H. H. BAKER.

Wheel-Plow.

No. 30,863. Patented Dec 11. 1860.

Fig. 2.

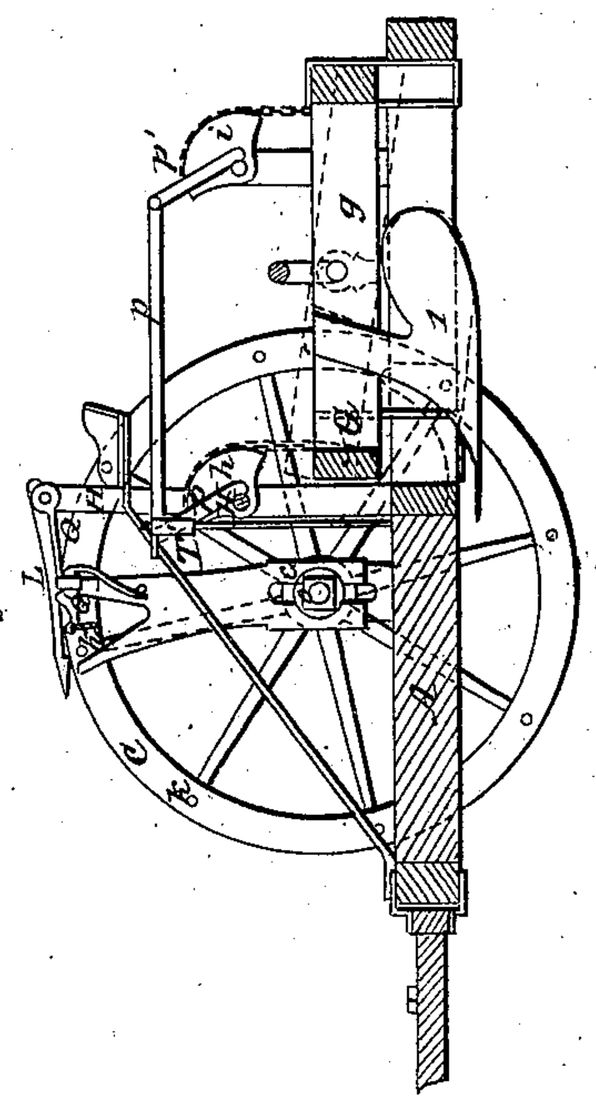


Fig. 5.

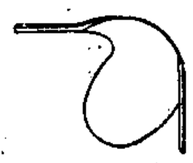


Fig. 4.

Fig. 1

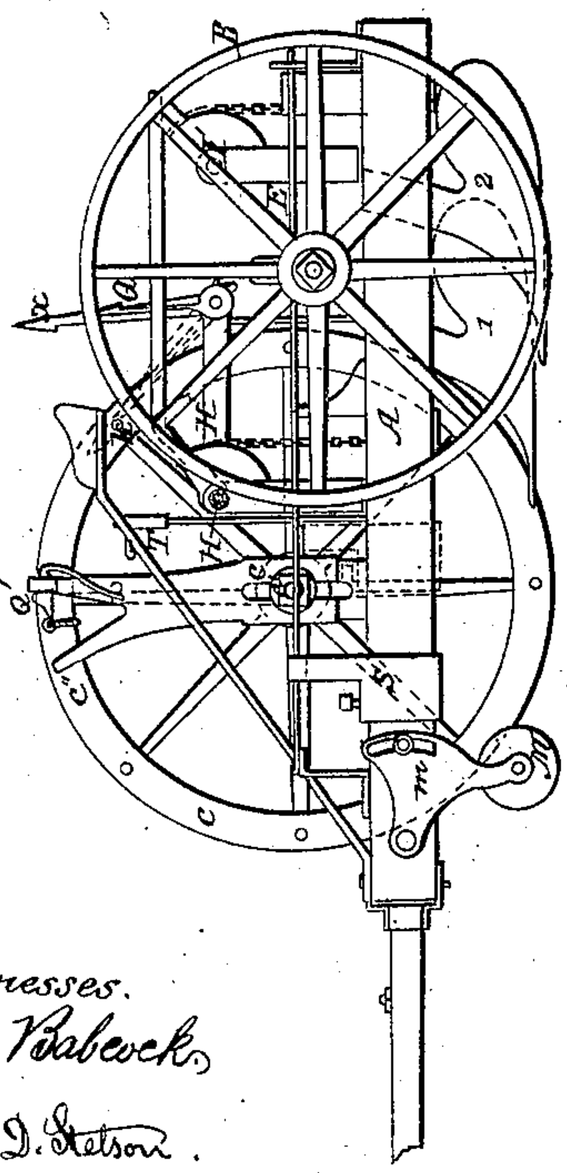
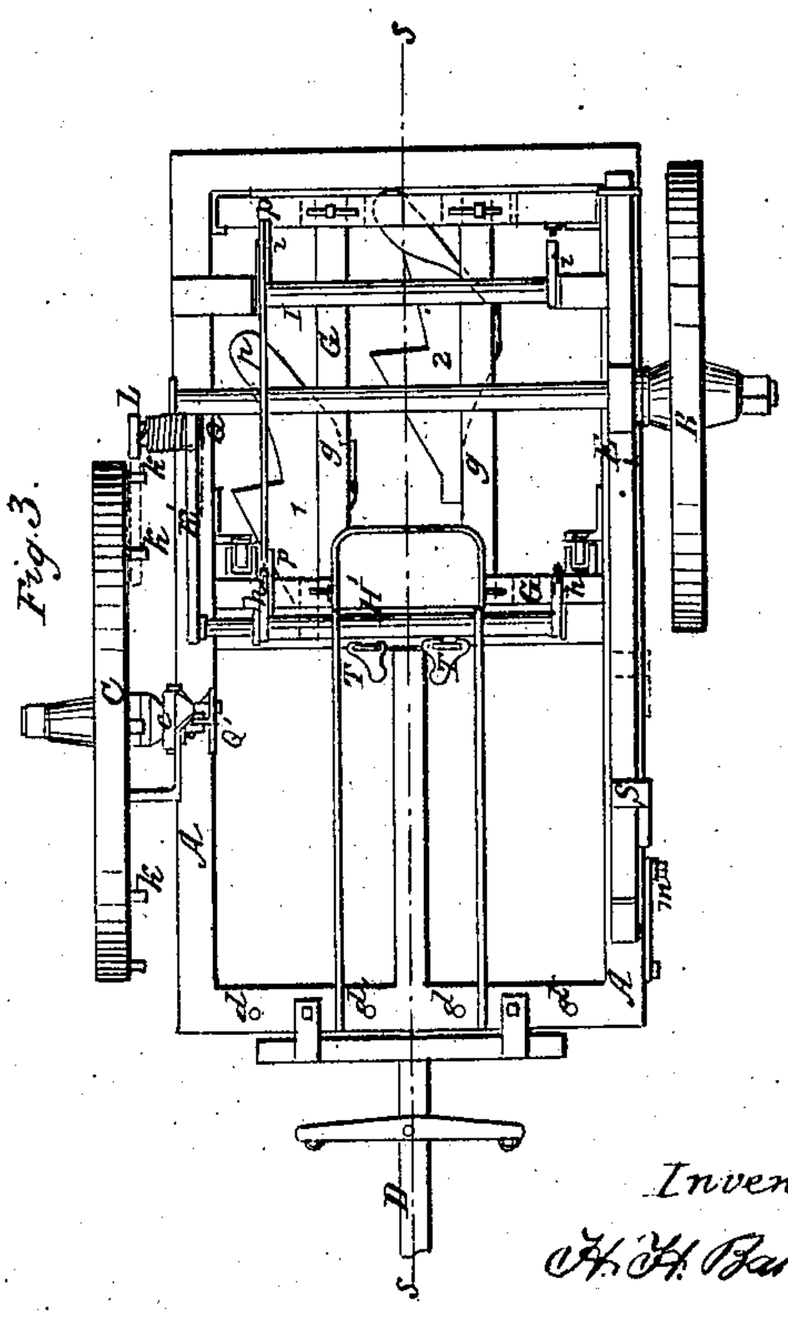


Fig. 3.



Witnesses.

C. H. Babcock.

Thomas D. Stetson.

Inventor.

H. H. Baker.

UNITED STATES PATENT OFFICE.

H. H. BAKER, OF NEW MARKET, NEW JERSEY.

IMPROVEMENT IN PLOWS.

Specification forming part of Letters Patent No. **30,863**, dated December 11, 1860.

To all whom it may concern:

Be it known that I, H. H. BAKER, of New Market, in the county of Middlesex and State of New Jersey, have invented certain new and useful Improvements in Plows; and I do hereby declare that the following is a full and exact description thereof, which I have prepared with a view to the obtaining of Letters Patent for the same.

The accompanying figures form a part of this specification.

Figure 1 is a side elevation. Fig. 2 is a longitudinal section on the line S S. Fig. 3 is a plan view. Fig. 4 is a plan of the share. Fig. 5 is an end view of the same.

Similar letters of reference denote like parts in all the figures.

The nature of my invention consists, first, in the mounting of the plowshares upon wheels, arranged relatively thereto in the manner shown, through the medium of a frame which slides vertically within and is supported and guided by an exterior or principal frame, as shown in the drawings; second, in raising the plows at will by the motion of the bearing-wheels, in the manner explained below; third, in certain means for holding the plows in an inclined position while being raised; fourth, in the combination of a spring with the land-side-wheel; fifth, in the means of adjusting the said spring; sixth, in the use of a certain wheel to indicate the proper stiffness of the spring.

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

A is a frame. B is a bearing-wheel to run on the unplowed earth. C is a bearing-wheel on the other side to run in the bottom of the furrow made on the previous passage of the machine. 1 and 2 are plowshares, and D is the tongue by which the machine is drawn. The wheels B and C are not in line, but are located as represented—the wheel C in advance of the other. The wheel C may be adjusted by a pinching-screw, *c'*, so as to stand at any point desired in the standard *c*. To allow the first furrow to be plowed the wheel C is centered at the top of this standard. Afterward it is placed lower, and serves by its adjustment in this standard to gage the depth of the furrow.

G is a frame capable of rising and sinking within A. To G the plowshares 1 and 2 are affixed by means of the cross-bars *g g*. The bars *g g* are adjustable for varying the position of the plows 1 and 2 relatively to each other and to the wheel C, for the purpose of varying the width of the furrows and of varying at pleasure the direction in which the plows incline to travel in the earth.

Parallel to the axis of C is mounted a shaft, H, extending across the frame A. On its extremity nearest C is an arm, H', carrying a spring-catch, L. On the shaft H are mounted two pulleys or segments, *h h*, from which chains extend to the frame G. Another shaft, I, similar to H, is mounted over the rear of G, carrying similar pulleys or segments, *i i*, from which chains descend to the rear end of G, as represented. I receives its motion from H by means of levers P and P' and link *p*. H receives it motion as follows: The spring-catch L, being operated by suitable means through a treadle, T, beneath the driver's seat or a lever at his side, is caused to catch over a pin or projection, K, in the side of C, whereby the motion of C is imparted to H', and through that and the shafts H and L to the frame G, raising the latter vertically and withdrawing the plows from the earth. The chains from *h h* are shorter than the chains from *i i*, and on the turning of the shafts H and I the chains from *h h* come into play before the chains from *i i*. The consequence is that the frame G is elevated and sustained by the chains in an inclined position, the forward being higher than the rear portion. This inclination changes the effect of the plows 1 and 2 in the earth and allows them to be more easily lifted. On lowering them to their places for work the frame G rests on the shelves, and not on the chains, and therefore stands in its proper horizontal position for work. When H' arrives at the position shown in Fig. 2 a spring-catch, Q, catches under a projection extending from the frame A, while at the same instant the horn *e''* unlatches L from K, and G remains suspended while the machine goes on. On depressing a lever, Q', by means of suitable mechanism connected with the treadle T', the catch Q is released and the plows fall into action again.

The wheel B is not centered on the frame A, but is mounted on a spring-bar, E, as shown

in Fig. 3. Without this spring the furrow would correspond with all the inequalities of the ground, which in old ground are considerable. By means of the spring the wheel B may ride over corn-hills and other slight elevations or depressions without affecting the depth of the plows. The wheel C running in the furrow needs no such spring. The rigidity of the spring E must vary according to the different strata of soil, the depth of the furrows, the inequalities of the surface, and weight of the driver. A sliding piece, S, attached to the frame A embraces the spring E, by adjusting which nearer to the wheel the spring may be made more rigid at pleasure.

A wheel, M, is provided at the forward corner on the land side, which serves to indicate when the parts are properly adjusted. When M presses too heavily on the ground the spring E is too limber, and the slide S must be set nearer to the wheel. When M touches the ground about half the time only, then the spring E is rightly adjusted. The wheel M is adjusted to the depth of the furrows by a slotted standard, *m*.

The wheels B and C run so as to nearly balance the machine thereon, C standing before the plows and B behind them, so that the strain is received upon them properly. C is placed forward of the plows, that the furrow turned by 1 may fall behind it, and B is just enough behind them to hold them in the proper position and balance.

The tongue D is attached to A in such a position as to cause the line of draft to fall in a line therewith, and is capable of being bolted to A at varying positions to correspond with the varying positions of the plows, or when the number of the latter is varied, as shown by the bolt-holes *d d*. By this adjustment no side strain is thrown on the team.

The plowshares 1 and 2 are of such form that the furrow excavated by each has no perpendicular face or side, but the land side of each furrow is curved. This form of the shares is shown by Fig. 4, and gives the least line of cut for the amount of soil turned over, which reduces the power required to operate the machine, and it also reduces the frictional surface of the share, which contributes to the same effect.

The bars *g g*, being capable of adjustment at either end, may be set out of parallel to the side of the frame, so as to bring the axes of the plows in such a position relatively to the line of draft as to throw the least possible side strain upon the wheels and give the least friction upon the share. These bars must be adjusted to suit the different varieties of soil to give the best effect, and I am not aware that other plows have been adjusted in a similar manner.

In the operation of my plow the whole weight of the machine, as also the strain of lifting the earth from the furrows, is supported by the wheels B and C. There is little pressure or friction produced against the earth, except on the upper side of each share. The side strain produced by the turning over of the furrows is resisted by the disinclination of the wheels B and C to slip laterally, and not by any pressure of the parts 1 and 2 against the unplowed earth. The friction being all on the upper side of each share, the upper side alone is brightened and worn away by use. The under side of the point is not worn off obliquely, as usual, which allows the point to remain longer in a workable condition.

I am aware that plows have been before supported on wheels, which I do not claim; and I am also aware that they have been caused to run out of the earth by being tilted, which arrangement I also disclaim. Neither do I claim receiving the side strain of the plows upon the wheels, as that has been before done. Neither do I claim the use of a number of plows in one frame, as I am aware that they have been used in gangs. Nor do I wish to be confined to any special number, as any convenient number may be used without altering the nature of my invention; but

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. The mounting of the plowshares upon wheels, arranged in the manner shown by B and C, through the medium of a frame, G, which slides vertically within and is supported and guided by an exterior or principal frame, A, as herein shown and described.

2. Raising the plows 1 and 2 vertically at will by the motion of the bearing-wheel C through the aid of mechanism substantially as above set forth.

3. The means, substantially as herein shown and described, for holding the forward side of the plow-frame G higher than the rear side thereof when in the act of being elevated, in combination with means, substantially as herein shown and described, for holding the said plow-frame level when it is fully lowered, for the purpose herein set forth.

4. In combination with the wheels B and C, frame A, and plows 1 and 2, the employment of the spring E for the purpose designated.

5. The employment of the adjustable standard S, in combination with the spring E, for adjusting the rigidity of the latter, in the manner and for the purpose shown.

6. In combination with the adjustable spring E, the employment of the wheel M, for the purpose herein set forth.

H. H. BAKER.

Witnesses:

THOMAS D. STETSON,

G. H. BABCOCK.