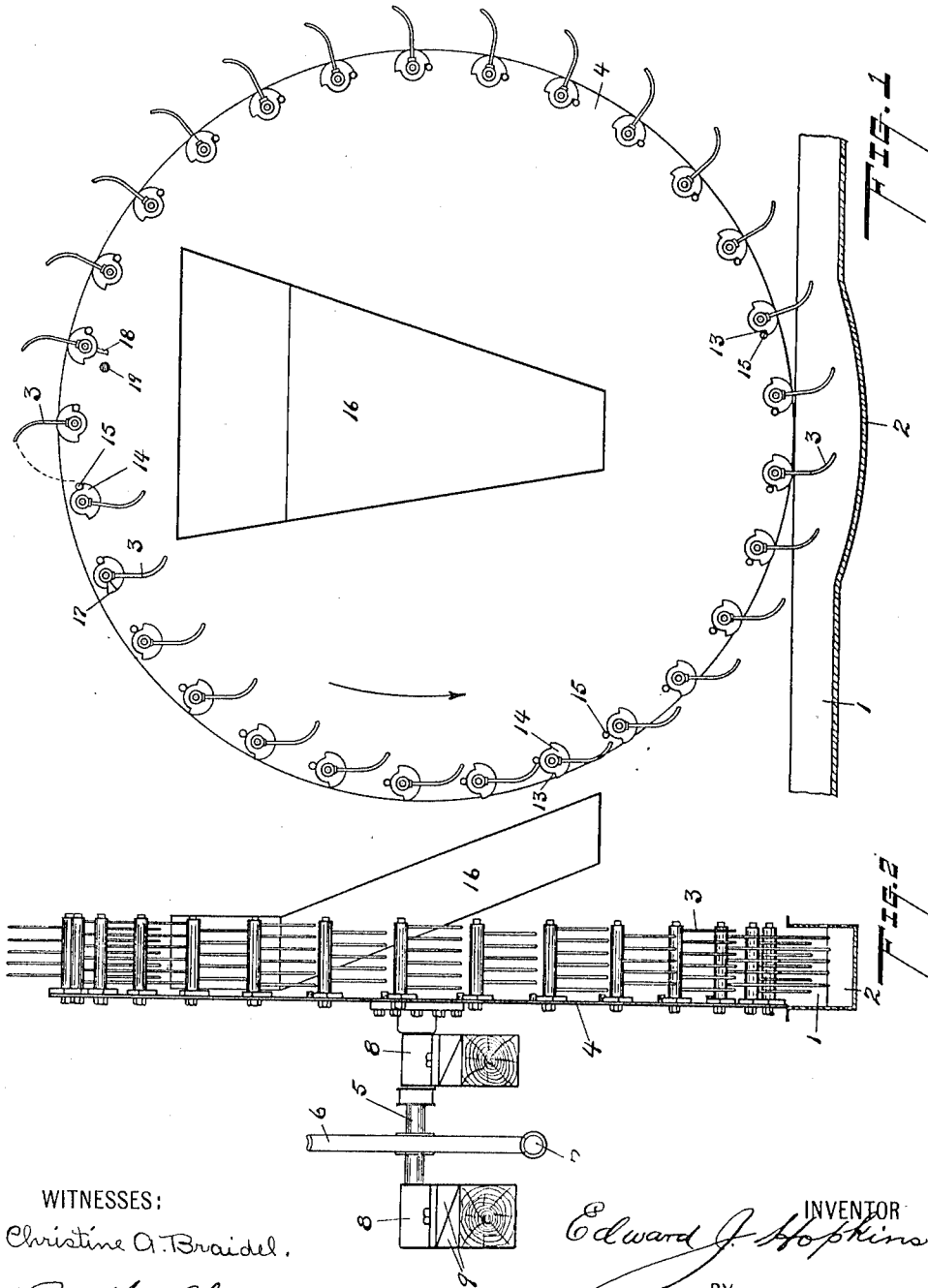


E. J. HOPKINS, DEC'D.
 J. E. HOPKINS, EXECUTRIX.
 BEET ROOTLET CATCHER.
 APPLICATION FILED DEC. 18, 1912.

1,073,758.

Patented Sept. 23, 1913.
 2 SHEETS—SHEET 1.



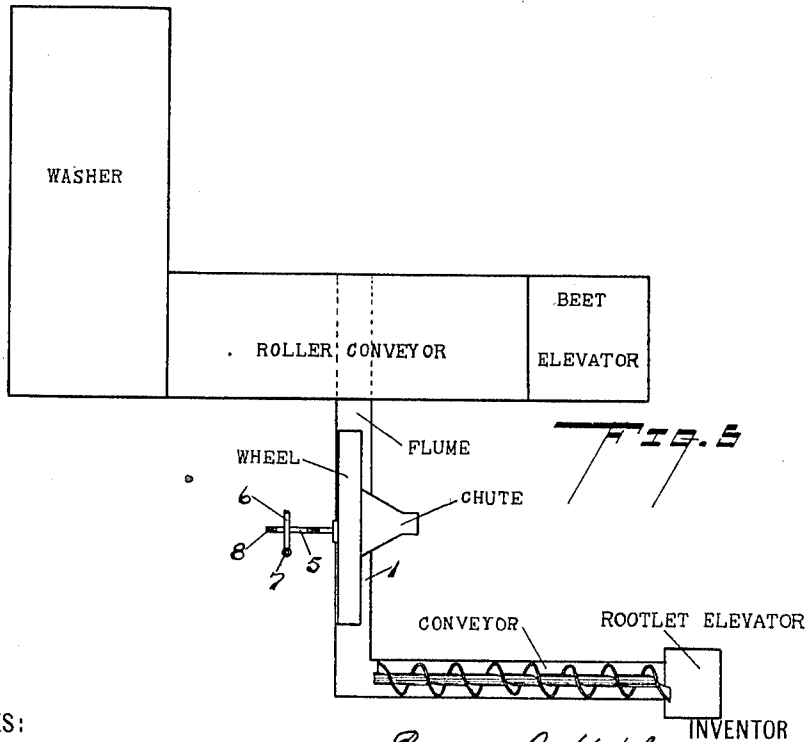
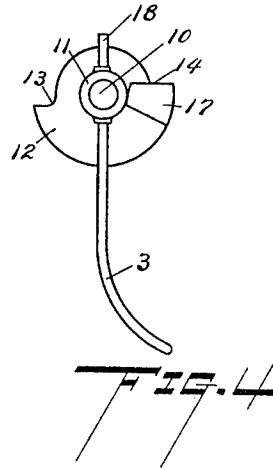
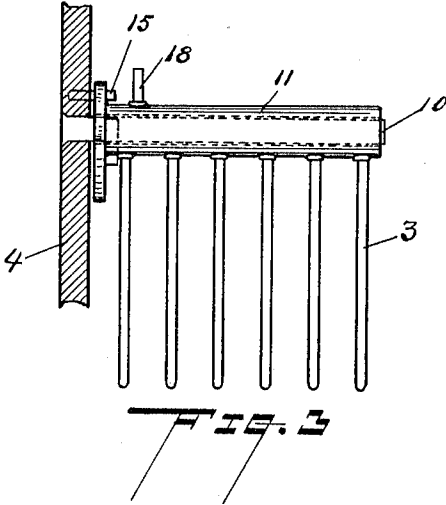
WITNESSES:
 Christine A. Braidel.
 Roy Walker.

INVENTOR
 Edward J. Hopkins.
 BY
 Geo. B. Willcox
 ATTORNEY

E. J. HOPKINS, DEC'D.
J. E. HOPKINS, EXECUTRIX.
BEET ROOTLET CATCHER.
APPLICATION FILED DEC. 18, 1912.

1,073,758.

Patented Sept. 23, 1913.
2 SHEETS—SHEET 2.



WITNESSES:
Christine A. Braidel.

Roy Wallis

Edward J. Hopkins.
BY
Geo. B. Wilcox. ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD J. HOPKINS, OF SAGINAW, MICHIGAN; JANE E. HOPKINS EXECUTRIX OF SAID EDWARD J. HOPKINS, DECEASED.

BEET-ROOTLET CATCHER.

1,073,758.

Specification of Letters Patent.

Patented Sept. 23, 1913.

Application filed December 18, 1912. Serial No. 737,532.

To all whom it may concern:

Be it known that I, EDWARD J. HOPKINS, a citizen of the United States, residing at Saginaw, in the county of Saginaw and State of Michigan, have invented certain new and useful Improvements in Beet-Rootlet Catchers; 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.

This invention is a machine for use in beet sugar factories and similar plants and is adapted for use in connection with the washers and refuse flumes, the function of the machine being to remove from the flume such refuse as leaves, sticks and small rootlets of beets and weeds, and to allow beet rootlets of larger size and broken pieces of beets to pass on through the flume to be collected and converted into sugar.

It has been found in practice that the refuse flume from a beet washing machine passes great quantities of broken rootlets having considerable sugar content, along with the leaves, sticks and such smaller rootlets as are practically valueless for sugar making.

I have observed that in the refuse flume the larger rootlets and broken pieces of beets which contain a considerable percentage of sugar, and which it is the purpose of my invention to recover, flow along near the bottom of the flume, while the finer and more thread-like rootlets which contain little or no sugar, and the leaves, weeds and like refuse, float along the flume nearer the surface of the water.

My improvement provides means for forking out from the flume the smallest rootlets and leaves, allowing the larger rootlets to pass on down the flume to be later recovered.

The invention consists essentially in a plurality of tined forks that are made to dip successively into the water and lift out the refuse nearest the top, allowing the larger rootlets to pass on below or between the tines. Each fork consists of a plurality of tines spaced apart, so that the larger rootlets may slip between the tines, while the

smaller and more flexible ones will, together with the leaves, loop themselves around or otherwise engage themselves with the tines of the fork and be lifted out.

With these and certain other objects in view which will appear later in the specification, my invention consists in the devices described and claimed and the equivalents thereof.

In the drawings, Figure 1 is a part sectional side elevation of a flume with my improvement applied thereto; Fig. 2 is an edge view of the same; Fig. 3 is an enlarged detail of one of the tined forks; Fig. 4 is an edge view of the same; and Fig. 5 is a diagrammatic plan view showing the relative locations of the improvement with respect to the usual washer, conveyers, flume, and elevators.

As is clearly shown in the drawings, the forking device is located above the refuse flume 1, this flume being preferably provided with a shallow sand pocket 2, the purpose of which will be presently described.

3 is the fork preferably formed of a plurality of forwardly curved tines, as shown in Figs. 3 and 4. A suitable number of these forks are pivotally mounted on a disk or wheel 4 fixed to the axle 5, which is driven by any suitable means as a worm wheel 6 and worm 7, the axle being supported on bearings 8 which are preferably adjustable in height by any suitable means as the double wedges 9 or their equivalents.

The manner in which the forks are mounted on the wheel 4 is shown in Fig. 3, where 10 is a laterally projecting pin fixed to the disk 4, and 11 is a hollow sleeve loosely mounted on the pin. To this sleeve are fastened the tines of the forks 3. Carried by the end of sleeve 11 that is nearest the wheel 4 is a flange 12 formed with shoulders 13, 14, adapted to engage a projecting stop 15 fixed to the wheel 4, as shown in Figs. 1 and 3. When the wheel revolves in the direction of the arrow, Fig. 1, the forks 3 hang down, but when the forks enter the trough, the shoulder 13 takes against the stop 15, locking the forks in a substantially radial position on the wheel. This radial position is maintained while the material

gathered from the trough is being carried to the top of the wheel. When the top of the wheel is reached the fork 3 tips over and its free end drops down, as indicated by the dotted lines in Fig. 1, delivering its load into a suitable chute 16 which may discharge into a wheelbarrow or other receptacle. The fork is prevented from swinging too far by engagement of the shoulder 14 against its stop 15.

The depth to which the forks 3 dip into the water of the flume may be regulated either by raising or lowering the wheel by means of the wedges 9 or any equivalent device, or by raising or lowering the flume 1, although I prefer in practice to adjust the relative height of the flume and wheel by raising or lowering the wheel. In some cases it is desirable to provide a counterbalance for the forks 3 and in such cases I form on the flange 12 of the sleeve 11 a counterweight 17.

If it is desired to mechanically trip the forks 3 when they reach the top of the wheel or at any other point, instead of allowing them to fall by gravity as has been described, I may provide a wiper 18 in the form of a projecting pin secured to the sleeve 11. This pin may be located in the path of travel of any stationary stop at 19, mounted on any suitable support and independent of the wheel 4, as indicated diagrammatically in Fig. 1.

The operation is as follows: When the usual factory refuse such as leaves, sticks and rootlets flows down the flume, the forks 3 dip into the flume, traverse it a short distance and lift up. They separate the lighter material that floats at and near the surface from the heavier beet tails. The tines entangle such small rootlets as are sufficiently flexible to loop around them. The larger rootlets flowing near the bottom of the flume are, on account of their greater specific gravity, less liable to be caught by the tines and the greater percentage of them pass through the flume by going beneath or between the tines. The purpose of the shallow pocket 2 is to permit sand and sediment to settle without interfering with the flow through the flume, although this pocket is not required in all installations.

In Fig. 5 I have shown diagrammatically the relation that my improved device bears to the ordinary installation. The beets first pass through the washer and thence over a roller conveyor to the beet elevator, by which the beets are taken to the cutters. When the beets pass over the roller conveyor, the leaves, refuse and rootlets drop through into the flume. This flume has heretofore delivered rootlets and all to the refuse pile, but by interposing the wheel heretofore described to catch the valueless

refuse, I am enabled to take out the leaves and small rootlets and to deliver to the conveyor and rootlet elevator several tons a day of rootlets containing a considerable percentage of sugar, thereby effecting a considerable economy in the operation of the factory. In a one-thousand ton factory I have by this machine recovered from the refuse flume ten tons a day of sugar-bearing rootlets or beet tails.

Having thus described my invention, what I claim and desire to secure by Letters Patent, is:—

1. In combination with a flume, a wheel located above said flume, laterally projecting pins fixed to said wheel, a hollow sleeve loosely mounted on each of said pins, a plurality of tines fixed to said sleeve, said tines adapted to dip into said flume, means for rotating said wheel, a flange on said sleeve, shoulders formed on said flange, stops carried by said wheel and adapted to engage said shoulders to maintain the tines in a substantially radial position during their upward travel, and means for inverting said forks at the top of their travel to discharge material therefrom.

2. In combination with a flume, a wheel located above said flume, means for adjusting the height of said wheel with relation to said flume, forks, each composed of a plurality of tines spaced apart, said forks pivotally mounted on the side of said wheel and adapted to dip into said flume, means for rotating said wheel, stops carried by said wheel and adapted to engage said forks and maintain them in a substantially radial position during their upward travel, a wiper carried by said fork, and a stationary stop independent of said wheel and adapted to be contacted by said wiper, for the purposes set forth.

3. In combination with a flume of the class described, a plurality of forks, the lower ends of which are adapted to dip into and traverse said flume a short distance, each of said forks comprising a pivotally mounted sleeve having a flange at one end, said flange formed with shoulders and carrying a counterweight, tines secured to said sleeve; stops mounted in the path of movement of said shoulders and adapted to engage them to maintain the forks in a substantially radial position during their upward travel, said forks adapted to tip over when near the top of their travel to discharge material therefrom, for the purposes set forth.

4. In combination with a wheel having a plurality of laterally projecting pins fixed thereto, hollow sleeves loosely mounted on said pins, each of said sleeves formed with a flange having shoulders, a plurality of forwardly curved tines fixed to said sleeve,

stops carried by said wheel and located in
the path of travel of said shoulders, a wiper
fixed to said sleeve; and a stationary stop
supported independent of said wheel and
5 adapted to be contacted by said wiper when
the fork is near the top of its travel, for
the purposes set forth.

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

EDWARD J. HOPKINS.

Witnesses:

NELLIE M. ANGUS,
CHRISTINE A. BRAIDEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
