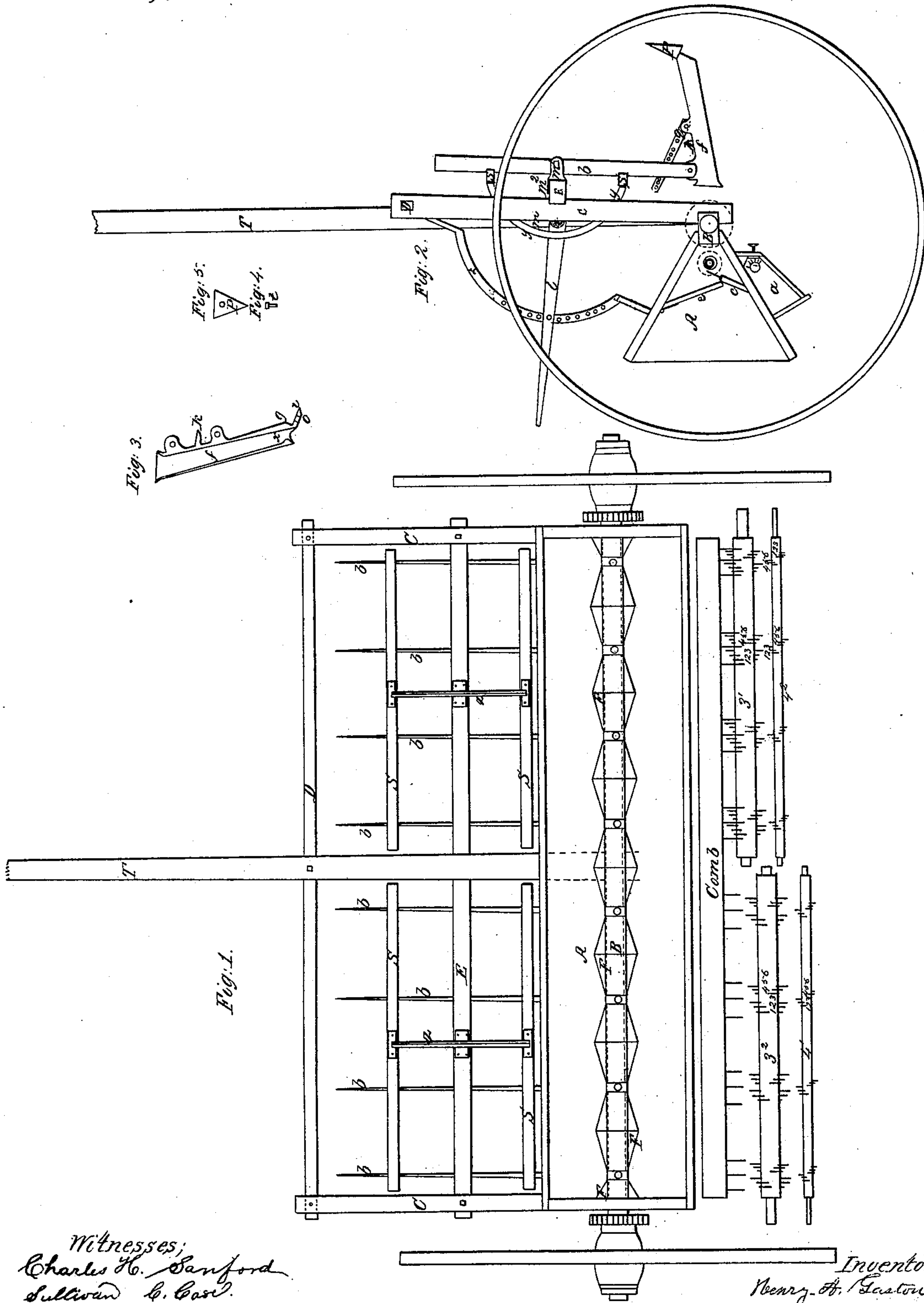


H. A. Gaston

Grain Drill

N^o 95,789.

Patented Oct. 12, 1869.



*Witnesses;
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United States Patent Office.

HENRY A. GASTON, OF STOCKTON, CALIFORNIA.

Letters Patent No. 95,789, dated October 12, 1869.

IMPROVEMENT IN COMBINED SEEDER AND GRAIN-DRILL.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, HENRY A. GASTON, of Stockton, in San Joaquin county, and State of California, have invented a new and useful Improved Combined Broadcast and Drill Grain-Seeder; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a top or plan view of my machine, with its relief-board *e*, its comb *c*, and its rotating shafts removed from the interior of the bin *A*.

Figure 2 is a transverse vertical section of my machine, showing an end view of a smaller broadcast seed-sower, *a*, in the rear of and attached to the main bin *A*, and also showing one of a series of hollow iron flukes, and a lever suspending the same, and also showing a frame of wood, surmounted with a two-pronged lever, for controlling the system of flukes, and regulating the depth at which their points *P* plow through the soil.

Figure 3 is a central vertical sectional view of one of the flukes.

Figure 4 represents a small square-headed screw-bolt, which I use for fastening the steel or cast-iron point *P* upon the projecting foot of the fluke *f*.

Figure 5 shows the form of the steel point *P* before it is bent or receives its double mould-board form for its place on the fluke *f*. This is perforated, and has a female screw cut through it at *o*, for the reception of the bolt *t*.

The same letters and incidental numerals refer to like parts of the machine in all the figures.

Those parts of the machine which are made of wood are outlined in carmine, and those of iron in ink.

A represents the main bin.

B, the axle, perforated at the circles, for discharging the grain.

C C are end bed-pieces of the drill-attachment, and extend from beneath the axle forward.

D is the front cross-bar of the same attachment, and is halved on or otherwise attached to the tongue *T*, and connects *C*, *T*, and *C*.

E is a central cross-bar connecting *C*, *T*, and *C*, and supports upon its upper surface, and upon each side of *T*, the controlling levers *l*, and their arms *y*, and upholds from its lower surface the fluke-levers *b*.

S S represent heads or bars attached to the arms *y*, and rest, either in their front or rear, upon the fluke-levers *b*. These move up and down as the upper end of the levers *l* are moved forward or back in opposite directions.

P represents a small steel or cast-iron point, which, when the drill is in use, is attached to and terminates the fluke *f*, by means of the small bolt *t*, fig. 4, and is

curved in the form of a double mould-board. This point *P* rests firmly in the recess below *g*, and upon the projection *i* in fig. 3.

3¹ and *3²*, with the representation of wires driven through them, represent the rotating shafts, which extend as one shaft from end to end of and within the bin *A*, and are rotated by small pinions, driven by the spur-gearing seen at each end of the bin.

The divisions *F*, *F*, *F*, &c., are double inclined planes, their summits meeting at the central line drawn between their ends. These I place beneath the rotating or oscillating shafts, and above the slide-valves, which rest upon the axle, so that their bases terminate at the discharging-orifices through the axle, and of the slide-valves when fully open. At their centres they fill the space between the shafts and the slide-valves, and they conduct the grain down their planes to the orifices of the slide-valves in such a manner that no seed is left in the bin *A* or *a* unsown.

4¹ and *4²* represent small shafts for the smaller bin *a*. These I oscillate by means of arms extending from their outer ends, which project through the ends of the bin, to the end of which arm I attach a pitman loosely, the opposite end of which pitman, I propel by and move upon a spur or pivot extending outwardly from the small pinion above mentioned.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation more minutely; first, premising that the drawings given may be taken as on a scale of one-eighth of the average size of the machines which I am now constructing.

I construct my bin, relief-board, comb, rotating or oscillating shafts, scatter-board, slide-valves, and the main body of my machine in accordance with the plan and description given in my "Letters Patent, No. 83,624, dated November 3, 1868," with this difference, that I divide the rotating or oscillating shafts at their centres longitudinally, as seen between *3²* and *3¹*, and between *4²* and *4¹*, and permitting their inner ends to rest in a central bearing in their bins. I rotate or oscillate them by gearing or pitmens attached to their outer ends.

By this novel arrangement, when turning around at the end of a field, my machine sows the grain on that half of it, toward the revolving wheel, the same as while crossing the field, while toward the other wheel, which is being turned less, less grain is sown, by which perfect uniformity of sowing is secured as well around the ends of the land as across the field.

I also introduce another novel and valuable feature in this machine, which is, that I put through the rotating shafts, immediately over the discharging-orifices in my slide-valves and axles, or bed-pieces of the bin, four or six wires in the manner represented at the

numerals 1, 2, 3, 4, 5, 6, of shaft 3¹, and into the oscillating shafts I also drive four or six, as seen at the numerals 1, 2, 3, 4, 5, 6, of 4².

By this novel arrangement I cause the wires to sweep the grain and seed to and fro over the discharging-orifices, and to press it through them with perfect regularity, and in exact proportion to the velocity of the team or moving power.

The teeth in the comb are necessarily but three in number to each discharging-orifice, one of which I place centrally, to divide each set of four or more fingers above each discharging-orifice. The arrangement of the teeth in this novel contrivance is seen in the rear of fig. 1, between the bin A and the shafts 3¹ and 3².

The object of this contrivance is to prevent the fingers of the shaft becoming clogged by straws, and to pick apart and to separate grain, which adheres in mass through the use of lime or other substances.

The wires 1, 2, 3, 4, 5, 6, are called fingers.

The wires of the comb are called teeth.

Having described my drill so far, which up to this point, with its several parts named, is a broadcast-seeder when desired, I attach beneath the axle B and the tongue T the novel frame-work C E D, which will be understood readily by the plan shown and the scale given.

Centrally between the tongue T and the bed-pieces C upon the cross-bar E, or under E, and extending thence upward, by curving the same to the desired height, I place the novel governing-lever *l*, the lower end of which rests in the fulcrum *m*, and from this lever I extend the novel arms *y*, either or both, which terminate at and are attached to the novel head-bars S.

These head-pieces I provide with slots or guides on their under sides, into which the upper edges of the fluke-levers *b* extend, and by this novel contrivance not only is the depth of the point P in the soil regulated and determined at the will of the operator, but the flukes *f*, which are attached to the rear ends of the levers *b*, which last I suspend in the fulcrums *m*¹ *m*², are guided also, and kept in direct line.

I make my flukes in the novel manner or form shown in fig. 3, sharp and cutting in front, as shown from the lower lug to the angular depression at *g*, and providing within the tube, at or near its rear lower extremity, the novel protuberance seen at *x*, and terminating the lower end of the fluke with novel foot-like projection seen at *i*.

This last I perforate with a slot seen at *o*, to receive the small screw-bolt *t*, fig. 4, which passes upward through this slot, and screws into the novel cast-iron or steel point P, and attaches the same firmly upon the projecting foot of the fluke.

The point P constitutes a small double mould-board, which, slightly raising and dividing the soil, turns it both ways from the body of the fluke. Its material is determined by the soil in which it is required to work, sandy or otherwise. Its rear end rests in the angle

seen between *g* and *i*, while its point, which enters the soil at a very acute angle, raises it sufficiently high to receive beneath it the grain, which, as it descends within the fluke, is thrown forward, by the protuberance *x*, beneath the point P, which, passing, the soil closes in upon, and securely covers the grain.

The lower end of the fluke, from its front to its centre, constitutes a continuation of the mould-board P, while it will be seen the office of the sharp edge of the fluke is to present as little resisting surface as possible to the soil through which it moves, and to prevent its being clogged.

At *k*, between the two lugs of the fluke, I provide a novel stop, which prevents the flap *q* from closing back further than desired toward the fluke *f*.

I attach my tubes, which lead from the discharging-orifices into the flukes *f*, first to a separate piece of thin board, the holes through which, and through the tubes, correspond with and make a continuation of the holes through the axle, and this board, either in one or two parts, I screw upon the under side of the axle. By this novel contrivance I convert the drill into a broadcast-seeder, by removing this light board and its attached tubes from the axle, and attaching the scatter-board under the axle, and *vice versa*.

I determine the position of my levers *l*, and consequent position of my flukes, by the novel ratchet *r*, or a similar contrivance.

The levers *l* are within convenient reach of the driver, who rides upon a seat over the centre of the bin.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The oscillating or rotating shafts, when constructed and operated substantially as and for the purposes above described.

2. The comb C, combined with the divided shaft 3¹ 3² in such manner that the teeth of the former may pass centrally through the fingers of the latter, as and for the purpose described.

3. The frame C E D, in combination with the lever *l*, arms *y*, head-bars S, and fluke-levers *b*, all arranged and operating substantially as set forth.

4. The governing-levers *l*, and their arms *y* attached to the head-pieces S, substantially as and for the purpose above described.

5. The sharp-edged fluke *f*, with its internal projection *x*, and also its foot-like projection *i*, and its stop *k*, constructed substantially as above described.

6. The fluke *f*, provided with the foot-like and slotted projection *o*, and angular depression *g*, and combined with the point P, in the manner and for the purpose specified.

7. A grain-drill, constructed and operated substantially as above described.

HENRY A. GASTON.

Witnesses:

CHARLES H. SANFORD,
SULLIVAN C. CASE.