G. TOLLEFSON.

POTATO LOADER AND SORTER.

APPLICATION FILED OCT. 20, 1917.

1,289,577.

Patented Dec. 31, 1918.

2 SHEETS—SHEET 1.

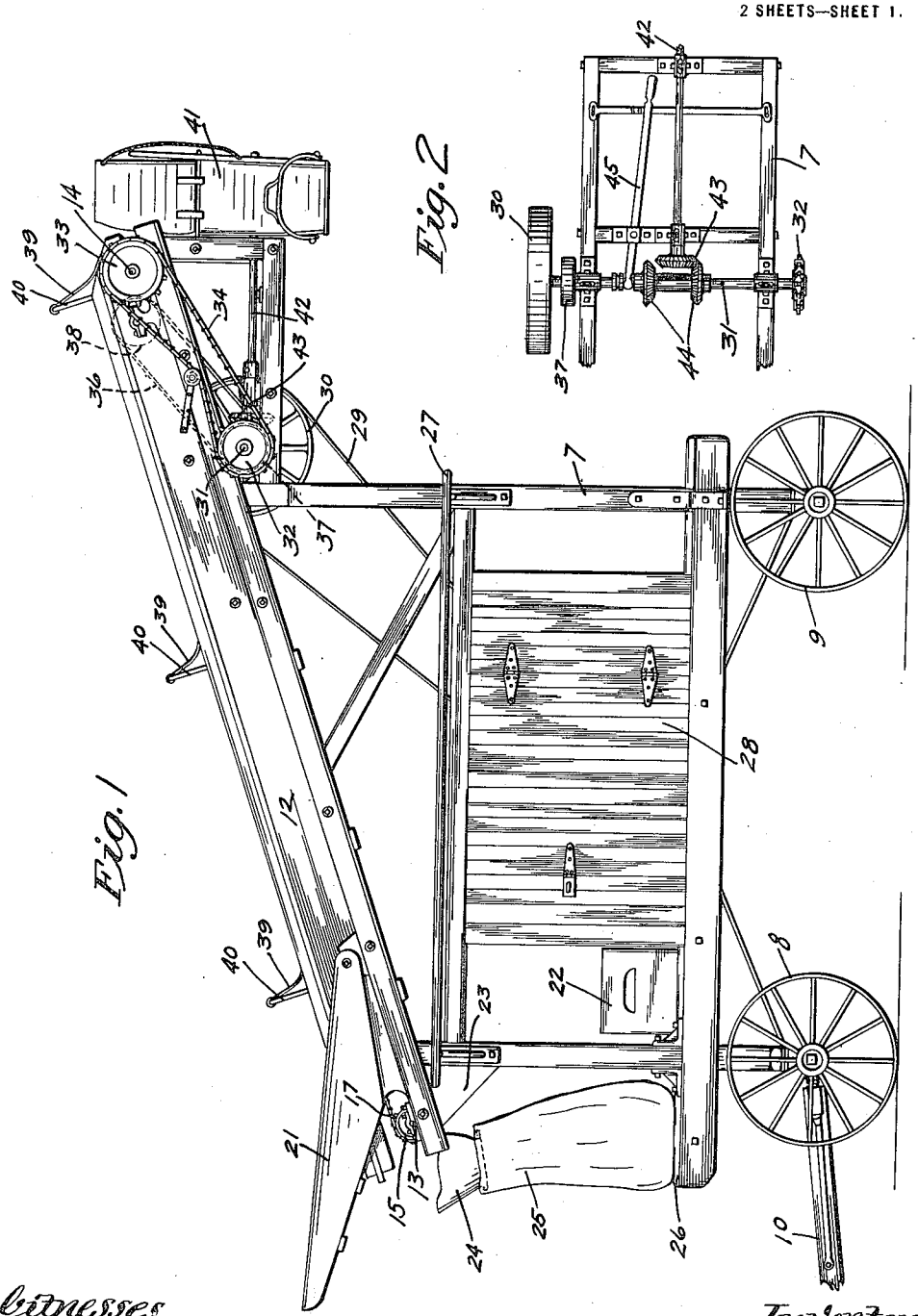


Fig. 1

Fig. 2

Witnesses
E. C. Wells
H. L. Opsahl.

Inventor
Gilbert Tollefson
By his Attorneys
Williamson & Merchant

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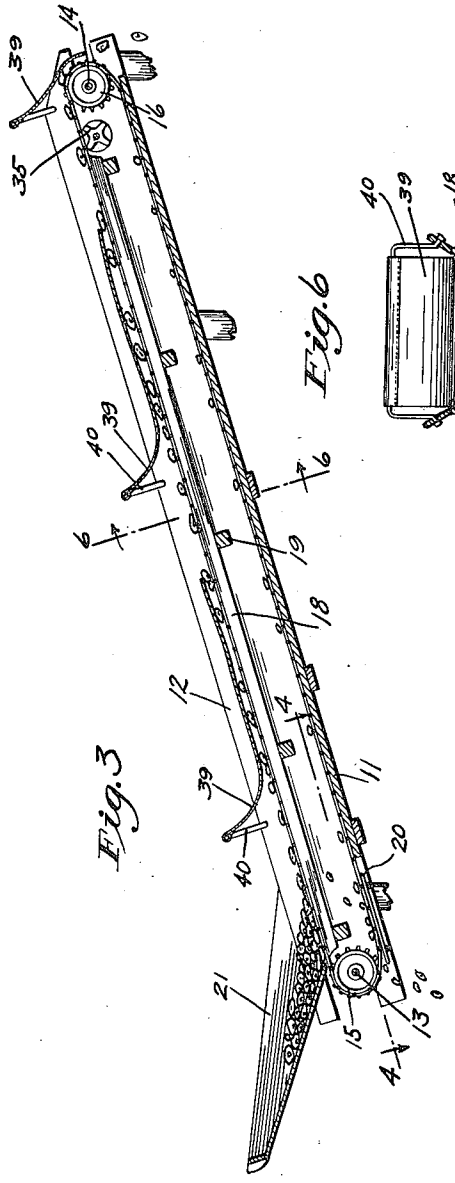


Fig. 3

Fig. 6

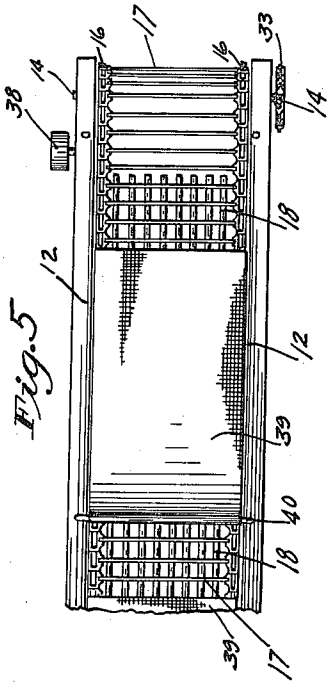


Fig. 5

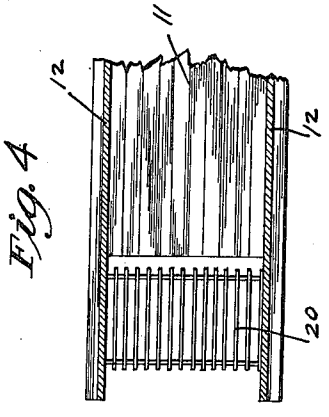


Fig. 4

Witnesses
E. C. Wells
H. L. Opsahl.

Inventor
Gilbert Tollefson
By his Attorneys
Williamson Merchant

UNITED STATES PATENT OFFICE.

GILBERT TOLLEFSON, OF BAGLEY, MINNESOTA.

POTATO LOADER AND SORTER.

1,289,577. Specification of Letters Patent. Patented Dec. 31, 1918.

Application filed October 20, 1917. Serial No. 197,702.

To all whom it may concern:

Be it known that I, GILBERT TOLLEFSON, a citizen of the United States, residing at Bagley, in the county of Clearwater and State of Minnesota, have invented certain new and useful Improvements in Potato Loaders and Sorters; 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 has for its object to provide a combined loader and sorter, intended for general use, but especially adapted for use in loading potatoes into cars and sorting the same.

To the above end, generally stated, the invention consists of the novel devices and combination of devices hereinafter described and defined in the claims.

In the accompanying drawings, which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings:

Figure 1 is a left side elevation of the invention;

Fig. 2 is a plan view of a portion of the driving mechanism;

Fig. 3 is a longitudinal vertical section taken centrally through the sorting conveyer;

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3;

Fig. 5 is a plan view of the rear end portion of the invention; and

Fig. 6 is a transverse section taken on the line 6—6 of Fig. 3.

The numeral 7 indicates a skeleton frame mounted on front and rear pairs of wheels 8 and 9, respectively. To the front bolster is attached a draft pole 10 by which the improved loader and sorter may be moved from place to place. Secured to the top of the frame 7 is a rearwardly and upwardly inclined deck 11, having at its longitudinal edges side boards 12.

A lower, or idle, shaft 13 is journaled in bearings on the lower ends of the side boards 12, and a driven or upper shaft 14 is journaled in bearings secured to the upper ends of said side boards. Keyed to the shafts 13 and 14 for rotation therewith are pairs of alined sprocket wheels 15 and 16, respectively. Mounted between the side boards 12 is a sorting conveyer 17 comprising a pair of sprocket chains and a multiplicity of rods having their ends secured to opposite links in said sprocket chains. These sprocket chains of the sorting conveyer 17 are so arranged as to run over the sprocket wheels 15 and 16 and the rods thereof are so spaced as to carry thereon all marketable potatoes, and permit the small potatoes to drop therethrough.

The upper section of the sorting conveyer 17 is supported on longitudinal and laterally spaced bars 18, which, in turn, are secured to transverse bars 19, carried by the side boards 12. These bars 18 are so spaced as to permit the potatoes sorted through the upper section of the conveyer 17 to pass therebetween obviously the bars 18 and 19 afford a perforated deck. By reference to Fig. 3, it will be noted that there is sufficient slack in the sorting conveyer 17 to permit the lower section thereof to drag on the deck 11. It will also be noted that the deck 11 terminates considerably short of the lower end of the sorting conveyer 17, and a screen 20, supported from the side boards 12, forms an extension of the lower end of said deck.

The mesh of the screen 20 is such as to permit the escape of dirt precipitated through the sorting conveyer 17 on to the deck 11 and carried downward to said screen by the lower section of said conveyer, but said mesh will not permit small potatoes to drop therethrough. Small potatoes precipitated on to the deck 11 and screen 20 are carried downward by the lower section of the sorting conveyer 17 and allowed to escape through the loop lower end of said conveyer over the delivery end of the screen 20, as best shown in Fig. 3.

A hopper 21 secured to the side boards 12 is so arranged as to deliver potatoes as they are dug from the field onto the receiving end of the sorting conveyer 17. Said potatoes are shoveled, or otherwise placed, in the hopper 21 and said hopper is so arranged as to prevent the potatoes from rolling off from the lower end of the sorting conveyer 17. Mounted in the frame 7 is a box-like receptacle 22 arranged to receive the dirt precipitated through the screen 20 and an inclined plate 23 having end pieces is secured to the frame 7 and arranged to direct said dirt into the receptacle 22.

To the front or lower end of the side boards 12 is secured a sack holder 24 for holding a sack 25, supported from a platform 26 on the frame 7, in position to re-

ceive the small potatoes as they are discharged from the sorting conveyer 17. To the left hand side of the frame 7 is secured a running board 27 on which an operator may stand and watch the potatoes as they are carried upward on the sorting conveyer 17, and, if necessary, pick out any decayed or frozen ones.

Within the frame 7 is a housing 28 within which is mounted a gas engine, not shown, for driving the sorting conveyer 17. A belt 29 runs over a relatively small pulley, not shown, on the engine shaft, and a relatively large pulley 30 on a counter shaft 31 journaled in bearings on the frame 7. Also keyed to the shaft 31 is a sprocket wheel 32 that is alined with a sprocket wheel 33 keyed to the driven shaft 14 and over which sprocket wheels runs a sprocket chain 34. The driving connections between the engine and driving shaft are so arranged as to cause the upper section of the sorting conveyer 17 to move upwardly.

The shaft of an agitator 35 is journaled in the side boards 12 and said agitator comprises a plurality of radial blades arranged for action on the upper section of the sorting conveyer 17 at the delivery end thereof. The purpose of this agitator is to intermittently lift and then drop the sorting conveyer 17 and thereby shake the dirt from the potatoes, and to also cause the small potatoes to drop through said conveyer. The agitator 35 is driven from the counter shaft 31 by a belt 36 arranged to run over a pulley 37 on said counter shaft, and a pulley 38 on the shaft of the agitator.

The potatoes on the upper section of the sorting conveyer 17 are spread out and held on to the rods thereof by a series of flexible aprons 39, having their receiving ends secured to arched rods 40, supported from the side boards 12. The delivery ends of these aprons 39 are loose, thereby permitting said aprons to ride upon the upper section of the sorting conveyer 17, or the potatoes carried thereby. It is important to note that the apron 39 at the delivery end of the upper section of the sorting conveyer 17 is so arranged that its free end extends therebeyond, thus permitting said apron to hang over the looped upper end of said conveyer and prevent the potatoes from being thrown beyond the delivery end of said conveyer.

To the rear end of the frame 7 is secured a sacker 41, (preferably of the type disclosed and claimed in my U. S. patent for "Conveying system," No. 1,103,709, of date July 14th, 1914). In case the potatoes are to be delivered directly into a car, a carrier (preferably of the type disclosed in said above identified patent) will be substituted for the sacker, and by means of this carrier the potatoes may be distributed the full length of the car. Such a carrier may be driven in either direction by a shaft 42 journaled in bearings on the frame 7 and having at its inner end a gear 43 arranged to be driven by either one of a pair of gears 44 on the counter shaft 37. The gears 44 are connected for free sliding movement on the counter shaft 31 but are held for rotation therewith. A shipper lever 45 is provided for alternately moving the gears 44 into and out of mesh with the gear 43, or for setting the same in a neutral position.

The above described invention has in actual usage proven highly efficient for the purpose had in view.

What I claim is:

1. The combination with a frame, of an endless traveling conveyer mounted in the frame, means for driving the conveyer, and a pliable apron loosely resting on the upper surface of the conveyer and anchored at one end, said apron extending from its anchored end in the direction of the travel of the apron and overhanging the delivery end of the conveyer.

2. The combination with a frame having an inclined deck, of an endless traveling conveyer mounted in the frame, driving means for causing the conveyer to travel upward over the deck, and a pliable apron loosely resting on the surface of the conveyer overlying the deck and anchored at one end, said apron extending upward from its anchored end in the direction of the travel of the coöperating surface of the conveyer.

3. The combination with a frame having an inclined perforated deck, a substantially parallel underlying imperforate deck, and a screen forming an extension of the delivery end of the imperforate deck, of an endless conveyer mounted in the frame to travel upward over the perforated deck and downward over the imperforate deck and screen, and means for driving the conveyer, the looped lower end of the conveyer being extended outward of the delivery end of the screen and lifted thereabove to afford an escape passageway.

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

GILBERT TOLLEFSON.

Witnesses:
OSCAR T. STENVICK,
E. R. SLETTEN.