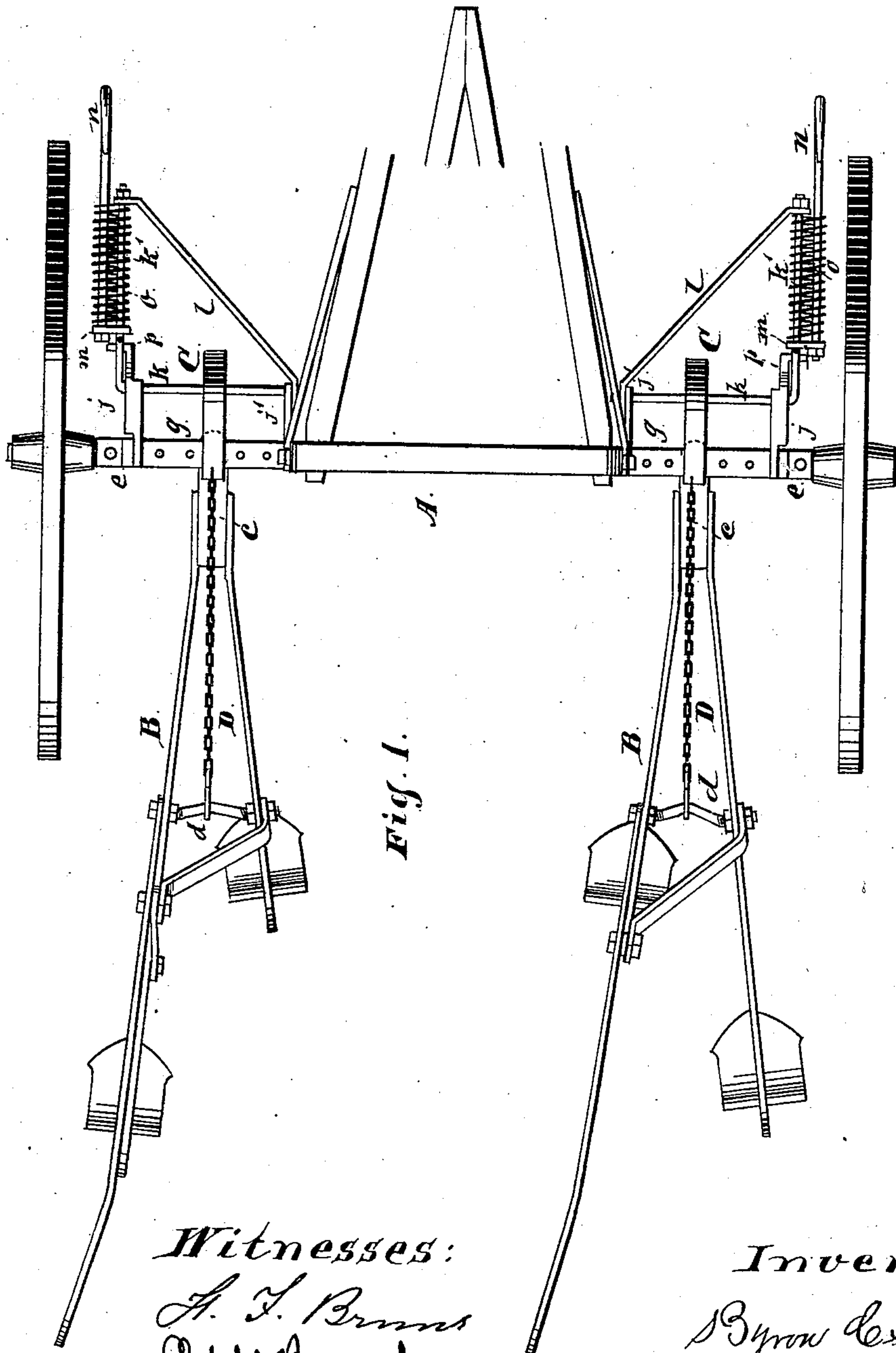


B. C. BRADLEY.
Cultivator.

No. 226,833.

Patented April 27, 1880.



Witnesses:
A. T. Burns
C. W. Bond.

Inventor:
Byron C. Bradley

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Fig. 2.

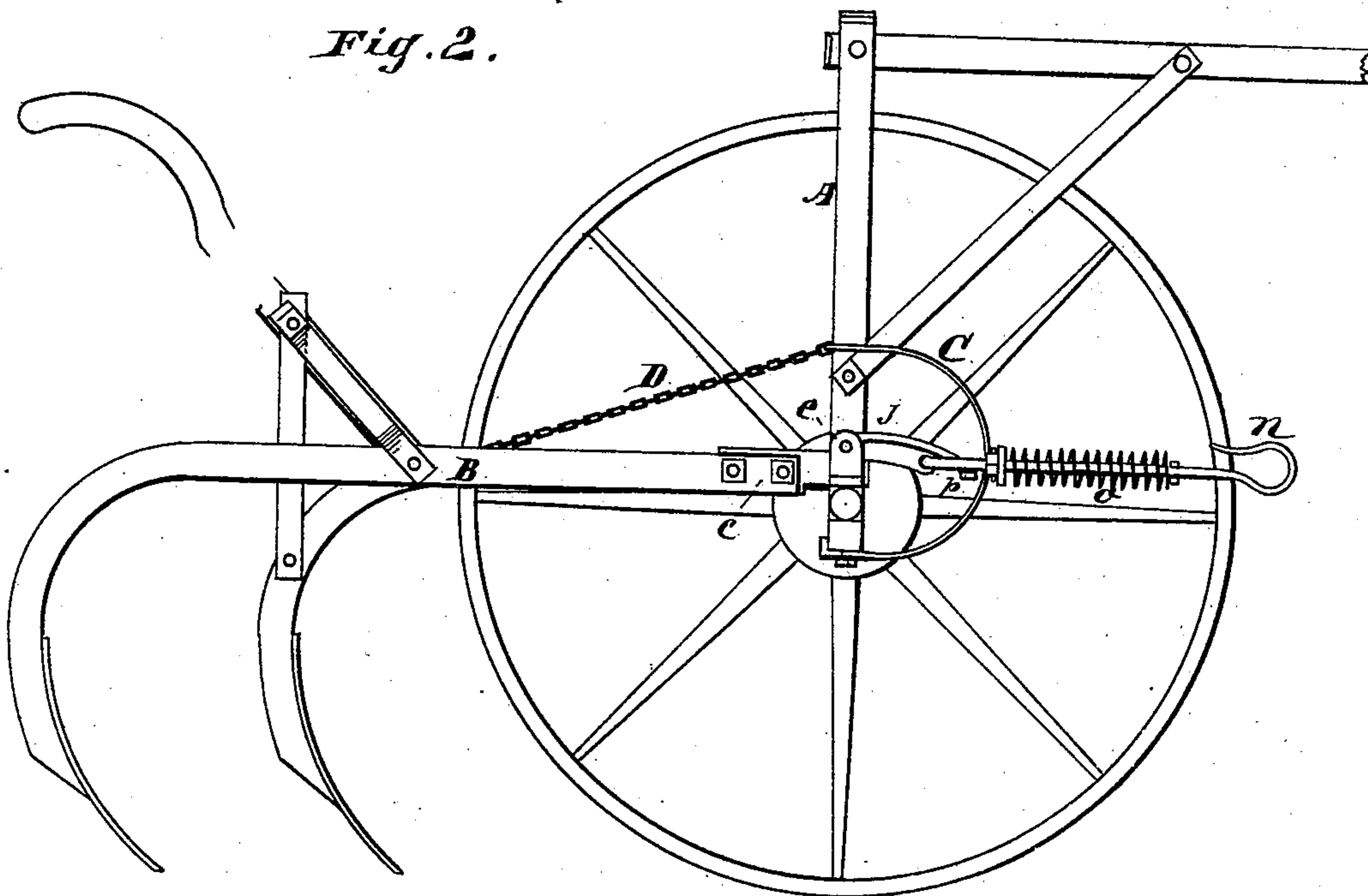


Fig. 3.

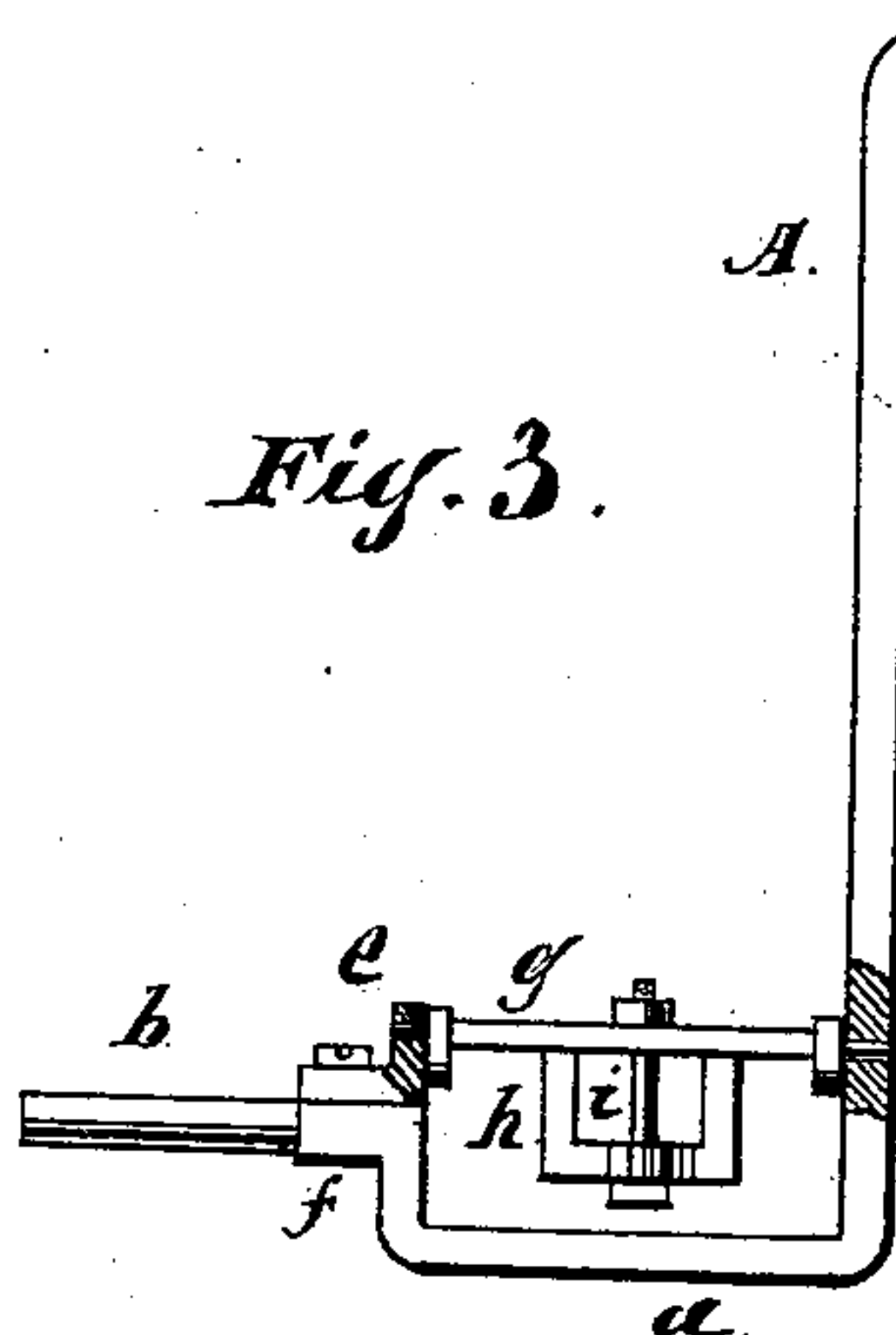


Fig. 4.

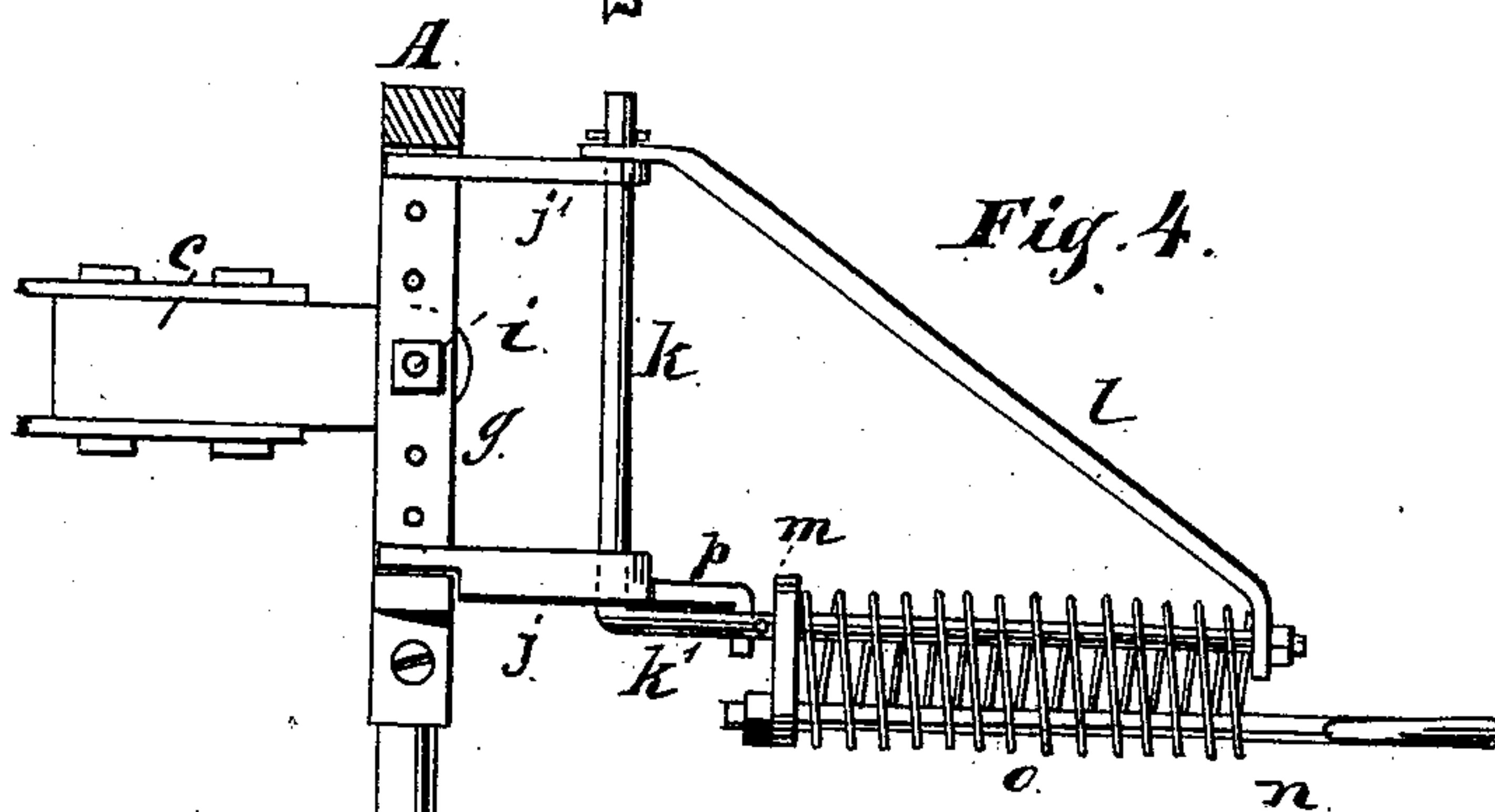
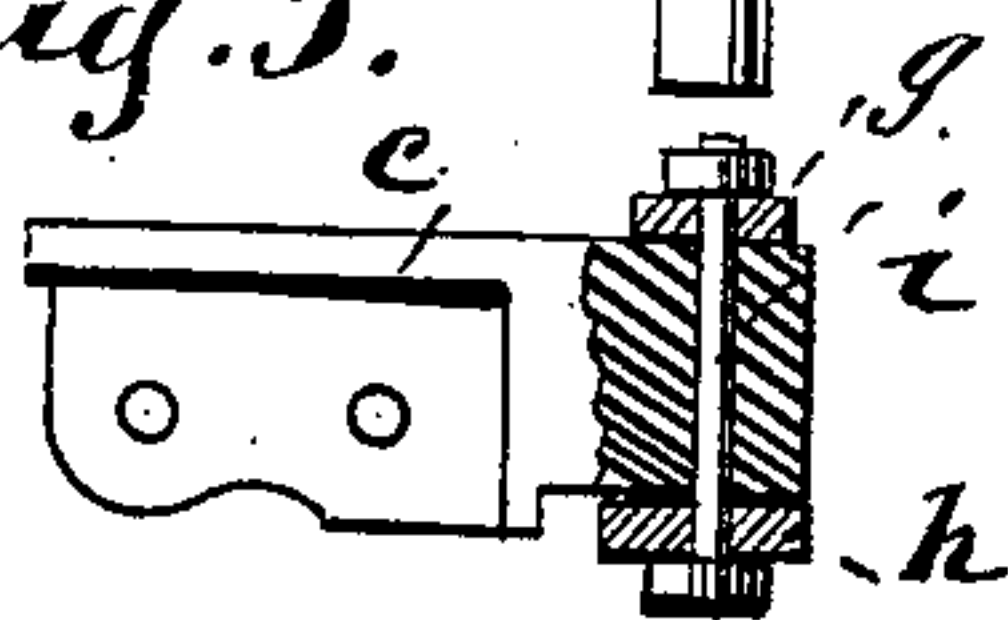


Fig. 5.



Witnesses:
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UNITED STATES PATENT OFFICE.

BYRON C. BRADLEY, OF CHICAGO, ILLINOIS.

CULTIVATOR.

SPECIFICATION forming part of Letters Patent No. 226,833, dated April 27, 1880.

Application filed August 4, 1879.

To all whom it may concern:

Be it known that I, BYRON C. BRADLEY, of the city of Chicago, Cook county, State of Illinois, have invented new and useful Improvements in Cultivators, of which the following is a full description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan. Fig. 2 is a side elevation, one wheel being removed; Fig. 3, a rear elevation of the parts shown; Fig. 4, an enlarged detail, being a plan of the parts shown; Fig. 5, a detail.

My improvements consist in a C-spring, secured at one end to the axle, and having a chain attached to its upper end, which chain is connected at one end with the rear end of the plow-beam, for the purpose of aiding in sustaining the weight of the plow-beam; in a spring-equalizer, constructed substantially as described, and to which the whiffletree is attached for the purpose of relieving the strain in starting and when the plows come in contact with obstructions. The two equalizers also take the place of an evener, and permit either horse to advance a little, the same as when an evener is used, as hereinafter fully set forth.

In the drawings, A represents a bent iron axle which is made as usual, except that a portion, *a*, of the horizontal part is carried below the spindle *b*, as shown in Fig. 3.

B B are the plow-beams, constructed in any suitable known manner. Those represented are made of iron, and there are two beams, in fact, on each side, connected at their forward ends to a coupling-block, *c*, and having a brace bar or rod, *d*, between them, near their rear ends.

C C are two curved or C-springs, one on each side. The lower end of each spring C is secured to the horizontal portion *a* of the axle.

D D are chains, one on each side. The forward end of each chain is connected with the upper end of one of the springs C, and the other end to the brace-bar *d*.

e is an ear, secured at *f* to the axle. *g* is a bar, one end of which is pivoted in the ear *e*, and the other end in the axle. (See Fig. 3.) Owing to the form of the axle and the position of the bar *g*, there is considerable space between the bar *g* and that part of the axle

marked *a*. *h* is a loop, secured to and on the under side of the bar *g*. In the forward end of the block *c*, which is, in fact, the front end of the plow-beam, is a vertical hole, and by means of a bolt, *i*, which passes through holes in the loop *h* and bar *g*, and also through the block *c*, the plow-beam is connected with the rest of the machine. The pivoted bar *g* permits the vertical movement of the rear end of the beam, and it has the usual lateral movement on the pin or bolt *i*.

j j' are arms, one on each end of the bar *g*, extending forward therefrom. *k k'* are the two arms of a bent rod. The part *k* passes through the arms *j j'*, and the two ends of *k k'* are connected by a rod, *l*. *m* is a plate which slides on the rod *k'*. *n* is a hook, the shank of which is long and is secured to the outer end of the plate *m*. *o* is a strong coil-spring, which encircles the rod *k'* and the shank of the hook *n*, and is between the plate *m* and the forward end of the rod *l*. *p* is a support to prevent the rod *k'* and parts connected therewith, including the whiffletree, from falling to the ground. There may be a series of holes in the bar *g* to receive the loop *h*, for the purpose of adjusting it to the right or left.

The operation is as follows: The spring C partially supports the rear end of the plow-beam, and renders it much easier for the operator to handle the plows. The action of this spring is quite direct. It is easily made and applied, and is efficient.

The whiffletrees are to be connected to the hooks *n*. The spring *o* is to be sufficiently strong to resist the action of the team under ordinary circumstances; but in case the machine comes in contact with an obstruction the spring *o* will yield under the increased strain upon the spring, and this will relieve the strain on the plows and also that on the horses. So, too, the horses will be relieved when starting the machine. The two coil-springs as arranged also take the place of an evener, as before stated.

The operation of the joint by means of which vertical and lateral movement can be given to the rear end of the plow-beam has been sufficiently explained.

I am aware that springs have been used for

the purpose of partially supporting the rear ends of cultivator-plow beams, and I do not claim, broadly, a spring for such purpose.

5 I am also aware that various joints have been used, adapted to permit the lateral and vertical movement of the rear ends of the plow-beams.

I am also aware that springs have been used in connection with traces.

10 I do not claim any of these devices, broadly; but

What I claim as new, and desire to secure by Letters Patent is as follows:

15 1. The combination of the spring C, attached to the axle, as described, with the rocking head

g, chain D, and beam B, whereby the attachment and operation of the spring is made independent of the frame or parts mounted on the elevated portion of the axle, substantially as specified.

20 2. The combination of the bent rod or bar *k k'*, brace *l*, arms *j j'*, and rocking head *g*, with the hooked rod *n*, plate *m*, and spring *o*, constructed and operating substantially as described.

BYRON C. BRADLEY.

Witnesses:

E. A. WEST,

C. H. WATSON.