No. 814,762. PATENTED MAR. 13, 1905.

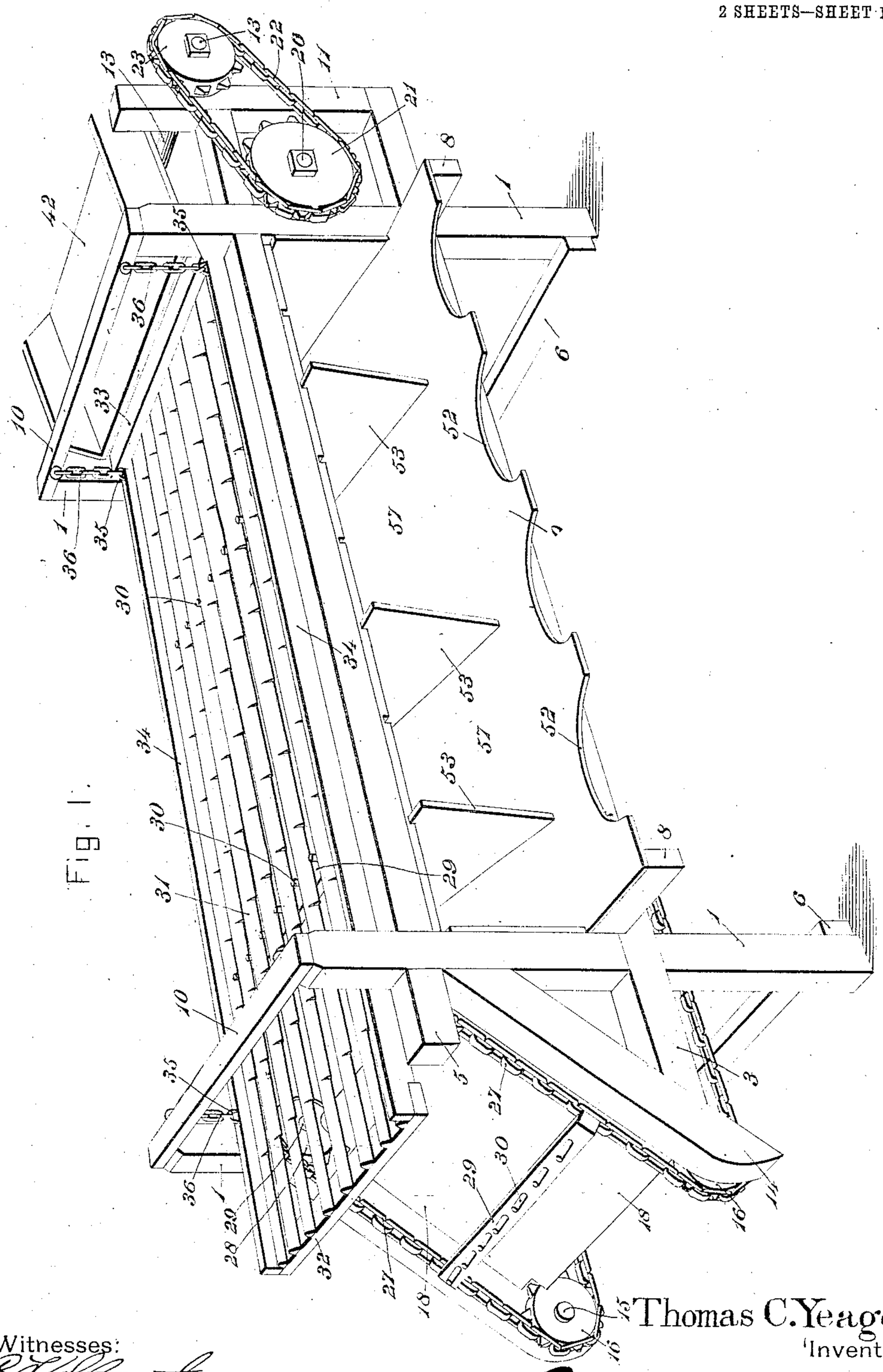
T. C. YEAGER.

PICKLE GRADING MACHINE.

APPLICATION FILED APR 14, 1905.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
E. F. Stewart
R. M. Elliott

Thomas C. Yeager.
Inventor,
by Cushman & Co
Attorneys.

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2 SHEETS—SHEET 2.

Fig. 2.

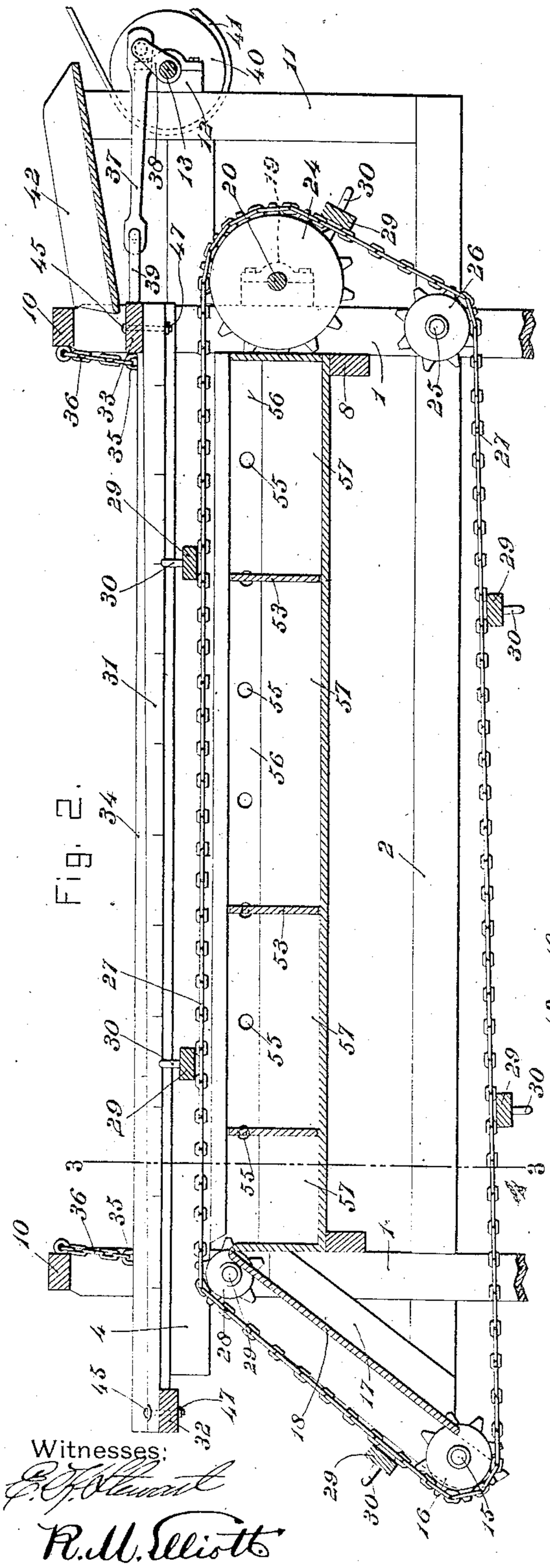

Fig. 3.

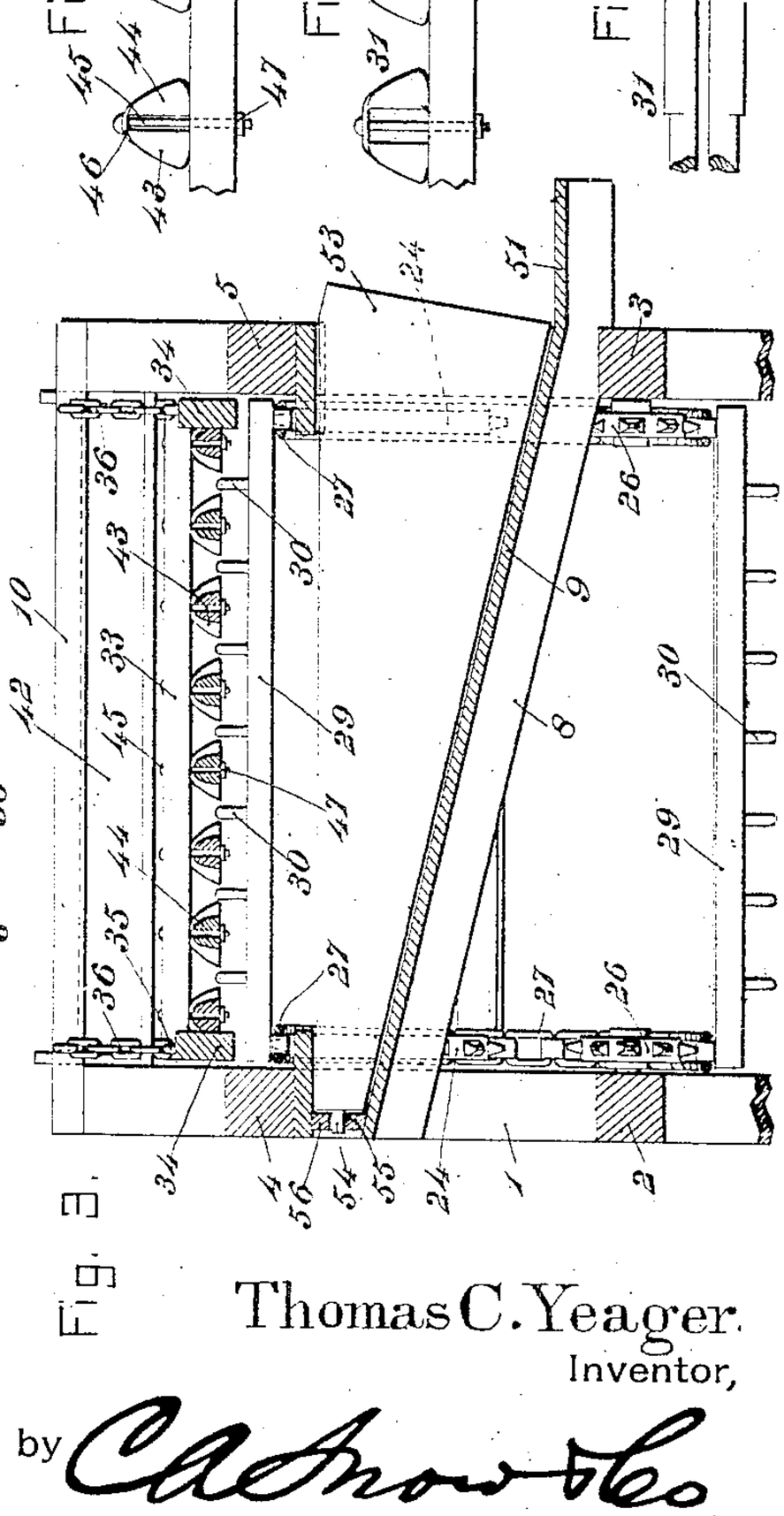

Fig. 4.

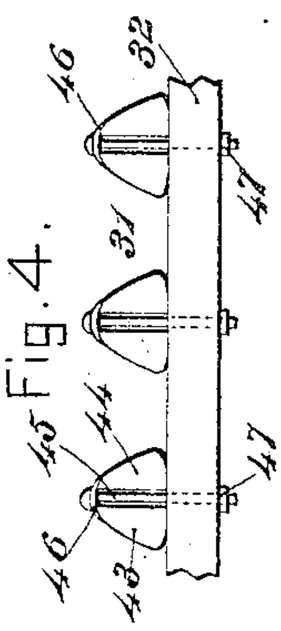

Fig. 5.

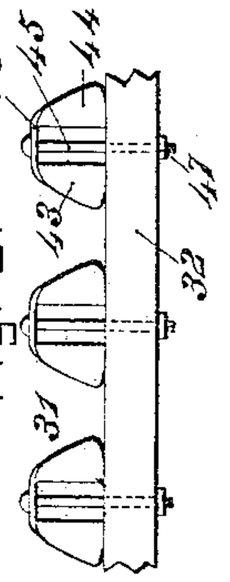

Fig. 6.

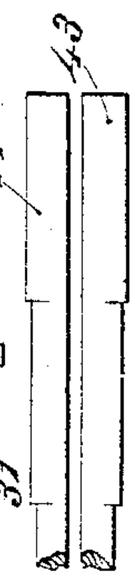

Fig. 7.

Fig. 8.

Fig. 9.

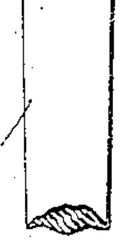

Fig. 10.

Witnesses:
E. J. Ottmart
R. M. Elliott

Thomas C. Yeager.
Inventor,
by C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

THOMAS C. YEAGER, OF CANTON, MISSOURI.

PICKLE-GRADING MACHINE.

No. 814,762. Specification of Letters Patent. Patented March 13, 1906.

Application filed April 14, 1905. Serial No. 255,660.

To all whom it may concern:

Be it known that I, THOMAS C. YEAGER, a citizen of the United States, residing at Canton, in the county of Lewis and State of Missouri, have invented a new and useful Pickle-Grading Machine, of which the following is a specification.

This invention relates to pickle-grading machines.

The object of the invention is to provide a machine in which the grading elements shall be capable of adjustment to adapt the machine for grading pickles of any size, and, further, one in which clogging of the grading-table will in a simple and ready manner be positively prevented; furthermore, to simplify the construction, increase the efficiency, and reduce liability of breakage or derangement of the parts of the apparatus to a minimum.

With the above and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a pickle-grader, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like characters of reference indicate corresponding parts, Figure 1 is a view in perspective of one form of apparatus embodying the improvements of the present invention. Fig. 2 is a vertical longitudinal sectional view through the apparatus. Fig. 3 is a view in transverse section, taken on the line 3 3, Fig. 2. Figs. 4 and 5 are fragmentary detail views in elevation, showing the manner in which the grading elements may be transversely expanded or adjusted to adapt the machine for grading different-sized pickles. Fig. 6 is a view in plan of part of one of the grading elements shown in Figs. 4 and 5. Fig. 7 is a view in end elevation of a modified form of grading element. Fig. 8 is a similar view of another form of grading element. Fig. 9 is a view in plan of a portion of the elements shown in Fig. 7. Fig. 10 is a view in plan of still another form of grading element.

The machine of the present invention embodies a supporting-frame comprising four vertical standards 1, four longitudinal beams 2, 3, 4, and 5, two brace-beams 6, connecting the lower portion of the beams 7, and a pair of inclined beams 8, secured to the inner sides of the beams 1 and supporting the pickle-receiving table 9, the upper ends of the vertical beams being held against spreading by brace-beams 10. The beams 2 and 3 extend at each end beyond the beams 1, and the beams 4 and 5 extend at one end beyond the said beams, and connected with extended ends of the two beams are uprights 11, which carry journal-boxes 12, as shown in Fig. 2, in which is journaled an actuating-shaft 13, presently to be described. To the extended ends of the beams 2 and 3 are secured inclined timbers 14, the lower ends of which carry stub-shafts 15, upon which are mounted sprocket-wheels 16, the function of which will presently appear. Secured to two of the beams 1 back of the timbers 14 are inclined timbers 17, to which is secured a chute 18, down which the pickles that have not escaped through the grading-screen pass and are caught by a suitable receptacle.

Secured to the beams 1 at the feed end of the machine are journal-boxes 19, one only being shown in Fig. 2, in which is journaled a shaft 20, the outer end of the shaft having combined with it a sprocket-wheel 21, around which passes a sprocket-chain 22 to and around a sprocket-wheel 23 on the drive-shafts 13. The shaft 20 carries between the uprights 1 a pair of sprocket-wheels 24, and mounted upon the stub-shaft 25, carried by the uprights 1 below the sprocket-wheels 24, are sprocket-wheels 26, and these two sets of sprocket-wheels are engaged by sprocket-chains 27, which pass around the sprocket-wheels 16 and around a pair of sprocket-wheels 28, mounted on stub-shafts 29 on the uprights 1 at the discharge end of the machine. The chains 21 have secured to them slats or bars 29, through which project agitating-fingers 30, the chains 27, bars 29, and fingers 30 forming a combined conveyer and agitator for causing progressive onward movement of the pickles from the feed end of the machine and their final discharge down the chute 18.

The grading-screen, which constitutes the gist of the present invention, comprises a plurality of grading elements, (designated generally 31,) that are secured at their terminals to cross-bars 32 and 33, the cross-bar 33 being disposed on top of the members and at the feed end of the machine and the bar 32 to the under side of the members at the discharge end of the machine, as clearly shown in Fig. 1. Secured to the bars are side pieces 34, which are commensurate in length with the grading elements, but of greater height than

the same, and operate as a means to prevent lateral escape of the pickles from the screen. Combined with the side pieces at each end are staples 35, to which connect flexible screen-supporting elements 36, which may be chains, as shown, or resilient strips of metal, the upper ends of the supporting elements being secured to the cross-braces 10. By this arrangement it will be seen that the screen is capable of free vibratory movement with the output of slight power. The means for vibrating the screen comprises a pitman-rod 37, one end of which is connected with a crank 38, carried by the shaft 13, as shown in Fig. 2, and the other end of which connects with a yoke 39, which projects rearwardly from the cross-bar 33. The shaft 13 carries a pulley 40, around which passes a belt 41, driven from a suitable source of power.

The grading elements are preferably conoidal in cross-section, as clearly shown in Figs. 3, 4, 5, 7, and 8, and may be made of any suitable material, preferably of wood, and are graduated from the feed end of the machine, or that at which the feed-table 42 is located, to the discharge end of the machine, or that at which the chute is located, the spaces between the juxtaposed elements gradually increasing in width from the feed to the discharge end. In the form of the invention shown in Figs. 3, 4, and 5 the grading elements 31 are exhibited as constructed in two sections 43 and 44, which are held combined and appropriately spaced by means of bolts 45, that project, respectively, through the cross-bars 32 and 33, as shown in Figs. 3, 4, and 5, and have combined with them flexible cap-plates 46, which bear upon the upper sides of the sections of the grading elements, the bolts having combined with their lower ends nuts 47, which when tightened will cause the cap-plates to impinge the grading elements, and thus secure them in position upon the cross-bars 32 and 33. By making the grading elements in two parts, as shown, they are transversely expansible or adjustable, thereby to adapt one machine for grading pickles of any size.

In the form of the invention shown in Figs. 7 and 9 the grading element 48 will be made solid and devoid of the graduations, while in the form of the invention shown in Fig. 10 the grading element 49 will be made solid and provided with graduations.

In the form of the invention shown in Fig. 8 the grading element 50 will be made of metal, preferably galvanized iron, and bent to the appropriate shape and may be either graduated or smooth throughout, as preferred.

The receiving-table 9, to which reference has been made, is inclined throughout a greater portion of its length and is provided with a forwardly-projecting straight portion 51, as shown in Fig. 3, and it is upon this table that the pickles pass that have been graded and escape through the spaces between the grading elements, the outer edge of the table being provided with semicircular recesses 52, beneath which will be disposed barrels or other suitable receptacles to receive the pickles. In order to keep the graded pickles separated, there is provided a series of partitions 53, which are shaped to fit the approximately wedge-shaped space formed by the under side of the frame of the machine and the upper side of the pickle-receiving table, the rear end of each partition being provided with a stud or pintle 54 to engage one of a series of orifices 55, provided in a strip 56, extending the length of the machine. By the provision of the pintles and orifices the partitions may be shifted according to the sizes of pickles to be graded.

In the use of the apparatus the pickles are fed to the feed-table 42 and thence pass on to the screen, which is longitudinally vibrated in the manner described, and at the same time the agitating members will travel between the spaces defined by the expansible grading elements, and those that do not drop through and into any one of the compartments 57, formed by the partitions 53, are caught by the agitating members and moved forward on down the screen, and by the time they reach the portion of the screen in which the grading elements are spaced the proper distance to permit them to pass through they will escape into the compartments, and so on, the pickles being constantly vibrated and agitated. By the time the mass of pickles reaches the end of the machine, if they are all not by that time graded, which might happen if there were some very large pickles in the mass, these will be carried over the end of the screen and will pass down the chute 18 and into a suitable receptacle.

While the apparatus of this invention is exceedingly simple of construction, it will be found thoroughly efficient and durable in use for the purposes defined and will in a rapid, practical, and exact manner sort pickles of all sizes and shapes.

Having thus described the invention, what is claimed is—

1. A machine of the class described embodying in its construction transversely-expansible grading elements, and resilient clamping elements for holding them in adjusted positions.

2. A machine of the class described embodying in its construction transversely-expansible graduated grading elements, and resilient clamping elements for holding them in adjusted positions.

3. A machine of the class described embodying in its construction a vibratory screen composed of transversely expansible grading elements.

4. A machine of the class described em-

bodying in its construction a screen comprising sectional grading elements, and resilient means for holding the sections of elements at any desired adjustment.

5. A machine of the class described comprising a screen composed of transversely-expansible graduated grading elements, means for vibrating the screen, and traveling agitating elements to project between the grading elements.

6. In a machine of the class described, the combination with a vibratory screen composed of spaced transversely-expansible graduated grading elements, of an endless traveling member carrying agitating members projecting between the grading elements.

7. A machine of the class described comprising a vibratory graduating-screen embodying transversely-expansible grading elements, a traveling agitating element having fingers projecting through the grading elements, and a receiving-table arranged beneath the screen and having adjustable partitions.

8. In a machine of the class described, the combination with adjustable grading elements, of an inclined receiving-table, and partitions adjustable relatively to the length of the table.

9. In a machine of the class described, a suspended grading-screen embodying expansible grading elements, means for vibrating the same, and a traveling agitating device coacting with the screen and driven from the mechanism that actuates the same.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

THOS. C. YEAGER

Witnesses:

R. JEFF. YEAGER,

E. H. B. RISSER.