J. P. BLACK & T. PATES.

Sulky-Plow.

No. 213,614. Patented Mar. 25, 1879.

Fig. 1.

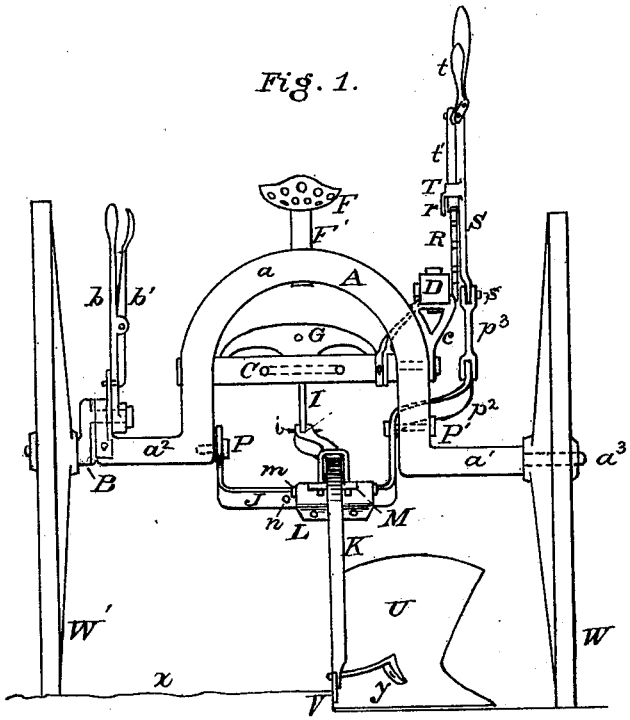


Fig 3

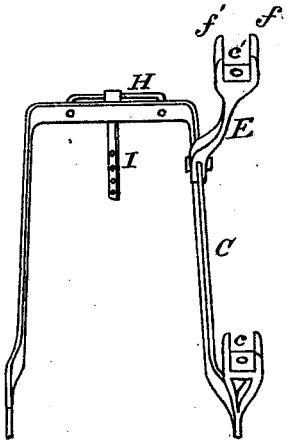
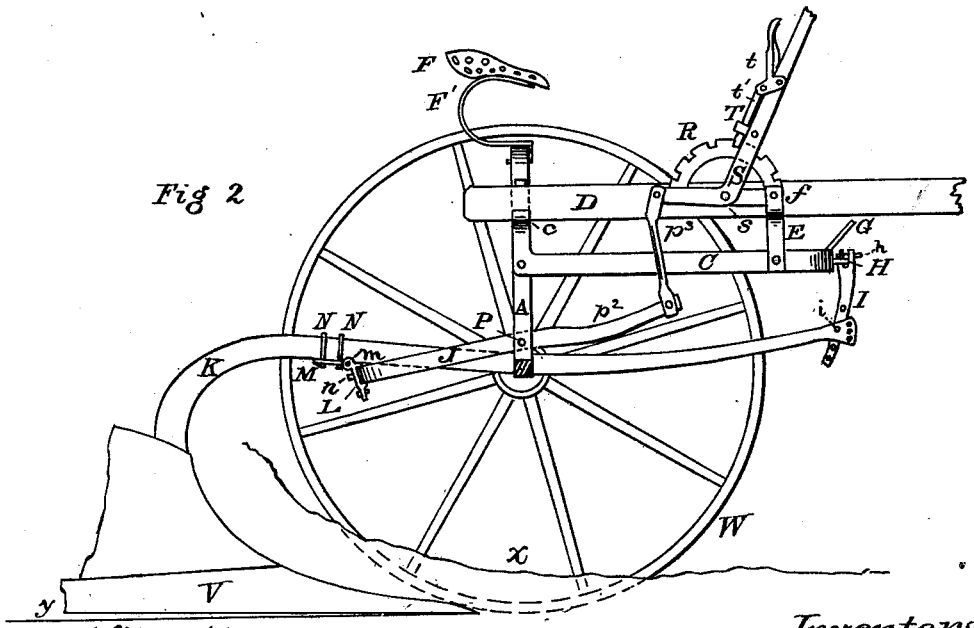


Fig 2



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UNITED STATES PATENT OFFICE.

JOSEPH P. BLACK AND THOMAS PATES, OF ALTON, ILLINOIS, ASSIGNORS TO HAPGOOD & CO., OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN SULKY-PLOWS.

Specification forming part of Letters Patent No. **213,614**, dated March 25, 1879; application filed February 13, 1878.

To all whom it may concern:

Be it known that we, J. P. BLACK and THOMAS PATES, of Alton, in the county of Madison and State of Illinois, have invented a new and useful Improvement in Sulky-Plows, which improvement is fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a rear view of our improved sulky-plow. Fig. 2 is a side view of same. Fig. 3 is a view of the foot-rail C, brace E, and adjusting-rod I.

Our invention relates to sulky-plows having an iron frame; and consists, first, in an improved construction of the parts constituting the sulky-frame; and, secondly, in an improved construction and arrangement of the adjusting devices, whereby the plow is adjusted and carried while at work in a better manner than has heretofore been attained, as hereinafter set forth.

The arched axle A, foot-rail C, and tongue D, with brace E, constitute the sulky-frame. C is the foot-rail, consisting of a bar of wrought-iron bent U-shaped, as is in common use.

Our improved construction consists in bending and extending one of the arms upward, so as to form a seat, *c*, for connecting with, bracing, and supporting the rear end of the tongue.

The seat *c* may be of any desired construction for connecting with and being bolted to the tongue, substantially as shown. Both arms of the said foot-rail are attached to the axle with bolts or rivets, and both arms extend forward of the axle. One arm is attached to the brace E, connecting with the tongue forward, and the closed end of the foot-rail crosses above the plow-beam and supports a foot-board, G, and a staple, H, as shown in the drawings. The brace E is a bar of iron extending upward from the foot-rail and connecting the forward end of the foot-rail with the tongue, as is in ordinary use, our improved construction being the forming of the flanges *f f'* on the top end of the brace E as sides to embrace the sides of the tongue and to make a strong bracing connection therewith.

The arched axle A, of ordinary construction, arched as shown, with foot-rail C, having one arm extended and bent with seat *c* formed thereon, and both arms attached to the axle, tongue D, as ordinarily constructed, and brace E, having flanges *f f'* and seat *c'*, constructed, arranged, and connected together, as shown, makes a sulky-frame of great strength not before attained, for the reason that the flanges *f f'* brace the tongue laterally, while the extended arm of the foot-rail forming the seat *c* braces the parts perpendicularly.

Our improved construction and arrangement of adjusting devices consist in a plow-beam connected at its forward end to the sulky-frame by means of an adjusting-rod, I, which supports and holds the forward end of the said beam in position, and the rear part of the said beam is connected to a bail, J, which bail is hinged pivotally to the axle, and by means of the said bail and its connection with a hand-lever, S, the rear end of the plow may be elevated or depressed while the plow is at work, and the said hand-lever operating in connection with adjusting notches in a segment, R, the plow may thereby be adjusted while at work, and held in position by the said lever stopping at one of the several notches or stops in the said segment.

The importance of this arrangement of parts and adjustability is that the plow may be more correctly aligned and set for work in such a manner that the plow will be carried while at work by the sulky-frame and wheels without resting and slipping or sliding on the bottom of the furrow, and thereby all friction on the furrow-bottom is avoided, our improvements being in an improved construction and arrangement of parts, as hereinafter shown and claimed.

K is the plow-beam, supporting a plow attached at its rear end, as shown.

I is an adjusting-rod, consisting of a bar or rod provided with two or more perforations for adjustability, one end of the said rod being adjustably attached to the forward end of the plow-beam K, the other end of the said rod being connected to the sulky-frame, and by means of the rod I the forward end of the plow-beam is supported and held in position, and adjusted high or low for shallow or deep plowing, as desired.

J is a bail of ordinary construction, to which the rear part of the plow-beam is connected in any suitable manner. The said bail is hinged pivotally to the axle on the pins P, and one arm, P^2, of the said bail extends forward of the axle, and has a connection with the hand-lever by means of the link P^3.

S is the hand-lever consisting of a bar bent L shape, having a long arm and a short arm, as shown. The lever S is pivoted on the tongue D, and center of the segment R, and to the short arm is attached the link p^3, connecting with the bail J. The long arm of the lever carries a sliding pin, t', which is operated by a thumb-lever, t, the end of the sliding pin t' stopping between any of the several stops in the segment R, whereby the lever S is held in position at any of the stops in said segment.

R is the segment, consisting of a semicircle provided with stop projections or notches throughout its outer edge, as shown, whereby the lever S may be stopped and held rigidly at any position on the segment.

In operation it will be observed that the movement of the lever S governs the plow, lifting or depressing the rear end of the plow, while the forward end of the plow-beam is held in a rigid stationary position by the rod I. The moving of the long arm of the said lever rearward depresses the short arm and carries down the extension P^2 of the bail J, which elevates the rear part of the said bail, to which the beam K is connected, and by the several stoppings in the segment R the said lever is held at any position on the said segment, and consequently the plow may be so adjusted that it will be carried on the sulky frame and wheels without sliding on the furrow-bottom, which is accomplished by so adjusting the lever S that the plow may have its share-cutting line working below the plow land-side bar and frame; consequently the plow land-side bar and frame have no friction on the furrow-bottom.

The advantages to be able to so adjust the plow quickly and in the best manner while at work will be apparent when it is considered that a changed condition of things effects the working of the plow, and requires a change in the set of the plow, as one part of the field may be hard stiff clay, and another part light or sandy soil. Again, at one part of the field working may be uphill, and at another part downhill, requiring a movement of the lever S to keep the plow working correctly in best working condition.

It is obvious that plows not so provided with means to be so adjusted while at work, must necessarily require a stopping of work while adjustment is made, or poor work with heavy draft will be the result.

We are aware we are not the first in attempting to so arrange the plow and sulky parts as to carry the plow while at work. We are not aware of any such arrangements of parts as we use.

All the undescribed parts of the sulky-plow will be understood by the drawings without other description.

Having thus set forth our invention, what we now claim in a sulky-plow, and desire to patent, is as follows:

1. The foot-rail C, consisting of a bent bar, U-shaped, and the end of one of the arms extending bent upward, forming the seat c for supporting the tongue, and both arms attached to the arched axle A, all substantially as shown, in combination with the arched axle A, tongue D, and brace E, all constructed to operate as described.

2. The brace E, provided with flanges $f f'$, embracing the sides of the tongue, and with seat c', in combination with the tongue D, foot-rail C, and arched axle A, all constructed to operate as described.

3. The sulky-plow frame consisting of the arched axle A, tongue D, and foot-rail C, provided with one arm extending bent upward, forming the seat c, and both arms attached to the axle, and brace E, provided with flanges $f f'$, all constructed and arranged to operate as shown.

4. The combination of the beam K, adjusting-rod I, bail J, provided with extension P^2, link P^3, and lever S, provided with means of adjustable stoppages, segment R, tongue D, and arched axle A, all constructed to operate substantially as shown.

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