W. K. & D. BUSHNELL.

Sulky Attachment for Plows.

No. 195,977. Patented Oct. 9, 1877.

Fig. 1.

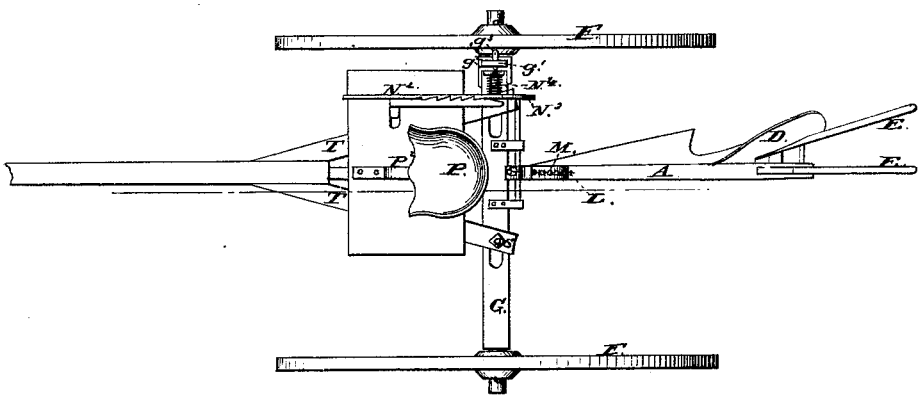


Fig. 2.

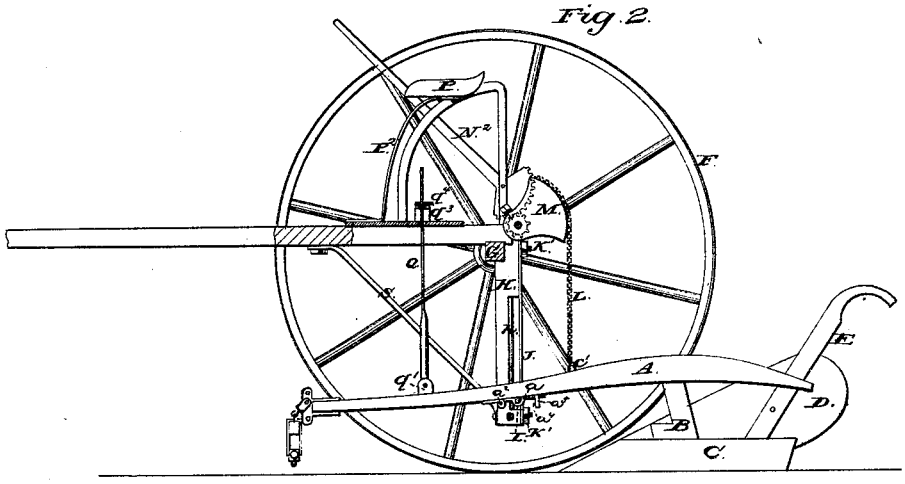


Fig. 3.

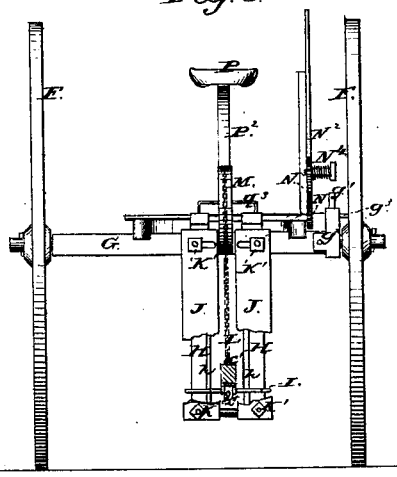
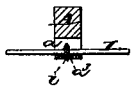


Fig. 4.



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WILLIAM K. BUSHNELL AND DAVID BUSHNELL, OF BURLINGTON, WIS.

IMPROVEMENT IN SULKY ATTACHMENTS FOR PLOWS.

Specification forming part of Letters Patent No. **195,977**, dated October 9, 1877; application filed July 26, 1877.

To all whom it may concern:

Be it known that we, WM. K. BUSHNELL and DAVID BUSHNELL, of Burlington, Racine county, Wisconsin, have invented a Sulky Attachment to Plows, of which the following is a specification:

The object of the invention is to improve the construction of the sulky attachment for plows for which Letters Patent were granted to William K. Bushnell, May 15, 1877, No. 190,737, so as to allow of the plow being gaged to run any desired depth, which depth will not be affected by the wheels running on rough or uneven ground; to gage the plow to run a uniform depth, and still admit of its being thrown from the ground on striking a stone or other obstruction; to prevent strain on the sulky on striking any obstruction; to admit of its being readily adjusted to any width of plow-beam; to prevent unnecessary friction on parallel uprights and plow-beam; to admit of the plow being quickly and readily attached to or detached from the machine; to allow of the pole being quickly and readily adjusted to follow the line of draft; to allow of a plow of any width of cut being used; to strengthen the uprights, and allow of the machine being cheaply constructed and readily controlled with little care from the driver.

A is the beam, B is the standard, C is the land-side, D is the mold-board, and E are the handles, of an ordinary plow. F are the wheels, which revolve upon the journals of the axle G, and are made of such a size as to bring the axle G to such a height above the plow-beam A as will allow the plow to be raised out of the ground.

The inner end of one of the journals g^1 is flattened and bent upward at right angles to fit inside of an upright hollow plate, g^2, attached to the end of axle G. The journal g^1 is held in any position into which it may be adjusted by a pin, g^3, that passes through the flattened arm of the journal g^1, and through the plate g^2, several holes being formed to receive the pin g^3, so that the machine may be adjusted to run level, whether both wheels are running upon the unplowed land or one of them in the furrow.

To the rear side of the axle G are bolted parallel uprights H, projecting below and above said axle G. The parts of the uprights below the axle G are slotted longitudinally to receive the bolt I and allow it to play up and down freely.

The headless bolt I passes through a keeper, *a*, hinged at a^2, and slotted at a^3 and a^4. The keeper *a* is attached to the under side of the plow-beam A. *i* is a flange in the center of bolt I, made to fit in the slot a^3 in keeper *a*, by which the said bolt I is held in position, and allowed to turn freely when playing up and down in the slot in the uprights H. It also allows the head and nut on the bolt I to be dispensed with, which greatly lessens the friction on standards H and plates J. a^2 is a hinge in keeper *a*, to admit of the bolt I being readily taken from or placed in position in keeper *a* and a^3. a^4 is a slot in keeper *a* to receive the thumb-screw a^5, which is screwed into the beam A to hold the end of said keeper in position, and to allow of its being loosened to remove the bolt I or place the same in position when attaching or detaching plow.

To the forward side of the slot in uprights H a half-round plate, *h h*, is fastened, to prevent wear on the said uprights and diminish friction.

The beam A passes between parallel plates J, which are bolted to the rear of uprights H by bolts K′, passing through the ends of the plates J. The said plates are slotted at each end to receive the said bolts K′, which allows of their being readily adjusted to any width of plow-beam, or moved to either side to cause the plow to take or leave land. The plates J also form the rear side of slot in uprights H, greatly strengthening the same, and by presenting their narrow edges to the plow-beam diminish friction, and prevent the plow from having a lateral movement or wabbling. By this arrangement of the plates J the combination of the longitudinally-slotted plates and bolts may be dispensed with, thereby lessening the cost of construction, and allowing of the plow working more freely and steadier.

To the upper side of beam, and a little in the rear of keeper *a*, is attached the lower end of a chain, L, by means of a bolt screw or eye, *c*′. The upper end of said chain is attached to a section of a wheel, M, pivoted to and between the upper ends of the uprights H. To one of the journals of the said section of a wheel is attached a pinion, N. The said pinion engages with a geared lever, N^2, which is supported by the standard and ratchet N^3. The end of the standard is bolted to the axle G, and the ratchet

to the foot-board. The geared lever N^2 is pivoted on the journal N^4, and held in position on the same by a nut and coil-spring. The lever N^2, in raising the plow from or lowering to the ground, is moved along the ratchet, and held in any position in which it may be adjusted by the said coiled spring.

P is the driver's seat, attached to the upper end of spring P^2, the lower end of said spring being fastened to the foot-board, and is adjustable either backward or forward, to take weight from the horses' necks and balance the machine.

Q is a forcing-lever, the lower end of which is fastened, a little to the rear of the clevis, to the plow-beam A, by a bolt screw or eye, q^1. The upper end of the said forcing-lever is flattened, and passes up through the foot-board and slotted plate q^3, which extends above and over slot in the foot-board, and is fastened to the said foot-board by bolts. In the upper end of the forcing-lever Q numerous holes are made to receive pins q^4, either of wood or iron, according to the state of ground to be plowed.

When the plow has been gaged to run the desired depth by means of the clevis, a pin is inserted in the hole in the forcing-lever Q, which falls immediately below the slotted plate q^3, which holds the plow-beam in such a position that it is compelled to plow the desired depth, and in hard or soft ground allows the sulky to rise and fall in passing over rough ground without interfering with the working of the plow. It also causes the plow, on being lowered to the ground, to assume the desired depth without any care from the driver. By the use of this lever the use of the foot-lever is dispensed with, also the care of the same, and the plow runs steadier and more evenly, at the same time allowing of the plow being thrown from the ground on striking a stone or other obstruction by breaking of the pin.

The braces S are designed to strengthen the lower part of the uprights H, the upper ends of which are attached to the frame or hounds T, and the other end to the lower end of said standards. The hounds T are attached to the axle G by bolts *s*, the axle G being slotted horizontally to receive the said bolts. By this arrangement the pole is readily adjusted to follow the line of draft by moving the bolts in the desired direction in the said slot in the axle-tree.

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

The adjustable plates forming the rear side of slots in uprights H, the hinged and slotted keeper, with the headless bolt with flange in the center, the forcing-lever and slotted plate above the foot-board, and the adjustable pole, all in combination, as specified.

WILLIAM KOSSUTH BUSHNELL.
DAVID BUSHNELL.

Witnesses:
ANTONY MEINHARDT,
C. H. WOOD.