C. A. HOY.

MECHANISM FOR FEEDING ELONGATED ARTICLES.

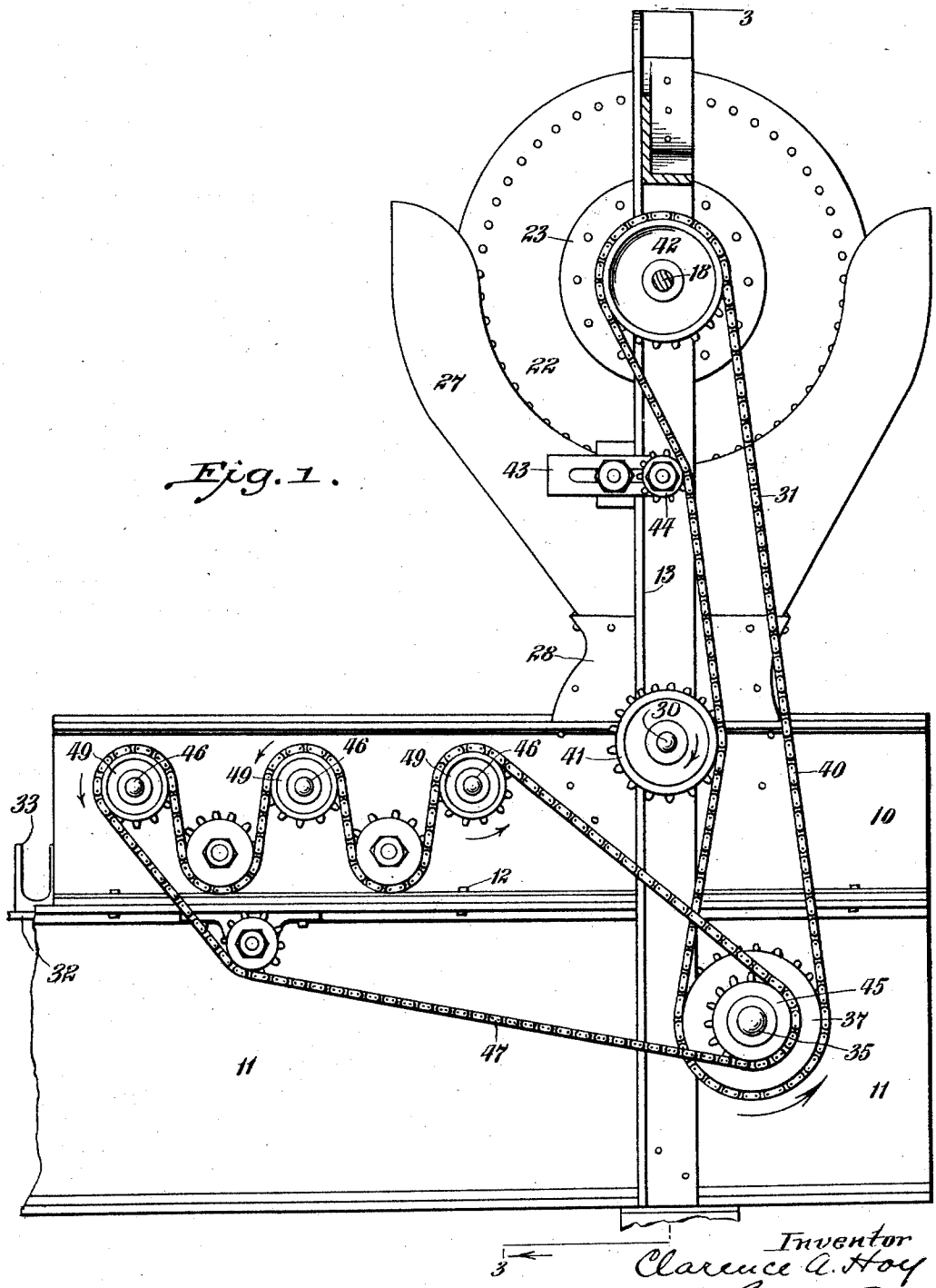
APPLICATION FILED APR. 5, 1920.

1,415,932.

Patented May 16, 1922.

3 SHEETS—SHEET 1.

Fig. 1.



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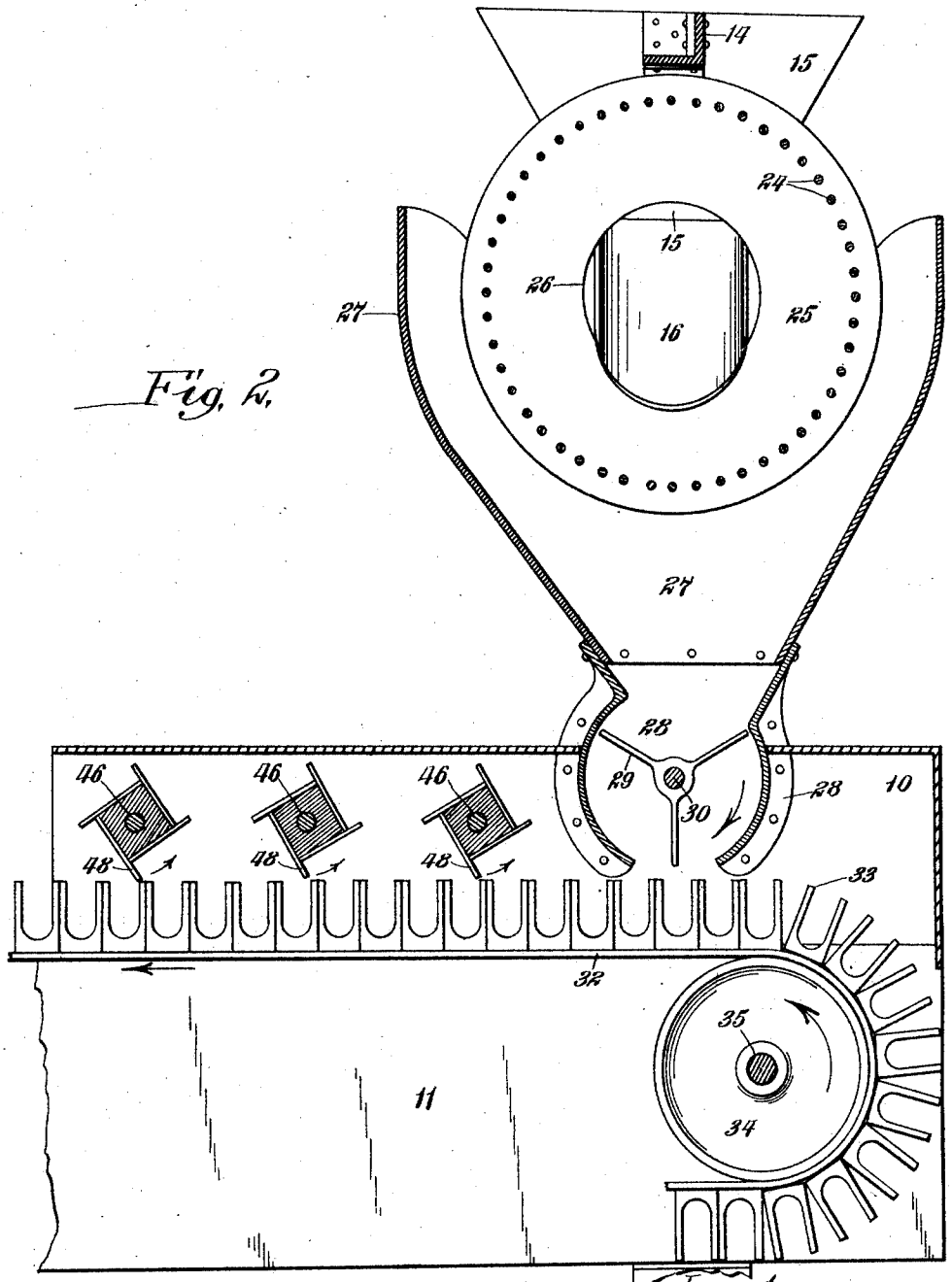
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3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

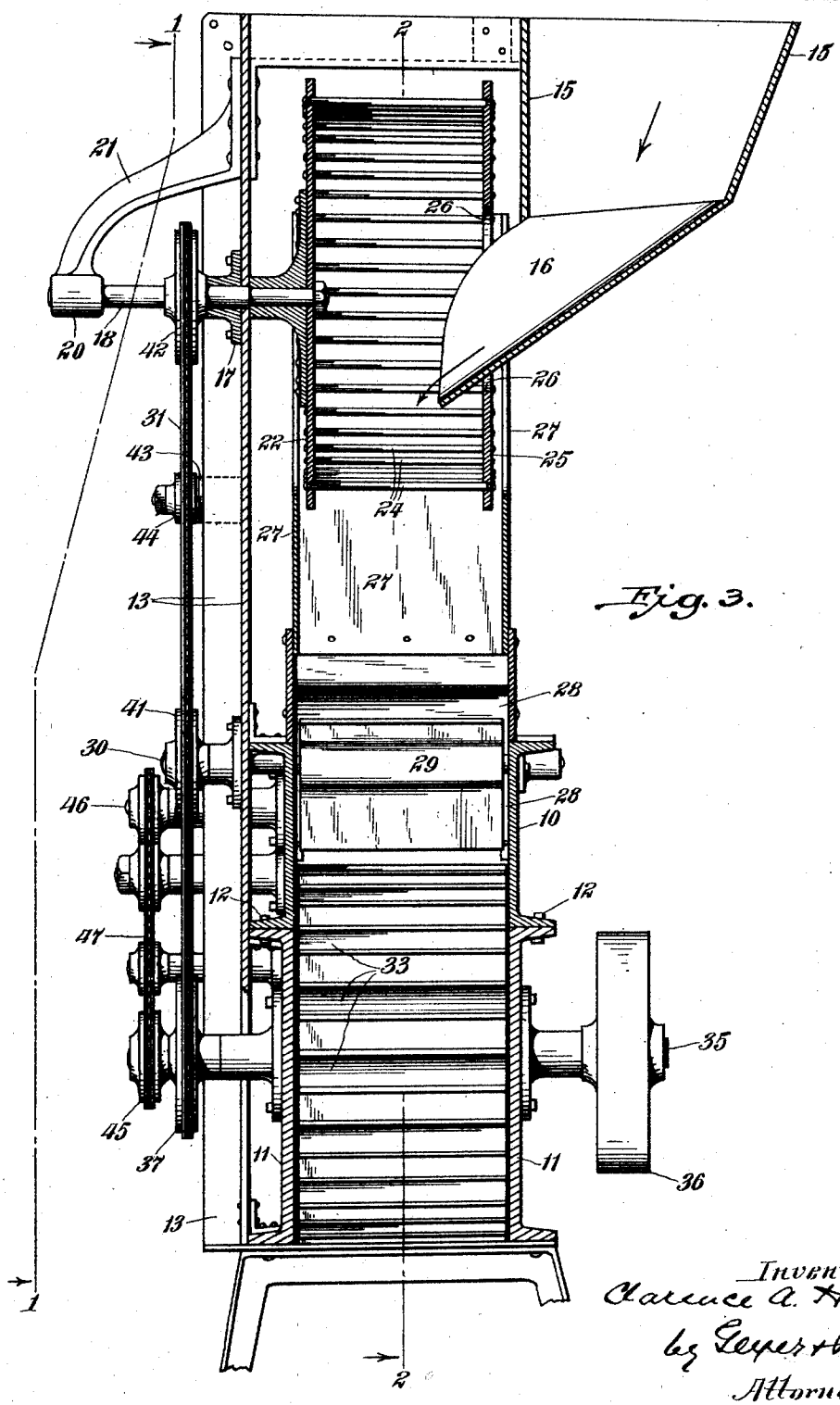


Fig. 3.

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UNITED STATES PATENT OFFICE.

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MECHANISM FOR FEEDING ELONGATED ARTICLES.

1,415,932. Specification of Letters Patent. Patented May 16, 1922.

Application filed April 5, 1920. Serial No. 371,366.

To all whom it may concern:

Be it known that I, CLARENCE A. HOY, a citizen of the United States, residing in Buffalo, in the county of Erie and State of New York, have invented new and useful Improvements in Mechanism for Feeding Elongated Articles, of which the following is a specification.

This invention relates to a mechanism for feeding elongated articles from a supply hopper to a machine which is to operate upon the articles.

One of the objects of the invention is to take a heterogeneous mass of string beans or other elongated articles from a supply hopper and to feed or discharge the same in steady regular quantities with all of the articles lying in proper position relatively to each other. A further object of the invention is, without bruising, to separate or break apart any of these elongated articles, which are either adhering or fastened together. The specific object of the invention is to feed a regular quantity of string beans to a bean snipping machine with the beans in parallel even order and to break the beans apart when more than one bean is fastened to the same common stem. Further objects and advantages will appear more clearly in the following description and accompanying drawings wherein—

Figure 1 is a fragmentary vertical section taken longitudinally of the feeding mechanism on line 1—1, Fig. 3. Figure 2 is a somewhat similar vertical longitudinal section but taken on line 2—2, of Fig. 3. Figure 3 is a vertical transverse section through the feeding mechanism taken on line 3—3, Fig. 1.

Similar characters of reference refer to like parts throughout the several views.

While the invention may be varied considerably within the scope of the invention, the arrangement shown in the drawings has been found to be practicable and is preferred. In the arrangement illustrated, 10 and 11 represent, as best shown in Fig. 3, an upper and lower pair of main frame members or channel beams, the upper pair of beams being placed with its lower edge upon the upper edge of the lower pair. These beams are arranged longitudinally on either side of the machine with their webs disposed vertically, the flat faces of the webs of each pair facing inwardly toward each other, the beams being suitably secured together by means of bolts 12 and by suitable upper and lower transverse tie plates. Secured by brackets or otherwise to the frame beams is an upright angle iron or supporting post 13, to the upper end of which is suitably secured a laterally and inwardly extending horizontal brace bar 14. To the opposite end of this brace bar is secured a supply hopper 15 which is adapted to receive a heterogeneous quantity of string beans or other elongated articles in just the condition in which they come from the crates or from the pickers in the field; that is, in a helter skelter fashion, with occasionally bunches of beans still fastened to the same stem. The lower part of this supply hopper is open and drains or drops the beans on to a curved or dished guiding chute 16 which inclines downwardly and inwardly toward the center of the machine.

Journaled in a suitable bearing 17, which is secured to the upright post 13, is a transversely disposed feeder shaft 18. This shaft extends transversely considerably beyond the outside of the bearing 17 and is rotatably supported at its extreme outer end in an outer bearing 20 which is formed at the lower outer end of an overhanging bracket 21 whose inner flanged end is suitably secured to the upright post 13. Secured to the inner end of this feeder shaft 18 is a circular feeder plate, head, or disk 22, the connection between said plate and shaft being preferably effected by means of a large massive annular stiffening flange 23. Secured to the inner face of said feeder plate 22 is an annular or circumferential row of separator for alining bars 24 which extend transversely of the machine and are arranged concentric with and parallel to the feeder shaft 18. These separator bars are spaced apart a uniform distance, the intervening spaces being just sufficiently great to permit of the elongated articles passing easily therebetween. It is obvious that the elongated articles which fall through between these separator bars must inevitably all fall through said separator bars, parallel to each other and in a position transversely of the machine; i. e. parallel to the feeder shaft 18. The ends of the separator bars opposite the feeder plate are secured together to a common feeder ring or sheet metal annular plate 25 which is arranged

parallel to and concentric with the disk shaped feeder plate 22 and is arranged to rotate therewith. It is through the hollow central part 26 of this feeder ring, that the hereinbefore mentioned inclined chute 16 projects inwardly and thus all the string beans or other elongated articles which slide down said chute are dropped into the inside of the rotating squirrel cage structure; i. e. onto the inner annular surfaces of the circumferential separator bars 24.

The elongated articles, falling through between said separator drop into a large sheet metal hopper container or receiver 27 which is preferably open at its upper end and completely encases the lower portions of the feeder disk 22 and feeder ring 25. This container 27 is, in longitudinal section, of funnel shape so as to direct the descending articles in toward the center thereof, the articles falling into the upper open end of the cylindrical casing or measuring chamber 28 and onto a collector paddle wheel or measuring wheel 29. The latter is mounted on a transversely disposed paddle wheel shaft 30 which is driven in the direction indicated by the arrows, said power being derived in any suitable manner, such as by the belt chain arrangements shown in Fig. 1.

Arranged below the open end of the paddle wheel casing 28 is the upper stretch of an endless article carrier belt 32 which is provided with a plurality of carrying buckets or pockets 33. Said carrier belt passes with its one end around a belt pulley 34 which is mounted on a transverse driving shaft 35, said shaft being suitably journaled in the lower channel frame beams 11 of the main frame of the mechanism. This shaft carries, at its one outer end, a driving pulley 36 which is adapted to be belted to any suitable available supply of power for operating the whole mechanism. The opposite end of this driving shaft 35 carries a sprocket wheel 37 which drives a belt chain 40. It is this belt chain that also drives respectively a sprocket wheel 41 secured to the aforementioned measuring paddle wheel shaft 30 and also a sprocket wheel 42 which is secured to the aforementioned separator shaft 18, the slack or wear on the chain being occasionally taken up when required by a sliding adjustable block 43 which carries a small tension sprocket wheel 44 that engages with the said belt chain. The main driving shaft 35 also carries, at its one outer end a comparatively small sprocket wheel 45, which drives a number of scraper shafts 46 by means of a scraper belt chain 47 and scraper sprocket wheels 49. Each of these scraper shafts 46 has secured to its central part a plurality of scraper blades 48, which rotate in the direction indicated by the arrows; the lower blades moving backwardly against the advancing upper edges of the article conveying buckets 33 so as to scrape any articles off from the top edges of said buckets. It is preferred that these scraper blades be rotated faster than the measuring paddle wheel 29 is rotated.

It will be therefore evident that this improved mechanism for feeding elongated articles insures that the discharge of the elongated articles through the separator bars 24 will be regular in quantity and precisely parallel in position, irrespective of how loosely the said articles may be dumped into the supply hopper 15. The whole mechanism is very simple in construction and is readily inspected and cleaned, if any of the elongated articles should get jammed or clogged up in the mechanism. No special stock is necessary to the manufacturer of the mechanism and the same may be constructed at low cost.

I claim as my invention:

1. A mechanism for feeding elongated articles to a movable carrier having pockets arranged transversely to the direction of movement of the carrier, comprising a plurality of closely-spaced separating and alining bars arranged above said carrier and parallel with the pockets thereof and adapted to receive on their upper sides the articles to be fed and to discharge the same from their underside into said pockets in a position parallel with the latter.

2. A mechanism for feeding elongated articles to a movable carrier having pockets arranged transverely to the direction of movement of the carrier, comprising a plurality of closely spaced separating and alining bars arranged in an annular row above said carrier and parallel with the pockets thereof and adapted to receive on their upper sides the articles to be fed and to discharge the same from their underside into said pockets in a position parallel with the latter, and a rotary support for said bars turning about a horizontal axis.

3. A mechanism for feeding elongated articles to a movable carrier having pockets arranged transversely to the direction of movement of the carrier, comprising a plurality of closely spaced separating and alining bars arranged in an annular row above said carrier and parallel with the pockets thereof and adapted to receive on their upper sides the articles to be fed and to discharge the same from their underside into said pockets in a position parallel with the latter, a rotary head supporting one end of said bars, a ring connecting the opposite ends of said bars, means for delivering the articles to be fed through said ring upon the lower bars, and a driving shaft journaled horizontally and parallel with said bars and connected with said head.

4. A mechanism for feeding elongated articles to a movable carrier having pockets

arranged transversely to the direction of movement of the carrier, comprising a plurality of closely-spaced separating and alining bars arranged above said carrier and parallel with the pockets thereof and adapted to receive on their upper sides the articles to be fed and to discharge the same from their underside into said pockets in a position parallel with the latter, and a hopper for directing the articles from said bars to said pockets.

5. A mechanism for feeding elongated articles to a movable carrier having pockets arranged transversely to the direction of movement of the carrier, comprising a plurality of closely-spaced separating and alining bars arranged above said carrier and parallel with the pockets thereof and adapted to receive on their upper sides the articles to be fed and to discharge the same from their underside into said pockets in a position parallel with the latter, a hopper which is arranged to receive said articles from said bars and which is provided with a cylindrical measuring chamber leading to said pockets, and a rotary measuring wheel arranged in said chamber and turning about a horizontal transverse axis and having a plurality of blades arranged parallel with the axis of the measuring wheel.

CLARENCE A. HOY.