W. COOPER.

ATTACHMENT FOR POTATO DIGGERS.

APPLICATION FILED JUNE 23, 1906. RENEWED SEPT. 30, 1908.

920,919. **Patented May 11, 1909.**

4 SHEETS—SHEET 1.

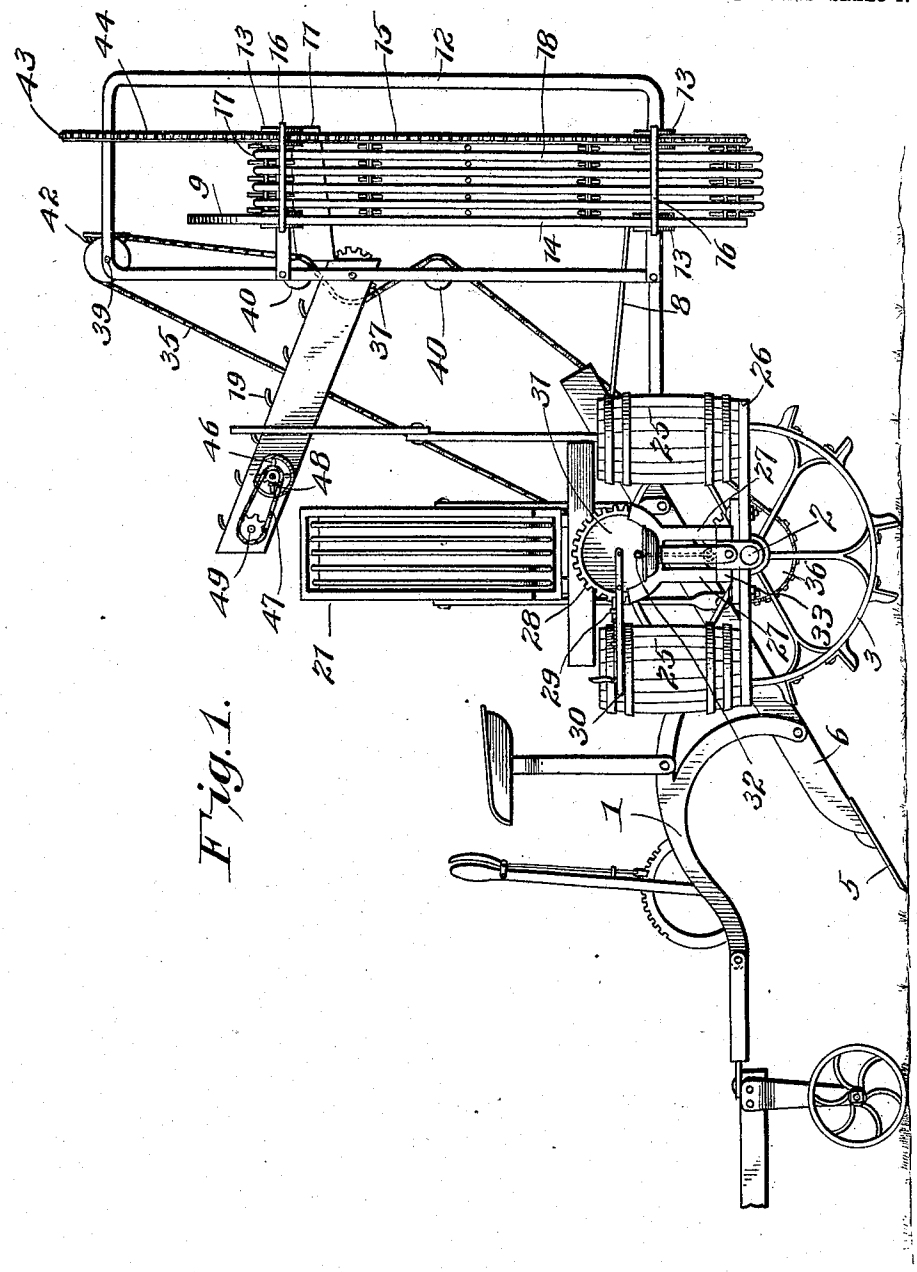


Fig. 1.

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Fig. 3.

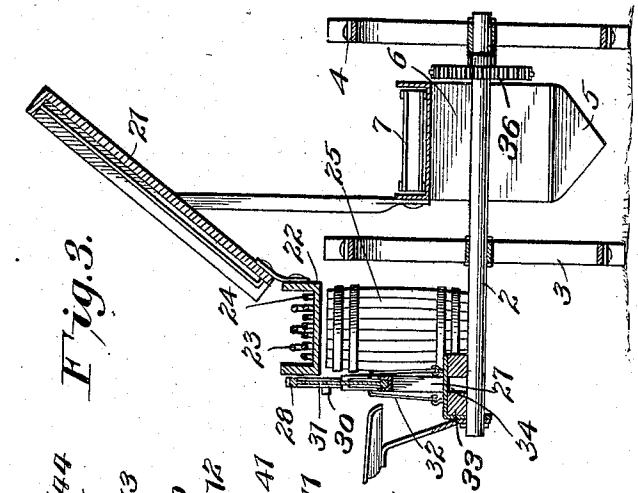
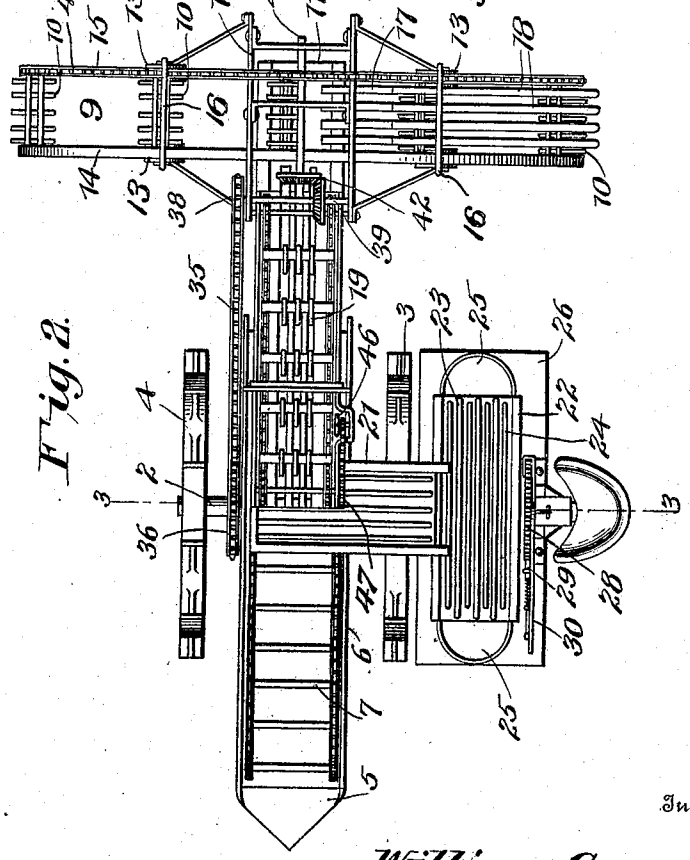


Fig. 2.



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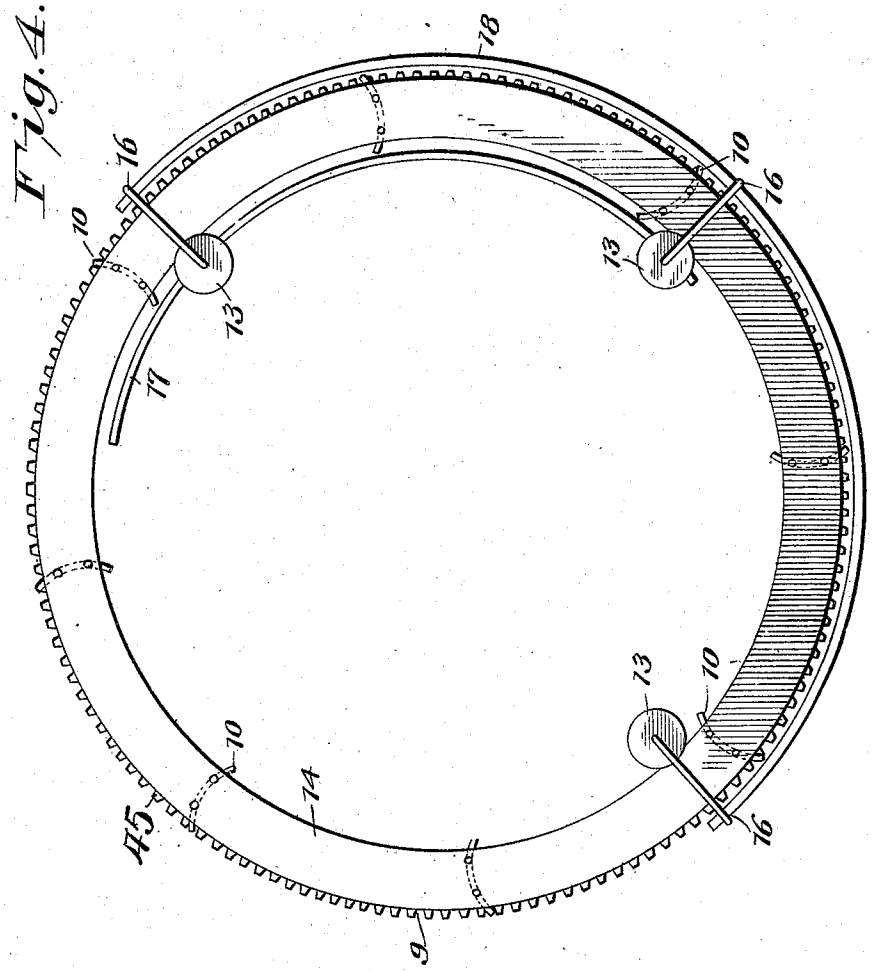
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4 SHEETS—SHEET 3.

Fig. 4.



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4 SHEETS—SHEET 4.

Fig. 5.

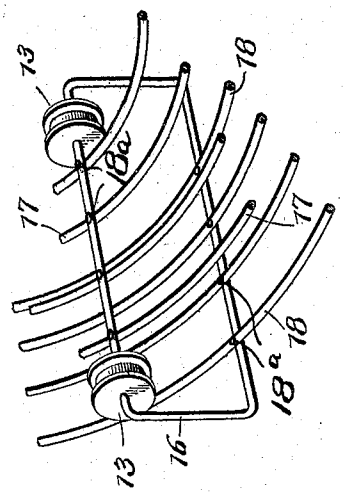


Fig. 8.

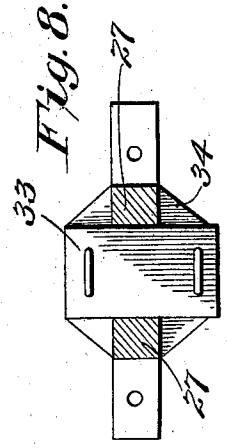


Fig. 6.

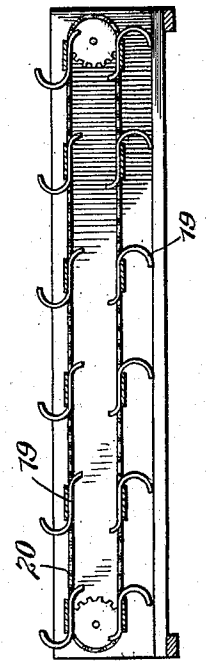
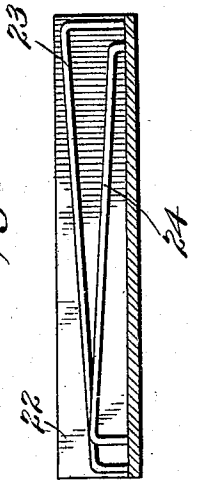


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM COOPER, OF PATTEN, MAINE.

ATTACHMENT FOR POTATO-DIGGERS.

No. 920,919. Specification of Letters Patent. Patented May 11, 1909.

Application filed June 23, 1906, Serial No. 323,062. Renewed September 30, 1908. Serial No. 455,397.

To all whom it may concern:

Be it known that I, WILLIAM COOPER, a citizen of the United States, residing at Patten, in the county of Penobscot and State of Maine, have invented certain new and useful Improvements in Attachments for Potato-Diggers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to attachments for potato diggers and particularly to that class wherein the potatoes are elevated and separated from the earth and my object is to provide means for cleaning and assorting the potatoes and depositing them into suitable receptacles.

Other objects and advantages will be hereinafter referred to and more particularly pointed out in the claims.

In the accompanying drawings which are made a part of this application, Figure 1 is a side elevation of a potato digger with my improved attachment secured thereto. Fig. 2 is a top plan view thereof. Fig. 3 is a transverse sectional view as seen from line 3—3 Fig. 2. Fig. 4 is a detail view of my improved cleaning mechanism removed from the machine. Fig. 5 is a detail perspective view of a portion thereof. Fig. 6 is a sectional view of my improved conveying mechanism. Fig. 7 is a longitudinal sectional view through the assorting chute, and Fig. 8 is a detail sectional view of a portion of the raising and lowering device.

Referring to the drawings in which similar reference numerals designate corresponding parts throughout the several views, 1 indicates the frame in which is mounted a shaft 2, said shaft having carrying wheels 3 and 4 respectively, at the end of said shaft. Disposed in cooperative relation with the frame is a plow 5, said plow being secured to the lower end of a chute 6 in which is disposed an elevating device 7 so that when the plow has elevated potatoes or the like from the ground they will be engaged by the elevating device and carried to the upper end of the chute where they are deposited on an inclined platform 8, the potatoes or the like thus passing into a cleaning wheel 9. After the vegetables have been deposited in the cleaning wheel 9 they are engaged by fingers 10 in the wheel 9 and carried upwardly thereby and deposited in a suitable hopper 11.

The wheel 9 is held in position upon the auxiliary frame 12 by means of channeled wheels 13, said wheels engaging the inner edge of the flanges 14 and 15, respectively, of the wheel 9, the channeled wheels 13 being disposed in pairs at intervals around the inner periphery of said flanges.

As best shown in Fig. 5 of the drawings the frames 16 carrying the channeled wheels 13 are substantially rectangular the horizontal portions thereof serving as supports for a plurality of bars 17 and 18 which are secured to the frame in any preferred manner as by directing rivets or bolts 18^a through the frame and bars. The bars 17 are disposed on the inside of the wheel 9 while the bars 18 are disposed at the outer edge of the wheel 9, said bars being designed to hold the potatoes upon the fingers 10 until a point above the hopper 11 is reached, thereby providing means whereby the dirt will be thoroughly separated from the potatoes, and said potatoes deposited in the hopper.

The hopper 11 is slightly inclined so that the potatoes deposited therein will move to one end of the hopper and be engaged by the fingers 19 on a carrying belt 20 and by which they are deposited into a conveying chute 21 from whence they are deposited upon a suitable assorting box 22, said box having a plurality of inclined bars 23 and 24, respectively, therein, the bars 23 being higher than the bars 24 and inclined to one end of the box while the bars 24 are inclined in the opposite direction, the lowest part of the bars 23 being on a line with the highest part of the bars 24. A seat is secured to the block 33 in which an attendant is to be seated to operate the lever 30 when desired, said seat being in juxtaposition to the lever and a further object in stationing an attendant at this point is to examine the potatoes descending in the chute 21 and to remove stones and other foreign substances descending in the chute and also any decayed potatoes, thereby insuring that the potatoes deposited in the barrels will be perfectly solid and cleared of all foreign particles. The object in so arranging said bars being to separate the larger from the smaller potatoes and to deliver them at opposite ends of the box, it being understood that the larger potatoes will remain on the bars 23 while the smaller potatoes will pass therebetween and be delivered at the opposite end of the box from that where the larger potatoes are delivered.

The open ends of the box 22 are disposed over suitable receiving receptacles as barrels 25 or the like and into which are deposited the assorted potatoes, the barrels being held in position under the ends of the box by means of a platform 26. The platform 26 has secured to its upper surface a pair of standards 27, said standards being secured together at their upper ends and are provided with a segmental rack 28 with which is adapted to coöperate a spring latch 29 on the lever 30, the inner end of said lever being secured to a plate 31, said plate being rotatably mounted in the upper end of the standards 27.

Secured to each side of the plate 31 are depending arms 32, said arms being secured at their lower ends to a block 33, said block having ways 34 therein, in which are seated and adapted to vertically move, the standards 27, the block 33 being rigidly secured to the shaft 2.

The platform as shown in Figs. 1 and 3 of the drawings is in its elevated position and when it is desired to lower the platform, the latch 29 is disengaged from the segmental rack 28 and the lever 30 disposed to the opposite side of the rack thereby rotating the plate 31 and lowering the platform.

The several parts of my device are driven through the medium of a sprocket chain 35, said chain being disposed around a sprocket 36 secured to the hub of the wheel 4 and around a sprocket 37 which operates the belt 20 and around a similar sprocket 38 mounted upon the end of a shaft 39, the chain being held into engagement with the sprocket 37 by means of suitable idlers 40. A shaft 41 is mounted in the auxiliary frame 12 and is at right angles to the shaft 39, said shafts having intermeshing beveled gears 42, through the medium of which the shaft 41 is rotated.

In order to drive the cleaning wheel 9 I dispose upon the shaft 41 a sprocket wheel 43 with which is adapted to engage the sprocket chain 44 which in turn engages sprocket teeth 45 upon the flange 15 of the wheel 9.

The chute carrying the belt 20 has mounted thereon near its free end a blast fan 46, said fan being operated in any preferred manner as by a sprocket chain 47, said chain engaging a sprocket 48 on the fan shaft and a sprocket 49 on the belt supporting shaft. The object in having a blast fan being to direct a blast of air across the path of the potatoes so that when they are moved into the blast of air particles of dirt or the like adhering thereto will be the more readily removed.

In operation after the potatoes have been directed through the chute 6 they will be conveyed into the rotating wheel 9 by the platform 8, the potatoes falling directly onto the extended ends of the bars 18 where they will be engaged by the fingers 10 and directed upwardly and into engagement with the bars 17, said bars being extended sufficiently at their upper ends so that when the potatoes leave the bars 17 they will be deposited into the hopper 11. The potatoes are then directed into engagement with the fingers 19 on the belt 20 and are directed thereby into the conveying chute 21 which in turn deposits the potatoes into the assorting box 22 and they are conveyed by the bars therein into suitable receptacles at each end of the box.

What I claim is:

1. The combination with a potato digger of the class described, of a cleaning and assorting mechanism comprising a wheel having flanges, fingers carried by said flanges, means to convey the potatoes into said wheel, bars surrounding a portion of said wheel between which alternately pass said fingers, means engaging said flanges to rotatably support said wheel and additional means to convey the potatoes from said wheel and deposit them into receptacles.

2. An attachment for potato diggers comprising an auxiliary frame, a wheel rotatably mounted in said frame, said wheel comprising a pair of flanges, means engaging one of the flanges to rotate said wheel, fingers secured between the flanges of said wheel, means to retain potatoes in engagement with said fingers and additional means to convey the potatoes to receptacles.

3. An attachment for potato diggers comprising an auxiliary frame, a wheel having a pair of flanges rotatably mounted in said frame, a plurality of parallel bars disposed part way around said wheel and spaced apart, fingers carried between the flanges of said wheel, adapted to engage and elevate potatoes deposited therein and means to engage the flange of said wheel and hold the same in position in the frame.

4. The combination with a potato digger having an elevator, of a cleaning device comprising a pair of circular flanges, fingers between said flanges, channeled wheels engaging the inner peripheries of said flanges, frames supporting said wheels and a plurality of parallel bars at each side of the path of the fingers and extending part way around said flanges.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM COOPER.

Witnesses:
A. F. SMALL,
LEROY MILES.