



**No. 680,257.**

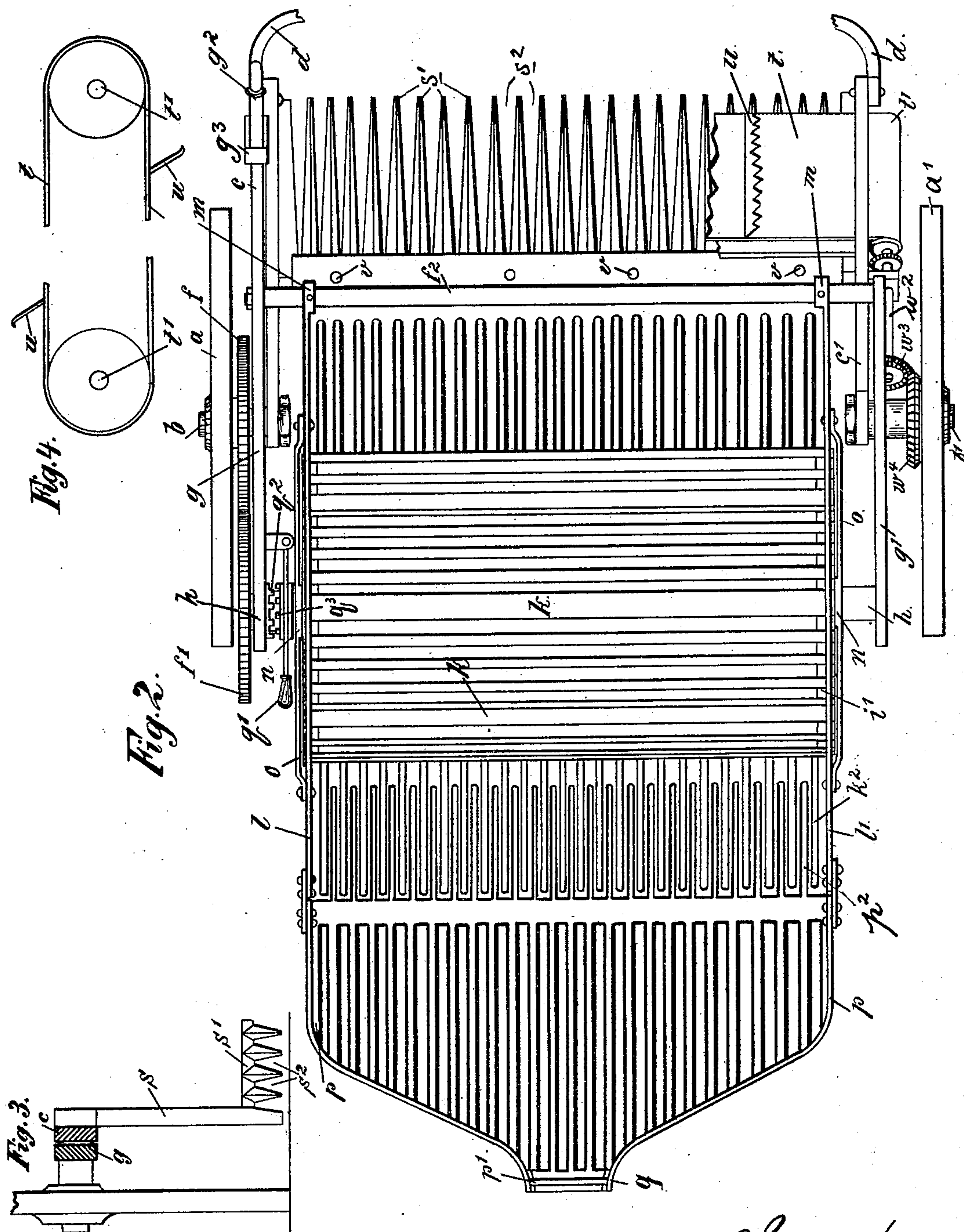
**Patented Aug. 13, 1901.**

**A. VON LOEPER, GEBOREN MÜHLENBECK.  
POTATO DIGGER.**

(Application filed Jan. 24, 1900.)

(No Model.)

**2 Sheets—Sheet 2.**



Witnesses

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# UNITED STATES PATENT OFFICE.

ANNA VON LOEPER, GEBOREN MÜHLENBECK, OF ROSTOCK, GERMANY.

## POTATO-DIGGER.

SPECIFICATION forming part of Letters Patent No. 680,257, dated August 13, 1901.

Application filed January 24, 1900. Serial No. 2,637. (No model.)

*To all whom it may concern:*

Be it known that I, ANNA VON LOEPER, geboren MÜHLENBECK, a subject of the Grand Duke of Mecklenburg, residing at Rostock, in the Grand Duchy of Mecklenburg, German Empire, have invented certain new and useful Improvements in Potato-Diggers, of which the following is a specification.

This invention relates to a potato-digger in which the potatoes are lifted out of the ground and conveyed to an inclined receptacle by means of a rotary drum furnished with rakes.

In the accompanying drawings, Figure 1 represents a side elevation of the machine with some of the parts removed and other parts in section. Fig. 2 is a plan of the machine, partly in section. Figs. 3 and 4 are details.

The machine is propelled by means of draft-animals or motors; but as it is constructed very light it may be drawn by a person. This machine has wheels  $a a'$ , each of these wheels adapted to rotate upon an axle  $b b'$ , keyed to the arms  $c$  or  $c'$ . To the free ends of the arms  $c c'$  is pivoted the shaft or pole framing  $d$ , which can be adjusted in height by means of a segment and secured by any suitable means. Upon axle  $b$  rotates a toothed wheel  $f$ , firmly connected with the wheel-hub and engaging in its turn with another toothed wheel  $f'$ , which is arranged upon the shaft of the rake-drum. The latter is set in rotation and, as hereinafter set forth, serves for lifting the potatoes.

The arrangement is as follows: Upon the wheel-axes  $b b'$  are loosely mounted the two-armed levers  $g g'$ , connected by a transverse rod  $f^2$ , and the lever  $g$  terminates in front in a handle  $g^2$ , serving to place the rake device higher or lower, for which purpose it is guided in a fork  $g^3$  and can be secured in its position by a pin, key, or the like. The two-armed levers  $g g'$  carry at their free ends a shaft  $h$ , upon which are arranged two spoke-disks  $i i'$  at a suitable distance from each other. The disks  $i i'$  are connected with each other by transverse rods  $k$  and narrower rods  $k'$ , (see also Fig. 1,) and upon the rods  $k$  are fixed the rakes  $k^2$ , bent to a suitable shape. It is evident that by the rotation of the wheels  $a a'$  through the medium of the toothed wheels  $f f'$  the spoke-wheels  $i i'$  and the rakes  $k^2$  ro-

tate in the opposite direction. By this rotation of the rake-drum the rakes  $k^2$  are caused to pass into the ground and to lift out the potatoes, which will remain lying in the hollow part of the rakes  $k^2$ . Now in order that the lifted potatoes may not fall down laterally the protecting-plates  $l$  and  $l'$  are provided, these plates being arranged on the sides of the rake-drum and fastened, by means of the eyes  $m$ , on the rod  $f^2$ . At the same time the plates bear upon the stationary axle  $h$  by means of the bosses  $n$  and strengthened by the stays  $o$ . The protecting-plates may also be furnished with openings, in order that the earth loosened from the potatoes may partially drop out laterally. The protecting-plates are joined rearwardly by the inclined collecting-receptacle  $p$ , which terminates in the chute  $q$ . This is provided with a movable slide  $p'$ , by the aid of which the chute may be closed without the necessity of putting the machine out of action. As shown in Fig. 2, the collecting-receptacle has openings and also has a slotted portion  $p^2$ , which extends at its free end nearly to the periphery of the rake-drum without, however, coming in contact therewith. The openings of the part  $p^2$  are of such a width that the rakes  $k^2$  can conveniently pass through the same, the potatoes being then caught up by the former and sliding into the collecting-receptacle. If desired, the part  $p^2$  may be dispensed with, as the potatoes will be thrown into the collecting-receptacle  $p$  without the aid of the same by reason of the centrifugal force produced by the rotary movement of the drum. Below the collecting-receptacle is the carriage  $p^3$ , on which the baskets  $p^4$  to be filled are placed. If the machine is to be transported without setting the lifting apparatus in operation, it will be sufficient to move the coupling-lever  $q'$ , which effects the uncoupling in a well-known manner through the media of the clutch-sections  $q^2 q^3$ . In order that the tubers prior to being lifted and passing into the collecting-receptacle  $p$  may be freed from the tops, the front part of the machine is furnished with a top-removing device arranged in the following manner: To the arms  $c c'$  is fixed a frame  $s$ , on which is arranged a rake  $s'$ , which is arranged in close proximity to the ground. The



rake  $s'$  is composed of several prongs, the intermediate spaces  $s^2$  between which become narrower rearward. If now the machine is moved forward, the tops slide into the intermediate spaces  $s^2$ , while the tubers remain hanging underneath the rake, being thus already partly removed from the ground. Transversely to the longitudinal movement of the rake  $s'$  there is an endless band  $t$ , (see Fig. 4,) which is stretched around two rollers  $t'$  and to which the top-removing knives  $u$  are secured. It is evident that by the movement of the endless band  $t$  the top is torn off and conveyed to one side. The rollers  $t'$  are driven by means of the bevel-wheel  $w$ , which is driven by a wheel  $w'$  upon the shaft  $w^2$ , which in its turn receives its movement by the bevel-wheels  $w^3$  and  $w^4$ , the latter being keyed upon the hub of the wheel  $a'$ . In order that the tops which are held in the rake  $s'$  may be easily torn off, it is expedient to make the prongs of the rake triangular, square, or round. (See Fig. 3.) Below the prongs are a small number of (say three or four) round pins  $v$ , extending into the ground, which have for their object, especially in the case of hard ground, to break up the earth in order to facilitate the lifting of the potatoes by the rakes  $k^2$ .

The mode of operation of the machine is as follows: In the forward movement the potato-tops slide into the rake  $s'$  and are torn off by the knives. In this operation the potatoes are of course loosened in the ground in order to be lifted out and conveyed upward by the rakes  $k^2$  in their rotation. The earth which separates therefrom drops through the spaces of the rakes, as well as through the intermediate spaces between the rods  $k'$  of the rake-drum. The separation of the earth in the movement of the machine is facilitated by the fact that the potatoes resting at first in the rounded part of the several rakes as

soon as the uppermost position, as shown in Fig. 1, is reached the potatoes will roll upon the periphery of the drum. In the continued movement of the drum they slide along the rear of the rakes and drop upon the inclined rake  $p^2$  in case the latter, which passes through the rakes  $k^2$ , has not already automatically lifted the potatoes. The tubers now pass into the collecting-receptacle  $p$  in order to be conveyed thence into the transporting-receptacles  $p^4$ , which are placed upon the carriage  $p^3$ .

I claim—

1. The combination with a wheeled supporting-frame, of a rake, means for imparting rotation thereto and cutting devices arranged in advance of the rake in position to act upon the tops, said cutting devices comprising an endless belt, knives carried thereby, and a series of teeth into which the tops are adapted to pass, the said knives and teeth being arranged relatively to each other as described, and means for imparting rotation to the belt.

2. The combination with a wheeled supporting-frame, of a rake, means for imparting rotation thereto, and cutting devices arranged in advance of the rake in position to act upon the tops, said cutting devices comprising an endless belt, knives carried thereby, and a series of teeth into which the tops are adapted to pass, said knives and teeth being arranged relatively to each other as described, means for imparting rotation to the belt, and a series of vertical pins adapted to project into and loosen up the earth in advance of the rake.

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

ANNA VON LOEPER, GEB. NÜHLENBECK.

Witnesses:

HENRY HASPER,  
 WOLDEMAR HAUPT.