4 Sheets—Sheet 1.

L. M. BATTY.

Harvester.

No. 111,424. Patented Jan'y 31, 1871.

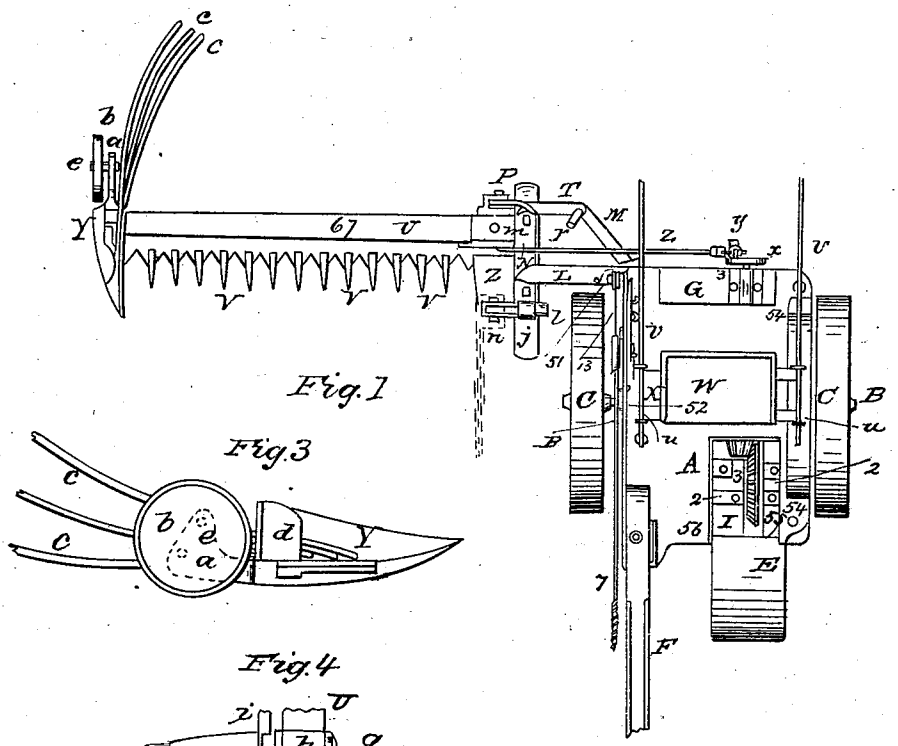


Fig. 1

Fig. 3

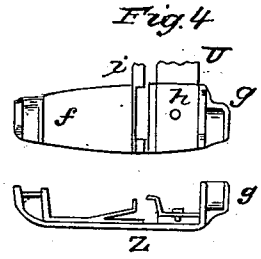


Fig. 4

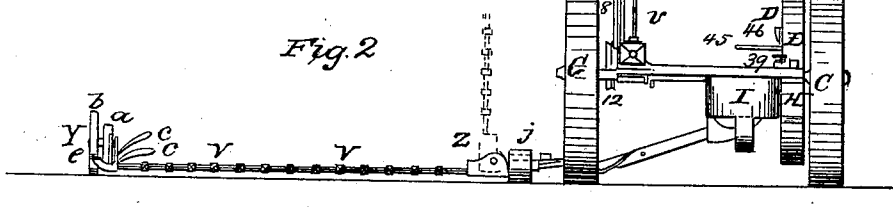


Fig. 2

Witnesses
Ruth H Abbott
A.O.W. Kinley

Inventor
L. M. Batty
by Job Abbott

4 Sheets—Sheet 2.

L. M. BATTY.

Harvester.

No. 111,424.

Patented Jan'y 31, 1871.

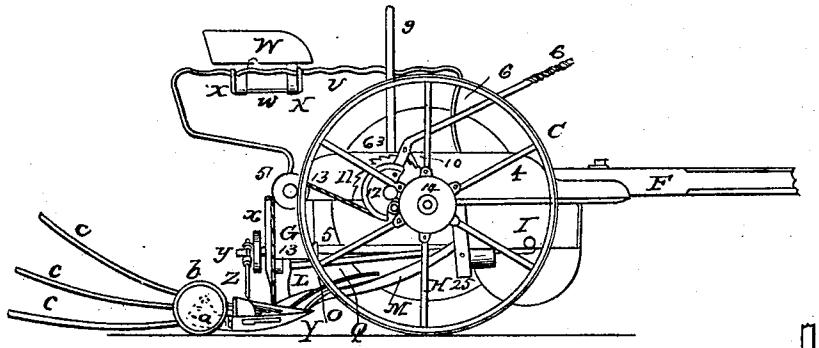
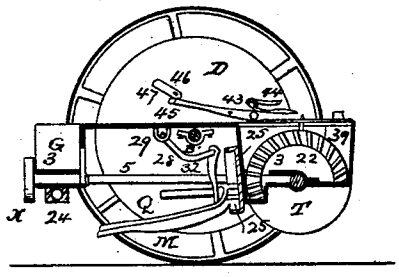


Fig. 6



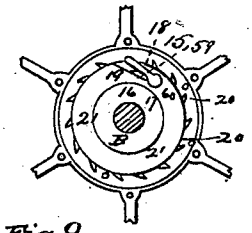


Fig. 9

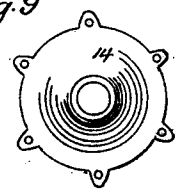
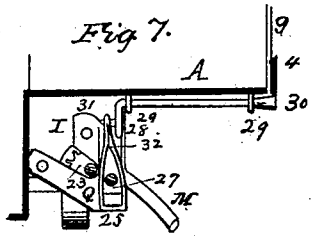
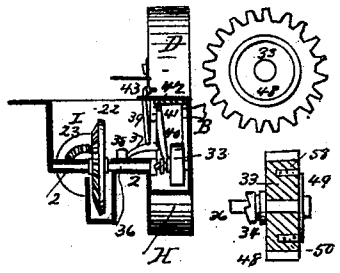


Fig. 7.





Witnesses
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4 Sheets—Sheet 3.

L. M. BATTY.

Harvester.

No. 111,424.

Patented Jan'y 31, 1871.

Fig. 10

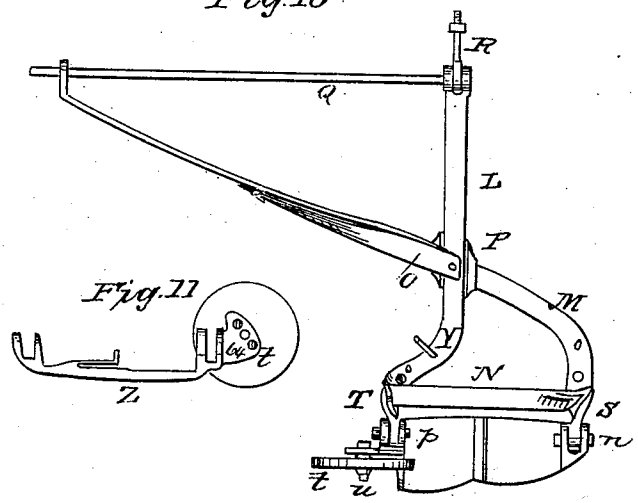
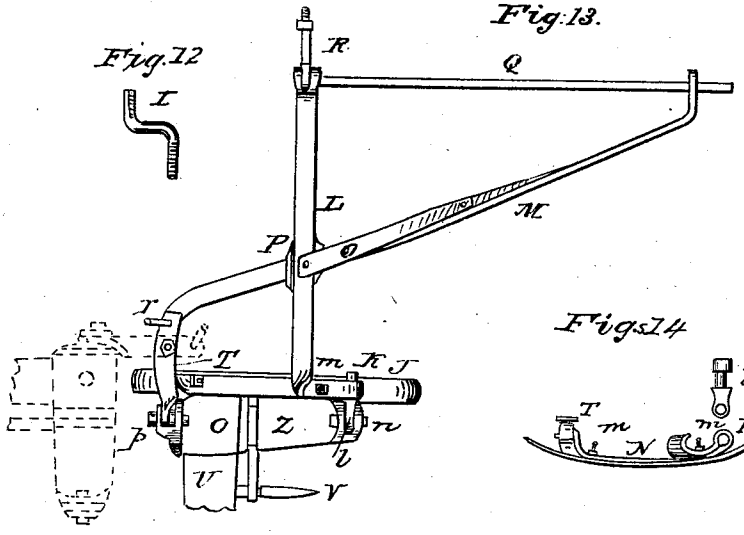


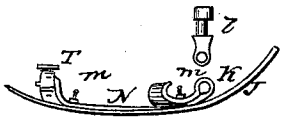
Fig. 11

Fig. 13.

Fig. 12



Figs. 14



Witnesses
Ruth R Abbott
H. W. Kuby

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L M Batty
by Jos Abbott
Atty

4 Sheets—Sheet 4.

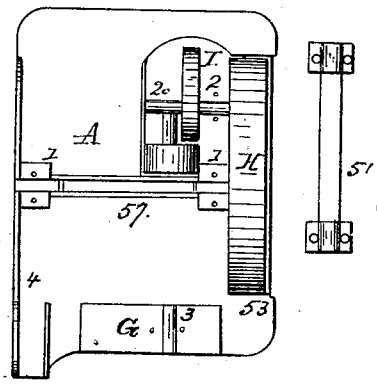
L. M. BATTY.

Harvester.

No. 111,424.

Patented Jan'y 31, 1871.

Fig. 15.



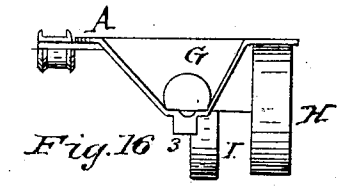


Fig. 16

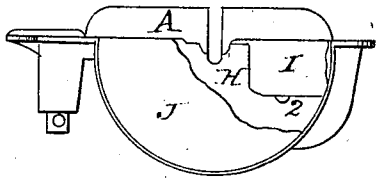
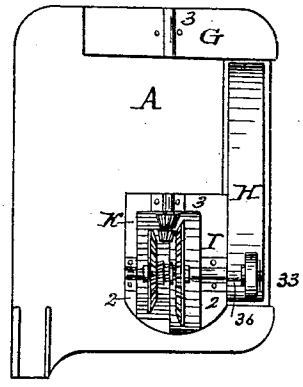


Fig. 17.

Fig. 18.



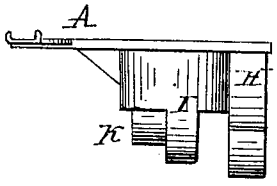
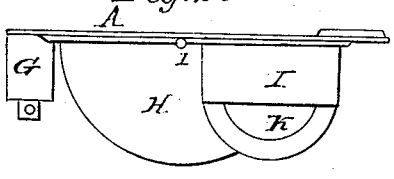


Fig. 20



Witnesses
Ruth K Abbott
A McHenry

Inventor
L. M. Batty
by Job Abbott
Atty

UNITED STATES PATENT OFFICE.

LINDLEY M. BATTY, OF CANTON, OHIO.

IMPROVEMENT IN HARVESTERS.

Specification forming part of Letters Patent No. **111,424**, dated January 31, 1871.

To all whom it may concern:

Be it known that I, LINDLEY M. BATTY, of Canton, in the county of Stark and State of Ohio, have invented certain new and useful Improvements in Harvesters; and I do hereby declare that the following is a full, clear, and exact description of my invention, reference being had to the accompanying drawing, forming a part of this specification, and to the letters of reference marked thereon, of which drawing—

Figure 1 is a plan of a machine, showing my improvements. Fig. 2 is a front view of the same. Fig. 3 is a side view of the grain-shoe for finger-bar. Figs. 4 are plan and side views of heel-shoe for finger-bar. Fig. 5 is a side view of a complete machine. Fig. 6 is a sectional side view of the machine. Fig. 7 is a rear view of mechanism for tilting the coupling-frame. Figs. 8 are detail views, showing the mode of constructing and operating the first pinion. Figs. 9 are elevation of the hub of driving-wheel, showing the ratchet and pawl construction, and detached elevation of hub-box cover. Fig. 10 is a plan of my improved coupling-frame for front-cut machine. Fig. 11 is a side view of heel-shoe for finger-bar, used in connection with coupling-frame, shown in Fig. 10. Fig. 12 is elevation of crank-screw for securing swinging hinge-arm on coupling-frame. Fig. 13 is a plan of coupling-frame for rear-cut machine. Figs. 14 are end view of shoe of coupling-frame shown in Fig. 13 and elevation of hinge-bolt. Fig. 15 is plan of frame for front-cut machine. Fig. 16 is a front view of same. Fig. 17 is outside view of same. Fig. 18 is plan of frame for rear-cut machine. Fig. 19 is front view of same. Fig. 20 is inside view of same.

The nature of my invention consists, first, in the novel construction of a frame for a harvester, geared with a spur master-wheel and first pinion and bevel second wheel and pinion, said frame consisting of a metallic base-plate, having a standard cast at one end for the crank-journal of the crank-shaft, and a two-part cavity for the gearing cast at one side, said cavity being either cast complete, or having its outer side formed of sheet metal, and having in one part of it the master-wheel and pinion, and in the other part the second wheel and pinion, the whole frame being so arranged as that all the bearings for the journals of the gear-shafts shall be cast with the casting of which the base-plate forms a part, and being so combined with suitable covers and plates as to completely incase the gearing and protect the same from dirt or injury; secondly, in the construction of the hub of the driving-wheel, with ratchet-teeth formed on its interior at such distances from each other as to leave from one-fourth to one-half of its interior cylindrical surface between said teeth, which detached portions of the inner-hub surface have a bearing on the face of a pawl-wheel secured on the driving-shaft, and thus form an additional journal-bearing between the driving-wheel and shaft, thus increasing the solidity of bearing between the wheel and shaft, and lessening the liability of splitting the hub-box by a violent vertical or lateral cross-strain on the driving-wheel; thirdly, in hanging the finger-bar to the main frame by means of a coupling-frame, consisting of a brace-bar and coupling-bar arranged diagonally on each other, and having one hinge-joint at each end of the heel-shoe, a rolling hinge-joint at one point on the main frame, and a sliding pivot-joint at a second point on the main frame, said rolling hinge-joint and sliding pivot-joint being both located between the planes of the driving-wheels, the object being to obtain a rolling motion of the finger-bar without dispensing with the long rigid hinge-joint between the finger-bar and coupling-frame, which is the strongest and most durable construction for that connection, or without bringing either point of attachment between the main and coupling frames outside of the driving-wheels, by which the liability to side draft is diminished and a more compact construction is obtained; fourthly, in forming a coupling-frame for a harvester of a single bar of metal, so bent as to form the coupling-bar connection between the coupling-bar and brace-bar, which brace-bar crosses the coupling-bar, and is secured to it at said crossing, whereby I obtain a coupling-frame which is cheaply constructed, and is very light, stiff, and rigid; fifthly, in forming the heel-shoe of the finger-bar of a harvester of a plate of sheet metal, turned up at each end, and having combined with it suitable cast pieces to form, with the upturned ends of the plate, sockets for the

hinge-arms of the coupling-frame, whereby I obtain a shoe having a wrought-metal base, which insures the proper strength without the necessity of forming the hinge-sockets of wrought metal, thus lessening the weight and expense without impairing the utility of the shoe; sixthly, in the combination of mechanism for enabling the driver to throw the machine in gear by placing his foot on a treadle-arm on the main frame, and to cause the machine to throw itself out of gear when not held or locked in gear by the driver, by which the danger of injuring or killing the driver, in case he is thrown from the machine in front of the knives, is materially diminished; seventhly, in the construction of a coiled-wire handle on the end of the wire attached to the pawl on the lever which raises the coupling-frame, said handle being formed by coiling the pawl-wire around the lever in a coiled-spring form, the object being to obtain a cheap and simple handle by which the driver can operate both the lever and pawl with one hand; eighthly, in the construction of a crank-screw with a tapering or conical-threaded portion for securing the swinging end of the pivoted hinge-arm of the coupling-frame, the object being to obtain a screw which could be easily taken out by the driver whenever he desired to swing around the finger-bar, and which could as readily be secured so firmly in its hole as to prevent the possibility of its working loose and dropping out.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The general construction of the machine-frame is shown in Figs. 15, 16, and 17, in which A represents the base-plate of the machine; G, the standard for the crank-journal of the pitman-shaft, which is cast with the base-plate A; and H I, the two-part cavity, which is either cast complete with the plate A, or it may be cast with said plate without the side J, which is then formed of sheet metal, and fits in a groove, 53, formed around the outer edge of the part H of the cavity, as shown in Fig. 15.

The side board 4 is cast on the side of the plate A, opposite the cavity H I, and serves as a strengthening-flange to that side of the frame, and the bearings 1 1 are cast in the plate A for the main shaft B. (See Fig. 1.)

The bearings 2 2 for the second shaft 36 (see Fig. 6) are formed in the part I of the cavity, and the bearings 3 3 for the crank-shaft 5 (see Fig. 6) are formed in the cavity I and standard G, as shown.

The cast cover D (see Figs. 1 and 2) fits over the part H of the cavity, and is secured by screws or bolts 54 54, and the sliding plate E covers the part I of the cavity, and is secured in position by sliding it under the flange 55 of the cover D, and a flange, 56, on the plate A, as shown in Fig. 1; or, if preferred, this cover E might be arranged as a hinged instead of a sliding cover, and could be hinged to the cover D or the plate A in a manner readily seen.

In the frame represented in Fig. 15 a slot, 57, is cast across the plate A, in order to allow of the main shaft B being placed on the frame A from above the frame, and a plate, 51, (shown in detached view) is used to cover the main shaft; but, if preferred, the bearings 1 1 could be cast on the lower side of plate A, as shown in Fig. 6, when the shaft B would be put in position from below the frame A, in which case the use of the sheet-metal plate J becomes essential, in order to allow of the master-wheel being keyed on the shaft.

It is evident from this description that all the bearings 1 1, 2 2, 3 3 are cast on the same casting, of which the plate A forms a part; consequently there can be no derangement of the alignment of the bearings when once fitted; and it is also readily seen that all the gearing is incased in the two-part cavity H I, the master-wheel and first pinion being incased in the part H and under the cover D, and the bevel-wheel and pinion being incased in the part I and under the cover E, thus completely inclosing the gearing from dust and dirt.

The particular arrangement of the several parts of the frame can be varied to suit different plans of construction—as, for example, the frame may be constructed for a front-cut machine, as shown in Fig. 15, or for a rear-cut machine, as shown in Figs. 1 and 5 or Fig. 18; or the part I of the gear-cavity could be enlarged by the part K, as shown in Figs. 18 to 20, to allow of the introduction of the two-speed bevel-gear, (shown in Fig. 18;) or the part H could be made of sufficient width to allow of the use of the double-cogged master-wheel, which would act in combination with changeable pinions on the second shaft to produce different speed, the general plan of construction being the same in all cases.

The main shaft B is secured in the bearings 1 1 by suitable covers, and has the driving-wheels C C at its ends, as shown.

The hub 15 of the wheels C is made in a box form, as shown in Figs. 9, the back face extending out into a long axle-box, as shown in Figs. 1 and 2, and the front being covered by the cover 14, (shown in Figs. 9,) which is secured to the hub-box by screws, and forms the outer end of the axle-box, as shown in Figs. 1 and 2.

The pawl-wheel 16 is keyed on the shaft B, and is made with a flat face of the same diameter as that of the interior of the hub-box 15.

The notch 59 is cut in the face of the wheel 16, and has a circular hole, 60, formed at the end; and the pawl 18 is made with a cylindrical end, 17, and is secured in position by sliding the end 17 into the hole 60, as is readily seen.

The spring 19, which keeps the pawl 18 forced forward, is simply a spiral spring placed in a hole in the wheel 16 under the pawl.

On the inner face of the hub-box 15 are cut

the ratchet-notches 20 20, which are of such form and at such distances from each other as to leave the bearing-faces 21 21 between them nearly or quite as long as the notches themselves, from which it is evident that nearly or quite one-half of the inner face of the hub-box is left to give the wheel a journal-bearing on the face of the pawl-wheel 16, so that the driving-wheel has in effect a solid journal-bearing from one end of the hub to the other, by which the danger of the wheel-bearing wearing loose and allowing the wheel to wabble, as well as the liability of splitting the hub-box by a sudden side lurch of the machine, is materially lessened.

The master-wheel 41 (see Fig. 8) is keyed on the main shaft B, and meshes into the first pinion 33, which is free to revolve and slide on the second shaft 36.

The grooved clutch 34 is formed on the inner face of the pinion 33, and the circular groove 48 is formed in the outer face of said pinion, in which groove is placed the spiral spring 50, which presses on the washer 49, secured on the shaft 36, and keeps the pinion 33 clutched with the clutch 35 on the shaft 36.

The lever 37 is pivoted to a lug, 38, on the cover of the bearing 2, and has an end bearing on the lever 40, which is made forked at the lower end, and fits in the groove in the clutch 34 on the pinion 33, and is pivoted to a lug, 42, on the flange or cover D, as shown in Fig. 8.

The rod 39 is attached to lever 37, and passes up through flange of cover D to the end of the lever 43, (see Fig. 6,) which is pivoted at side of cover D, and has the treadle-arm 45 (see Fig. 2) at the other end.

The spring 44 is secured on the cover D, and presses down on the lever 43 with sufficient force to force down the rod 39 and lever 37 when the treadle end of lever 43 is free, and thus forces back the lever 40 and pinion 33, so as to throw the machine out of gear.

The driver in his seat can place his foot on the treadle-arm 45 and throw the machine in gear, and, by means of the button 46, can fasten the lever 43 down to hold the machine in gear, the button 46 being thrown back on the pin 47 when not in use.

The coupling-frame for a rear-cut machine (shown in Figs. 1, 2, 5, and 13) consists of a single bar of metal, L N M, which is bent in the form shown, so as to form the coupling-bar L, eye K, cross-piece N, and brace-bar M, the bars L and M crossing each other, as shown, and being united by the clamping-piece P and brace-plate O, with accompanying rivets at said crossing, and the ends of said bars being united by the rod Q, which rod serves as the hinge-pin for the rolling bolt R on the coupling-bar, and for the pivot-pin for the tilting end of the coupling-frame at the end of the brace-bar M. Where a runner is used for the coupling-frame, the cross-bar N is formed under the plane of the bars M L, as shown in Fig. 13, and the runner *j* is secured to it by bolts *m m*, as shown in Figs. 14; but where a wheel is used at the heel of the finger-bar, the cross-bar N is formed above the bars M L, as shown in Fig. 10, to avoid unnecessary friction.

The rolling bolt R is secured in the lug 24 on the standard G of the machine-frame, (see Fig. 6,) and the end of rod Q is journaled in the block 26, which slides up and down in the slide-box 25, which is secured by arms 31 32 to the part I of machine-frame.

The stirrup 32 is pivoted to a collar, 27, journaled on the rod Q back of the brace-bar M, and its end is pivoted on the crank 28 of the rock-shaft 30, which is secured in boxes 29 29 on the frame-plate A. The lever *g* fits in a hole in the rock-shaft 30 in such a manner as to have some lateral movement, and extends up through a slot in the plate A to the side of the driver's seat. A spring, 52, (see Fig. 1) is secured to the side plate 4, and lies over the lever *g*, so as to keep it pressed up to said side plate, by which a pin on the inner face of said lever is caused to enter one of the holes 63 in the side plate 4, (see Fig. 5,) and the lever is held in position.

From this description it is evident that the driver, by operating the lever *g*, can raise or lower the front end of the coupling-frame to suit the angle required between the fingers and the ground, the rolling bolt R allowing of this motion of the coupling-frame around the coupling-bar, as is readily seen.

The hoisting-lever 6 is pivoted to the side plate 4, and has the segment 12 at its lower ends, to which is attached the chain 13, which passes over the pulley 51 to the coupling-frame, to which it is attached.

The ratchet-segment 11 is secured on the side plate 4, and the pawl 10 is pivoted on lever 6, and engages with the ratchet-segment 11 to hold said lever in any desired position.

The pawl 10 has attached to it the wire 8, (see Fig. 2,) which lies alongside the lever 6, and is coiled around the upper end of said lever into a handle, 7, which is grasped by the driver when the lever 6 is to be moved, so that by sliding his hand up or down he can release or engage the pawl 10 with the ratchet-segment 11, as is readily seen.

The corrugated seat-rods *v v* are secured on the machine-frame, as shown, and the seat W is swung on them by the springs X X and open hooks *w w*, so that it can be readily shifted to balance the machine, or can be readily removed, if desired.

The finger-bar is attached to the coupling-frame by means of the pivoted hinge-arm T, which is secured to the frame by the bolt *q*, and by means of the pivoted hinge-bolt *l*, which is secured in the eye *k*, as shown in Figs. 1, 13, and 14, or by the arm S, which is riveted to the frame, as shown in Fig. 10, the pivot hinge-bolt *l* being used when it is desirable to have the finger-bar so arranged as to be folded up in the position indicated by dotted lines in Fig. 1, which folding is ef-

fected by removing the pin *p*, which unites the finger-bar to the hinge-arm T, and then turning the finger-bar first into an erect position, and then turning it forward around the bolt *l* as a pivot, and the stiff arm S being used when only the folded position of finger-bar (indicated by dotted lines in Fig. 2) is required.

The pivoted hinge-arm T is held in position by the crank-screw *r*, which is made in the crank form shown in Fig. 12, so as to be conveniently removed or inserted, and in the tapering form on the threaded portion, as shown, so as to bind itself in the hole in the bar M and arm T, and be thus prevented from working loose.

By removing the screw *r* the arm T and finger-bar may be swung around, as indicated by dotted lines in Fig. 13, for convenience in transporting a machine when the platform is combined with finger-bar in reaping.

The heel-shoe Z consists of the wrought-iron or steel plate Z, which is bent up at each end, and has combined with it the castings *f* and *g*, as shown in Fig. 4, so as to form the hinge-sockets for the arm T and bolt *l* or arm S, to which it is secured by pins or bolts *p n*, as shown in Fig. 13.

The rear end of casting *f* and the plate *h*, which is secured on the finger-bar U in the shoe Z, form a guard for the shank of the knife-bar 67, which knife-bar is operated by pitman *z*, attached to the crank-pin *y* on the crank-wheel *x* on the crank-shaft 5 in an ordinary manner.

Where a wheel is desired at the heel of the finger-bar the arm 64 is cast on the rear part of the shoe Z, as shown in Fig. 11, and the wheel *t* is secured on said arm by an axle-pin, *u*, as shown.

The grain-shoe Y has the arm *a* at its rear end, on which is secured the wheel *b* by means of the axle-pin *e*, as shown in Fig. 3; and the tracker-rods *c c* are secured in position by inserting their bent ends into holes in the upright fluke of the shoe, and then dropping them between said fluke and the standard *d*.

The fingers V V are secured on the finger-bar U in an ordinary manner.

Having thus fully described the general principles of construction in my invention as illustrated in the machine herein shown, what I claim as new, and desire to secure by Letters Patent, is—

1. The within-described harvester-frame, the same consisting of the frame-plate A, having the standard G cast at the end and the two-part gear-cavity H I cast at the side and near the center thereof, and with all the shaft-bearings 1 1, 2 2, 3 3 cast thereon, and of the covers D and E, the side J of the cavity H I being either cast with said cavity or consisting of the sheet-metal plate J, and the several parts being arranged and combined substantially as and for the purpose specified.

2. The hub-box 15, having the ratchet-notches 20 20 formed on its inner face in such a manner as to leave the portions 21 21 of said face to bear on the face of the pawl-wheel 16, so as to form an additional journal-bearing for the driving-wheel, the several parts being constructed and arranged as is herein specified.

3. The combination and arrangement of the main frame G A I, coupling-frame L M, and heel-shoe Z, said coupling-frame having at each of its lower corners a hinge-joint with the ends of the heel-shoe, and having its upper corners united to the main frame by a rolling hinge-joint and a sliding pivot-point, said last-mentioned joints being between the planes of the driving-wheels, and the several parts being arranged substantially as and for the purpose specified.

4. The within-described coupling-frame L N M, consisting of the coupling-bar L, cross-bar N, and brace-bar M, and with or without the eye *k*, the same being formed from a single bar of metal by bending it into the required form, and the several parts being arranged substantially as is herein specified.

5. The heel-shoe Z, consisting of a plate of sheet metal, having its end turned up to form one side of the sockets for the hinge-arms on the coupling-frame, and having combined with it suitable castings to form the other sides of said sockets, substantially as is herein specified.

6. The combination of the pinion 33, provided with the grooved clutch 34, forked lever 40, lever 37, rod 39, and treadle-lever 43 with arm 45, the several parts being arranged substantially as and for the purpose specified.

7. The coiled wire handle 7, formed on the upper end of the pawl-wire S, and encompassing the lifting-lever 6, substantially as and for the purpose specified.

8. The crank-screw *r*, having the threaded portion thereof made in a tapering form, when used in combination with the swinging hinge-arm T on the coupling-frame, substantially as and for the purpose specified.

As evidence that I claim the foregoing I have hereunto set my hand in the presence of two witnesses this 13th day of November, 1869.

L. M. BATTY.

Witnesses:

JOB ABBOTT,

OLIVER BRADY.