

(No Model.)

2 Sheets—Sheet 1.

D. UNTHANK.  
CULTIVATOR.

No. 278,672.

Patented May 29, 1883.

Fig. 1.

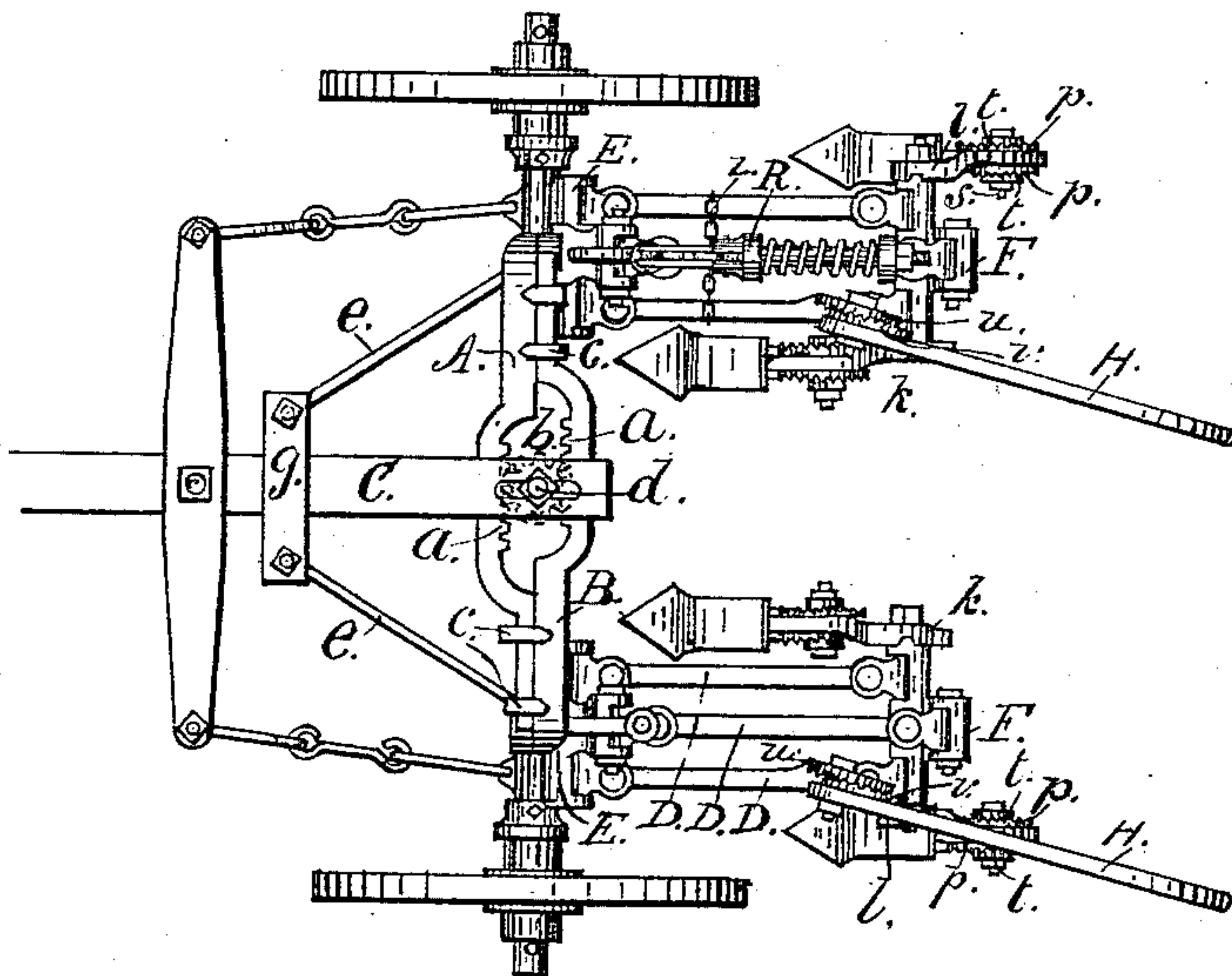


Fig. 5.

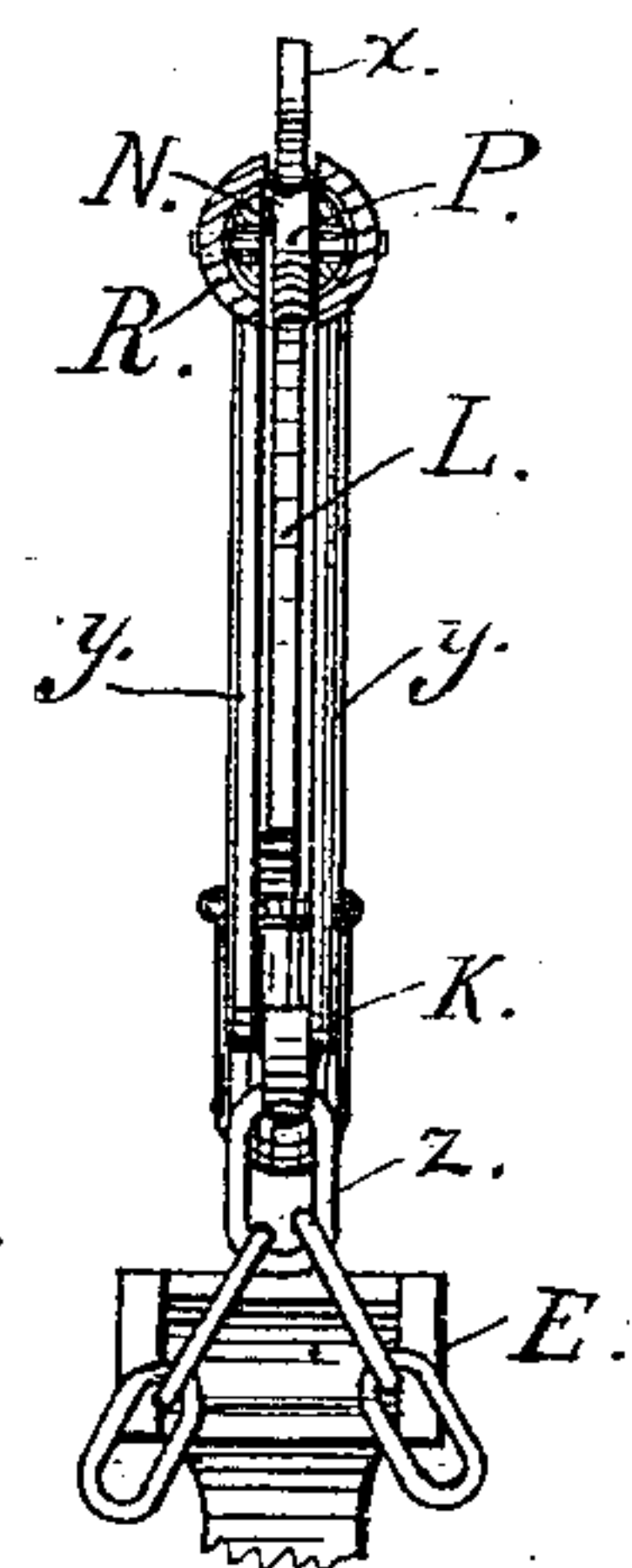
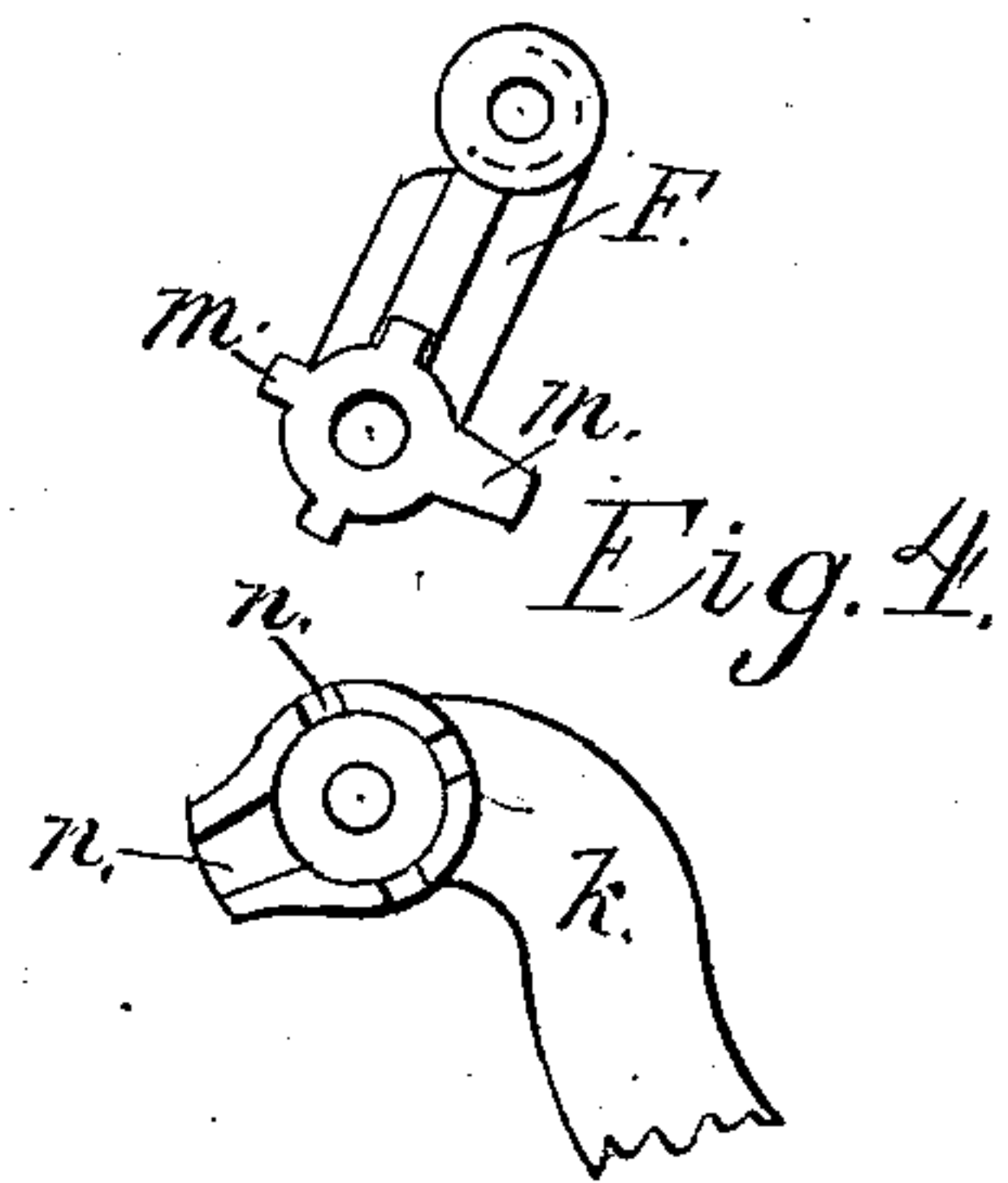
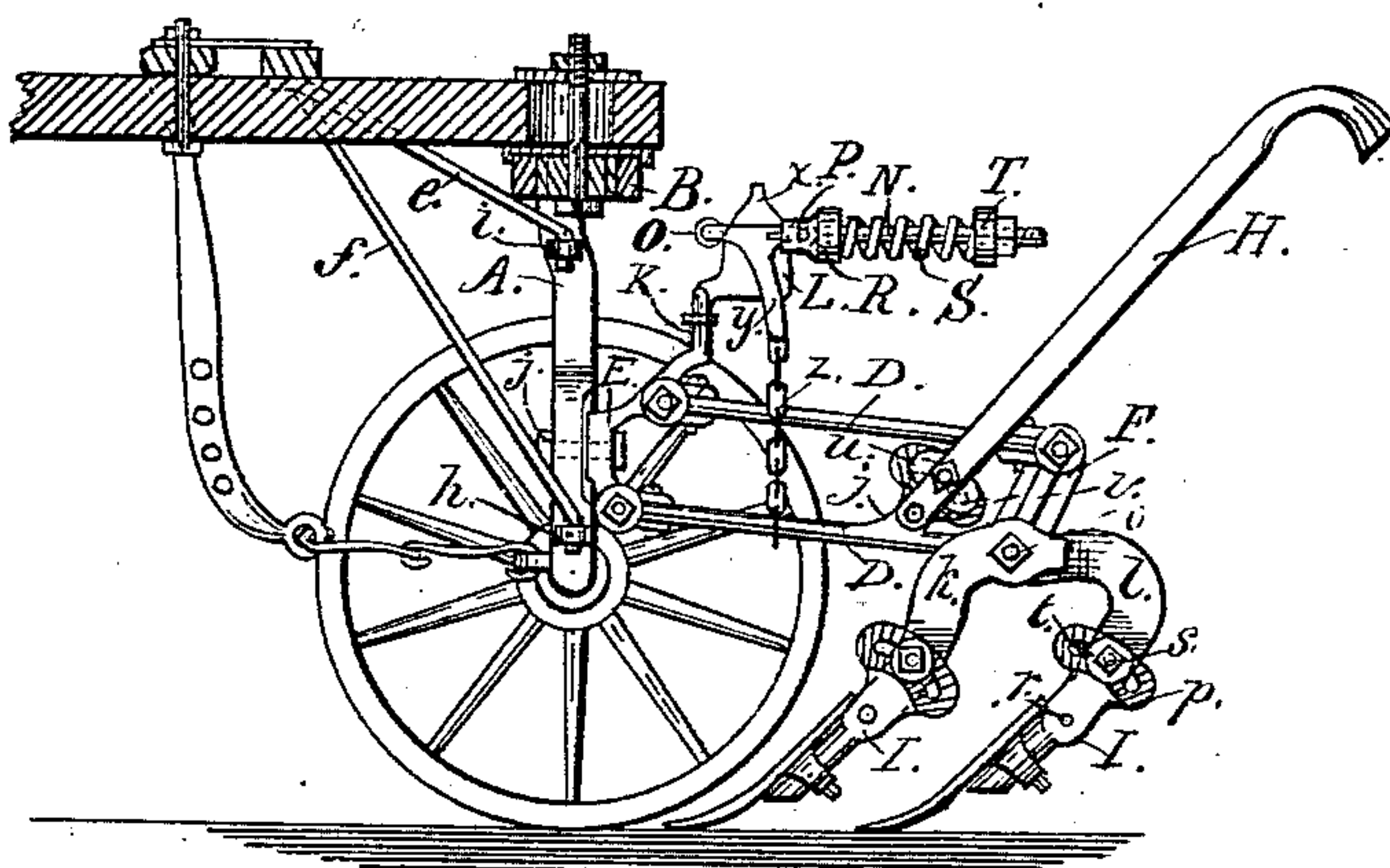


Fig. 2.



WITNESSES:  
Frank A. Jacob.  
H. P. Wood

INVENTOR:  
Daniel Unthank.

(No Model.)

2 Sheets—Sheet 2.

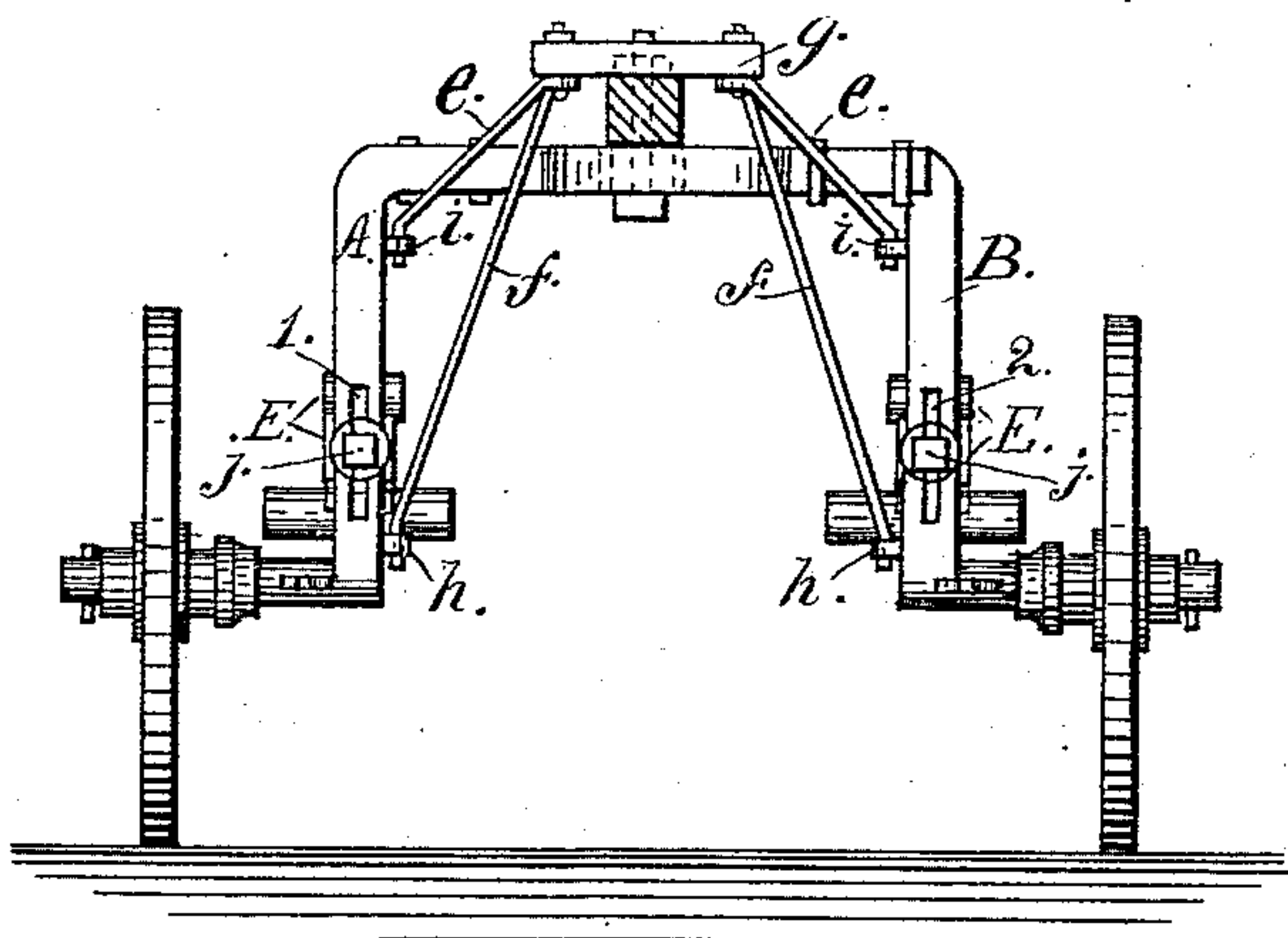
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*Fig. 3.*



WITNESSES:

*Frank A. Jacob,*  
*H. P. Hood*

INVENTOR:

*Daniel Unthank,*



# UNITED STATES PATENT OFFICE.

DANIEL UNTHANK, OF INDIANAPOLIS, INDIANA, ASSIGNOR TO THE UN-  
THANK PLOW COMPANY, OF SAME PLACE.

## CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 278,672, dated May 29, 1883.

Application filed December 4, 1882. (No model.)

*To all whom it may concern:*

Be it known that I, DANIEL UNTHANK, a resident of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Cultivators, of which the following is a specification, having reference to the accompanying drawings.

My invention relates to improvements on a cultivator, for which I was granted Reissued Letters Patent No. 9,607, dated March 15, 1881, in which the plow-standards are connected with the axle by means of parallel bars provided with double-jointed couplings at each end.

The objects of my improvements are, first, to provide a means for widening or contracting the space between the vertical parts of the arched axle, to which the parallel bars forming the plow-beams are connected; second, to so connect the draft-pole, arched axle, and brace-rods together that each will retain its proper relation to the others at any point of adjustment; third, to provide a means for the vertical adjustment of the frame connecting the front ends of the parallel bars with the axle; fourth, to provide means for adjusting the angle of inclination of the plows; fifth, to provide a spring support for the plows, which will sustain them partially when working in the earth, and wholly when raised out of the earth; sixth, to attach the plow-handles to the plow-gangs in a manner which will give the operator more perfect control of the plows, all as hereinafter fully explained.

My invention consists in the mechanism for accomplishing the above-mentioned objects, which mechanism is hereinafter fully shown and described, and particularly pointed out in the claims.

The accompanying drawings illustrate my invention, in which Figure 1 is a plan with one spring removed; Fig. 2, an elevation of one side and a section through the arch and draft-pole. Fig. 3 is a front elevation of the arched axle. Fig. 4 is an elevation of one of the rear frames and one of its plow-standards separated therefrom. Fig. 5 is an enlarged elevation and partial section of the spring-support for the plows.

Like letters refer to the same parts in the several figures.

The arched axle is formed in two parts, A and B, which overlap to form the horizontal part of the arch. Said overlapping parts of A and B are spread apart at the center of the arch, and are there provided with cogs *a*, which intermesh with the cogs of a vertical pinion, *b*. The parts of A and B, extending beyond the cogs *a*, lie side by side, and are supported and held together by loops *c c*, formed on each, the whole arrangement being such that the space between the vertical parts of the arch is expanded or contracted by sliding A and B upon each other by the revolution of pinion *b*. Pinion *b* is revolved by means of a wrench applied to the head of bolt *d*, on which the pinion is secured, and which extends upward through the draft-pole.

The draft-pole C is connected to the arch by bolt *d* and brace-rods *e e* and *f f*. The brace-rods are pivoted at their forward ends to a short transverse bar, *g*, fastened to the draft-pole, and are pivoted at their rear ends in lugs *h h i i*, formed on the vertical sides of the arch, and the draft-pole is slotted where bolt *d* passes through it, the whole arrangement being such that when the arch is expanded or contracted the braces swing in their pivoted bearings, and the pole slips backward or forward slightly on the bolt, thus keeping all the parts in true relative position and preventing any cramping of the sliding parts of the axle.

The plow-beams are each formed of three parallel bars, D D D, and are each connected with a front frame, E, and a rear frame, F, by two-way joints, as in my former patent, before mentioned, and therefore operate in the same manner as therein described. Frames E are secured to the vertical sides of the arch by means of bolts *j j*. For the purpose of vertically adjusting frames E the vertical sides of the arch, through which bolts *j* pass, are slotted at 1 2 to receive said bolts. Frames E partially embrace the sides of the arch to keep them parallel therewith. The plow-standards *k l* are rigidly secured to the rear frames by means of studs *m* on the frame, which engage corresponding recesses, *n*, on the plow-standards, and a bolt, *o*, which passes through the



plow standards and frame, and also through the couplings of two of the parallel bars, thus forming the pivot on which they swing vertically.

The plows are each secured to a break-pin bar, I. Said bar is cylindrical at its lower end and forked at the top to form two arms, which terminate in slotted plates *p p*. Said arms receive between them the lower end of the plow-standard, being secured thereto by the break-pin *r* and bolt *s*, which passes through a hole in the standard and the slots in plates *p*. The outsides of plates *p p* are serrated, and are engaged by correspondingly-serrated washers *t t* on the bolt *s*. By this means the angle of inclination of the plows is easily adjusted and securely held.

For the purpose of easily controlling the plows, the handles *H H* are adjustably secured directly to one of the parallel bars *D* on each of the plow-beams. For this purpose an arm, *J*, terminating in a slotted serrated plate, *u*, is cast integral with said bar. A correspondingly serrated plate, *v*, is secured to the handle, and the handle is pivoted at the lower end to the lower part of arm *J*, and is clamped against plate *u* by a bolt passing through the handle and slot in plate *u*. By this means the handles are easily adjusted and securely held at any desired angle.

For the purpose of sustaining a part of the weight of the plows when in the earth, so that they may be easily lifted, and also for the purpose of wholly sustaining them when raised beyond a certain point, I have provided the device illustrated in Fig. 5, in which *K* is a metallic socket, either bolted to or made integral with frame *E*. *L* is a thin plate, having nearly parallel edges for a short distance above its base, which edges as they near the top rapidly approach the center, forming a curved obtuse angle, and terminate in a stud, *x*. A cylindrical shank formed on the base of plate *L* enters the socket *K*, and is free to revolve therein. A cylindrical bar, *N*, is slotted at one end to pass over plate *L*, and is provided with downward-projecting arms *y y*, from which the plow-beam is suspended by means of a chain, *z*. Bar *N* is sustained on the edges of plate *L* by means of two small grooved friction-wheels, *O* and *P*. The wheel *O* is mounted on a pivot in the end of plate *L*, and wheel *P* is mounted in a hollow cylindrical collar, *R*, which collar slides loosely on bar *L*, which is slotted transversely to allow the passage through it of the short shaft or pivot on which wheel *P* revolves. A stiff spiral spring, *S*, is slipped over bar *L*, one end resting against collar *R* and the other against a nut, *T*, screwed on the end of bar *L*, the effect of spring *S* being to force wheels *O* and *P* together against plate *L*. When the wheels stand at the top of plate, the weight of the plow-beams and plows is not sufficient to overcome the resistance of spring *S*, which can be nicely regulated by nut *T*, the obtuse angle of plate *L* at this point preventing the wheels from being easily

separated by it; but when the plows are forced downward by the operator till wheels *O* and *P* overcome the obtuse angle and enter upon the acute angle of the lower portion of the plate the weight is then sufficient to overcome spring *S*, and the plows remain down, but still partially sustained, so that but a slight effort is required to raise them.

I am aware that an adjustable sectional axle provided with cogs or teeth with which a geared pinion meshes, and by which said axle is adapted to be lengthened or shortened, also, in combination with a vertically-swinging beam or drag-bar, a spring serving to hold the beam down to its work and assisting to lift it when it is thrown out of action, is old, and such I do not wish to be understood as claiming, broadly, as of my invention.

I claim as my invention—

1. In a cultivator, an axle formed of two parts overlapping to form the central portion of the axle, and provided with cogs, as shown and described, combined with a cog-wheel embraced between said overlapping parts, a slotted adjustable draft-pole, and a bolt serving as a shaft for said cog-wheel and a fastening for said draft-pole, substantially as and for the purpose herein shown and described.

2. In a cultivator, the combination, with an extensible axle, of a draft-pole slotted and connected thereto, substantially as shown and described, braces *e e* and *f f*, pivoted in lugs *h h* and *i i*, and cross-bar *g*, for the purpose set forth.

3. The combination of frame *F*, provided with radially-projecting studs *m*, plow-standards *k* and *l*, provided with corresponding interlocking recesses, and bolt *o*, for the purpose set forth.

4. In a cultivator, plate *L*, socket *K*, bar *N*, arms *y y*, friction-wheels *O P*, collar *R*, spring *S*, and nut *T*, combined with each other and with the plow-beam, substantially as shown and described, and for the purpose set forth.

5. In a cultivator, the combination, with an extensible axle, of a draft-pole having a vertical slot through its rear end and adjustably connected thereto, whereby it is adapted to have the necessary play in adjusting the axle, substantially as shown and described.

6. In a cultivator, the combination, with the plow-beam, of a spring connected thereto, arranged substantially parallel therewith and above the same, and an inclined or tapering support, substantially as shown and described, to which the inner end of the spring is connected, and adapted to have free vertical play thereon, for contracting and expanding it in accordance with the vertical movements of the plow-beam, substantially as and for the purpose set forth.

DANIEL UNTHANK.

Witnesses:

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H. I. BARNES.