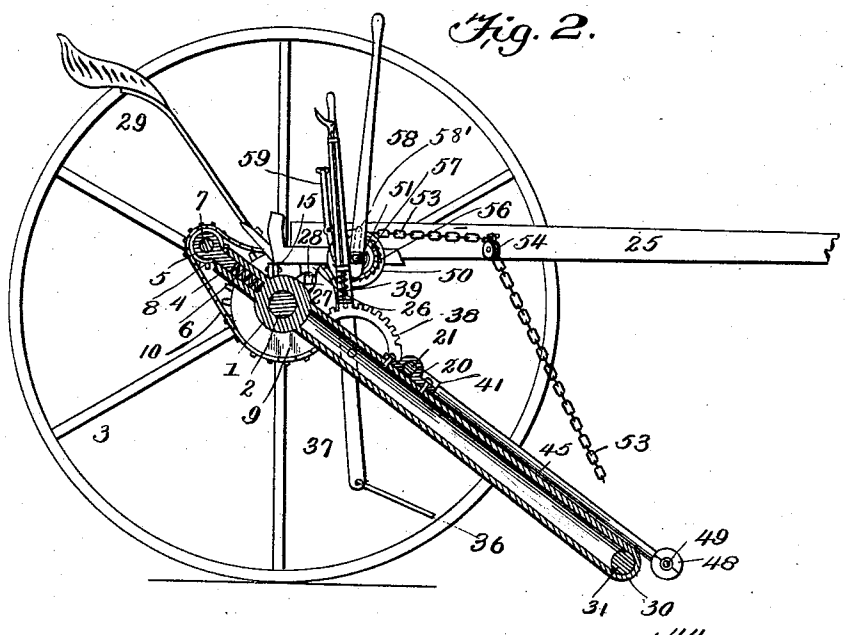
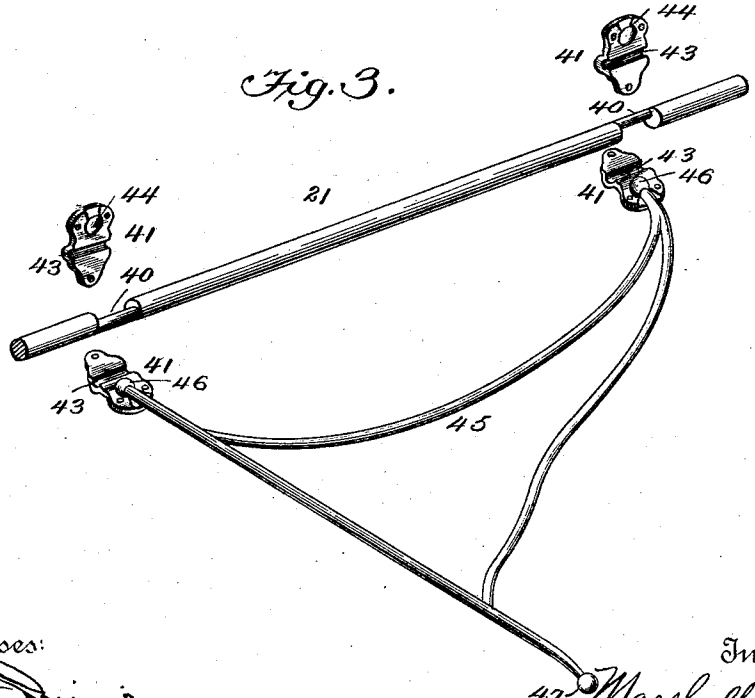


Fig. 3.



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(No Model.) 3 Sheets—Sheet 3.

M. H. MELROSE.

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Fig. 4.

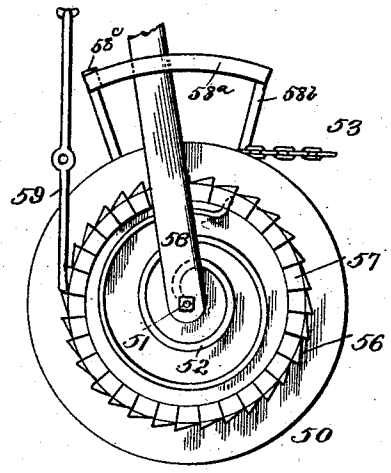


Fig. 10.

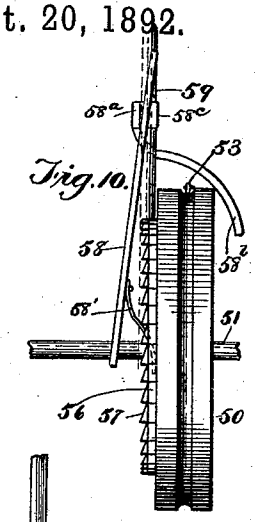


Fig. 9.

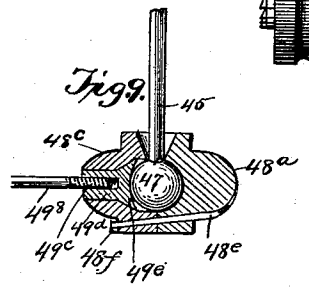


Fig. 5.

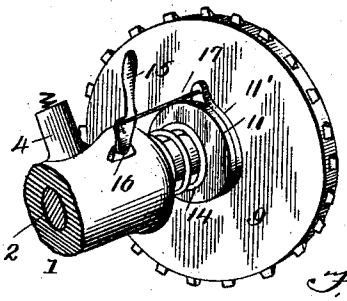


Fig. 7.

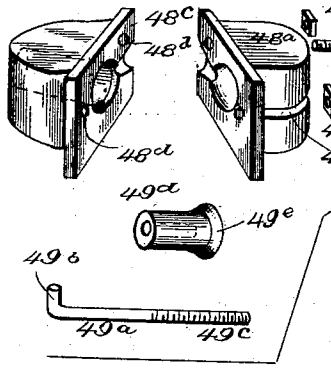


Fig. 6.

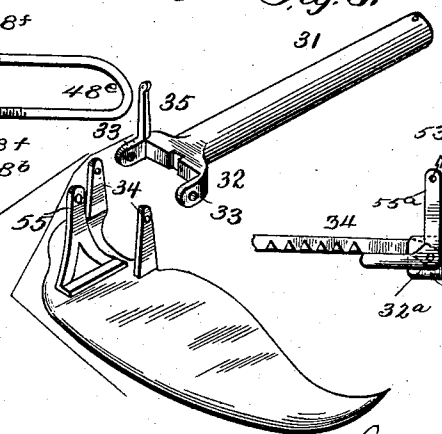
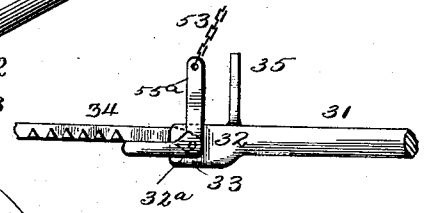


Fig. 8.



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UNITED STATES PATENT OFFICE.

MARSHALL H. MELROSE, OF PLANO, ILLINOIS.

HARVESTER.

SPECIFICATION forming part of Letters Patent No. 482,968, dated September 20, 1892.

Application filed March 10, 1892. Serial No. 424,435. (No model.)

To all whom it may concern:

Be it known that I, MARSHALL H. MELROSE, a citizen of the United States, residing at Plano, in the county of Kendall and State of Illinois, have invented certain new and useful Improvements in Harvesters; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to harvesters of that class known as "front-cut, two-wheel;" and the object of the same is to effect certain improvements in machines of this character.

To this end the invention consists in a machine constructed substantially as hereinafter more fully described and claimed, and as illustrated on the accompanying drawings, in which—

Figure 1 is a plan view of this machine complete. Fig. 2 is a section on the line 2 2 of Fig. 1. Fig. 3 is an enlarged perspective detail of the triangular lever with its boxes slightly open, showing, also, the crank-shaft slightly removed. Fig. 4 is an enlarged elevation of the drum on which the lifting-lever works. Fig. 5 is an enlarged perspective detail of the clutch mechanism and the trip-lever therefor. Fig. 6 is a perspective detail of the parts of the T-shaped coupling-bar and the inner end of the cutting apparatus, all slightly separated. Fig. 7 is a perspective detail of a slightly-modified form of socket for the forward ball of the triangle. Fig. 8 is a similar detail of a modified form of gag-lever connection. Fig. 9 is a section through the parts of Fig. 7 and the forward ball of the triangular lever when all are assembled. Fig. 10 is a front elevation of the drum and its lever.

In the drawings, 1 represents the main frame, which is preferably in a single casting, except as hereinafter stated, and of about the shape shown, and laterally through this frame extends the main shaft or axle 2, upon the ends of which the main wheels 3 3 are secured; or, as shown, these wheels may be journaled on the axle and the latter stationary within the main frame.

In tubular boxes 4 4, extending to the rear from the main frame, are seated T-shaped bearings 5 5, whose shanks enter the boxes and are borne to the rear by coiled expansive springs 6 6, as best seen in Fig. 2. In these bearings is journaled a transverse counter-shaft 7, having on one end a sprocket-wheel 8.

9 is a sprocket connected with the sprocket 8 by a chain belt 10, and the hub 11 of the sprocket 9 is journaled on the axle 2 and toothed, as at 12, so that it may engage teeth 13 on the inner end of the hub of the adjacent main wheel 3, a coiled expansive spring 14 moving said hub 11 outward toward the hub of the main wheel and throwing the clutch formed by these teeth normally into engagement.

15 is trip-lever pivoted at 16 to the main frame, and 17 is a rod connecting this lever with the yoke 11′, turning on the part 11 of the clutch. The rod is so connected, eccentrically, with the lever that the latter may be thrown over beyond its pivot 16 and will hold the clutch members out of engagement without other means for locking the lever, all as will be clear.

Journaled in bearings 20 on the main frame is a crank-shaft 21, having opposite cranks 40, having a sprocket 22 at one end, connected by a chain 23 with a sprocket 24 on the counter-shaft 7 at the end thereof opposite the sprocket 8. These several sprockets are of such relative sizes that the crank-shaft will be geared so as to be driven with the desired speed relatively to that of the main wheels, and the springs 6 will keep the chain belts at all times tight.

25 is the tongue, which preferably has two eyes 26 at its rear end, that enter between two pairs of eyes 27 27 on the front of the main frame and are detachably and pivotally retained therein by bolts 28.

The seat 29 is preferably sustained by the tongue, together with the tool-box (not shown) and such other parts as may be desirable and as will be hereinafter described.

Across the front lower end of the main frame is a tubular bearing 30, within which is journaled the shank 31 of a T-shaped coupling-bar, and the head 32 of this bar has ears 33, between which is pivoted the inner end of the cutting apparatus 34. From said coupling-bar rises an arm 35, to which is connected a rod 36, leading to the rear and connected with the lower end of the tilting-lever 37, the

latter being pivoted to the main frame and working alongside a toothed segment 38, with which a trip-catch 39 engages, in a manner which will be clear. When this tilting-lever is operated, the coupling-bar is rocked in the bearing 30 and the entire cutting apparatus is tilted as may be desirable.

Upon each crank 40 of the crank-shaft 21 is mounted a two-part box 41, whose members are connected by bolts 42, and each box has a bearing 43, loosely embracing the crank 40, and a socket 44.

45 is a triangular lever formed of casting, (or it may be of wrought-iron,) and 46 are balls at its two rear corners, adapted to loosely enter the sockets 44.

47 is a single ball at the front angle of the triangular lever, which loosely enters a socketed head 48, secured on the inner end of the cutter-bar 49. Hence as the crank-shaft 21 rotates the cutter-bar is reciprocated, yet the ball-and-socket connection 47 48 permits the cutting apparatus to be tilted by the tilting-lever 37, just described, because of the looseness of the ball 47 at the forward end of the triangular lever, which carries it in the socket 48, and because the front ball 47 of the triangular lever can rise and fall around the cranks 40.

Referring now to Fig. 4, 50 is a drum journaled on the side of the tongue on a stationary pivot 51, and 52 is a strong coiled spring connected at one end with the pivot and at the other end with the drum in such manner as to normally turn the drum to the rear. 53 is a chain secured to the periphery of the drum and passing thence over a wheel 54 on the tongue or other suitable support to an arm 55, rising from the heel of the cutting apparatus. On the outer face of the drum 50 is a double ratchet, one row 56 of its teeth facing radially and the other row 57 facing longitudinally of the pivot 51 and away from the drum. 58 is a lever loosely mounted on the pivot and adapted to be borne in against the tension of a spring 58′, so as to engage the teeth 57, and 59 is a foot-operated pawl pivoted to the tongue and normally engaging the teeth 56. The two levers, the trip-lever, and the pawl stand within easy reach of the driver seated in the seat. 58^a is a curved arm supported as by brackets 58^b from the main framework and standing at the right of the lever 58, the rear end of the arm having a heel 58^c, against which said lever 58 rests when not in use. These parts are best seen in Figs. 4 and 10, but are omitted from the others for the sake of clearness.

Referring now to Fig. 7, wherein is shown the preferred form of connection at the forward end of the triangular lever, 48^a is the outer member of the socketed head, having an outer groove 48^b, and 48^c is the inner member thereof, having holes 48^d. 48^e is a yoke whose curved body stands in said groove and whose ends pass through said holes and receive nuts 48^f, whereby the parts of this socketed head are detachably clamped upon the ball 47. The inner end of the cutter-bar may be connected directly with said inner member 48^c; but I prefer to employ an L-shaped pitman 49^a, whose foot 49^b is journaled loosely in the cutter-bar proper and whose opposite end is threaded, as at 49^c, and screws into a plug 49^d, the latter being swivelly mounted within said inner member 48^c and held in place by its head 49^e. Hence the cutter-bar may rise or may be tilted without cramping of parts.

Fig. 8 shows another preferred construction, this illustrating a gag-lever connection which I sometimes use. In place of the arm 55 I provide an L-shaped lever 55^a, pivoted at its angle on the pivot-bolt 32^a of the coupling-bar 32, its foot standing beneath the heel of the cutting apparatus and its upper end being connected with the chain 53. When the latter is drawn on, the outer end of the cutting apparatus will rise, whereas its inner end may rise to pass over an obstruction without raising the outer end.

The operation of this harvester is as follows: The tongue having been connected to the main frame and all the parts of the machine in proper position and connection, the horses are hitched to the tongue and the harvester drawn forward over the ground. The trip-lever 15 is thrown outward, as seen in Figs. 1 and 5, to allow the clutch members to engage, and motion is thereby communicated to the counter-shaft and thence to the crank-shaft. By the oppositely-disposed cranks on the latter the triangular lever is caused to rock, and longitudinally-reciprocating motion is thereby imparted to the cutter-bar. The entire cutting apparatus may be raised from the ground by the lever 58, when desired, by first moving this lever forward away from the heel 58^c, then rocking it over the arm 58^a as a fulcrum to compress the spring 58′ and throw the lever into engagement with the outer row of teeth 57, and finally moving the lever to the rear to turn the drum and draw on the chain 53, as will be clear. The force of the spring 52 assists in elevating the cutting apparatus, and when the spring becomes weaker the apparatus is nearly raised to a vertical and the least force is necessary. As the cutting apparatus is again lowered, power is stored in this spring. The ball and socket 47 48 permits this raising and lowering as the socket travels around the ball. When it is desired to adjust the angle of the cutting apparatus, the tilting-lever 37 is operated and the T-shaped coupling-bar will rock in the tubular bearing 30, the ball and socket 47 48 again permitting, and the looseness of the pivot between the foot of the pitman and the cutter-bar also permitting. The springs 6 at all times keep the chain belts taut, that at the right side of the machine permitting a little looseness in the chain-belt, as will be necessary when the trip-lever is operated to move the sprocket 9 inwardly on the axle. The en-

tire machine is preferably of iron, except the tongue and the levers, and castings may be used where great strength is not necessary or the parts are not subjected to considerable strain.

The specific details of parts other than those described are matters of no moment in the present invention, and considerable latitude must be allowed the skilled machinist without his departing from the spirit of my invention.

What is claimed as new is—

1. In a harvester, the combination, with the cutting apparatus, a pitman leading therefrom, the main frame, and the rotating shaft journaled in said frame and having oppositely-disposed cranks, of a triangular lever, a ball at its forward angle, a socket embracing this ball, a headed plug in the socket into which said pitman is screwed, and on each crank a two-part box having a bearing loosely embracing the crank and a socket embracing a ball on the rear angle of the triangular lever, the parts being detachably connected by bolts, substantially as described.

2. In a harvester, the combination, with the main frame having rearwardly-extending boxes, expansive springs therein, T-shaped bearings whose shanks enter said boxes, and a counter-shaft journaled in the heads of said bearings and driven by chain belting connecting it with a sprocket-wheel on the main axle, of the cutting apparatus, connections, substantially as described, between the counter-shaft and cutting apparatus, clutch members on the meeting faces of one main wheel and the sprocket-wheel, and means for moving the latter longitudinally of the main axle, as and for the purpose set forth.

3. In a harvester, the combination, with the main frame having rearwardly-extending boxes, expansive springs therein, T-shaped bearings whose shanks enter said boxes, and a counter-shaft journaled in said bearings and driven by chain belting connecting it with the main axle, of a crank-shaft journaled in the main frame, chain belting between the counter and crank shafts, the cutting apparatus, and connections, substantially as described, between the crank-shaft and cutting apparatus, as and for the purpose set forth.

4. In a harvester, the combination, with the main axle, the main wheel journaled thereon and having a clutch member on its hub, a sprocket-wheel mounted on the axle and having a second clutch member, a spring bearing these members into engagement, and means for separating them, of a second shaft, connections between this shaft and the cutting apparatus, tubular boxes on the main frame, springs therein, T-shaped bearings, their shanks entering said boxes and their heads furnishing the supports for said shaft, and a sprocket on the latter connected by a chain belt with that on the axle, all substantially as and for the purpose set forth.

5. In a harvester, the combination, with the main axle carrying the main wheel, a clutch member on the latter, and a counter-shaft yieldingly supported by the main frame and having a sprocket, of a sprocket journaled on the axle and having a clutch member on its hub, a chain belt connecting the two sprockets, an expansive spring throwing the said members normally into engagement, a trip-lever pivoted to the main frame, and a rod connecting said lever with a yoke mounted loosely on the hub of the sprocket on the axle, as and for the purpose set forth.

6. In a harvester, the combination, with a rocking triangular lever having a ball at its front angle, of the cutting apparatus, a two-part box having registering holes, the inner part having a groove, a yoke standing in said groove with its ends passing through said holes, nuts on said ends connecting the parts, a pitman pivoted at one end to said cutting apparatus, and a headed plug swiveled in the outer part of said box and into which the shank of said pitman is screwed, as and for the purpose set forth.

7. In a harvester, the combination, with a rocking triangular lever having a ball at its front end and a box embracing said ball, of the cutting apparatus, an L-shaped pitman having it foot pivoted in said apparatus, and a headed plug swiveled in said box and into which the shank of said pitman is screwed, as and for the purpose apparent.

In testimony whereof I affix my signature in presence of two witnesses.

MARSHALL H. MELROSE.

Witnesses:
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D. E. MCNAMARA.