

J. W. LINVILLE & C. C. TILLMAN.

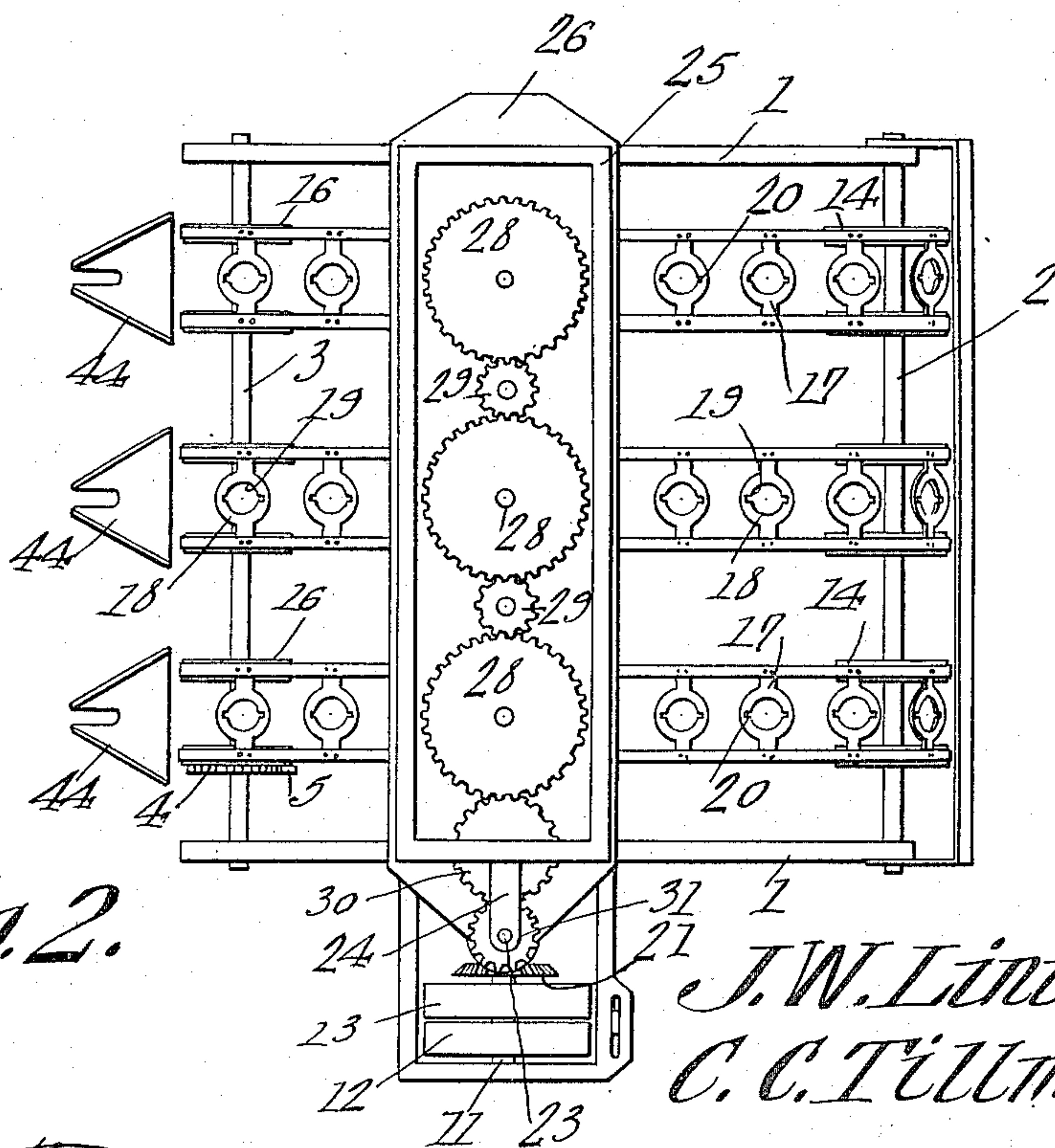
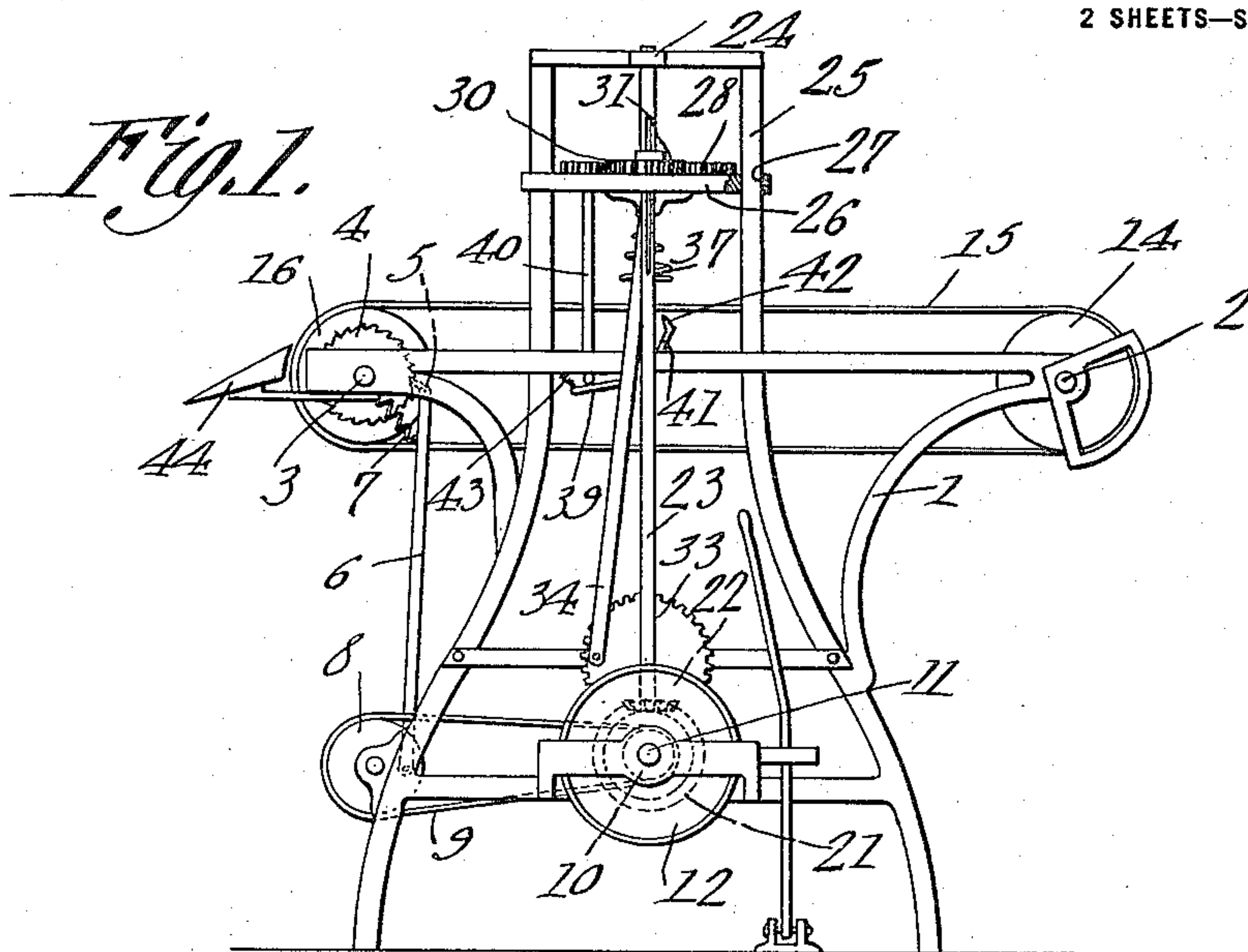
CORING MACHINE.

APPLICATION FILED FEB. 10, 1915.

1,155,252.

Patented Sept. 28, 1915.

2 SHEETS—SHEET 1.



Witnesses

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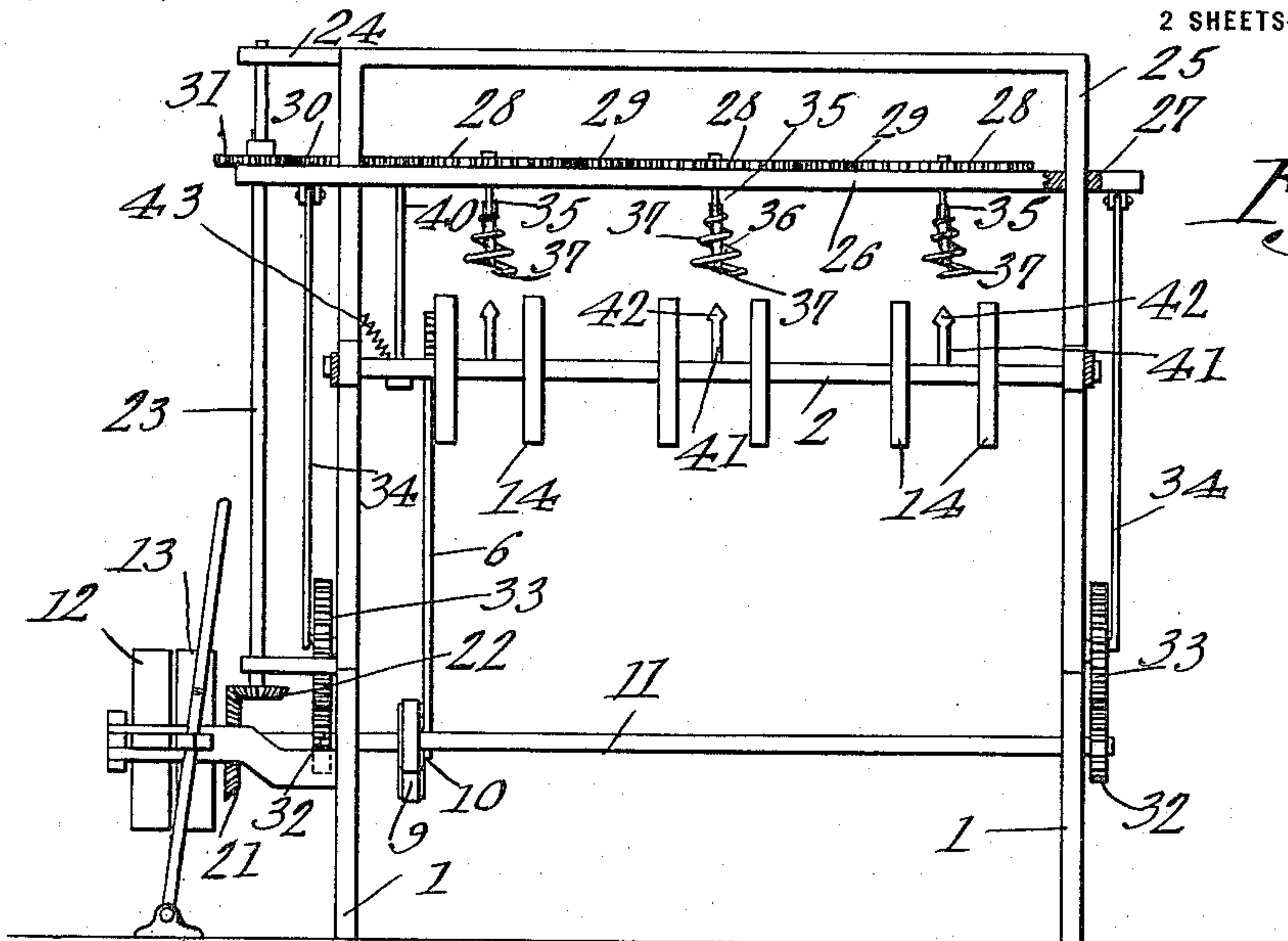


Fig. 3.

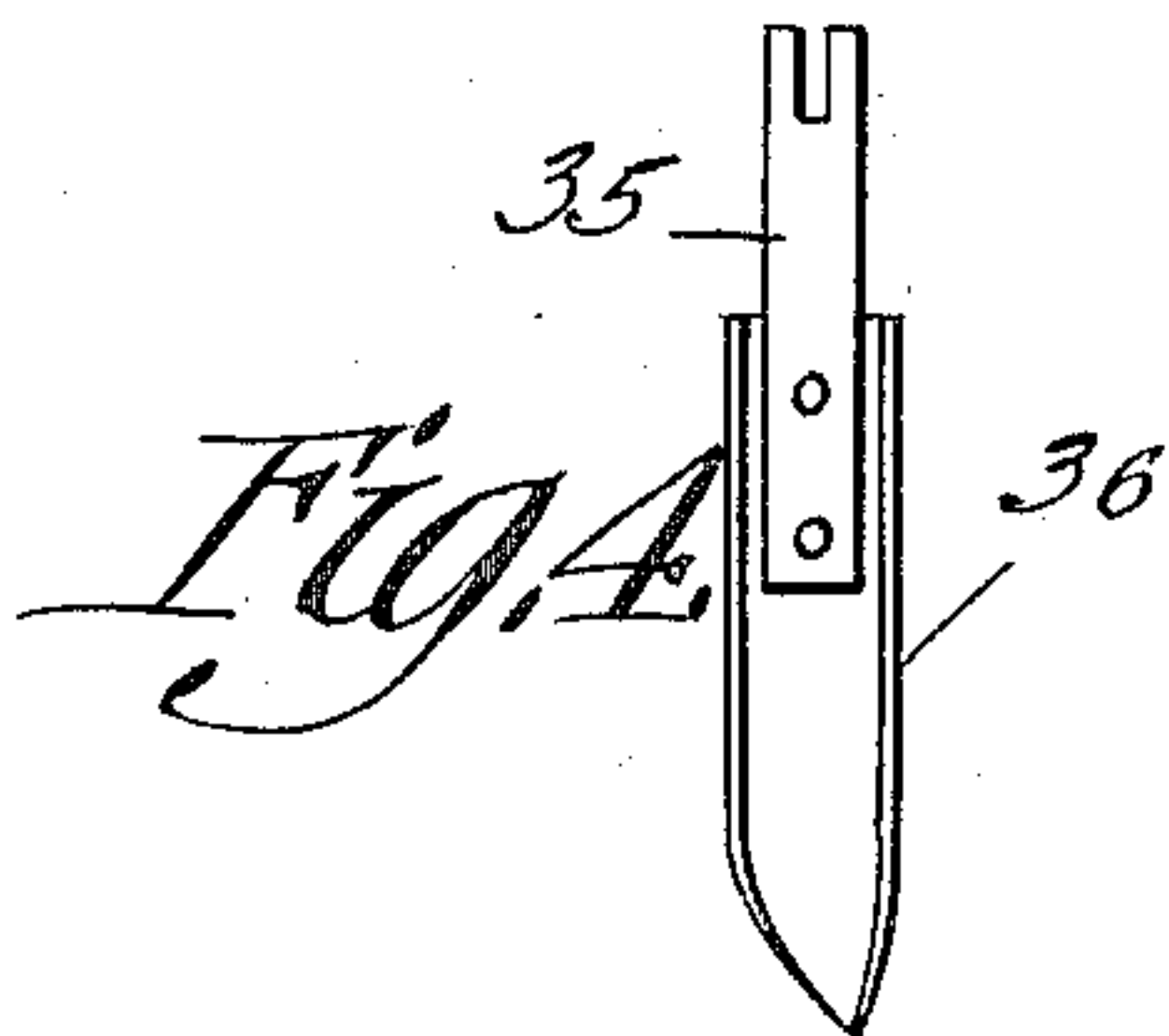


Fig. 4.

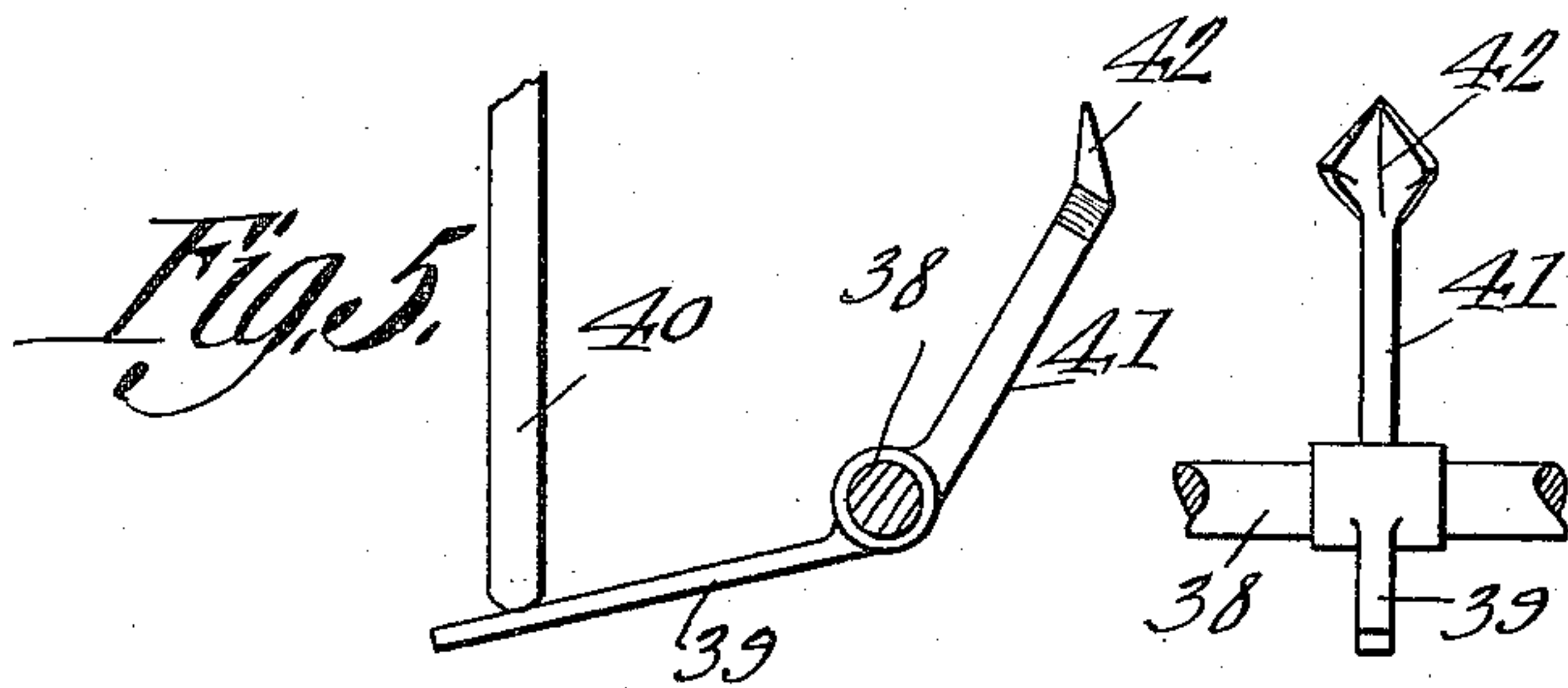


Fig. 5.

Fig. 6.

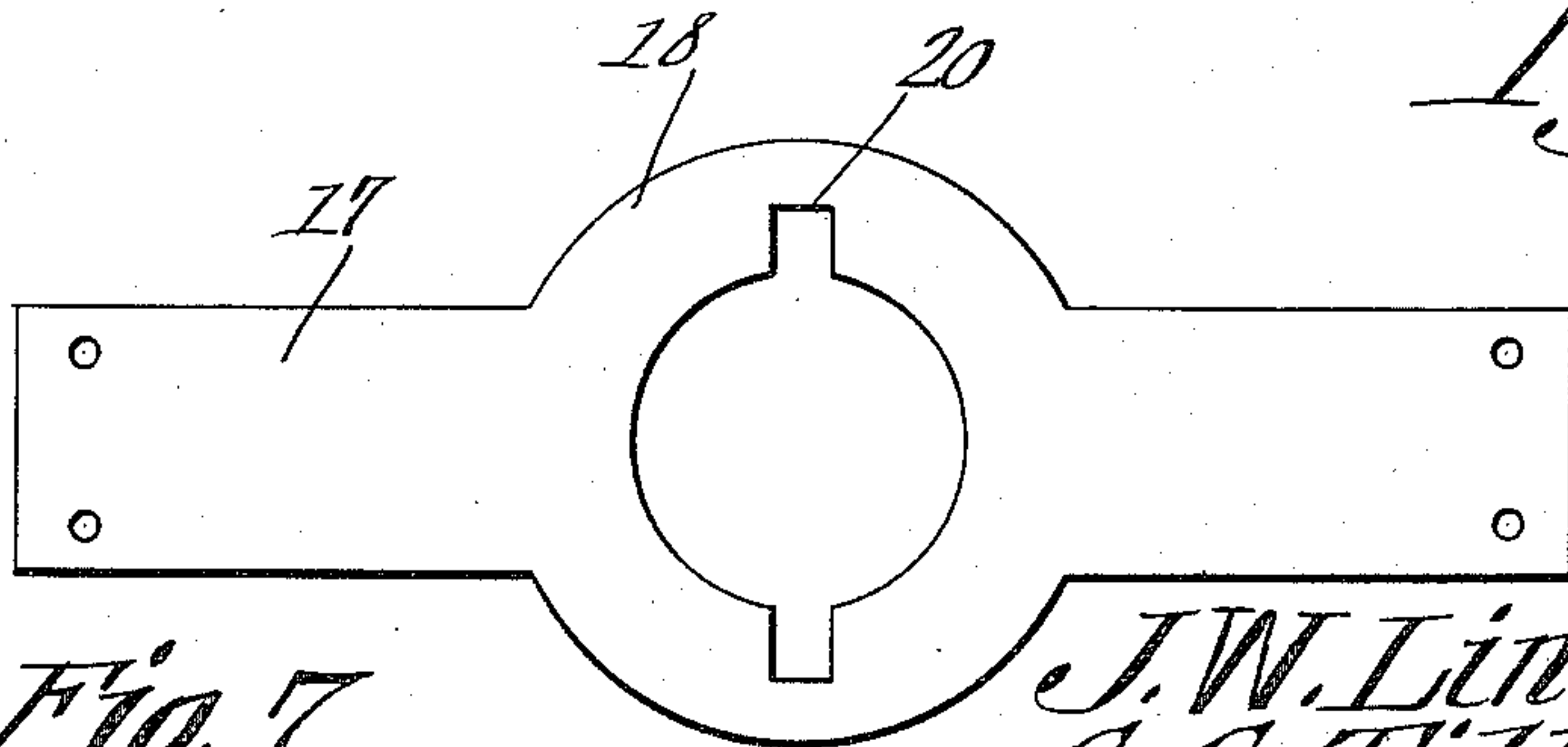


Fig. 7.

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UNITED STATES PATENT OFFICE.

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CORING-MACHINE.

1,155,252.

Specification of Letters Patent.

Patented Sept. 28, 1915.

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To all whom it may concern:

Be it known that we, JOHN W. LINVILLE and CARL C. TILLMAN, citizens of the United States, residing at Toledo, in the county of Lucas, State of Ohio, have invented a new and useful Coring-Machine, of which the following is a specification.

This invention relates to coring machines and is especially designed for use in coring tomatoes prior to being canned.

One of the objects of the invention is to provide improved means for holding the tomatoes during the coring operation, there being means operating in properly timed relation with the coring means for removing the blossom from the tomato.

A further object is to provide means for feeding the tomatoes or the like to the coring mechanism, said feeding means operating intermittently so that the coring is effected during each pause in the movement of the feeding mechanism.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, can be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings, Figure 1 is a side elevation of a machine embodying the present improvements. Fig. 2 is a plan view thereof. Fig. 3 is an end elevation of the machine, the carrier belt being removed. Fig. 4 is a detail view of one of the coring knives. Fig. 5 is an enlarged side elevation of one of the blossom removing knives and its trip rod. Fig. 6 is a face view of said blossom removing knife. Fig. 7 is a detail view of one of the holding plates.

Referring to the figures by characters of reference 1 designates a suitable frame provided at one end with a transverse shaft 2 while another transverse shaft 3 is journaled in the other end portion thereof. Shaft 3 is provided with a ratchet wheel 4 and this ratchet wheel is normally engaged by a dog 5 at the upper end of a rod 6, this dog being normally held in engagement with the ratchet wheel by means of a spring 7. Rod 6 is

pivotally connected to a wheel 8 which receives motion through a belt or chain 9 from a pulley or sprocket 10 secured to a drive shaft 11 journaled within the bottom portion of the frame 1. This shaft 11 has the usual fixed and loose pulleys 12 and 13 for engagement by a drive belt.

Secured to the shafts 2 and 3 are wheels 14 arranged in pairs, these wheels being either in the form of pulleys or sprockets, as desired. The said wheels engage endless belts or chains 15 which also engage and are driven by pulleys or sprocket wheels 16 rotating with the shaft 3. The belts or chains of each pair are connected at regular intervals by holding plates 17 one of which has been shown in detail in Fig. 7. Each holding plate is provided with a central enlargement 18 in which an opening, preferably circular, is provided as shown at 19, this opening being provided at diametrically opposed points with slots or extensions 20 disposed along lines parallel with the path of movement of the belts or chains. The said holding plates are so spaced that during each movement of shaft 3 produced by the elevation of the rod 6, one plate upon each pair of belts or chains will be brought to active position.

Secured to the shaft 11 is a gear 21 constantly meshing with another gear 22 secured to the lower portion of an upstanding shaft 23, the upper end of this shaft being journaled within the top portion 24 of the frame 1. Guides 25 extend downwardly from the top portion 24 and constitute parts of the frame 1. These guides are slidably engaged by a cross head 26 in which suitable openings 27 are provided through which the guides 25 extend. This cross head extends transversely above the conveyers 15 and journaled upon the cross head is a train of gears made up of large gears 28 and small intermediate gears 29. One gear 28 is provided above each pair of conveyer belts 15 and one of these gears 28 receives motion, through a gear 30, from a gear 31 which is feathered on the shaft 23. As it will be seen that during the rotation of shaft 23 the cross head 26 can be raised or lowered along its guides without interfering with the transmission of motion from said shaft 23 to the gears on the cross head.

Secured to the shaft 11 are gears 32 each of which meshes with a larger gear 33.

These large gears 33 are connected by pitmen 34 to the end portions of the cross head 26 so that during the rotation of shaft 11 the said cross head will be raised and lowered.

Depending from and revoluble with each gear 28 is a stem 35 provided with a coring blade 36, the blades all being revoluble about vertical axes. Each blade is surrounded by a spiral spring 37 preferably formed of light wire so that, when the cross head 26 is lowered, the several springs will engage and press lightly upon the tomatoes or other articles to be acted upon during the insertion of the blades 36 into said articles and during the rotation of the blades.

Located directly under or in vertical alinement with each of the blades 36 and close to and under the paths of the holding plates 17, is a transverse shaft 38 having a radial arm 39 extending therefrom and into the path of a tappet rod 40 extending from the cross head 26. Secured to and extending from the shaft 38 are arms 41 each of which is provided at its free end with a blade or scoop 42 adapted to work in a vertical plane passing underneath the blade 36 thereabove. It is to be understood of course that one of the blades 42 is provided for each blade 36 and that the blades 42 are normally positioned below the paths of the uppermost holding plates 17.

It is to be understood that when shaft 11 is in operation motion will be transmitted therefrom through the gears 32 and 33 so as to reciprocate the cross head 26 upon the guides 25. Shaft 23 is constantly rotating so that, as the cross head moves downwardly and upwardly, the coring blades 36 are rotating rapidly. Furthermore, during the completion of each downward movement of the cross head 26, the tappet rod 40 comes against the arm 39 and thus causes the arms 41 to swing upwardly so that the scoop-like blades 42 thereon will plow into the bottom portions of the articles supported thereabove, thereby removing the blossoms from the articles, should they be tomatoes. Any suitable means may be provided for automatically returning the arms 41 to their normal positions when released. For example a spring 43 may be attached to the arm 39 as shown in Figs. 1 and 3.

The ratchet wheel 4 and its operating mechanism are so proportioned that during the last portion of each upward stroke of the cross head 26, the dog 5 will shift ratchet wheel 4 so as to move all of the conveyer belts or chains 15 to bring one set of holders directly under the blades 36. As soon as these holders have been brought to position, the cross head 26 begins to descend. Springs 37 engage and bear downwardly on the articles mounted on the hold-

ing plates and while the articles are thus held yieldingly, the blades 36 will enter and rotate within the articles so as to remove the cores. During this operation the blades 42 will be operated as hereinbefore described to remove the blossoms from the articles. Upon the completion of the coring operation, the articles will be conveyed to delivery spouts 44 which will direct the articles, for example, to a peeling machine such as constitutes the subject matter of a separate application filed by us. The notches or recesses 20 are provided in the holding plate to permit the blades 42 to work through the plates readily.

What is claimed is:—

1. A coring machine including means for feeding an article with a step by step movement, means for coring the article during a pause in its movement, and means for automatically cutting out a portion of the bottom of the article while being cored.

2. In a machine of the class described, the combination with an endless series of holders, and means for shifting said holders with a step-by-step movement, of a revoluble coring blade, means for lowering and raising said blade during the pauses in the movement of the holders thereby to core an article supported by one of the holders, and means for automatically cutting out a portion of the bottom of the object while being cored.

3. A coring machine including a series of holders, means for moving the same intermittently, a revoluble coring blade, means for lowering and raising said coring blade during the pauses in the movement of the holders, a blade mounted for oscillation below each coring blade and below the path of the holder, and means operated by the movement of the coring blade in one direction for actuating the other blade to engage and cut the obstacle supported by a holder.

4. The combination with a series of holders mounted to move intermittently, of a coring blade, means for reciprocating said blade during the pauses in the movement of the holders thereby to force the blade into and out of an object supported by one of the holders, means for constantly rotating said blade during the reciprocation thereof, and yielding means mounted for reciprocation with the blade for engaging and bearing against the object being cored.

5. The combination with a series of holders mounted to move intermittently, of a coring blade, means for reciprocating said blade during the pauses in the movement of the holders thereby to force the blade into and out of an object supported by one of the holders, means for constantly rotating said blade during the reciprocation thereof, a second blade mounted below the path of the hold-

ers and under the coring blade, and means operated by the descent of the coring blade for actuating said second blade to cut the bottom portion of the object being cored.

5 6. The combination with a series of holders mounted for intermittent movement in one direction, of means mounted for reciprocation for engaging and yieldingly pressing upon an object mounted upon a holder, said
10 means being movable during the pauses in the movement of the holders, a cutter movably mounted below the paths of the holders, and means operated by the movement of said yielding article engaging means in one
15 direction, for actuating the cutter thereby to cut a portion of the held object.

7. The combination with an endless series of holders having apertures therein, and a cutting element normally mounted below
20 the paths of the holders, of a cross head, revoluble coring blades carried by the cross head, means for continuously rotating the blades, means for reciprocating the cross head and blades during the pauses between
25 the movements of the holders, and means operated by the cross head during each movement thereof in one direction, for actuating the cutting elements thereby to shift said elements through the opening in the adja-
30 cent holder to remove a portion of the held object.

8. The combination with guides, a cross head slidably mounted thereon, and a train
35 of gears journaled in the cross head, of coring blades revoluble with certain of the gears and depending from the cross head, a continuously rotating drive shaft on which one of the gears is feathered, a series of holders movable under the cross head and
40 successively into the paths of the respective blades, means for reciprocating the cross

head during pauses between the movements of the holders.

9. The combination with guides, a cross head slidably mounted thereon, and a train 45 of gears journaled in the cross head, of coring blades revoluble with certain of the gears and depending from the cross head, a continuously rotating drive shaft on which one of the gears is feathered, a series of holders 50 movable under the cross head and successively into the paths of the respective blades, means for reciprocating the cross head during pauses between the movements of the holders, and means movable with the cross 55 head for yieldingly engaging and bearing against the objects being cored.

10. The combination with guides, a cross head slidably mounted thereon, and a train of gears journaled in the cross head, of 60 coring blades revoluble with certain of the gears and depending from the cross head, a continuously rotating drive shaft on which one of the gears is feathered, a series of holders movable under the cross head and 65 successively into the paths of the respective blades, means for reciprocating the cross head during pauses between the movements of the holders, cutters mounted for oscillation below the paths of the holders, and 70 means operated by the descent of the cross head for actuating said cutters to cut out portions of the held objects.

In testimony that we claim the foregoing as our own, we have hereto affixed our sig- 75 natures in the presence of two witnesses.

JOHN W. LINVILLE.
CARL C. TILLMAN.

Witnesses:

JNO. L. KRIEGER,
Mrs. JOHN W. LINVILLE.

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