

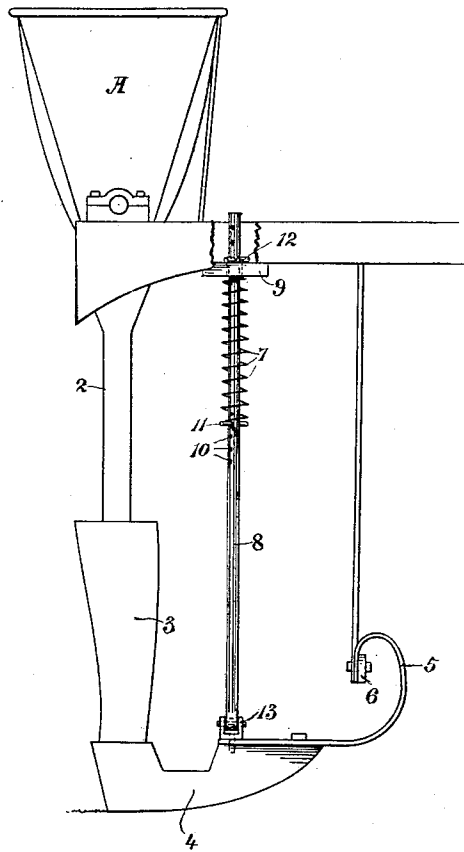
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W. FALCONER.
GRAIN DRILL ATTACHMENT.

(Application filed Dec. 18, 1899.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WILLIAM FALCONER, OF SELMA, CALIFORNIA.

GRAIN-DRILL ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 655,334, dated August 7, 1900.

Application filed December 18, 1899. Serial No. 740,717. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM FALCONER, a citizen of the United States, residing at Selma, county of Fresno, State of California, have
5 invented an Improvement in Grain-Drill Attachments; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an attachment for
10 grain-drills of that class in which the grain is delivered from a reservoir or feed-box through tubes and shoes at the lower ends, which shoes form drills to receive the grain, and is especially designed as an attachment for
15 shoes the front ends of which are carried by a coiled or similar spring.

The object of my invention is to provide a supplemental attachment by which the pressure upon the heel of the shoe can be regulated, so as to insure the drill being made of
20 sufficient depth in hard or lumpy ground, and at the same time it is prevented from going too deep where the ground is soft and sandy.

My invention consists in details of construction, which will be more fully explained by reference to the accompanying drawing, in which the figure is a side elevation of a grain-drill with my attachment.

My invention may be applied to drills for sowing grain which are mounted to be used in direct connection with a series of gang-plows, or it may be applied to independently-operating seed-sowers. In this class of apparatus, A is a seed container or hopper having
30 dropper-tubes 2 extending down in a transverse line and connecting with the hopper at suitable intervals. These tubes discharge through proper connections 3 into or behind the heel of the shoe 4, which forms the drill or channel in which the grain is to be deposited. Suitable mechanism (not hereshown) is contained within the feed-hopper and serves to regulate the flow of grain to the ground. The
45 front end of the shoe 4 is supported in this class of drills by a coiled spring 5, the rear end of which is suitably fixed to the shoe and the other end coiled and attached to a bar 6, which forms a support for it. Each shoe has
50 one of these springs, and it is designed to provide an elastic pressure upon the shoe; but a practical difficulty with this construction

arises from the fact that the pressure being brought upon the front of the shoe allows the rear end or heel to lift if the ground is hard 55 or if the shoes are passing over lumps, clods, or sods, and this prevents the proper channel being made for the grain. The result of this is that the grain will be left upon the surface and imperfectly covered and much of it is 60 lost.

In my invention I have shown supplemental springs 7 acting to press upon the rear portion of the shoe, in addition to the front pressure, and by this means I am enabled to 65 hold the shoe down and form a proper groove or channel for the grain whatever the character of the ground. Various forms of spring may be used for the purpose. I have shown the spring 7 as being a spiral spring coiled 70 about a stem or standard 8, and this standard is slidable through a hole in the bar 9, which is secured to any suitable part of the framework of the machine, as shown. There are as many of these standards 8 as there are 75 shoes 4, and the standard is perforated with holes, as shown at 10, through any one of which a pin 11 may be passed to form a point against which the lower end of the spring presses. The upper end of the spring presses 80 against the bar 9, and by moving the pin 11 up or down the tension of the spring is increased or diminished and its pressure upon the shoe is correspondingly varied. The upper end of the standard 8 also has holes made 85 through it and a pin 12 may be placed in either of the holes, and this serves to limit the distance to which the standard 8 can be forced down, the pin striking against the top of the bar 9. This regulates the depth to 90 which the shoe can be pressed into the earth, and when soft or sandy soil is being traversed by the seeder the shoe will only be forced as deep as is allowed by this pin, the depth being at all times sufficient to properly receive 95 the grain and allow it to be covered by the harrow or other following device for the purpose. The lower end of the standard 8 is loosely pivoted in a fork or bracket 13, which is fixed to the shoe at a sufficient distance in 100 rear of the front spring or support 5. This bracket is so placed that a lateral movement is allowed between the standard and the shoe to make the parts automatically adjustable

with relation to each other and the surface over which the shoe is constantly passing.

The relation of the standard and its spring to the forward spring or support 5 is regulated and dependent upon the strength and curvature of this forward spring, which practically forms a fulcrum-point which carries the front of the shoe, while the spring-pressed standard 8 acts upon some posterior portion of the shoe sufficiently to insure the rear end of the latter being at all times pressed into the ground over which it is passing.

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

1. In a grain-drill, a shoe adapted to be dragged over the ground and form a channel, means for delivering grain into the channel at the rear of the shoe, an elastic connection and support for the front of the shoe, a standard having a flexible connection with the shoe at a point in rear of the forward support, a bar fixed in line above the standard having a hole through which the standard is slidable, a spiral spring surrounding the standard, the upper end adapted to press against the lower part of said bar, and a pin or like stop adjustably fixed to the standard against which the lower end of the spring presses, and by which its tension is regulated.

2. In a grain-drill, shoes adapted to form channels in the soil, connections by which grain is delivered into said channels at the

rear of the shoes, elastic connections and supports for the front ends of the shoes, standards flexibly connected with each shoe at a point in rear of the forward connections and extending upwardly from their point of attachment, a fixed bar having holes through which the standards are slidable, pins or like stops adjustably fixed to the standards at points intermediate between the fixed bar and the shoes, spiral springs surrounding the standards, with their ends pressing respectively against the bar and against the adjustable stops whereby pressure is exerted to force the heels of the shoes into the ground, and other pins or like stops fixed to the standards above the bar and adapted to contact therewith whereby the depth to which the shoes are forced into the ground is regulated.

3. In a grain-drill shoes adapted to form channels in the ground for the reception of grain connections and supports for the front ends of the shoes, vertically-slidable spring-pressed standards having the upper ends slidable with relation to a support, and a connection between the lower ends and the shoes whereby a yielding and lateral movement is permitted.

In witness whereof I have hereunto set my hand.

WILLIAM FALCONER.

Witnesses:

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