

No. 885,471.

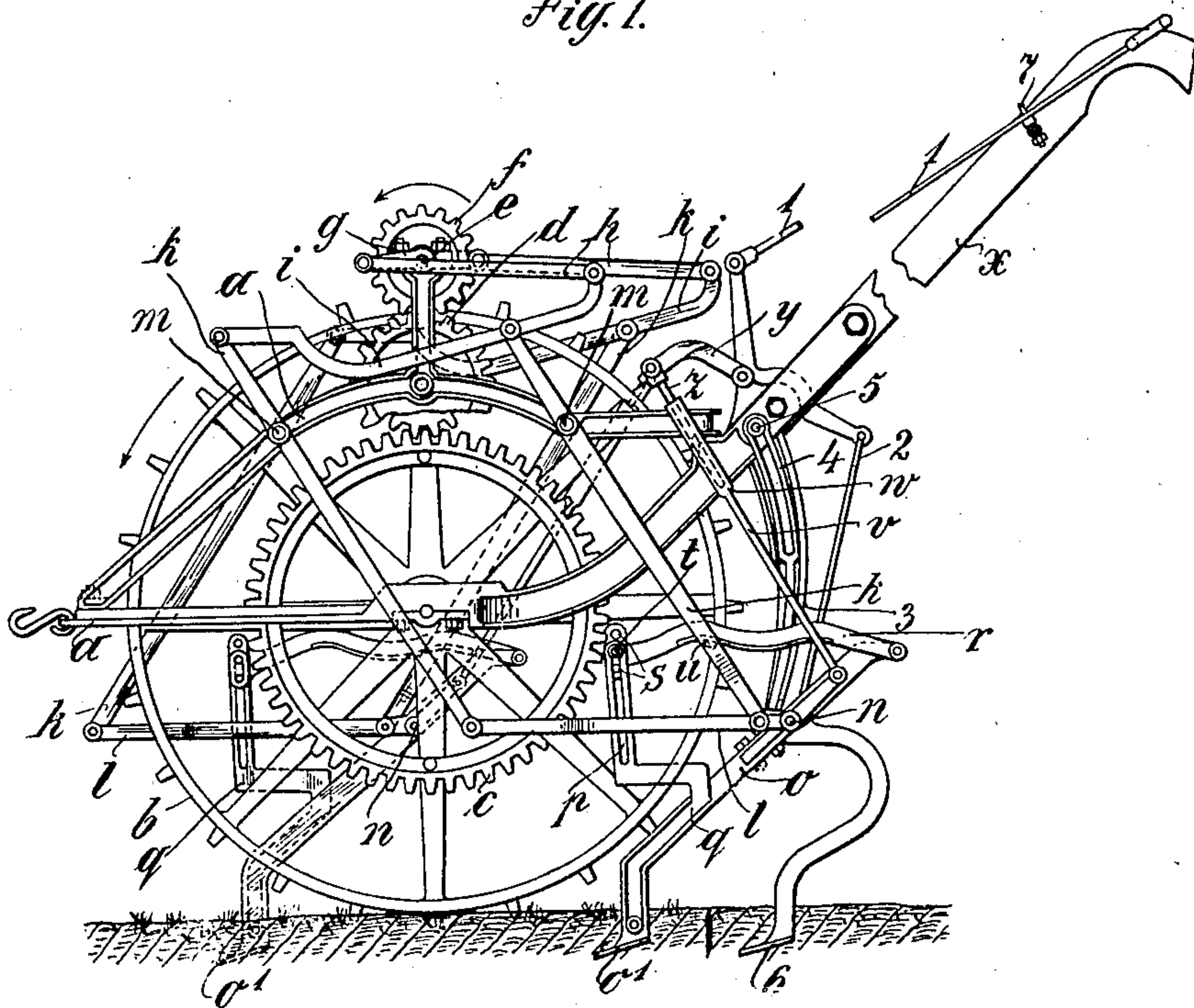
PATENTED APR. 21, 1908.

O. HARDER.
HOEING MACHINE.

APPLICATION FILED FEB. 18, 1907.

3 SHEETS—SHEET 1.

Fig. 1.



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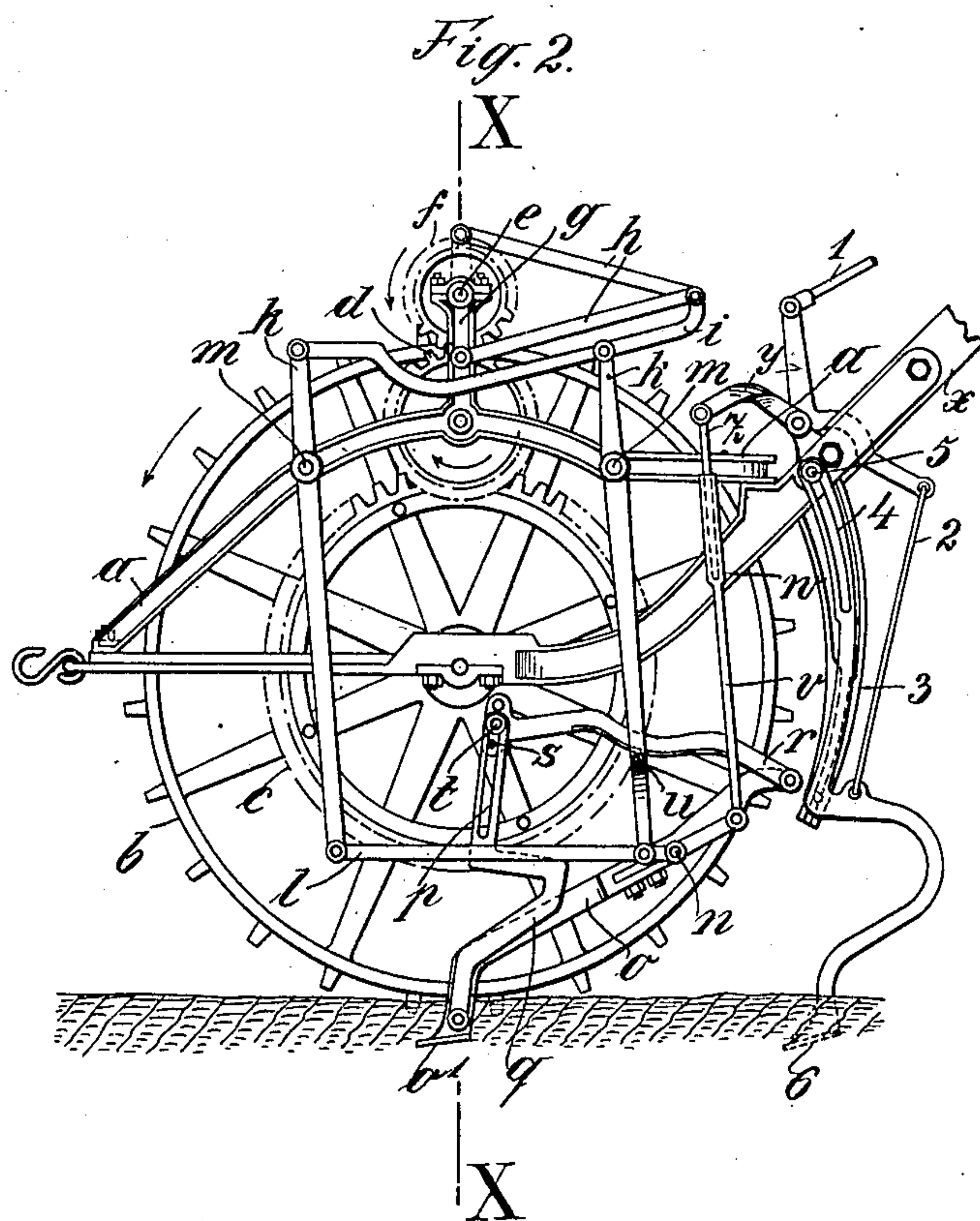
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3 SHEETS—SHEET 2.



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3 SHEETS—SHEET 3.

Fig. 3.

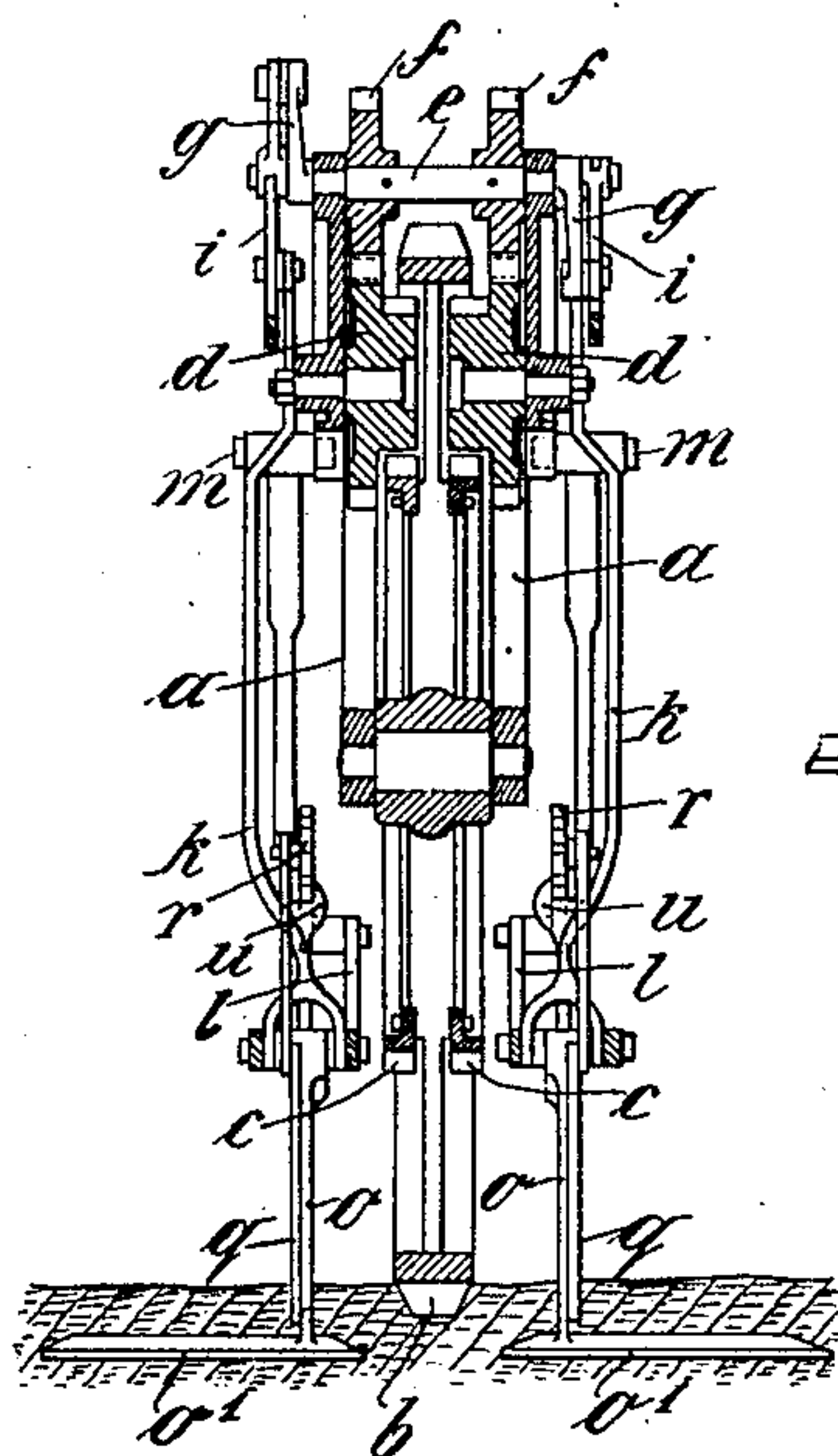
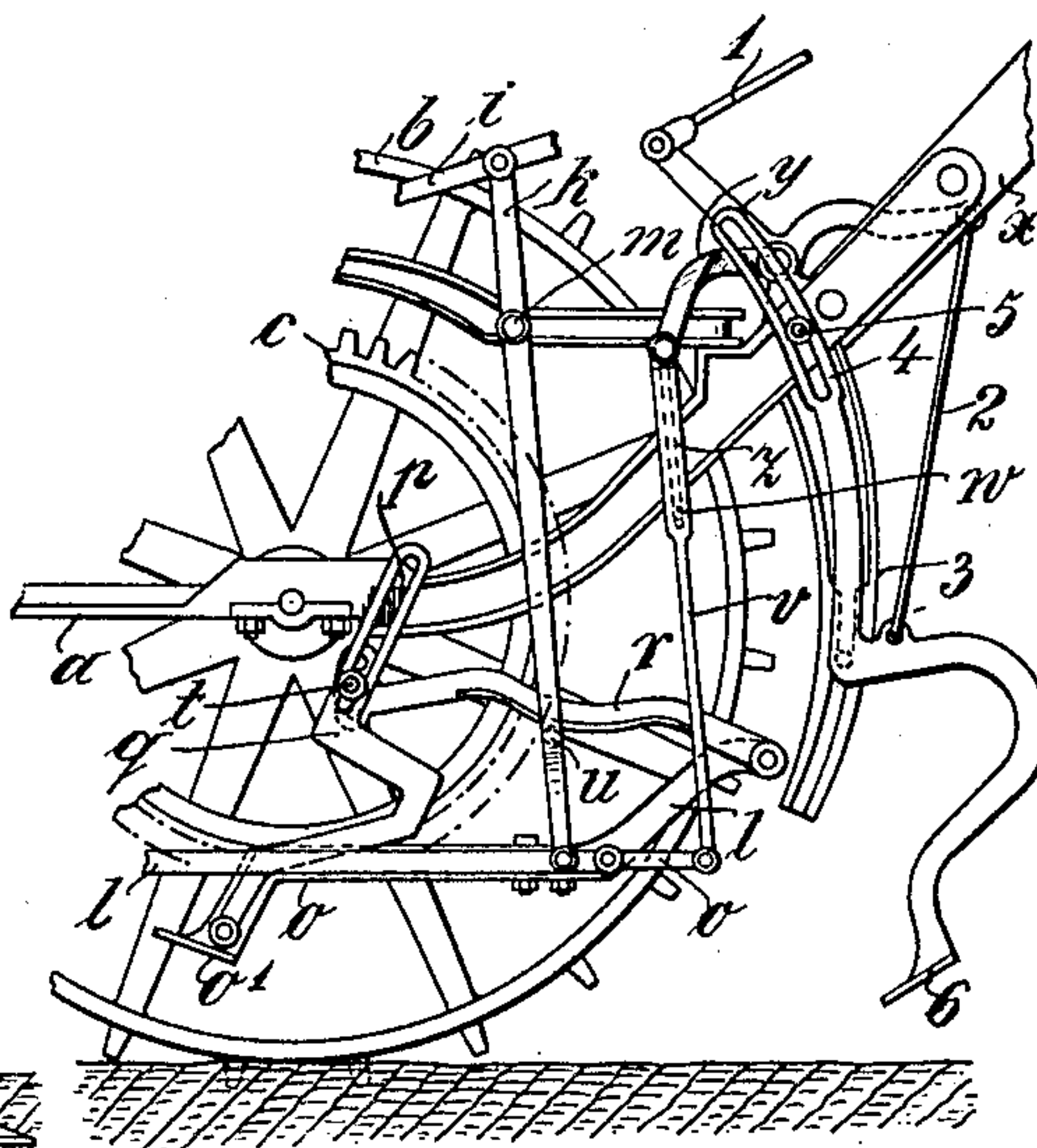


Fig. 4.



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UNITED STATES PATENT OFFICE.

OTTO HARDER, OF HÖKENDORF, GERMANY.

HOEING-MACHINE.

No. 885,471.

Specification of Letters Patent.

Patented April 21, 1908.

Application filed February 18, 1907. Serial No. 357,855.

To all whom it may concern:

Be it known that I, OTTO HARDER, a subject of the King of Prussia, residing at Hökendorf, Pomerania, Prussia, Germany, have invented certain new and useful Improvements in Hoeing-Machines, of which the following is a specification.

The subject of the present invention is a hoeing machine in which the hoeing shares or knives, which work on both sides of the wheel on which the machine runs, are driven from the framework of the machine by means of tooth wheels, a parallel motion being applied to each. By means of a further guide motion applied at one of the under turning points on the system of guide rods, the to and fro movement of the hoeing shares is converted into a horizontal movement. The hoeing shares at the sides are lifted out of their working position and let down into that position, according to the present invention, by a jointed lever actuated from the back of the machine, and a third hoeing share fitted between the two above referred to, but independent of them, is also controlled by the same mechanism. This jointed lever is put into connection with the levers working the hoeing shares by means of guide rods. The hoeing shares can also be adjusted at any desired height to suit the depth at which the machine is to work.

On the drawings:— Figure 1 is a side view of the machine with the side shares shown in the positions in which they are when commencing and completing their work. Fig. 2 is a view showing the shares in their middle or intermediate position. Fig. 3 is a vertical section of the machine taken on the line X. X. Fig. 2. Fig. 4 shows, in side view, the back part of the machine, with the shares in the raised position.

Fitted in suitable bearings in the middle of the machine frame *a* is a running and driving wheel *b* on the axle of which two toothed wheels *c, c*, are keyed, one on each side. By means of intermediate wheels *d* toothed wheels *f, f*, fitted on a shaft *e* gear with the toothed wheels *c, c*.

Cranks *g, g*, are fitted on the shaft *e* and are connected by means of the links *h, h*, to the arrangement of rods or levers *i, k, k, l*, centered on the pins *m*.

Suitably secured to the rear end of each bottom rod *l* on a pin or stud or its equivalent *n* is a bent lever *o* to the lower end of which the side hoe *o'* is movably fitted. To

the lower end of the bent lever *o* there is also movably secured a bent rod or lever *q* having a slot *p* in it. A link *r* is fitted at each side of the machine on a prolongation of the rod *l* in such a way that it will turn, being carried on a tappet or catch *u* on one of the rods or levers *k*. Holes *s*, of which there are preferably three, are bored in the T shaped end of the link *r* and through one or other of which holes and through a slot *p* in the rod or lever *q* the detachable bolt *t* is passed. With this arrangement it is possible, on the one hand, for the share *o'* to be moved backwards and forwards in an exactly horizontal line, while, on the other hand, by shifting the bolt *t* the working depth of the share *o'* can be altered. Again, as the link *r* moves on the tappet or catch *u* on the rod *k* the share is caused to move from the beginning to the end of its backward and forward movement in an exactly horizontal direction so that it does not change its position while the weeds are being cut off. To the free ends of the share levers there are attached rods *v* ending in boxes *w*, in which rods *z, z*, connected to a jointed lever *y* fulcrumed on the handle *x*, are guided in such manner that when the rod *11* is moved forward the shares at the sides are lifted off the ground.

As the jointed lever *y* is connected directly through a rod *2* with the middle share *6* resting in the quadrants *3, 3*, and carried by the slide bars *4, 4*, working on the pin *5* of the handle *x* it follows that when the rod *11* is moved forward the middle share is also lifted off the ground. By moving the rod *11* backwards all the three shares can be again let down onto the ground. The rod *11* can be secured in position by means of a pin *7* on the handle *x*.

Having now fully described my invention what I claim and desire to secure by Letters Patent is:—

1. A hoeing machine comprising in combination a framework, a centrally disposed wheel, hoeing shares one upon each side of said wheel, a centrally disposed hoeing share at the rear of the wheel, and gear-actuated parallel members for actuating said shares forward and backward parallel with each other in a horizontal plane.

2. A hoeing machine comprising in combination, a framework, hoeing shares carried thereby, a system of parallel levers connected to each share, means operated from the drive wheel for giving a to and fro movement to

the shares, and means for converting said movement into a horizontal movement for causing the shares to move in a horizontal plane.

5 3. A hoeing machine comprising a wheel, a framework mounted thereon, hoeing shares and gear-actuated parallel members for actuating said shares to move them forward and backward parallel with each other in a horizontal plane.

10 4. A hoeing machine comprising, in combination, a framework mounted on a wheel, a hoeing share at each side of the wheel, parallel levers connected with each share and gear for operating the said levers.

15 5. A hoeing machine comprising, in combination, a framework mounted on a wheel, a hoeing share at each side of the wheel, parallel levers connected with each share, and gear for operating the said levers alternately in opposite directions.

20 6. A hoeing machine comprising, in combination, a framework mounted on a wheel, a hoeing share at each side of the wheel, parallel levers connected with each share, gear for operating the same and means connected with the levers for causing the shares to move in a horizontal plane.

7. A hoeing machine comprising, in combination, a framework mounted on a wheel, a hoeing share at each side of the wheel, parallel levers connected with each share, gear for operating the same, and links connected with the levers for causing the shares to move in a horizontal plane.

35 8. A hoeing machine comprising, in combination, a framework mounted on a wheel, a hoeing share at each side of the wheel, parallel levers connected with each share, gear for operating the same, links connected with the levers for causing the shares to move in a horizontal plane, and means for adjusting the links relatively with the shares.

40 9. A hoeing machine comprising, in combination, a framework mounted on a wheel, a hoeing share at each side of the wheel, a share at the back of the wheel, parallel levers connected with each side share, gear for operating the levers, and means for raising and lowering all the shares simultaneously.

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

OTTO HARDER.

Witnesses:

WILH. HERKEL,
HANS HILDEBRAND.