W. E. MARTIN.

POTATO DIGGER.

APPLICATION FILED OCT. 29, 1909.

978,179.

Patented Dec. 13, 1910.

4 SHEETS—SHEET 1.

Fig:3

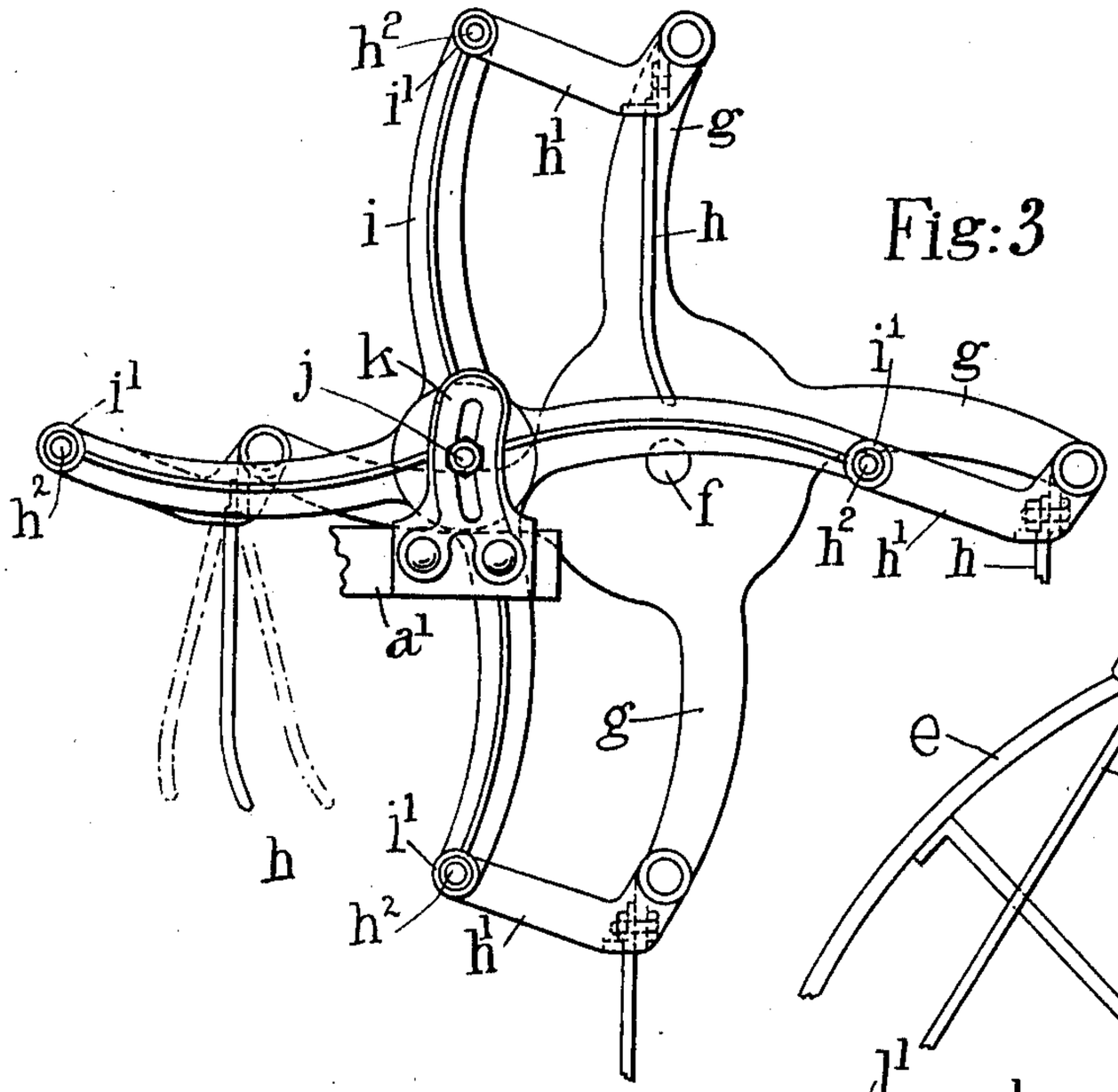

Fig:1

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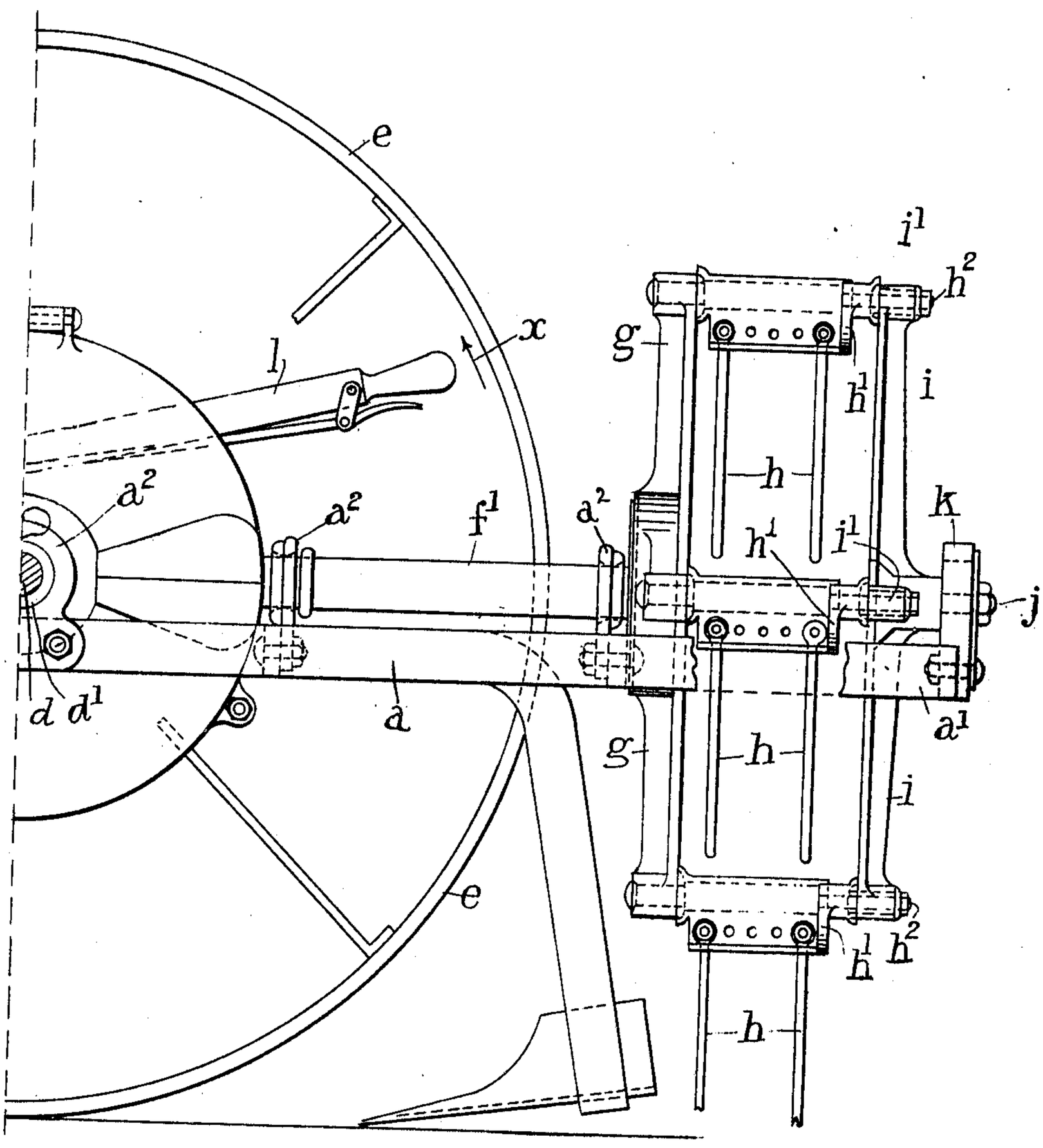
4 SHEETS—SHEET 2.

Fig. 1ª



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4 SHEETS—SHEET 3.

Fig: 2

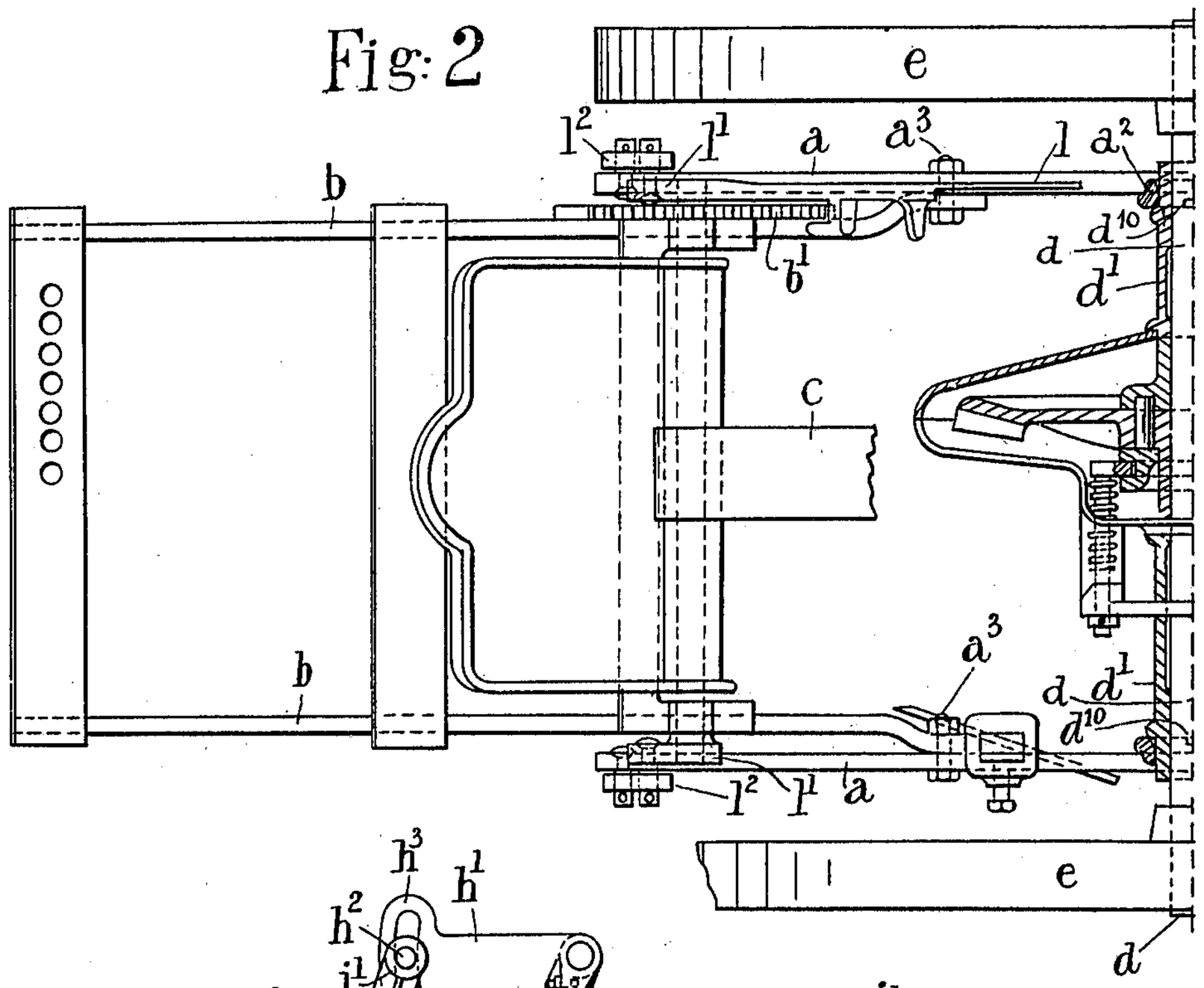


Fig: 4

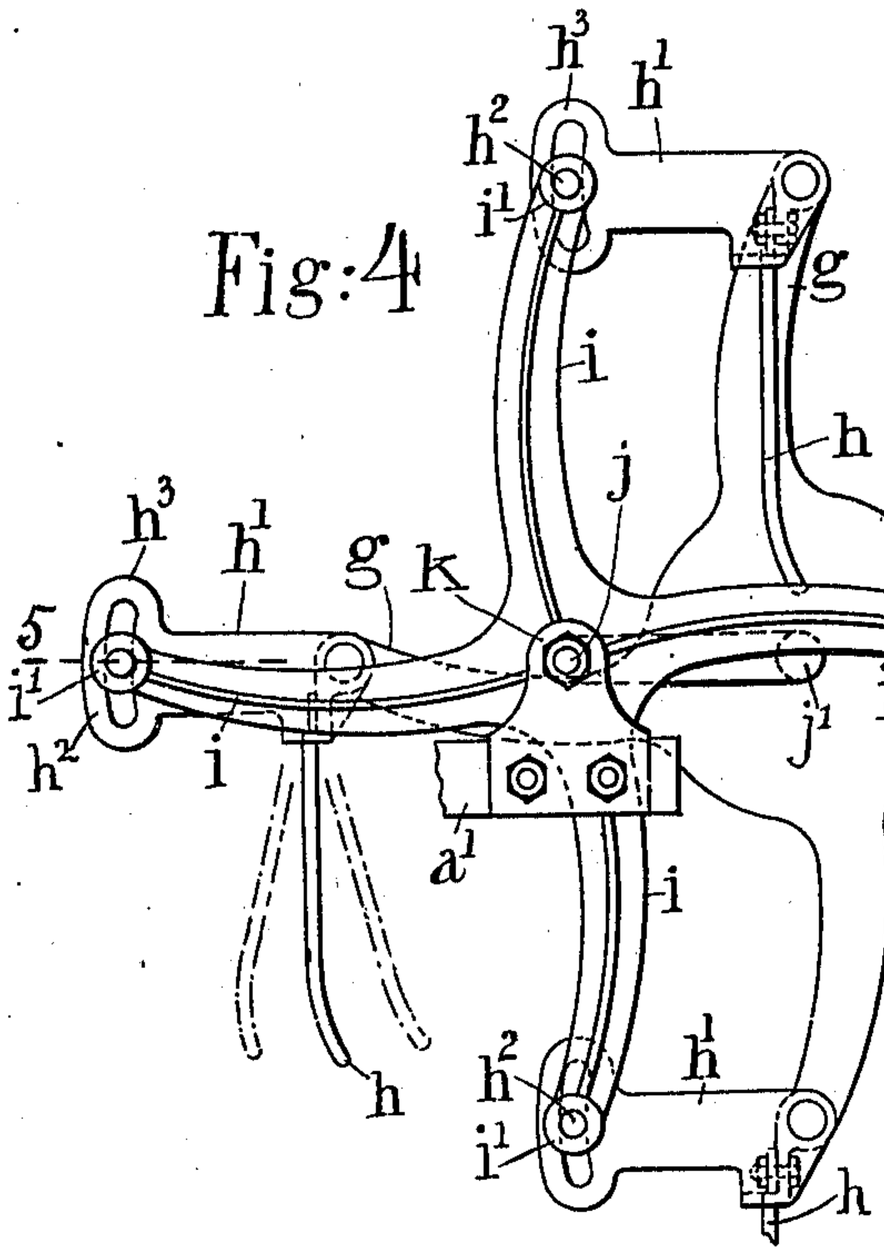
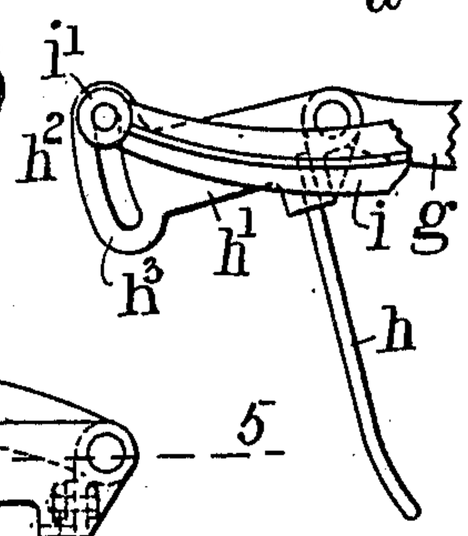


Fig: 6



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4 SHEETS—SHEET 4.

Fig: 2ª

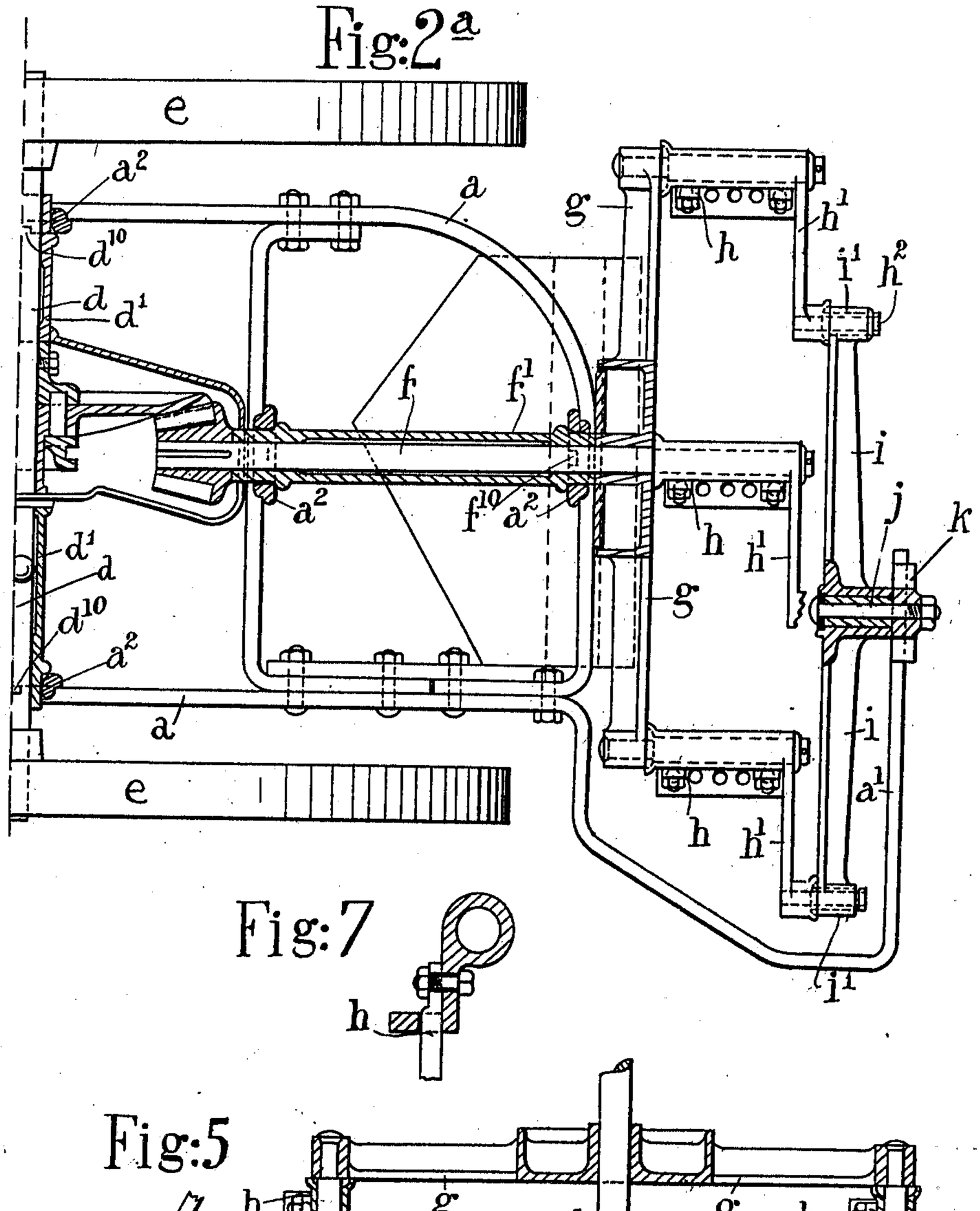
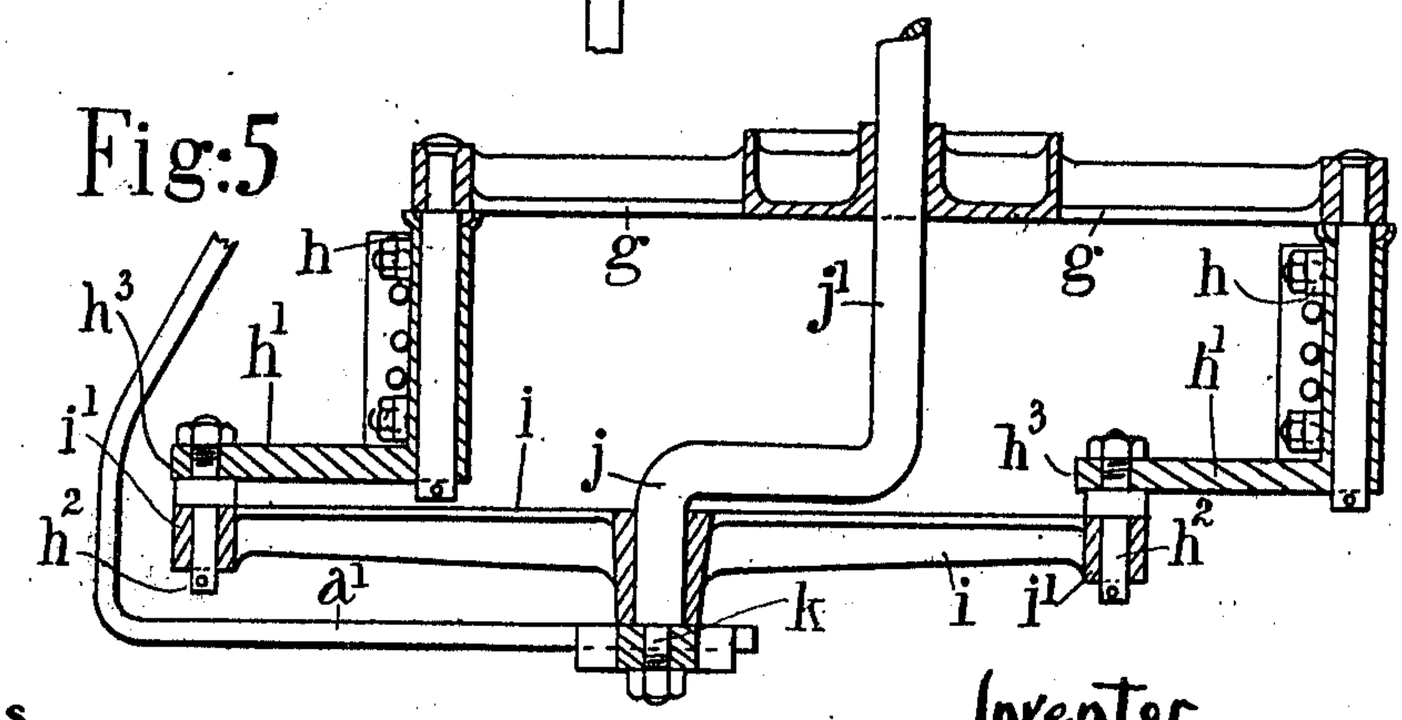


Fig: 7

Fig: 5



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UNITED STATES PATENT OFFICE.

WILLIAM E. MARTIN, OF STAMFORD, ENGLAND.

POTATO-DIGGER.

978,179. Specification of Letters Patent. **Patented Dec. 13, 1910.**

Application filed October 29, 1909. Serial No. 525,363.

To all whom it may concern:

Be it known that I, WILLIAM EDWARD MARTIN, a subject of the King of Great Britain, residing at Stamford, in the county of Lincoln, England, have invented a new and useful Potato-Digger, of which the following is a specification.

The invention relates to that kind of potato digger in which a number of radial arms are rotated, each arm carrying a pin on which hangs a rake or fork.

The objects of the present invention are to construct improved means for retaining these rakes or forks in the desired pendent position and for adjusting such pendent position.

The invention is illustrated in the accompanying drawings, in which—

Figures 1 and 1ª are a side elevation with the near side wheel omitted. Figs. 2 and 2ª are a plan partly in section of the complete machine, and Fig. 3 is a rear elevation of the forks shown separately. Fig. 4 is a rear elevation of a modified construction of the forks and Fig. 5 is a section through certain parts on the line 5—5 of Fig. 4. Fig. 6 is a detail view showing one of the tines adjusted out of the vertical position. Fig. 7 is a section showing how the tines are fixed to the fork heads.

a is the main frame, *b* is the shaft frame, *c* is the support for the driver's seat *c'*, *d* is the main axle, *e*, *e*, are the driving wheels, *f* is the shaft giving motion to the radial arms *g* from which hang the forks *h*.

According to the present invention the machine is provided with a second set of radial arms *i* which rotate around a pin or axle *j* which is set behind but not in a line with the axle or shaft *f* which carries the first set of radial arms *g*. This pin or axle *j* is carried in any convenient manner. It is preferably carried by an arm *a'* which passes around one side of the rotating rakes *h*. The pin or axle *j* may, however, be one end of a cranked arm, around another part of which rotates the first set of radial arms *g*. The heads of the rakes or forks *h* are each provided with a crank *h'*. In the drawings the pin or axle *j* is shown to one side of the axle or shaft *f*, in which construction the crank *h'* is approximately horizontal and the pin h^2 fixed to said crank *h'* passes through a bearing *i'* at the end of one of the second set of rotating radial arms *i*. The first set of radial arms *g*, when rotating, causes the second set *i* to rotate, and these latter retain the forks *h* in approximately a vertical position. It is sometimes advantageous to cause the forks *h* to assume a position which is not quite vertical. This adjustment may be effected by moving the pin or axle *j* on which rotates the second set of radial arms *i* with relation to the axis around which rotates the first set of radial arms *g*, and for this purpose the pin *j* may be fixed in a quadrant or guide *k* carried by the said arm *a'*. Angularity of the forks *h* may be caused by other mechanism. As shown in Figs. 4 and 5 each of the cranks *h'* attached to the fork heads is provided with a quadrant h^3 at its end, and the pin h^2 has means for fixing it in any desired part of said quadrant h^3.

In Figs. 3 and 4 I have indicated by broken lines the two extreme positions of one of the forks *h*. In Fig. 6 I have shown one prong *h* adjusted as far as possible in one direction, the part h^2 having been moved to one end of the quadrant h^3.

The pin or axle *j* around which the second set of radial arms *i* rotates, may be set above or below the axle or shaft *f* around which the first set of radial arms *g* rotates, or in any other position provided the two axles are not in line with each other. The angle of the cranks *h'* attached to the rake heads would be arranged according to the positions of the two axles.

In constructing the machine I preferably employ bearings consisting of two parts as shown. The bearings proper *f'* and *d'*, are in the form of sleeves and are mounted in eyes a^2 having a curved interior. The bearings *f'*, *d'*, are formed with collars which fit against the eyes a^2, these latter being bolted in position on the frame *a*. The eyes a^2 are each formed with a recess to receive a feather d^{10}, f^{10}, formed on the parts *d'*, *f'*, whereby these latter are prevented from rotating.

The prongs of the fork *h* are fixed in the rake heads, as shown more clearly in Fig. 7. The rake heads have a vertical part and a horizontal part, which are both perforated. The prongs have flattened heads which are also perforated. Each prong is passed downward through a perforation in the horizontal part and is fixed to the vertical part by means of a nut and bolt.

To assist in raising the digging forks *h* out of the ground, the driver's seat is pref-

erably carried by one of the frames in front of the main axle d on which the main frame a rocks. In the drawings the seat stem c is shown fixed to the rear of the shaft frame b. The frame a is pivoted to the rear end of the shaft frame b, which latter is provided with a fixed quadrant b' and a long armed lever l and a short lever l' moving over said quadrant b'. The short lever l' is pivoted to one end of a link l^2, the other end of which link is pivoted to the front end of the main frame a, which projects in front of the pivots a^3 connecting the main frame a and shaft frame b.

In use the two frames a, b, are practically in alinement, as seen in Fig. 1, but, by moving the two-armed lever l, l', in the direction of the arrow x, the rear of the shaft frame b and front of the main frame a can be depressed, which action is assisted by the driver's weight, thus raising the digging forks h out of the ground.

What I claim is:—

1. In a potato digger, the combination of a driven shaft, radial arms on said driven shaft, pins carried by the radial arms, forks hanging on said pins, cranks attached at one of their ends to the fork heads, a pin carried by the other end of each crank, bearings to receive said pins and a second set of radial arms mounted eccentric to the said driven shaft and by which said bearings are carried, and a quadrant carrying the axle on which the second set of radial arms rotates whereby the angularity of the forks may be altered, substantially as set forth.

2. In a potato digger, the combination of a driven shaft, radial arms on said driven shaft, pins carried by the radial arms, fork heads mounted on said pins and having a vertical part and a horizontal part both of which are perforated, prongs perforated at their upper ends passed through the perforations in the horizontal part, nuts and bolts for fixing the perforated upper portions of the prongs to the vertical part, cranks attached at one of their ends to the fork heads, a pin carried by the other end of each crank, bearings to receive said pins and a second set of radial arms mounted eccentric to the said driven shaft and by which said bearings are carried, substantially as set forth.

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

W. E. MARTIN.

Witnesses:
CLAUDE K. MILLS,
WM. GIRLING.