

No. 765,090.

PATENTED JULY 12, 1904.

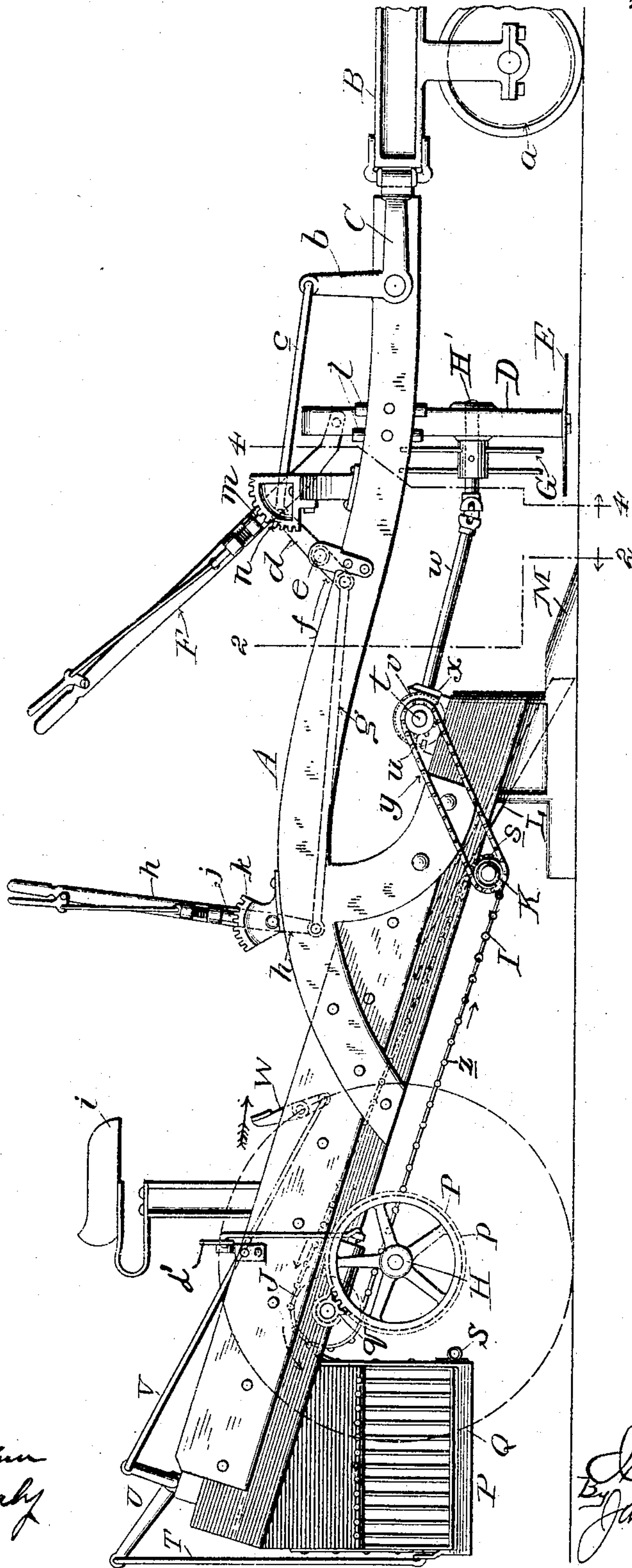
I. C. LESH.
BEET HARVESTER.

APPLICATION FILED MAR. 7, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 2.

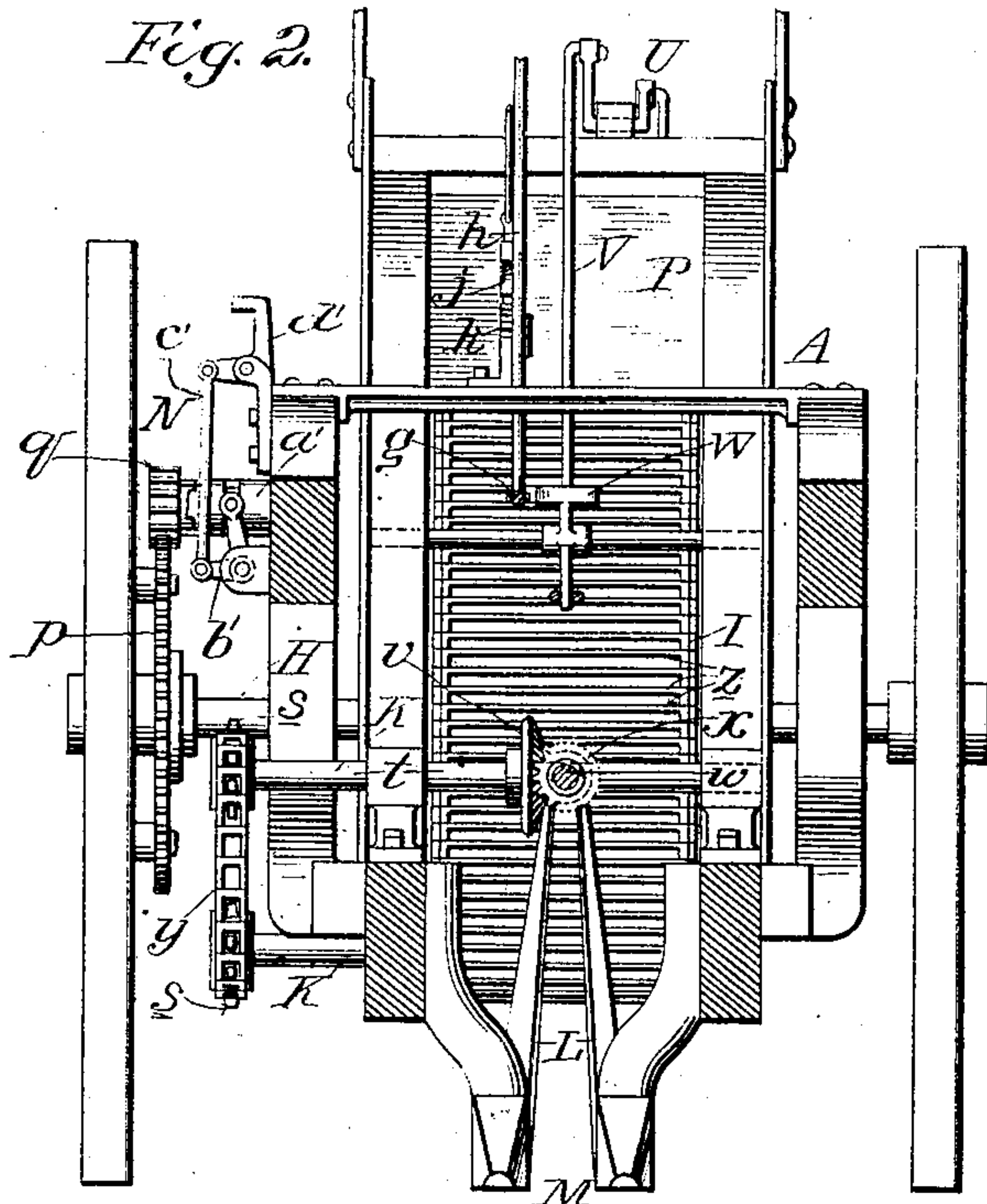


Fig. 3.

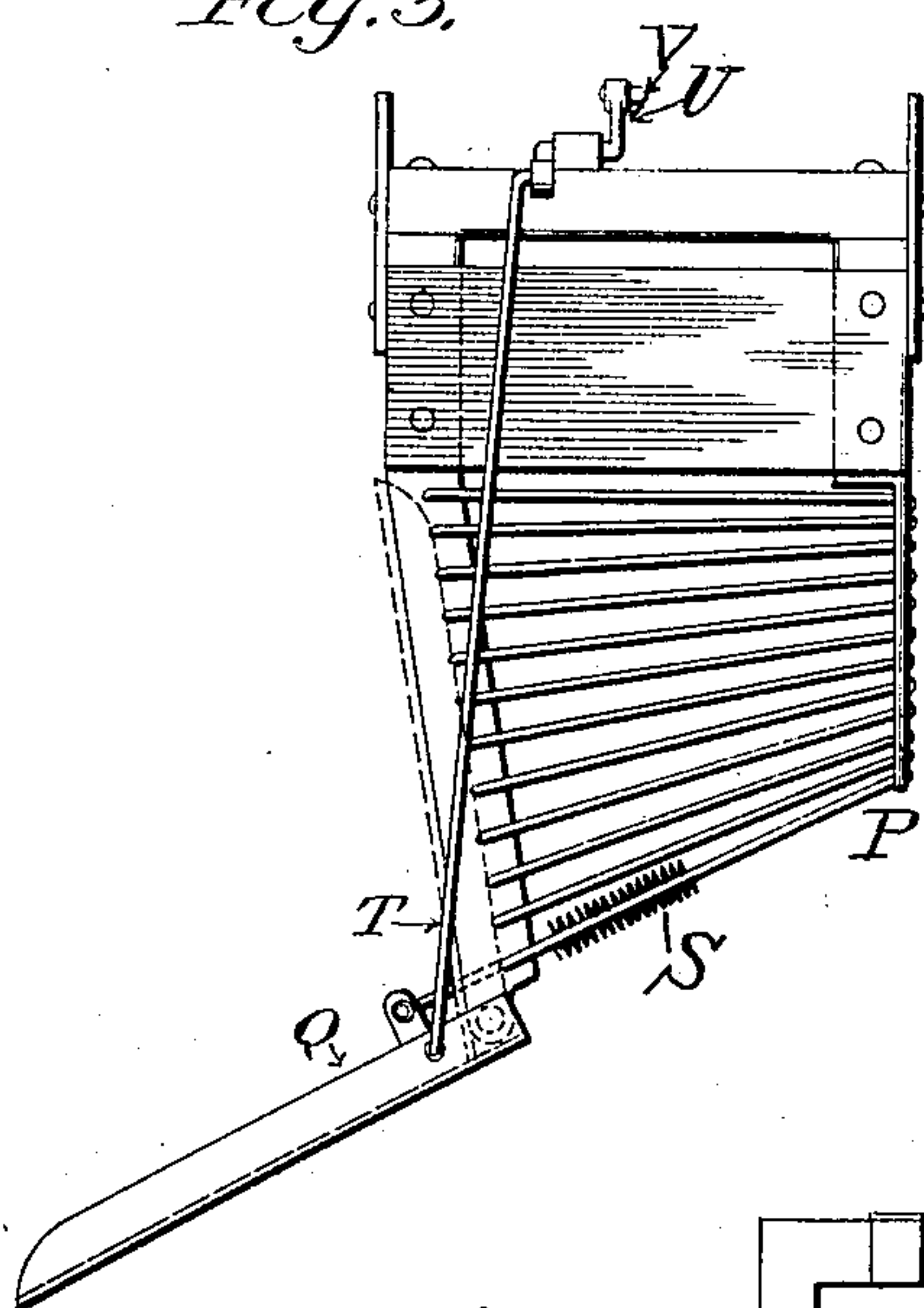


Fig. 4.

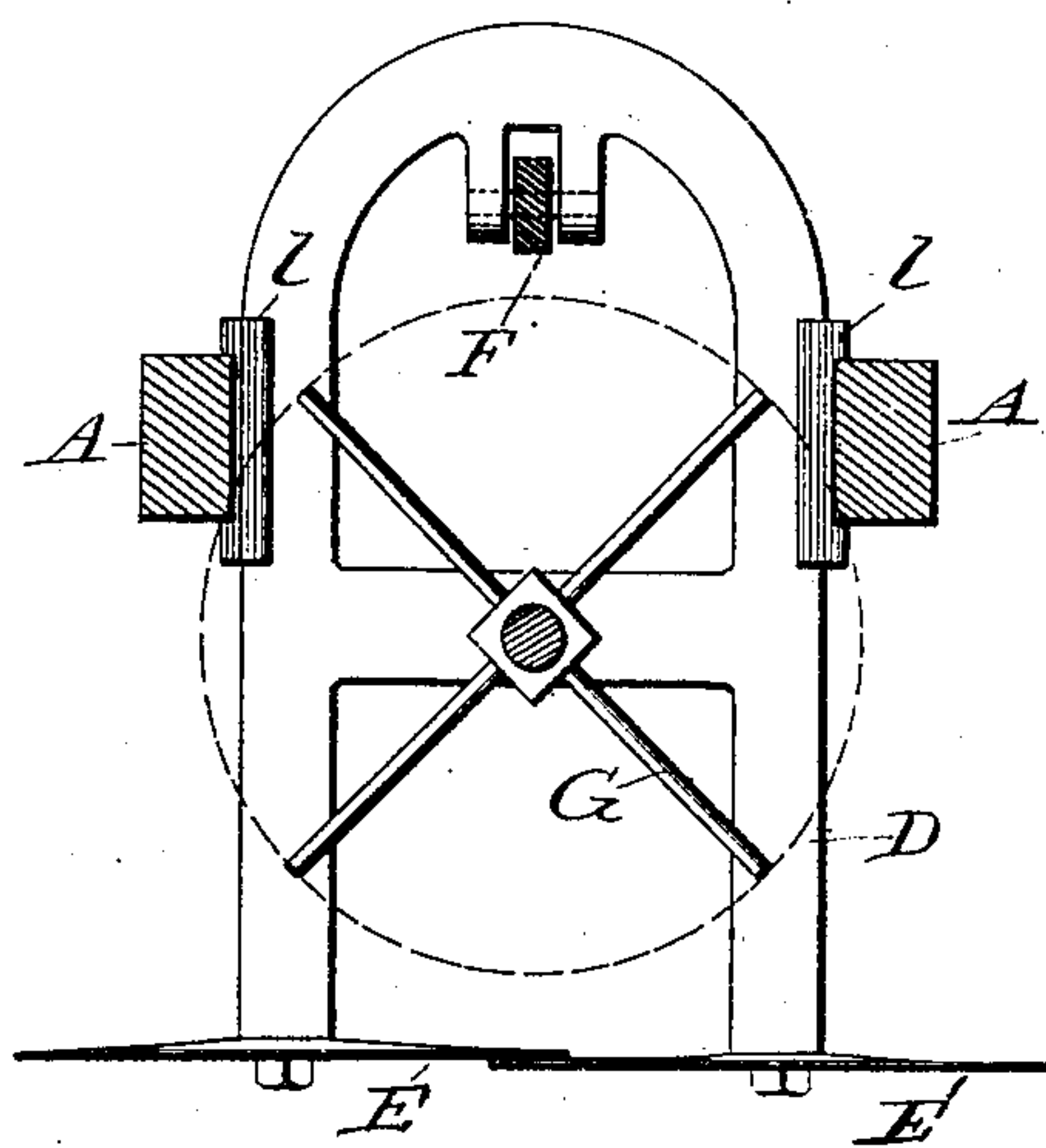
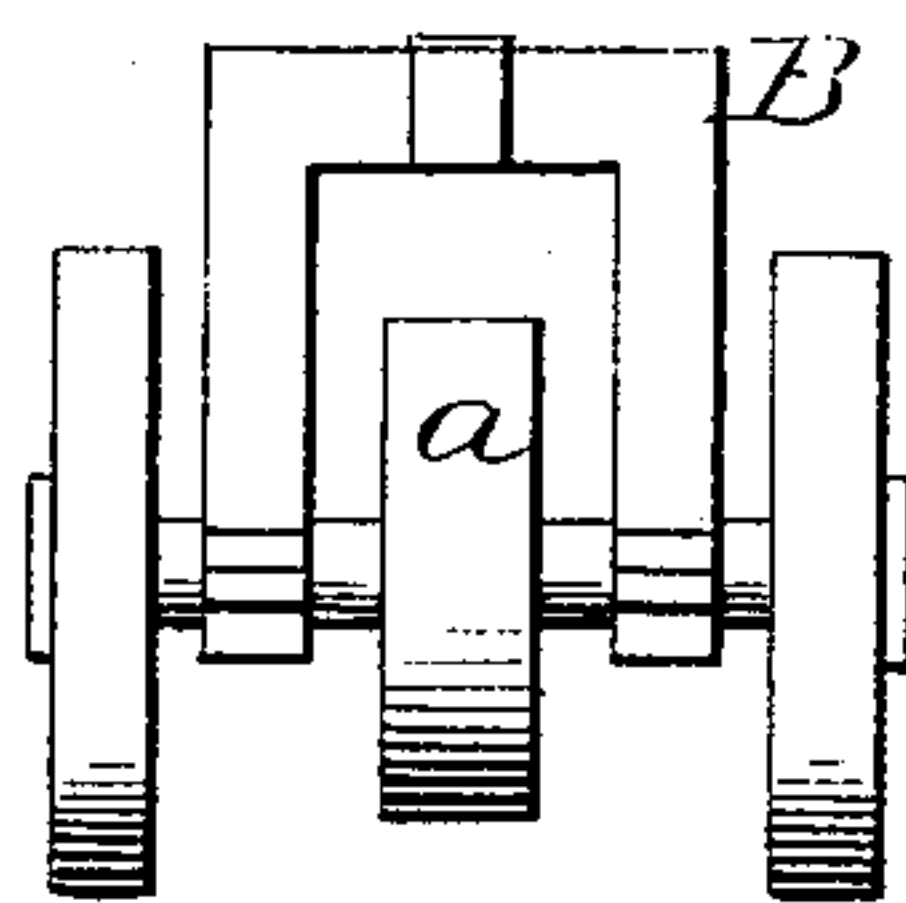


Fig. 5.



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UNITED STATES PATENT OFFICE.

IRA C. LESH, OF LONGMONT, COLORADO.

BEET-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 765,090, dated July 12, 1904.

Application filed March 7, 1904. Serial No. 197,060. (No model.)

To all whom it may concern:

Be it known that I, IRA C. LESH, a citizen of the United States, residing at Longmont, in the county of Boulder and State of Colorado, have invented new and useful Improvements in Beet-Harvesters, of which the following is a specification.

My invention pertains to beet-harvesters; and it has for its object to provide an inexpensive and sturdy machine calculated to remove the tops from beets, lift the beets from the ground and take the same up into a receptacle, and dump the collected beets in piles at the will of the operator.

With the foregoing in mind the invention will be fully understood from the following description and claims, when taken in connection with the accompanying drawings forming part of this specification, in which—

Figure 1 is a side elevation of the beet-harvester constituting the present and preferred embodiment of my invention. Fig. 2 is a transverse section, on an enlarged scale, taken on the line 2 2 of Fig. 1 looking rearwardly, as indicated by arrow. Fig. 3 is a detail rear elevation of the beet-receptacle of the machine, the said receptacle being shown with its gate in full lines as open and in dotted lines as closed. Fig. 4 is an enlarged transverse section taken on the line 4 4 of Fig. 1 looking forwardly, as indicated by arrow; and Fig. 5, a front elevation of the truck comprised in the harvester.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which—

A is the main frame of the harvester, which may be of any construction suitable to the purpose of my invention.

B is a truck disposed in front of the main frame and carrying three wheels *a*, the middle of one of which serves to press beet-tops down to a uniform height, and C is a yoke pivotally mounted on the main frame adjacent to the forward end thereof and having upwardly-disposed arms *b*. The said yoke is connected to the truck B, and its arms *b* are connected by rods *c* to crank-arms *d* on a transverse shaft *e*, journaled in suitable bearings on the main frame. This shaft *e* is also provided

with a crank *f*, which is connected through the medium of a rod *g* to the lower arm of a hand-lever *h*, fulcrumed at an intermediate point of its length on the main frame in convenient reach of the driver and operator, who sits upon the seat *i*. The said lever *h* is provided with a detent *j*, arranged to engage a segmental rack *k*, fixed on the main frame. By releasing the lever *h* and throwing it rearwardly the driver of the harvester is enabled to raise the transverse portion of the yoke C, and thereby lower the forward portion of the main frame, while by throwing said lever forwardly the driver is able to lower the transverse forward portion of the yoke and by so doing raise the forward portion of the main frame. It will also be observed that through the medium of the mechanism described the driver is enabled to adjustably fix the forward portion of the main frame at various heights above the ground, this being advantageous, since it enables the driver to regulate the harvester to suit the condition of the beets to be harvested.

D is a vertically-movable frame arranged in guides *l* on the main frame, and E E are horizontally-disposed disks carried at the lower end of the frame D, fixed to the said frame and lapped, as shown in Fig. 4. These disks E, which are preferably circular in outline, have for their purpose to remove the tops from the beets precedent to the lifting of the latter from the ground. Connected to the upper portion of the frame D is the forward arm of a hand-lever F, which is fulcrumed on the main frame and is provided with a detent *m*, arranged to engage a segmental rack *n*, fixed to the frame. Through the medium of the said lever F the driver of the machine is obviously enabled to readily raise and lower the frame D and disks E and adjustably fix the same at various heights above the ground. This is advantageous, since under different conditions the beet-roots project different distances above the ground. In addition to the disks E the frame D carries a transversely-disposed reel G, which has for its purpose to sweep the tops off of the disks E and throw said tops laterally from the machine. The said reel G is fixed on a

longitudinally-disposed shaft H', journaled in the frame D, and is driven from the main shaft or wheel-axle H, which supports the rear portion of the main frame through the medium of a spur-gear *p*, fixed on the shaft or axle H, a pinion *q*, intermeshed with said spur-gear and normally fixed with respect to a transverse roller J, an endless elevator I, which takes around the roller J and also around a lower roller K, a sprocket-wheel *s*, fixed on said lower roller, a transverse shaft *t*, mounted in suitable bearings on the main frame and carrying a sprocket-wheel *u* and a miter-gear *v*, Fig. 2, a shaft *w*, suitably mounted in the main frame and provided with a miter-gear *w*, intermeshed with the miter-gear *v*, a universal or other suitable connection between the shaft *w* and the shaft H', and a sprocket-belt *y*, connecting the sprocket-wheels *s* and *u*. In virtue of the universal connection between the forward end of the shaft *w* and the rear end of the shaft H' the said shaft *w* is able to accommodate itself to the adjustment of the reel G with the frame D.

The elevator I, which, as stated, is mounted on an upper transverse roller J and a lower and forward transverse roller K, is preferably a belt composed of transverse rods or slats *z*, as best shown in Fig. 2. The forward portion of the said elevator is disposed below the rear portions of inclined guides L, so as to receive beets therefrom. The said guides L in turn are arranged to receive beets from the lifters M—that is to say, are arranged with their forward portions between the lifters, as best shown in Figs. 1 and 2. The lifters M are disposed immediately in rear of the toppers or topping-disks E and are arranged to move along on the ground, so as to lift the beets therefrom subsequent to the removal of the tops from the beets.

As shown in Fig. 2, the roller J is provided with a clutch N, one member of which is splined on the roller-shaft, while the other member is fixed to the pinion *q*, the pinion being loose on the shaft. The first-mentioned member of the clutch, which member is lettered *a'*, is connected to a bell-crank lever *b'*, which in turn is connected by a rod *c'* to one arm of a bell-crank lever *d'*. This lever *d'* is fulcrumed on the main frame adjacent to the driver's seat *i*, and its upper arm is adapted to be engaged by the foot of the driver. From this it follows that the driver is enabled to quickly and easily disconnect the clutch member *a'* from the complementary member to which the pinion *q* is fixed, and thereby render the elevator I idle, and is also enabled to quickly and easily replace the clutch member *a'* in engagement with the member fixed to the pinion *q*, and thereby throw the elevator into operation.

P, Figs. 1 and 3, is a receptacle arranged at the rear end of the main frame in position to receive beets from the elevator I. This

receptacle P has a pivoted gate Q, connected to the lower end of its inclined bottom R and normally held closed, as shown by dotted lines in Fig. 3, by a coiled spring S, connected to the gate and the frame. The gate is also connected to a rod T, which in turn is connected to a bell-crank lever U, fulcrumed on the rear portion of the main frame. This lever U is connected by a rod V to the lower arm of a pedal-lever W, fulcrumed on the main frame below the driver's seat and in position to enable the driver to readily rock it with his foot. In virtue of this construction when the driver rocks the lever W in the direction indicated by the arrow in Fig. 1 the gate Q of the receptacle R will be opened against the action of the spring S, as shown by full lines in Fig. 3, and the beets received in the receptacle from the elevator I will be dumped in a pile on the ground.

In the practical operation of my novel harvester the same is drawn by a team of horses hitched to a pole (not shown) on the truck B along the rows of beets. As the harvester passes over the beets the middle wheel *a* of the truck will press the beet-tops down to a uniform height, the disks E will remove the tops from the beets, the lifters M, as their name implies, will raise the beets from the ground, the guides L will convey the beets from the lifters to the upper stretch of the elevator I, and the elevator will discharge the beets in the receptacle R, all in the order named. When sufficient beets have been taken up to fill the said receptacle R, the driver actuates the lever W, and thereby opens the gate of the receptacle, as before described in detail, and effects the discharge of the collected beets in a pile on the ground. When the driver removes his foot from the lever W, the spring S will operate to return the gate Q to and normally hold said gate in its closed position. (Shown by dotted lines in Fig. 3.) The discharge of the beets in piles at points selected by the driver of the harvester is advantageous, since it permits of the beets being more readily removed from the field than would otherwise be the case.

It will be readily appreciated from the foregoing that all of the parts of my novel harvester are adapted to be operated with but a minimum amount of effort on the part of the driver, also that the harvester as a whole is capable of being regulated to suit the condition of the beets to be harvested and to remove the same from the ground with facility.

Notwithstanding the practical advantages which I have ascribed to the harvester constituting the present and preferred embodiment of my invention, it will be observed that the harvester is simple and inexpensive in construction and embodies no delicate parts such as are likely to get out of order after a short period of use.

I have entered into a detailed description of

the construction and relative arrangement of the parts embraced in the present embodiment of my invention in order to impart a full, clear, and exact understanding of the same.

5 I do not desire, however, to be understood as confining myself to such specific construction and relative arrangement of parts, as such changes or modifications may be made in practice as fairly fall within the scope of my invention, as claimed.

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

1. In a beet-harvester, the combination of
15 a main frame, wheels supporting the said main frame, a frame adjustable vertically in the forward portion of the main frame, means on the main frame for adjusting and adjustably fixing said adjustable frame, horizontally-disposed topping-disks E carried at the lower
20 end of the adjustable frame, a transversely-disposed reel arranged above the topping-disks and having a shaft journaled in the adjustable frame, lifters M carried by the main
25 frame and disposed in rear of the disks E and adjacent to the ground, guides L arranged to receive beets from the lifters, an endless elevator carried by the main frame and arranged to receive beets from the said guides, a driving connection between one of the supporting-wheels and the endless elevator, and a driving
30 connection between the endless elevator and

the reel; the latter connection comprising a vertically-movable shaft and a universal connection between said shaft and the shaft of the 35 reel.

2. In a beet-harvester, the combination of a frame, wheels supporting the said frame, a frame adjustable vertically in the forward portion of the first-mentioned frame, means 40 on the first-mentioned frame for adjusting and adjustably fixing said adjustable frame, horizontally-disposed topping-disks E carried at the lower end of the adjustable frame, a transversely-disposed reel arranged above the topping-disks and having a shaft journaled in the adjustable frame, an endless elevator carried by the first-mentioned frame, means for transferring beets from the ground to said elevator, a driving connection between one of the supporting-wheels and the endless elevator, and
50 a driving connection between the endless elevator and the reel; the latter connection comprising a vertically-movable shaft and a universal connection between said shaft and the 55 shaft of the reel.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

IRA C. LESH.

Witnesses:

D. W. LESH,
J. E. WHITE.