2 Sheets—Sheet 1.

F. B. HUNT.

Sulky-Plow.

No. 211,662. Patented Jan. 28, 1879.

Fig. 1.

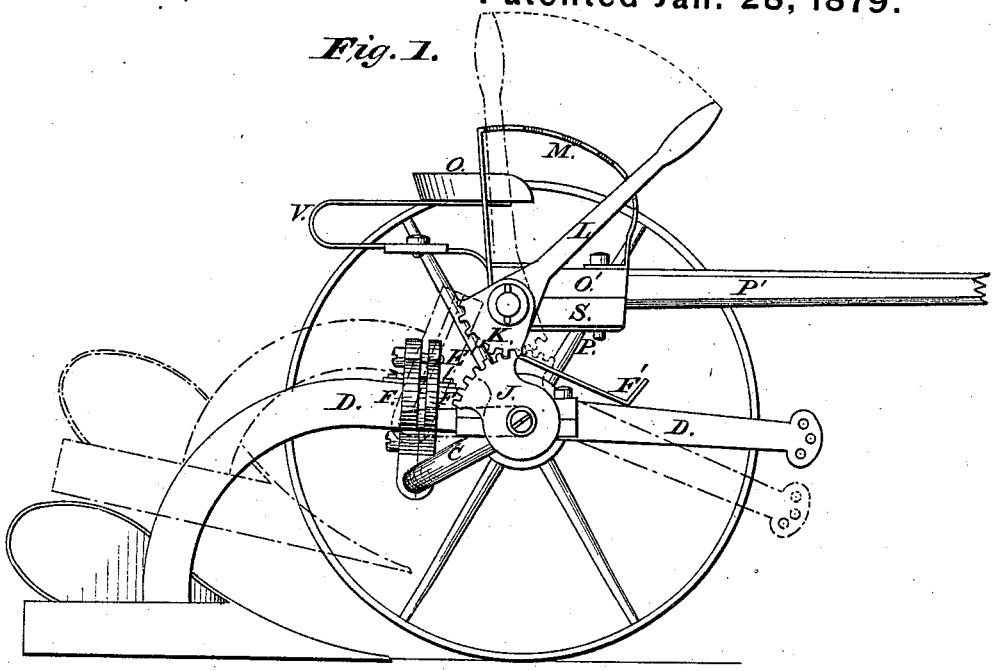
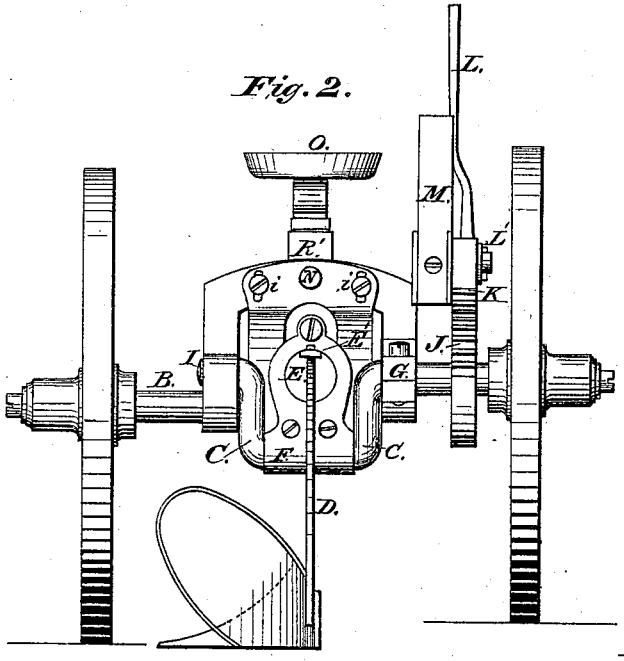


Fig. 2.



Witnesses:

Joel Stover

P. P. Kirn.

Inventor

Franklin B. Hunt.

2 Sheets—Sheet 2.

F. B. HUNT.

Sulky-Plow.

No. 211,662. Patented Jan. 28, 1879.

Fig. 3.

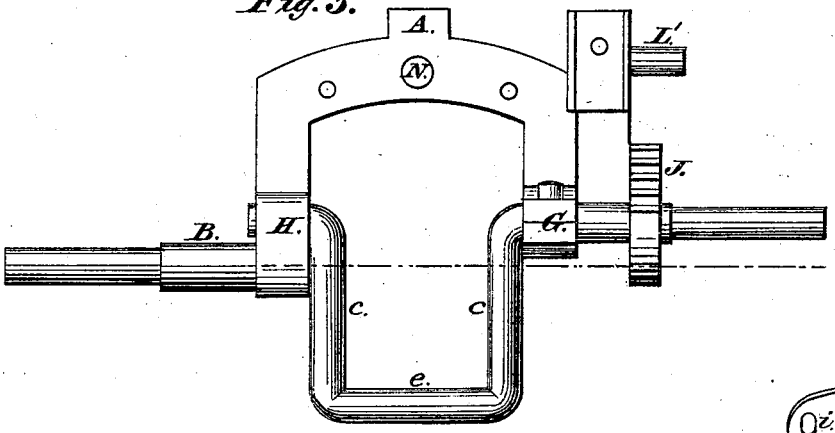
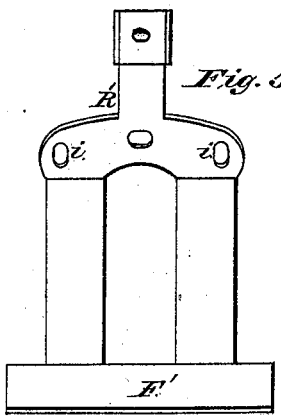


Fig. 5.



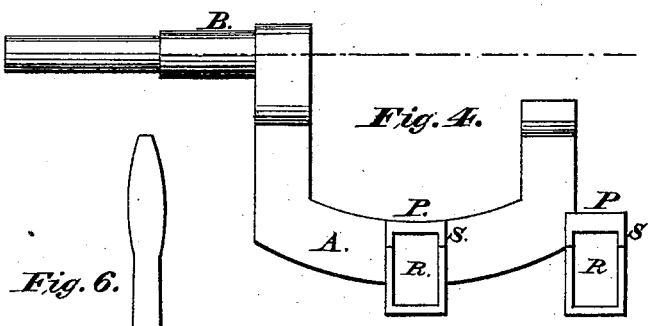
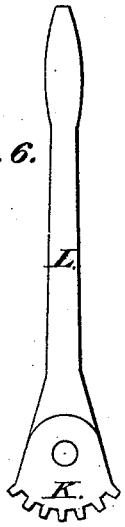


Fig. 4.

Fig. 6.



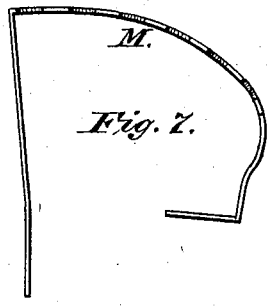


Fig. 7.

Fig. 8.

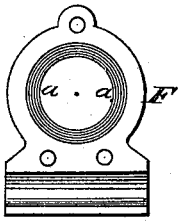


Fig. 9.

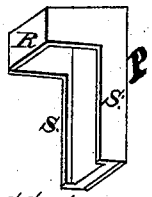
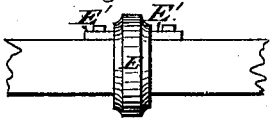


Fig. 10.



Witnesses:

Joel Stover

P. P. Kirn.

Inventor:

Franklin B. Hunt.

UNITED STATES PATENT OFFICE.

FRANKLIN B. HUNT, OF RICHMOND, INDIANA.

IMPROVEMENT IN SULKY-PLOWS.

Specification forming part of Letters Patent No. **211,662**, dated January 28, 1879; application filed March 27, 1878.

To all whom it may concern:

Be it known that I, FRANKLIN B. HUNT, of Richmond, county of Wayne, and State of Indiana, have invented certain Improvements in Sulky-Plows, of which the following is a specification:

My invention relates to a series of novel devices and combinations of devices, hereinafter fully described and set forth in the specification and claims.

Figure 1 of the drawings is a side elevation, the right wheel being removed. Fig. 2 is a rear elevation. Fig. 3 is a rear view of the crank and furrow-wheel axles connected by means of the seat-arch. Fig. 4 is an inverted front view of the seat-arch with the furrow-wheel axle attached. Fig. 5 is a view of the seat-rest and foot-rest combined and made in one piece. Fig. 6 is a view of the lever attached to the detachable segment. Fig. 7 is a side view of the quadrant. Fig. 8 is an inside view of one of the pivoting-blocks. Fig. 9 is a perspective of the combined bearing and socket for the tongue, detached from the seat-arch. Fig. 10 is a view of the leveling-block attached to the plow-beam.

A is the seat-arch, having the furrow-wheel axle B rigidly attached thereto, and arranged below the line of the crank-axle C, in order to adapt one wheel to the furrow. The pivoting-blocks F are fitted to the part *e* of the crank-axle, and are provided with the bearings *a* for the circular leveling-block E, attached to the plow-beam D, which is curved downward to form a standard for the plow. The leveling-block E is provided with lugs E′ to receive pins to hold it in place on the beam.

By means of this arrangement of the pivoting and leveling blocks the plow-beam is permitted to vibrate longitudinally and laterally, and the same device pivots the plow-beam to the crank-axle, and the leveling-block attached to the plow-beam operates, in conjunction with the furrow-wheel axle, arranged below the line of the crank-axle, to level the plow under all circumstances. For instance, in striking out a land both wheels run upon the land, and the leveling-block levels the plow accordingly, and is tightened or clamped in position by means of the upper bolt in the pivoting-blocks and held firmly. After the first furrow has been laid out and the wheel takes the furrow, the leveling-block attached to the beam is again brought into requisition to level the whole, according to the depth of furrow it is desired to turn. The leveling and pivoting blocks are cast of suitable dimensions to apply directly to the plow-beam and crank-axle without fitting, and are held firmly in place by means of the lower bolts passing through the pivoting-blocks, the upper portions of the pivoting-blocks standing sufficiently apart to admit of being clamped upon the leveling-blocks by mean of the upper bolt.

The seat-arch is held in place upon the crank-axle by means of the cap G and the bolts passing through it, as seen in Fig. 3. The end I of the crank-axle passes through the seat-arch above the furrow-wheel axle at H. Thus it will be seen that the crank and furrow-wheel axles are combined and arranged to each support the other, and connected by means of the seat-arch, and yet operate entirely independent of each other, the one serving to carry the furrow-wheel, and the other, operating to carry the land-wheel, at the same time serves to raise and lower the plow through the means of the segments J K and lever L, held in place when adjusted by means of the quadrant M, the rear end of which is attached to the seat-arch by means of cleats and a single bolt, as shown in Fig. 2. The forward end is attached to the tongue-bearing by means of the bolt, which holds the tongue in place, passing through it, as seen in Fig. 1.

The lever L and segment K may be detached from the lug L′ to allow the plow to play automatically in freeing itself from obstructions, when desired to work in that way, or the plow may be adjusted and locked in the ground. The lever L has a backward movement in raising the plow, the crank axle and lever being connected by means of the segments J K, provided with ordinary cog-teeth, which always remain in mesh, and the radius of the lever-segment K, being less than that of the crank-axle segment J, gives compound leverage in raising the plow, so that any boy of suitable age to drive a team can easily operate the plow.

Segments attached to a crank-axle have been used in connection with a lever having

a catch or pawl attached to said lever. I operate the crank-axle segment by means of a like segment provided with cog-teeth to remain in mesh at all times, and attached to the lever. Thus the stress in raising the plow is equal at all points. The segment K is attached to the seat-arch by being pivoted to the lug L′ attached to the arch, and the lever extends upward therefrom in convenient reach of the driver on his seat O. The seat-arch is provided with double bearings P for the tongue P′. These bearings have attached to them the sockets R, to receive and support the end of the tongue, and side flanges S, by means of which the tongue is held in place, by means of a single bolt passing through the tongue and the front end of the tongue-bearings. The double bearings are for the purpose of adapting the sulky to either two or three draft animals, as may be desired, by simply changing the tongue from one bearing to the other. When the tongue is in the center bearing a block, O′, is placed in the other bearing, as shown in Fig. 1, to support the front end of the quadrant. The only cost of adapting the sulky to two or three animals at will is the weight of metal in one bearing, and the only cost of leveling the plow both ways and under all circumstances is the weight of metal in the leveling-block attached to the plow-beam, the pivoting device to pivot the plow-beam to the crank-axle being no more expensive than the ordinary pivoting apparatus now in use. The combined bearings and sockets are cast as an integral part of the seat-arch, and are plainly shown in the detached view, Fig. 9. The tongue is rigidly attached to the furrow-wheel axle through the means of the seat-arch and tongue-bearings, to guide the sulky with precision, and allow the crank-axle free play independent of the tongue, the crank-axle being supported and held in place entirely by means of the seat-arch. There is a lug, N, (seen in Figs. 2 and 3,) attached to and cast as an integral part of the seat-arch, and from this lug the combined rest shown in Fig. 5 is suspended, and made adjustable by means of bolts passing through the slots *i* and into the seat-arch, and allowing the adjustable seat and foot-rest to vibrate laterally upon the lug N. The seat and foot-rest may be allowed to play loose and adjust themselves according to circumstances, or may be tightened and held in any required position by means of the bolts passing through the slots *i* in the seat-rest.

The seat O is attached to the seat-rest by means of a single bolt passing through the spring-standard V, attached to the seat.

The furrow-wheel axle may be cast into the seat-arch.

The rear pivoting-block may be graduated, and a pointer attached to the rear lug, E′, to determine the level of the plow at any required depth of furrow, and the bearing-surface of one or both sides of the beveling-block may be corrugated, and the bearing-surface of the pivoting-blocks corrugated to correspond, if necessary, to hold the plow firmly in place when leveled.

The laterally-adjustable seat and foot-rest operate not only in conjunction with the leveling-block, but with the furrow-wheel axle arranged below the line of the crank-axle as well, for the general purpose of leveling the whole machine to suit any possible circumstance or requirement.

The combined rest F′ and R′ (shown in Fig. 5) is cast in one piece, with the holes and slots ready for use without any fitting. The seat-arch is the central construction, to which all else is depended except the plow-beam, and that part is indirectly depended through the crank-axle and pivoting-blocks.

Thus it will be seen that the crank and furrow-wheel axles are attached to the seat-arch as well as the tongue-bearings, the bearing for the quadrant, segment K, and the lug N, from which the adjustable driver's seat and foot-rest are suspended. This simple construction fills all the requirements of a perfect sulky-plow, and is very inexpensive to build, having less fitting than any sulky now made, the parts being nearly all cast ready to go together, and the whole machine being adjustable in every possible direction that a sulky-plow can be required to be adjusted; and, further, all the adjustable parts and devices can be allowed to play loose, or be tightened in whatever position may be required, at the will of the operator.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a wheel or sulky plow, the combination, with the plow-beam, of a circular vibrating leveling-block, through which the plow-beam passes, substantially as set forth.

2. In a wheel or sulky plow, the combination, with the plow-beam, of the laterally-vibrating leveling-block, through which the plow-beam passes, and the longitudinally-vibrating bearing-blocks, connected directly to the crank-axle, substantially as set forth.

3. In a wheel or sulky plow, the combination, with the plow-beam and adjustable crank-axle, of the pivoted bearing-blocks F F and circular leveling-block E, forming a direct connection between said plow-beam and crank-axle, substantially as set forth.

4. In a wheel or sulky plow, the combination of the seat-arch, the stationary furrow-wheel axle, and the crank-axle, said furrow-wheel axle arranged below the line of the crank-axle, and both directly connected to and by said seat-arch, and each operating independent of the other, substantially as herein shown and described.

5. The combination, with the plow-beam, of the slotted circular leveling-block E, provided with lugs for the reception of pins or bolts, to secure the plow-beam thereto, substantially as specified.

6. The combination of the slotted circular leveling-block E and the adjustable pivoted

blocks F F, provided with interior bearings for supporting said leveling-block, substantially as specified.

7. The combination of the seat-arch provided with the lug N and the slotted seat or foot-rest suspended thereon, and the bolts or screws for adjustably securing the seat or foot-rest in any desired position, substantially as specified.

8. In a wheel or sulky plow, the combination, with the plow-beam and seat-arch, of the leveling and pivoted bearing blocks and crank and furrow-wheel axles, directly attached to said seat-arch, one above the line of the other, substantially as herein shown and described.

9. The seat-arch provided with two extended socketed bearings, P P, cast with and forming a part of the seat-arch, as and for the purpose herein shown and described.

10. The quadrant attached to the seat-arch in rear and to the tongue-bearing in front, in combination with the lever and the segment K, pivoted to the lug L′, attached to the seat-arch, substantially as specified.

11. The seat-arch provided with the bearings for the crank and furrow-wheel axles, tongue, segment K, and quadrant M, substantially as specified.

12. The seat-arch provided with the bearings for the crank and furrow-wheel axles, quadrant M, and double bearings for the tongue, cast as integral parts of said seat-arch, substantially as set forth.

13. The pivoting-blocks F F, attached to the crank-axle, in combination with bolts or screws, by means of which the leveling-block E, attached to the plow-beam, is clamped and held in position when adjusted, substantially as set forth.

14. In combination with the crank-axle and segment J, a detachable segment, K, whereby the plow may be permitted to play automatically, substantially as shown and described.

FRANKLIN B. HUNT.

Witnesses:
P. P. KIRN,
JOEL STOVER.