No. 667,890. Patented Feb. 12, 1901.

C. J. MOULTON.

POTATO DIGGING MACHINE.

(No Model.) (Application filed May 29, 1900.)

2 Sheets—Sheet 1.

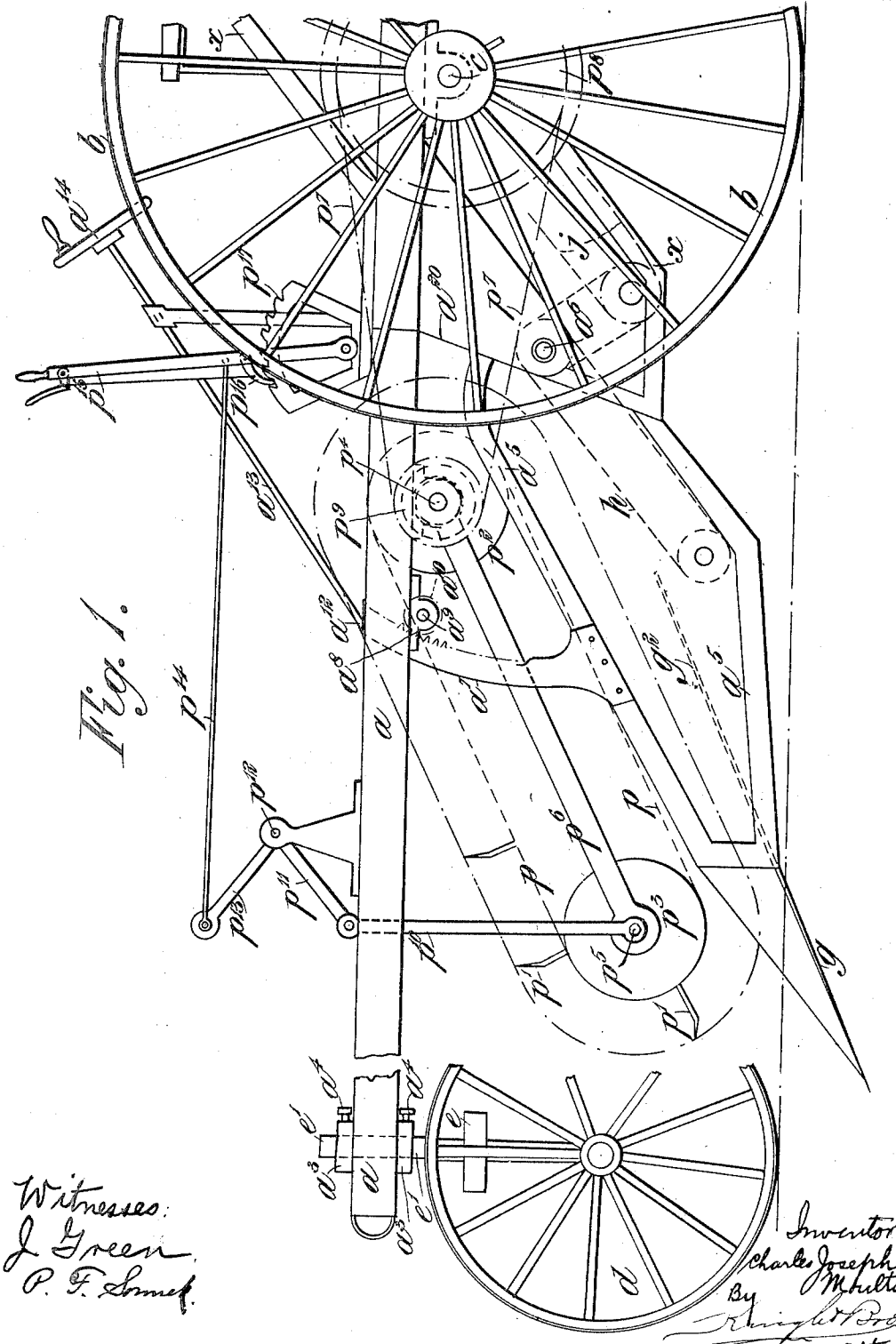


Fig. 1.

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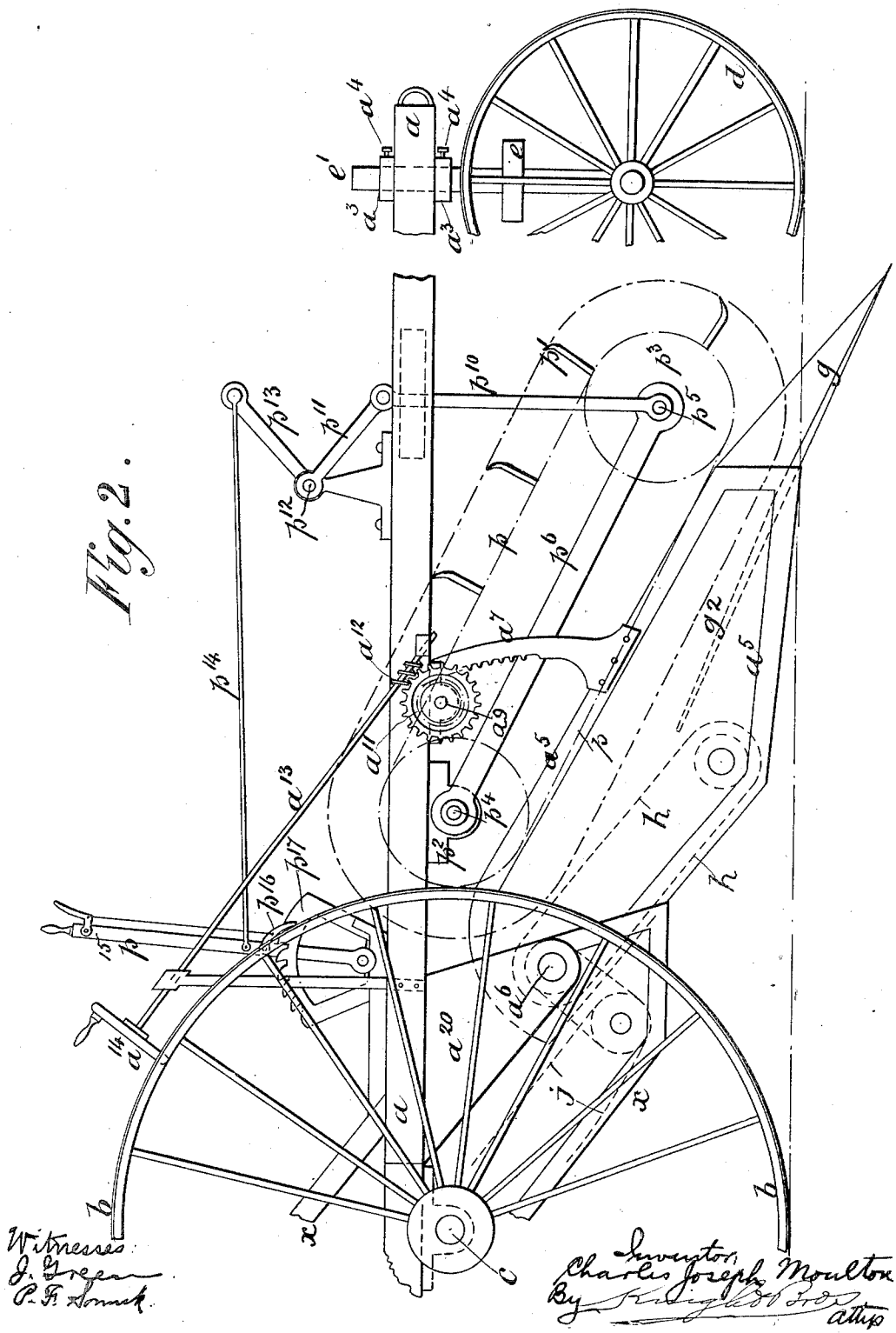
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2 Sheets—Sheet 2

Fig. 2.



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UNITED STATES PATENT OFFICE.

CHARLES JOSEPH MOULTON, OF CHATTERIS, ENGLAND.

POTATO-DIGGING MACHINE.

SPECIFICATION forming part of Letters Patent No. 667,890, dated February 12, 1901.

Application filed May 29, 1900. Serial No. 18,360. (No model.)

To all whom it may concern:

Be it known that I, CHARLES JOSEPH MOULTON, a subject of the Queen of Great Britain, residing at Chatteris, in the county of Cambridge, England, have invented certain new and useful Improvements in Potato-Digging Machines, of which the following is a full, clear, and exact description, and for which I have made application for patent in Great Britain dated November 3, 1899.

The invention relates to improvements upon an invention described in the specification of Letters Patent of the United States of America No. 609,289, dated August 16, 1898, whereby I greatly improve the operation of the machine by rendering it more certain in action and less liable to become choked with weeds. In the said specification are shown and described two vertical dependent arms at the front of the machine carrying the digging-share, which is arranged approximately in a line with the short endless elevator. Now I have found that in a machine constructed according to the said prior patent there was a great tendency for weeds and potato-tops to collect at the angle between the share and its carrying-arms. According to my present invention I attach these arms to the frame of the machine at a point farther back, and I carry the said arms forward to the desired point for carrying the share in a direction approximately parallel to the short endless elevator. I also employ an auxiliary endless band arranged approximately parallel to the short endless elevator and at a short distance above the same. This endless band has a number of points or projections which help to push the weeds, earth, and potatoes onto the short endless elevator. This auxiliary endless band is carried by two rollers and is driven by a chain and sprocket-wheel from any convenient part of the machine. The auxliary endless band is made, preferably, adjustable, so that it may be arranged parallel to the endless elevator or at slightly-varying angles thereto for different kinds of soil. The points or projections on the auxiliary endless band may also be varied according to the soil.

My invention is illustrated in the accompanying drawings.

Figure 1 represents the left-hand side view, and Fig. 2 the right-hand side view, of so much of a potato-digging machine as will enable my present improvements to be clearly understood.

In order that my present invention may be clearly understood in connection with the invention described in the specification of patent hereinbefore referred to, I will apply similar letters of reference to such parts of the machine as correspond with parts described in the aforesaid specification.

a is the main frame.

b b are the main supporting and driving wheels, which are fixed to a rotating shaft c, and d d are a pair of smaller wheels mounted on a forecarriage e, supporting the front of the frame a.

I now dispense with the arrangement described in said former specification for raising and lowering the front of the frame a in relation to the forecarriage e, and employ in lieu thereof a pair of collars a^3, one above and the other below the frame a, through which the upright e' is passed, and which can be fixed in the desired position in relation to the frame a by set-screws a^4.

g is the share, which instead of being carried by the dependent arms a^* (described in the specification hereinbefore referred to) is, according to my present invention, carried by arms a^5, pivoted at a^6 to side brackets a^{20}, which also help to support the side frames or guards x. These arms a^5 extend forward from the pivots a^6 to the desired point for carrying the share g in a direction approximately parallel to the short endless elevator h. I also employ the following means for raising and lowering the share g: On the arms a^5 I fix segmental racks a^7, and on the frame a I fix bearings a^8, carrying a shaft a^9, on which are fixed pinions a^{10}, gearing with the segmental racks a^7. On such shaft a^9 is also fixed a worm-wheel a^{11}, which can be rotated by a worm a^{12} on a shaft a^{13}, provided with a hand-wheel a^{14}. Thus by rotating the hand-wheel a^{14} the share can be adjusted for depth of work, and it can be raised above the ground when the machine is to travel from place to place.

At the rear of the share g and connected thereto is a grating g^2, over which the potatoes on their way to the short endless elevator h pass, and through which a considerable

part of the earth accompanying the potatoes passes.

j is the endless elevating-screen, onto which the potatoes, with their tops and weeds and some earth, are delivered from the short endless elevator *h*.

I also, according to my present invention, employ an auxiliary endless rake-band *p*, arranged approximately parallel to the short endless elevator *h* and at a short distance above the same. This endless rake-band *p* is provided with points or teeth *p'*, which help to push the weeds, earth, and potatoes onto the short endless elevator *h*. This auxiliary endless band *p* is carried by two rollers p^2 p^3. The roller p^2 is fixed to a shaft p^4 and the roller p^3 is mounted on a shaft p^5, carried by arms p^6, mounted on the shaft p^4. The endless band *p* is driven by means of an endless chain p^7, passing around a sprocket-wheel p^8, fixed to the driving-shaft *c*, and around a sprocket-wheel p^9, fixed to the shaft p^4.

The auxiliary endless band *p* is made, preferably, adjustable in the following manner, so that it may be arranged parallel to the short endless elevator *h* or at slightly-varying angles thereto for different kinds of soil: To the shaft p^5 are fixed connecting-rods p^{10}, which are connected to levers p^{11}, fixed on a shaft p^{12}, on which latter is also fixed a lever p^{13}, which by a connecting-rod p^{14} is connected with a hand-lever p^{15}. This hand-lever p^{15} is provided with a pawl p^{16}, acting in combination with the teeth of a segmental rack p^{17}, by which means the rake-band *p* can be retained in any desired position.

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

1. In a potato-digger, the combination of a share; pivoted arms extending backward therefrom supporting said share; a stationary grating at the rear of the share carried by said pivoted arms; a short endless elevator carried by said pivoted arms and receiving the potatoes, tops, weeds and earth from the grating; means for adjusting the height of the pivoted arms; an endless rake-band arranged above the share, grating and short endless elevator; and means for adjusting the angle of the endless rake-band; substantially as herein set forth.

2. In a potato-digger, the combination of a share; a grating fixed at the rear of the share in line therewith; pivoted arms extending backward from the share and carrying said share and grating; a short endless elevator carried by said pivoted arms and receiving the potatoes, tops, weeds and earth from the grating; means acting on the pivoted arms for adjusting the height of the share, grating and short endless elevator; an endless elevating-screen arranged at the rear of the short endless elevator, and extending slightly under the latter; an endless rake-band arranged above the share, grating and short endless elevator; and means for adjusting the angle of the endless rake-band; substantially as set forth.

3. In a potato-digger, the combination of a share; a grating fixed at the rear of said share in line therewith; pivoted arms carrying said grating and share and extending backward from the share; a short endless elevator arranged at the rear of said grating and carried by said pivoted arms; an endless elevating-screen arranged at the rear of the short endless elevator, and extending slightly under the latter; segmental racks fixed on said pivoted arms; pinions gearing with said racks fixed on a shaft carried by bearings on the frame of the machine; a worm-wheel fixed on said shaft; a worm gearing therewith; an inclined shaft carrying said worm; a hand-wheel on the inclined shaft by which the latter may be rotated; an endless rake-band arranged above the short endless elevator; pivoted arms by which said endless rake-band is carried; connecting-rods attached to said pivoted arms; crank-levers pivoted to the connecting-rods; a shaft to which said crank-levers are fixed; a rod pivoted at one end to one of the crank-levers; an operating-lever to which the opposite end of the rod is pivoted and by which the height of the endless rake-band is adjusted; and pawl and segmental rack by means of which the said operating-lever is held in its adjusted position; substantially as herein set forth.

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

CHARLES JOSEPH MOULTON.

Witnesses:
B. J. B. MILLS,
WM. GIRLING.