

(No Model.)

J. A. LAMB.  
SULKY HOE FOR VINEYARDS.

No. 473,513.

Patented Apr. 26, 1892.

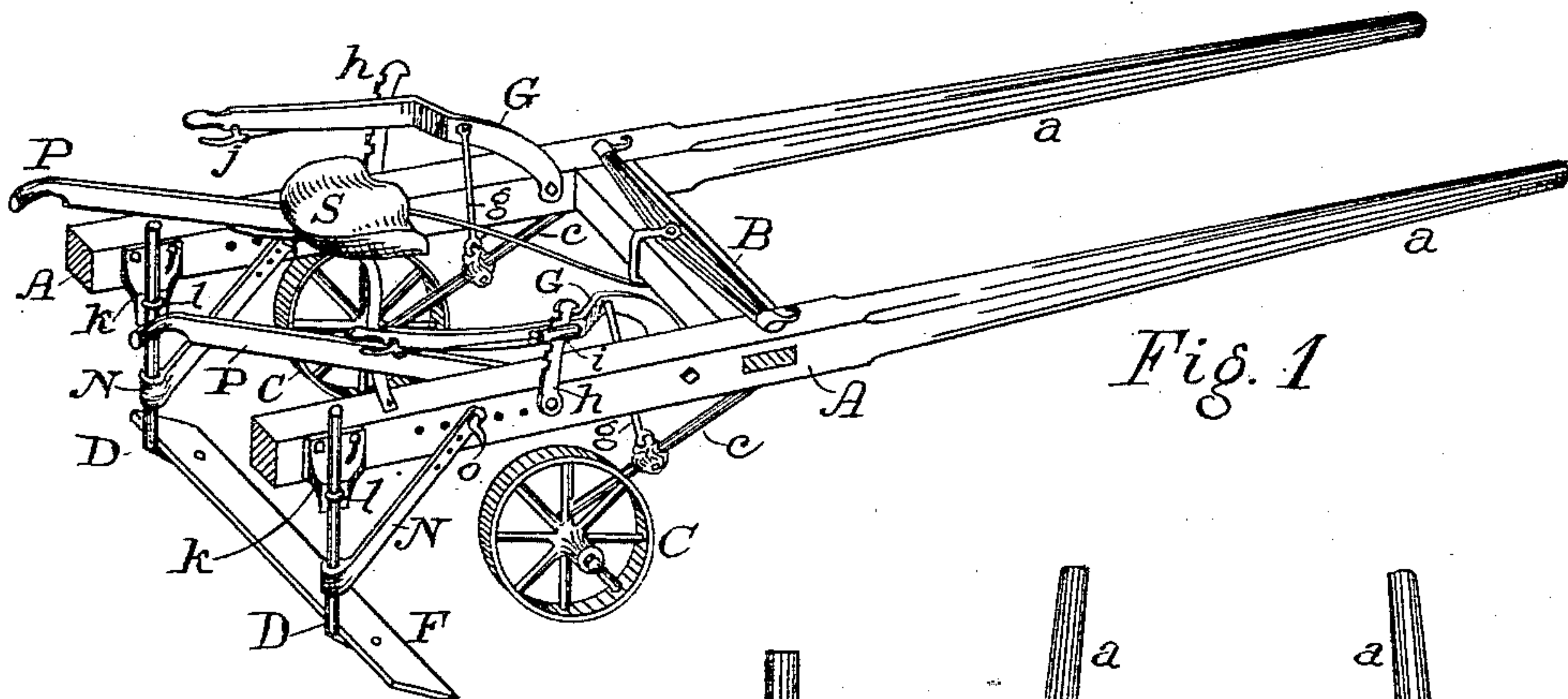


Fig. 1

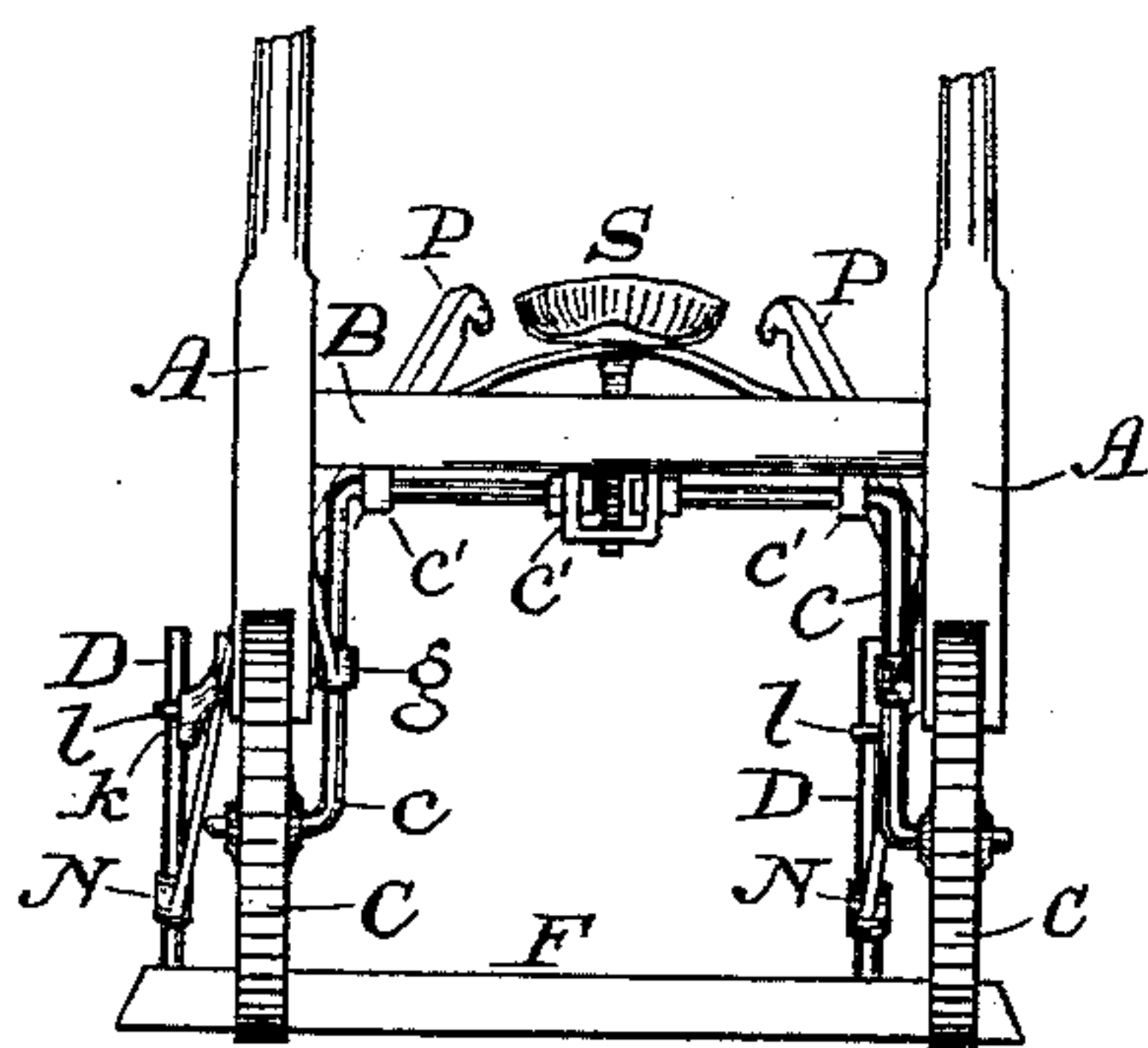


Fig. 3

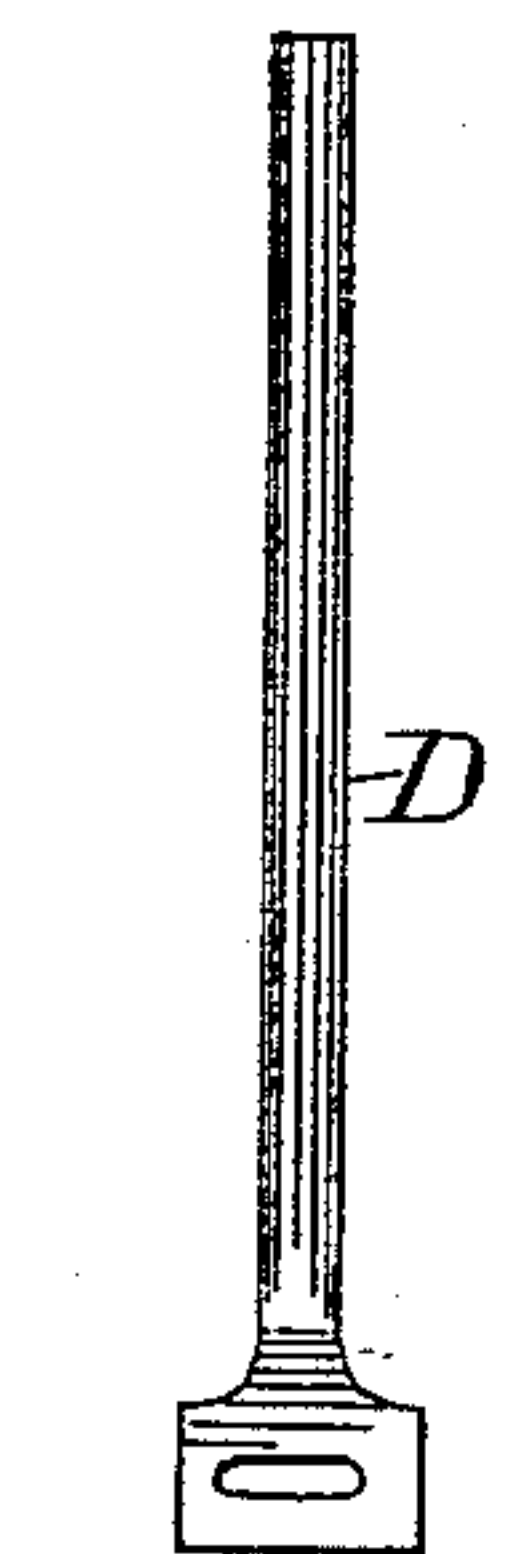


Fig. 6

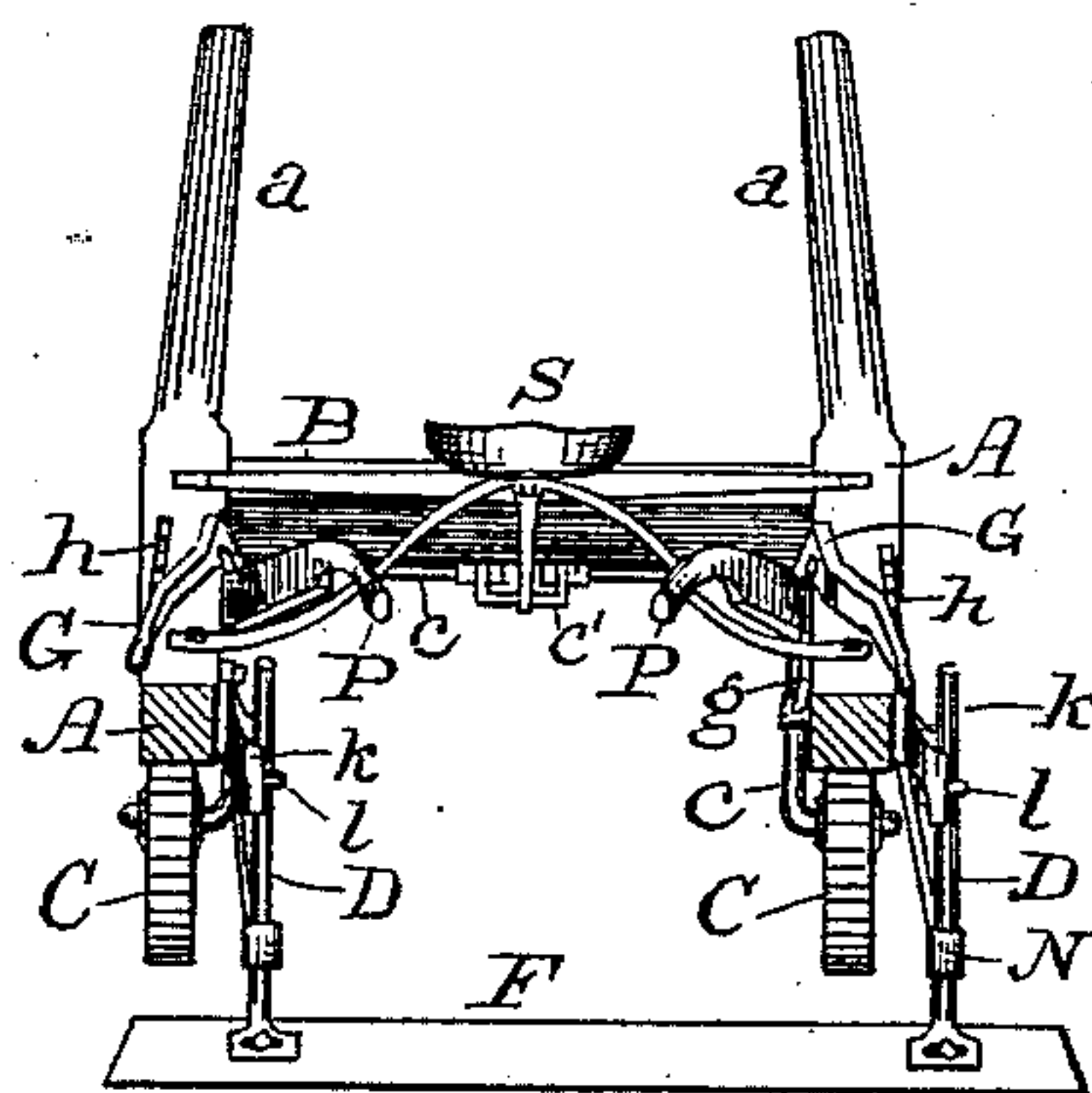


Fig. 2

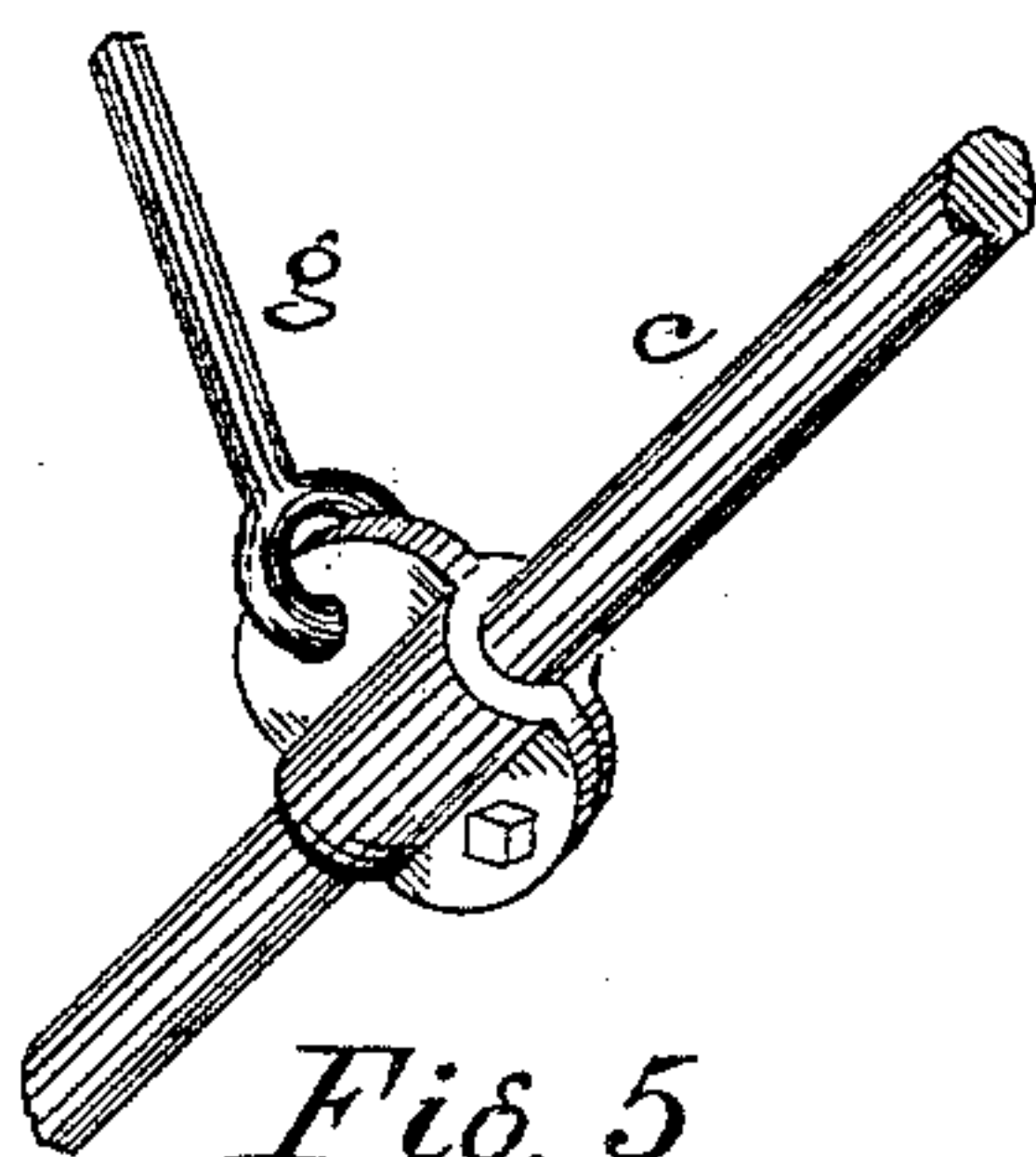


Fig. 5

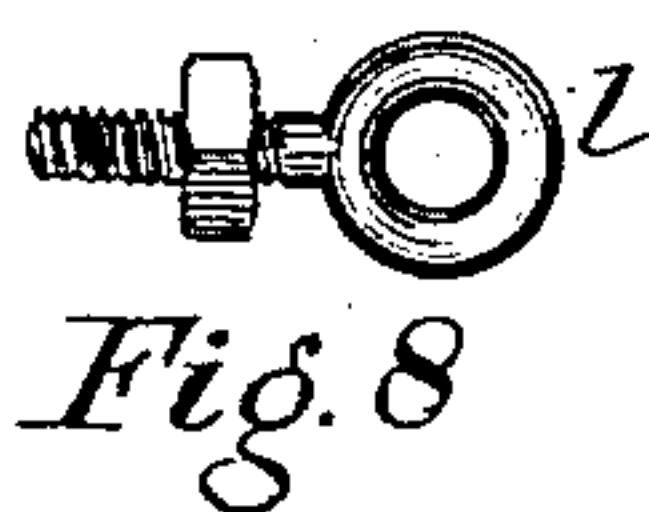


Fig. 8

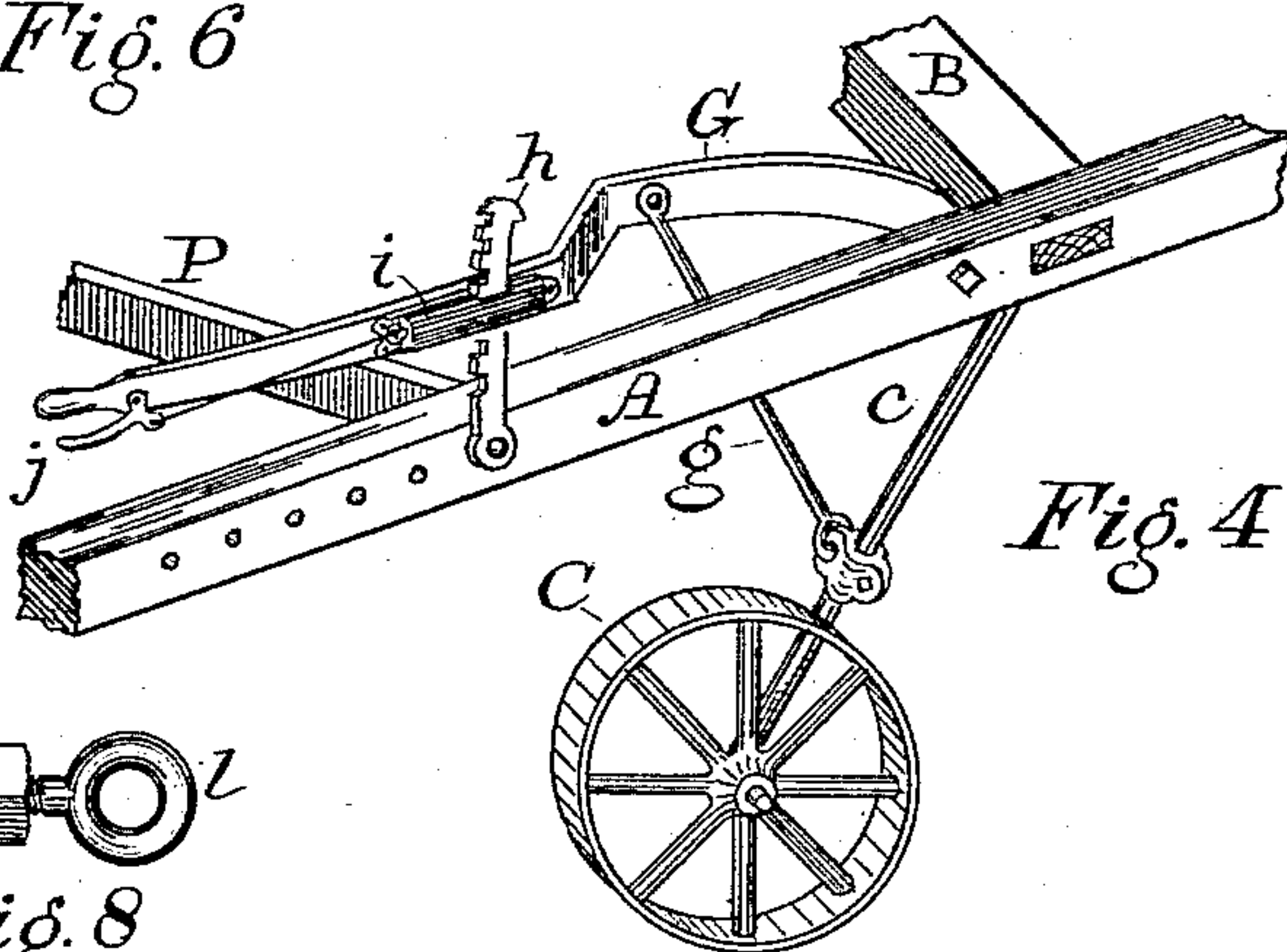


Fig. 4

WITNESSES  
Myron B. Torrey.  
Sam Britell

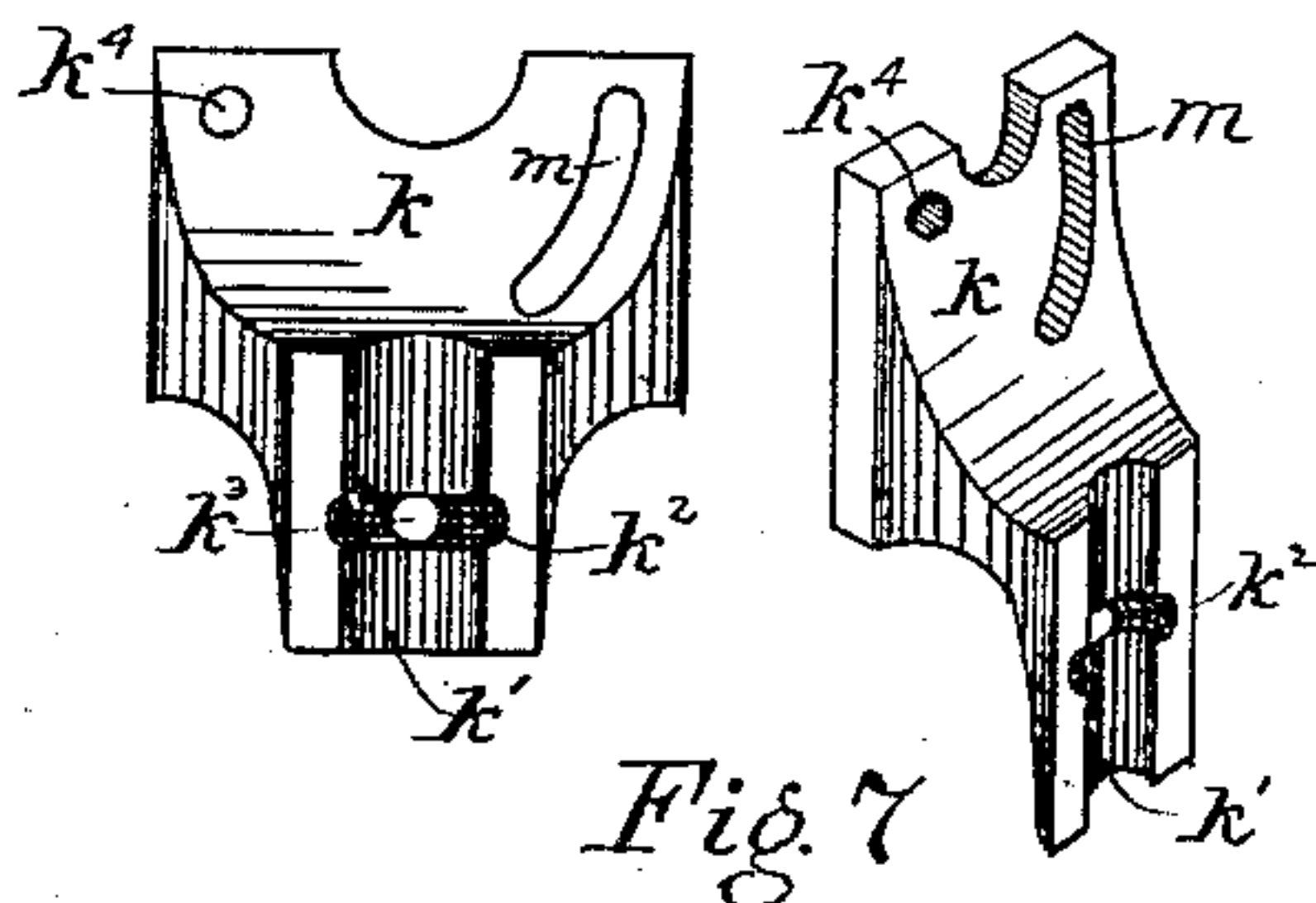


Fig. 7

INVENTOR  
John A. Lamb  
by *W. M. Torrey*  
ATTORNEY



# UNITED STATES PATENT OFFICE.

JOHN A. LAMB, OF EUCLID, OHIO.

## SULKY-HOE FOR VINEYARDS.

SPECIFICATION forming part of Letters Patent No. 473,513, dated April 26, 1892.

Application filed November 9, 1891. Serial No. 411,421. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. LAMB, a citizen of the United States, residing at Euclid, in the county of Cuyahoga and State of Ohio, have  
5 invented certain new and useful Improvements in Sulky-Hoes for Vineyards; and I do hereby declare the following to be a full, clear, and exact description of the invention, such  
10 as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings.

My invention relates to the class of hoeing-machines adapted to be drawn by horses and  
15 known as "sulky-hoes."

The object of the invention is to secure increased efficiency and simplicity of construction and to produce a device especially adapted for use in vineyards and in all kinds and  
20 conditions of soil; and it consists in the combination and arrangement of parts and the novel features of construction hereinafter specifically described, and pointed out in the claims.

25 In the drawings, Figure 1 is a perspective view of the machine complete. Fig. 2 is a rear view, and Fig. 3 a front view, of the same. Fig. 4 is a detached view of a part of the frame with the hand-lever, wheel, and connections  
30 of one side to show more clearly their construction and arrangement. Fig. 5 is a detail view, on a larger scale, of the adjustable connection of the prop-rod *g* with the bent axle *c*. Fig. 6 is a like detail of one of the standard-arms of the hoe-blade; Fig. 7, a front and  
35 perspective detail view of the adjustable clamping-seat for holding said standard-arms; and Fig. 8 is a detail of the eyebolt for clamping the standard-arms in their seat.

40 The main frame of the machine consists of the side bars *A A*, connected by the cross-bar *B*. When built to be used with one horse, the side bars may extend forward of the cross-bar to form the shafts *a a*. If to be used with  
45 two horses, the pole is attached centrally to the cross-bar in the usual way. *C C* are the wheels, whose axles *c c* are bent in crank shape and secured in bearings *c'* on the under side of the cross-bar *B*. Near the rear end of the  
50 side bars *A A* are secured, in the manner presently to be described, standard-arms *D D*, which carry at their lower ends the hoe-blade

*F*, which is preferably a steel strip thick enough to be rigid, set at an angle to the arms  
*D D* and extending on one side, preferably 55 the right-hand side, several inches beyond the lateral line of the wheel on that side. To each of the side bars *A* is pivoted the lower end of a hand-lever *G*, which is connected by a prop-rod *g* to the axle of the wheel on that  
60 side, about midway between the two bends of the axle. It is obvious from this construction that when the hand-levers *G G* are depressed they will lift the rear ends of the side bars *A A*, thus elevating the hoe-blade *F* more or less, 65 as may be desired. Conversely by lifting the hand-levers *G* the frame and the hoe-blade are allowed to descend to any desired extent, and as the weight of the frame and of the driver will come upon the hoe-blade whenever the  
70 latter is lowered enough to touch the ground, it follows that the blade will cut into the ground to such depth as is allowed by the extent to which it is lowered below the bottom of the wheels. To hold the hand-levers *G G* 75 at any desired point, a rack-bar *h h* is bolted to the frame on each side and passes through a casing *i* on the hand-lever. In this casing a spring-actuated locking-dog engages the notches of the rack-bar, locking the lever *G* 80 in position, and is withdrawn from engagement with the rack-bar by means of the usual trigger *j* on the hand-lever whenever the position of the latter is to be shifted.

Owing to the different action of the hoe- 85 blade in different kinds of soil and the difference in draft, due to the pitch at which the blade works, it is very desirable to be able to change the inclination of the blade, as well as the depth to which it cuts. To this end I 90 provide clamping-seats *k k*, in each of which is a seat *k'*, provided with a recess *k<sup>2</sup>* to receive the eye and a bolt-hole *k<sup>3</sup>* to receive the neck of an eyebolt *l*, threaded and provided with a nut. The standard-arm *D* passes 95 through the eye of bolt *l*, whose threaded neck is passed through the bolt-hole *k<sup>3</sup>*. By setting up the nut on the eyebolt the latter is drawn into its recess and clamps the standard-arm *D* into its seat *k* with extreme firm- 100 ness. By loosening the nut of the eyebolt the standard-arm may be raised or lowered in its seat with very great facility. The clamping-seat *k* is secured to the frame *A* by two



bolts, one of which passes through a simple bolt-hole  $k^4$  in the rearward side of the seat  $k$ , while the other passes through a curved slot  $m$  in the forward side of the seat  $k$ . As thus constructed and described the machine is thoroughly efficient in use. I prefer, however, in order to equalize the strain upon the parts and to reduce wear, to add a tie-brace  $N$  to each of the standard-arms  $D D$ . This brace has a sleeve at its lower end fitting on the arm  $D$ , and at its upper end is secured to the side bar  $A$  by a bolt preferably provided with a tail-nut  $o$ . A seat  $S$  is secured to the frame in a convenient position to enable the driver to readily manipulate the hand-levers  $G$ . On steep hillsides it is sometimes found necessary to guide the machine by hand to prevent its working too much toward the downhill side. For this purpose handles  $P P$  are added, bolted to the side bars  $A A$ , which, however, in ordinary use will seldom need to be used. Additional bolt-holes are provided in the side bars  $A$ , as seen in Fig. 1, and by moving forward one of the seats  $k$  and bolting it to these holes, either end of the hoe-blade may be set in advance of the other. To permit such a movement, the bolt-hole in the expanded foot of the arm  $D$  is elongated, as seen in Fig. 6.

The axle of the wheels  $C C$  may be a single integral rod, or a separate axle for each wheel may be provided. I regard the latter as the preferable method of construction, for the reason that, as is well known, it is usual to plow a dead-furrow for drainage in the center of the space between the rows of vines in a vineyard, and in using my improved hoeing-machine on such ground one wheel will ordinarily run in the furrow. The inequality of level thus caused may be counteracted, it is true, by changing the vertical adjustment of the standard-arm  $D$  on that side; but it is quicker and easier to effect the proper adjustment of the hoe-blade by means of the hand-lever  $G$  on that side, and this is better and more easily effected if the axles of the two wheels are separate. In soft or light soil the standard-arms may be allowed to stand nearly vertical. In heavier soils they are more inclined forward. By means of the curved slot  $m$  the seat  $k$  may be turned on the bolt passing through the hole  $k^4$  as a pivot, and thus any desired inclination from the vertical may be given to the arms  $D D$ , the braces  $N N$  being of course moved to correspond. By having the hoe-blade project on one side beyond the line of the wheel the driver is enabled to hoe close to the vines without danger of breaking or tearing loose the vines and without danger of disturbing the growing fruit by contact of any part of the machine therewith. The inclination of the hoe-blade causes the soil as it passes over it to be thoroughly broken up and pulverized, thus effecting at one operation the same result accomplished by the present practice of first cultivating and then hoeing the ground, besides which the hoeing effected by

this machine is more efficient than can be done by hand or by short-bladed machines, for the reason that every portion of the ground is traversed by the blade. By setting one end of the hoe-blade in advance of the other the soil passing over the blade may be moved a little in a lateral direction to or from the vine, as preferred, and by this means the uneven surface left by plowing may be most efficiently smoothed and the surface leveled and hoed at a single operation.

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

1. In a hoeing-machine, the combination, with a frame having depending arms secured thereto and carrying a hoe-blade, of wheels having bent axle journaled in bearings on the frame forward of the wheel, a hand-lever pivoted to the frame and connected by a prop-rod to the axle between the wheel and the journal-bearing, and means for locking the lever in place, substantially as described.
2. In a hoeing-machine, the combination, with a frame having depending arms secured thereto and carrying a hoe-blade, of brace-rods adjustably connected to said arms and to the frame, wheels having bent axle journaled in bearings on the frame forward of the wheel, a hand-lever pivoted to the frame and connected by a prop-rod to the axle intermediate of the wheel and the axle-bearing, and means for locking the lever in place.
3. In a hoeing-machine, the combination, with a frame having depending arms carrying a hoe-blade, of wheels having independent axles bent and journaled in bearings on the frame forward of the wheels, hand-levers pivoted to the frame above each axle and each connected by a prop-rod to the axle below it between the wheel and the point at which the axle is journaled, and means for locking the levers in place, substantially as described.
4. In a hoeing-machine having arms depending from the frame and carrying a hoe-blade, the combination, with the frame and arms, of an adjustable clamping-seat for the arms, said seat bolted to the frame and having the seat  $k'$  fitting the arms, and the curved slot  $m$  for varying the inclination of the arms, and the eyebolt for clamping the arms upon its seat, substantially as described.
5. The combination of the frame having depending arms carrying a hoe-blade, wheels with bent axles journaled on the frame forward of the wheels, hand-levers pivoted to the frame and connected by prop-rods to the axles intermediate of the wheel and the journal-bearing, means for locking said hand-levers in place, the driver's seat, and the guiding-handles, all substantially as described.

In witness whereof I subscribe my name, in the presence of two witnesses, this 4th day of November, 1891.

JOHN A. LAMB.

In presence of—

WM. G. TAYLOR,  
L. PRENTISS.