

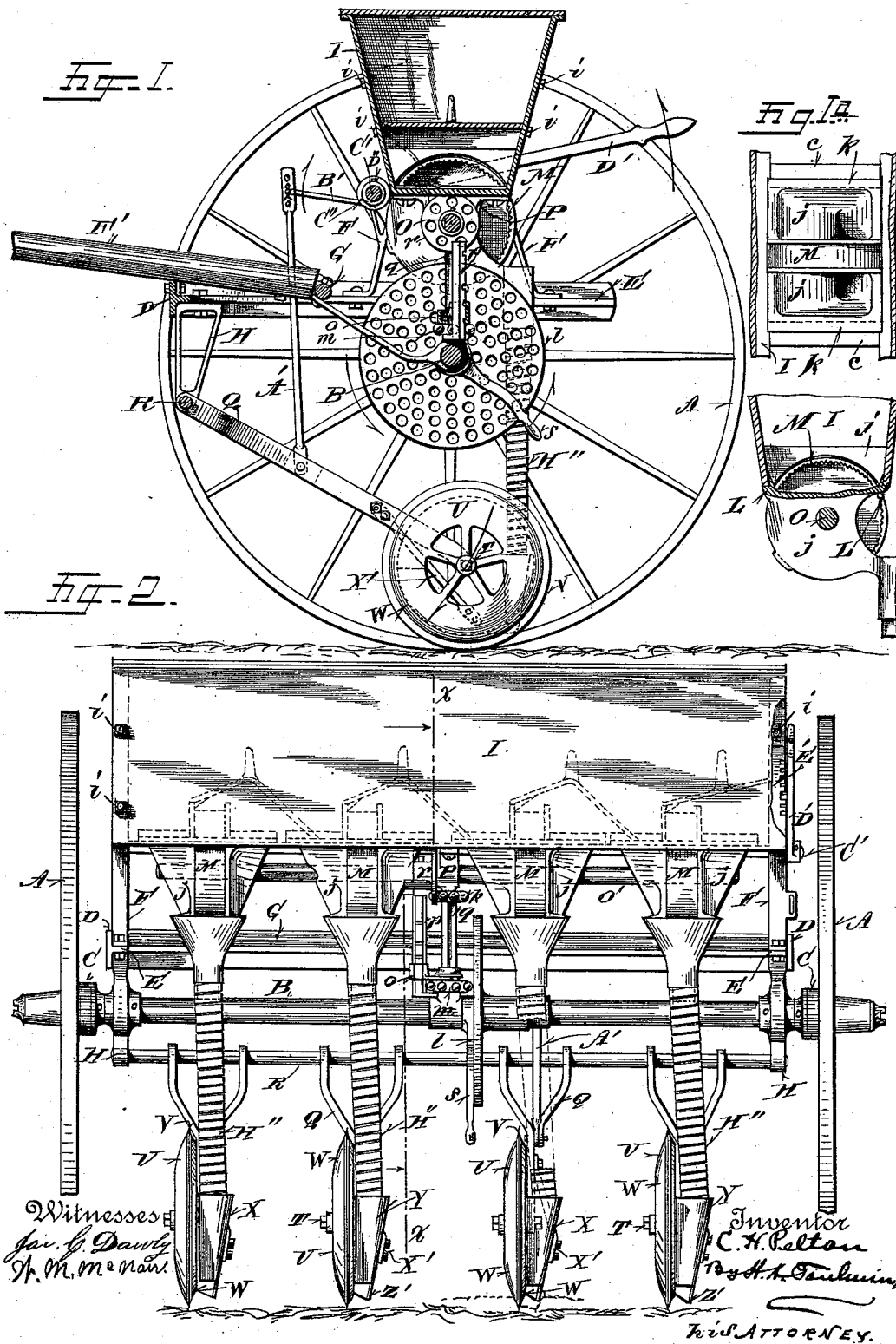
(No Model.)

3 Sheets—Sheet 1.

C. H. PELTON.
GRAIN DRILL.

No. 540,758.

Patented June 11, 1895.



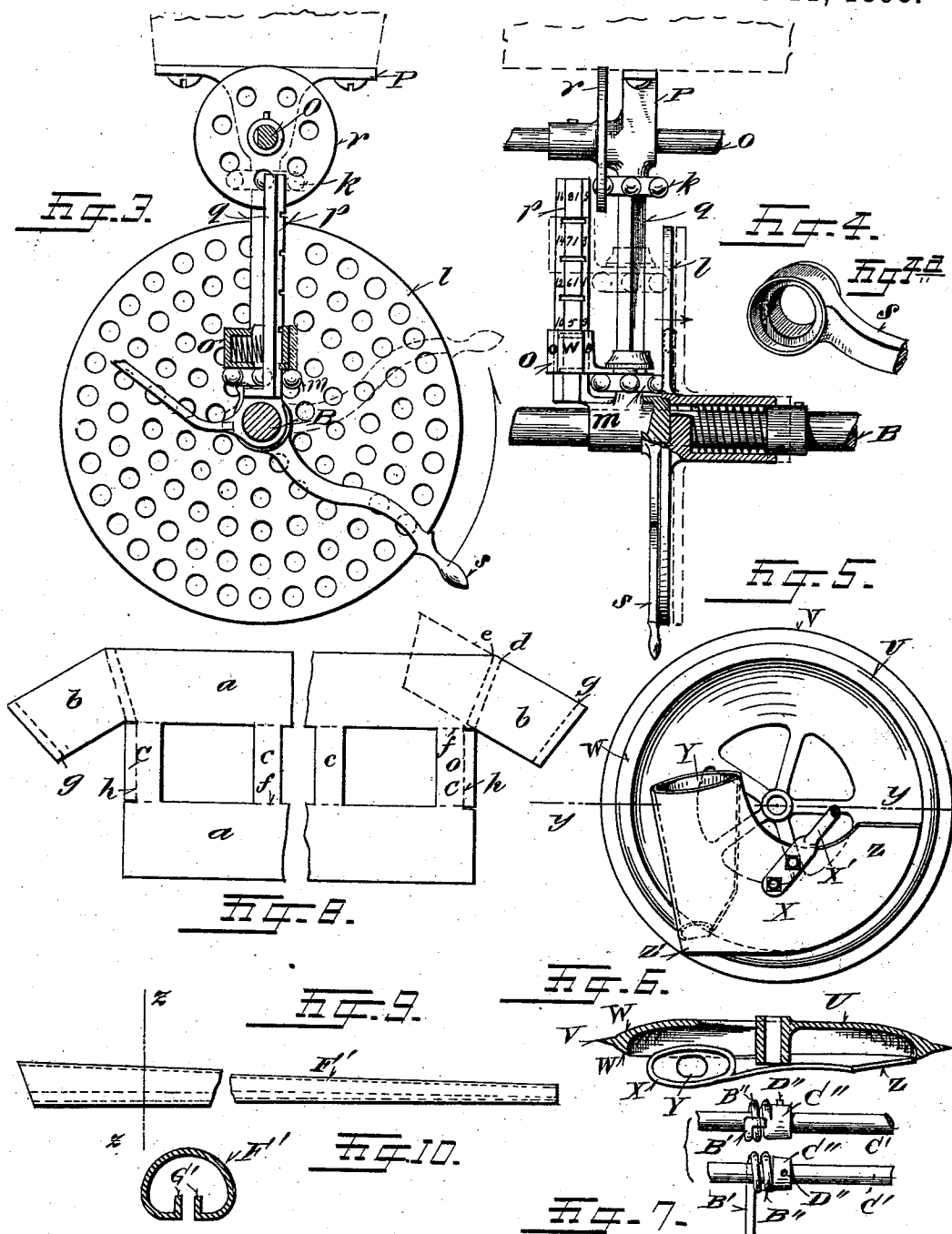
(No Model.)

3 Sheets—Sheet 2.

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No. 540,758.

Patented June 11, 1895.



Witnesses
Jas. B. Pawley,
W. M. McNamee.

Inventor
Chas. H. Pelton,
By his Attorney H. A. Paulsen.

(No Model.)

3 Sheets—Sheet 3.

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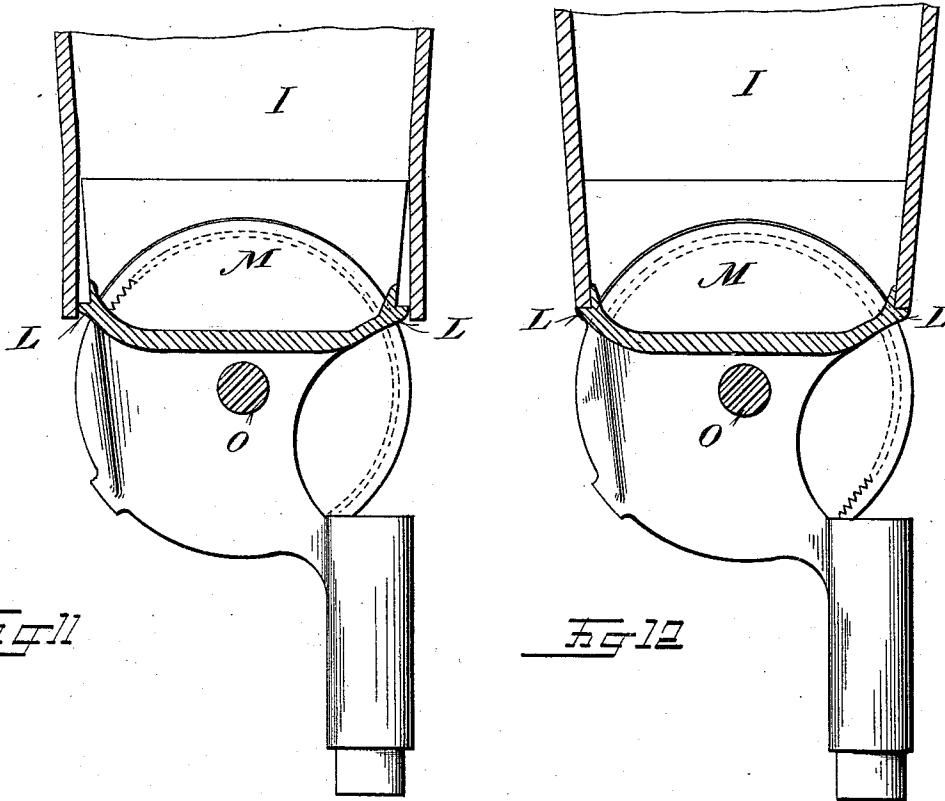


Fig 11

Fig 12

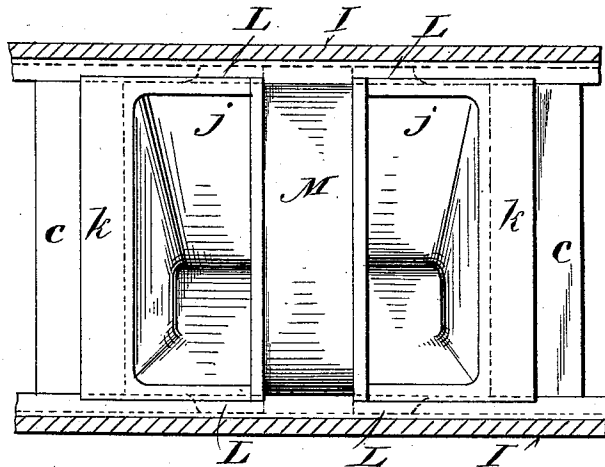


Fig 13

Witnesses

Jas. C. D. Aubrey
H. M. McMan.

Inventor
Charles H. Pelton,
By his Attorney
H. A. Paulson

UNITED STATES PATENT OFFICE.

CHARLES H. PELTON, OF SPRINGFIELD, OHIO.

GRAIN-DRILL.

SPECIFICATION forming part of Letters Patent No. 540,758, dated June 11, 1895.

Application filed May 24, 1894. Serial No. 512,383. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. PELTON, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Grain-Drills, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in grain drills.

My improvements have reference to the furrow wheel, which is designed to so run through the soil that it will not shift laterally; to this furrow wheel in combination with the shoe for feeding the grain into the furrow formed by the wheel; have reference to a spring arm for forcing down upon the drag-bars that carry the furrowing wheels; to a tube or boot for delivering the grain into the shoe, and have reference to other details of construction and arrangement, all of which will be hereinafter more fully described and particularly pointed out in the claims.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a sectional end view of my improved grain-drill on the line *x x* of Fig. 2; Fig. 1^a, a partial plan and a sectional view of the hopper and grain-cups, showing the manner of supporting the cups in the hopper; Fig. 2, a rear elevation; Fig. 3, a detail side elevation of the driving mechanism; Fig. 4, a rear view of the same, parts being in section; Fig. 4^a, a perspective view of a portion of the operating-lever; Fig. 5, an end elevation of the furrowing-wheel and shoe; Fig. 6, a sectional view of the furrowing-wheel, showing the shoe in plan and their relative position, taken on the line *y y* of Fig. 5; Fig. 7, detail views of the spring-arms to raise and lower the furrowing-wheels; Fig. 8, a diagram of the blank from which the hopper is formed; Fig. 9, a side elevation of the pole, and Fig. 10 a sectional view thereof on the line *z z* of Fig. 9; Fig. 11, an enlarged detail view in cross-section of the feed-box and one of the cups being fitted or sprung into it; Fig. 12, a similar view with the feed-cup in place; and Fig. 13, a plan view of the feed-

cup in place in the feed-box, the latter being shown in horizontal section.

In the wheels A is mounted an axle B clutched thereto within the clutch casing C in the usual manner. A frame D is mounted upon this axle and constructed of iron whose cross-section is T-form, which affords an inner flange E upon which to mount brackets F, a cross-bar G and from which depend hangers H. Thus the T-form is useful in organizing the machine as well as of value in point of strength.

Upon the brackets F I mount the hopper I, which is constructed of sheet metal, preferably steel, and is formed of a single piece, a feature of great utility in point of economy, lightness and freedom from joints. In Fig. 8 I have illustrated the blank from which this hopper is formed. The parts *a*, form the sides, the parts *b*, form the ends, and the parts *c*, form the necessary cross-bars which hold the sides together and which support the said cups, in the manner hereinafter described. In shaping the hopper the parts *b* are folded on the dotted line *d* to the dotted position. This done the part or flap is bent upward on the dotted line shown at *e*. This done the portion *b* will stand at right angle to the adjoining portion *a*, and will leave a flange from the line *d* to the line *e*. The portions *a*, are then bent up at an angle to the portions *c* on the dotted lines *f*. This latter will bring the portions *b* into position to form the ends of the hopper, the extreme edges of the portions *d* being first bent outward on the lines *g*, so that such narrow portions between the ends and such lines will form flanges that will lie against the inner surface of the opposing portion *a*. Finally, the outer portions *c* are bent upward and along the lines *h*, so that they will fit snugly against the outer sides of the portions *b*. The bolts *i*, see Fig. 2, by which the hopper is secured to the brackets F, pass through the flanges so formed by the narrow portions *g* and narrow portions between *d* and *e*, and thus the parts are held in position. Resort may be had to brazing if desired.

Referring now to the seed cups, see Fig. 1^a, wherein the cups are marked *j* and are pro-

vided with flanges *k* which overlap and fit upon the upper edges of the cross portions *c* of the hopper and are thereby supported. These cups are further provided with shoulders *L* which embrace the under edges of the sides of the hopper to prevent the cup from working up. The material of the hopper being more or less yielding, these cups can be forced down into place, the material springing to allow the shoulders *L* to pass, which done, the sides spring in over the shoulders. Thus the cups are cheaply and strongly held without the use of fastening devices, and without boring holes. Within these cups are mounted any approved form of feed wheel *M*, on a shaft *O* having suitable bearings in the cups and in a bracket *P* fastened to one of the portions *c* of the hopper. This shaft is driven by an improved form of gearing fully described and illustrated and also made the subject of claims in my application filed the 2d day of March, 1894, Serial No. 502,121, and which need not therefore be again described in this application. The parts here alluded to are generally designated by the letters *k*, *l*, *m*, *o*, *p*, *q*, *r* and *s*. Some other form of gearing may be used in connection with these improvements, but this form is preferred.

Referring now to the furrowing wheels, the letter *Q* designates the drag bars hung upon a shaft *R* carried in the hangers *H*. These bars each carry an axle stud or bolt *T* upon which is mounted a furrowing wheel *U*, whose peculiar shape is shown, particularly, in Figs. 5 and 6, wherein it is shown to be convex on one side and concaved on the other, with a sharp or knife-shaped entering edge *V* on the periphery. At each side of this entering edge is an inclined or beveled surface *W*, so that the bevel of the structure at each side of the dividing edge is about equal, which I find effectually prevents the wheels from the tendency to shift laterally and make crooked and irregular furrows, which tendency is marked in furrowing wheels wherein one side is practically vertical while the other is convexed, or somewhat at an angle to the perpendicular, as in the old wheel. With this furrowing wheel of mine I form a straight and regular furrow, and by locating and arranging the shoe *X* with respect to the furrow, as indicated in Figs. 5 and 6 particularly, I am enabled to properly drop the grain and guide it into the furrow. The shoe is held in place by a bar *X'* secured to it and the hanger *Q*. It may be otherwise secured, however. It will be seen that this shoe *X* has a tubular part *Y* discharging just above or on a line with the upper edge of the adjacent bevel *W*; and that it also has a forward curved portion *Z* which lies snugly just within the concavity of the wheel, and a rear and a lower guiding portion *Z'* which acts to guide the grain so that it will fall into the furrow just behind the extreme lower part of the wheel. This arrangement

is very effective and satisfactory in practice and I believe contains an entirely new principle in the construction or organization of the feeding mechanism of a grain drill.

Pitmen *A'* extend forward from the drag bars *Q* and are engaged by the spring pressure arms *B'* which are mounted on the cross-shaft *C'* controlled by a lever *D'* and a suitable locking segment therefor, as seen at *E'* in Fig. 2. These spring arms *B'* have coils *B''* whose extremity joins with or is fastened to a collar *C''* and is held to the shaft *C'* by set screws *D''*. In this manner the degree of pressure exerted by these bars can be varied by changing their normal position so that they will be more or less greatly resisted by the pitmen and hence transmit more or less pressure to the wheels corresponding to the depth it is desired to furrow and the condition of the ground.

My improved pole is shown particularly in Figs. 9 and 10 and is formed of a tapering strip of steel *F'* bent in cross section substantially circular, with the extreme edges turned inward and left standing apart, as seen at *G'*, to add to its rigidity and to prevent its filling with dirt and other foreign substances.

My improved boots or feeding tubes are formed of a strip, preferably flat, wound to form a spiral tube *H''* which are yielding and may consequently be directed to the point desired whether in a straight or curved line, while they will become straight when free.

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

1. In a grain drill, the combination with the hopper having cross portions and open spaces between them, of seed cups fitted down through the hopper and said spaces and resting upon said cross portions and having each one or more shoulders adapted to press past the hopper side or sides and engage the lower part thereof.

2. In a grain drill, the combination with the hopper having yielding portions and cross portions with open spaces between them, of grain cups adapted to fit down through the hopper in said spaces, to rest upon said cross portions and having each one or more shoulders adapted to spring past the yielding parts of the hopper and engage the lower edge thereof.

3. In a grain drill, the combination with a furrowing wheel convexed on one side and concaved on the other, with a beveled surface formed by each concave and a central ground opening flange, of a shoe whose forward portion fits just within the concavity, and having a tubular portion and a guiding portion which incline to the vertical plane of the wheel, being closest to the wheel at their lower end and therefore more remote from it at their upper end, whereby the grain may be readily received at the upper end yet properly

deposited in immediate proximity to the wheel by the lower end of the tubular portion and be guided by the guiding portion.

4. In a grain drill, the combination with
5 the drag-bar and its pitman, of a rock shaft,
its adjusting lever and an arm, one end of
which is connected with the pitman and the
other end of which is formed into a coiled
spring which encircles the rock-shaft, and a
10 collar affixed to the shaft, and connected to

the coiled end of the arm, the arm being continuous from the collar to its extremity where the connection is made to the pitman.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES H. PELTON.

Witnesses:

JAMES P. GOODWIN,
JAMES FITZPATRICK.