

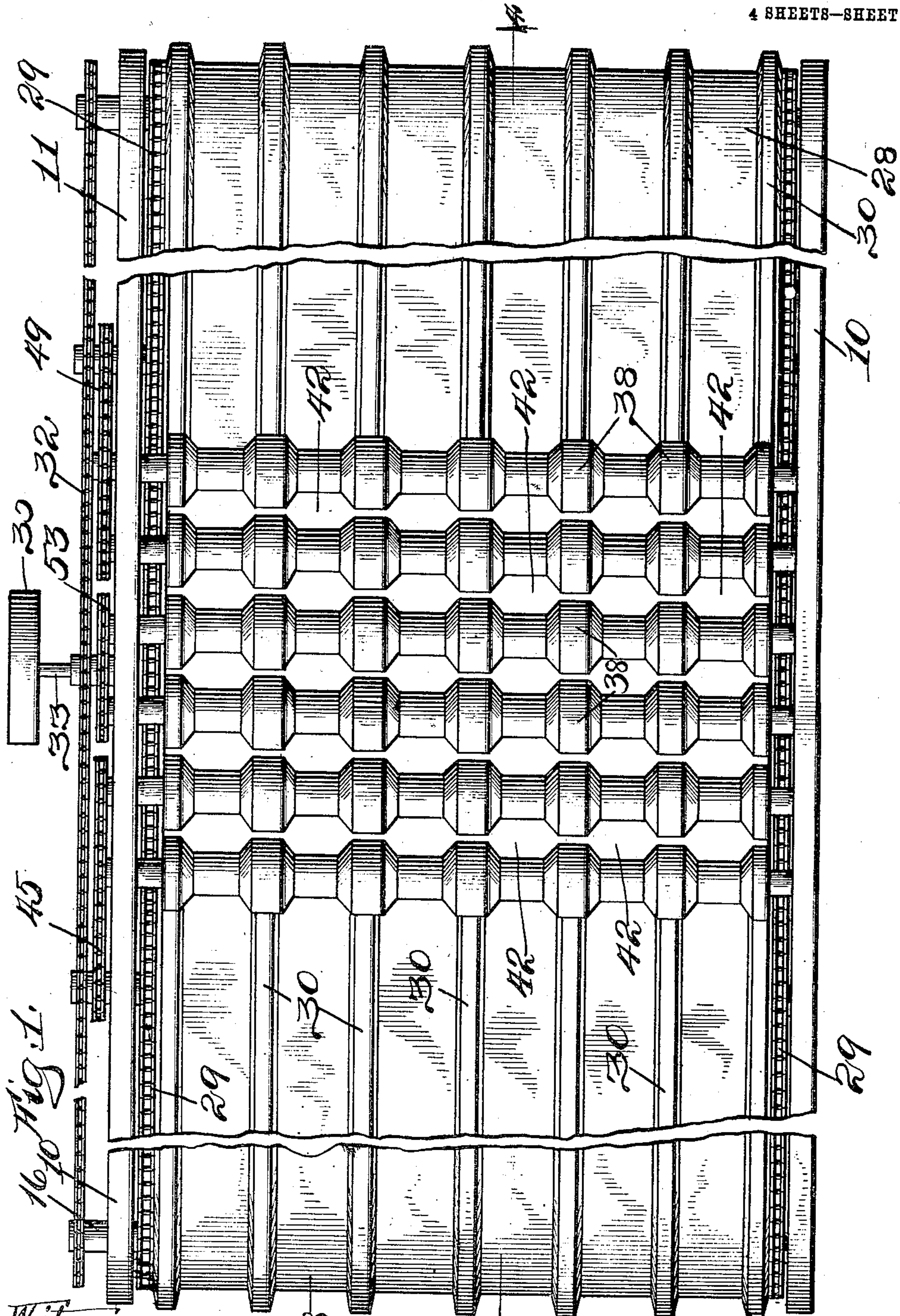
No. 843,622.

PATENTED FEB. 12, 1907.

A. I. McTAGGART.
MACHINE FOR TESTING EGGS.

APPLICATION FILED AUG. 27, 1906.

4 SHEETS—SHEET 1.



Witnesses:
L. V. Donahue.
W. H. DeBue.

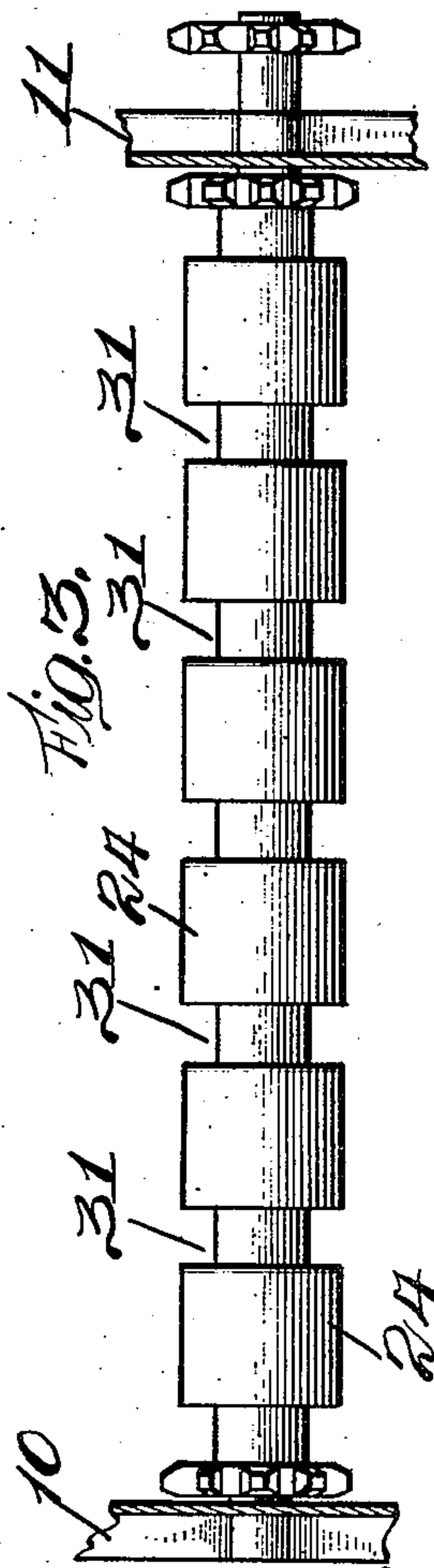
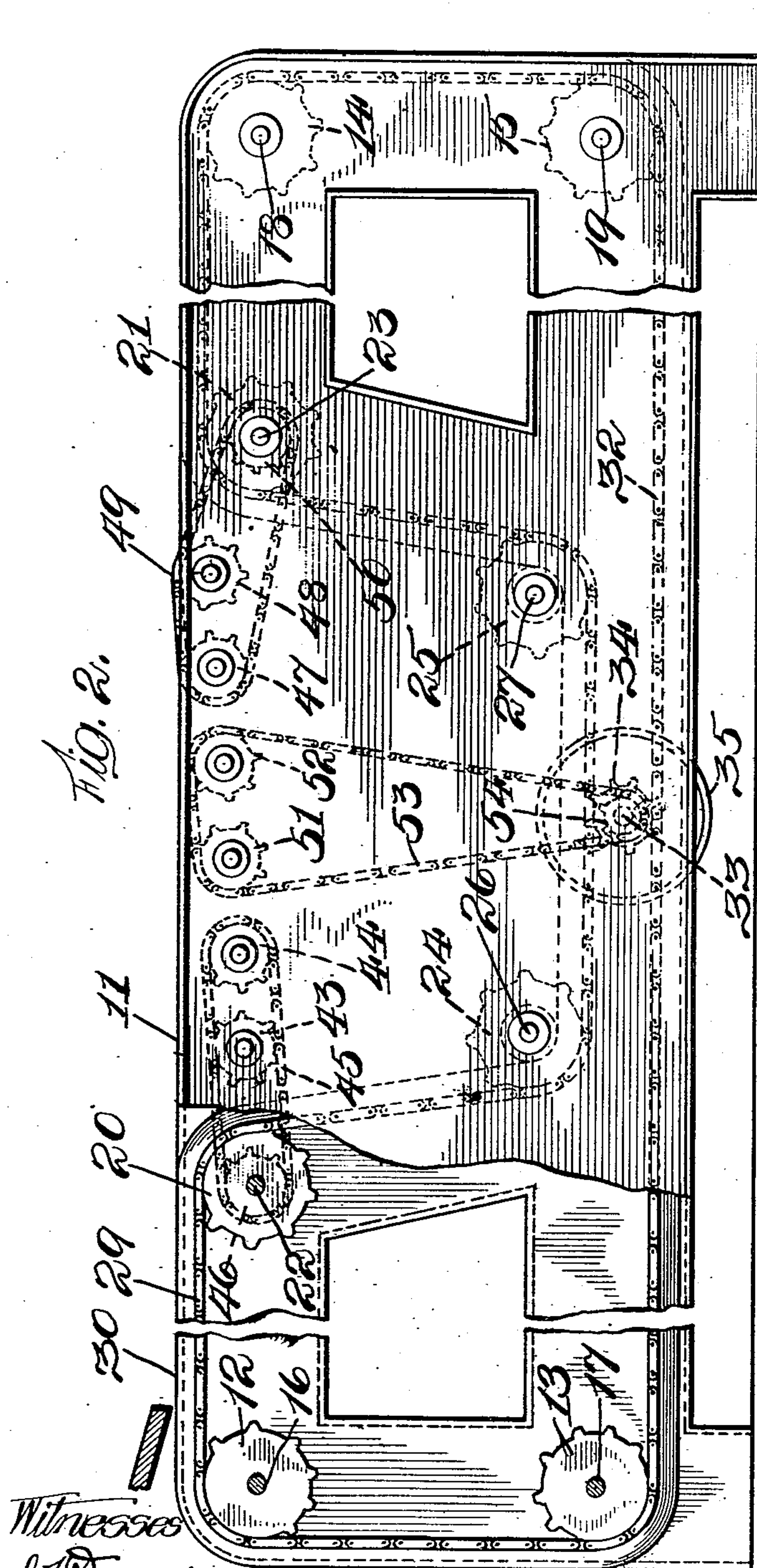
Inventor:
Alexander I. McTaggart
By Bond, Adams, Rickard & Jackson
Attorneys

No. 843,622.

PATENTED FEB. 12, 1907.

A. I. McTAGGART.
MACHINE FOR TESTING EGGS.
APPLICATION FILED AUG. 27, 1906.

4 SHEETS—SHEET 2.



Witnesses
L. D. Dumas.
W. H. DeBuck.

Inventor:
Alexander I. McTaggart
By
Bond, Adams, Rickard & Jackson
Attorneys

No. 843,622.

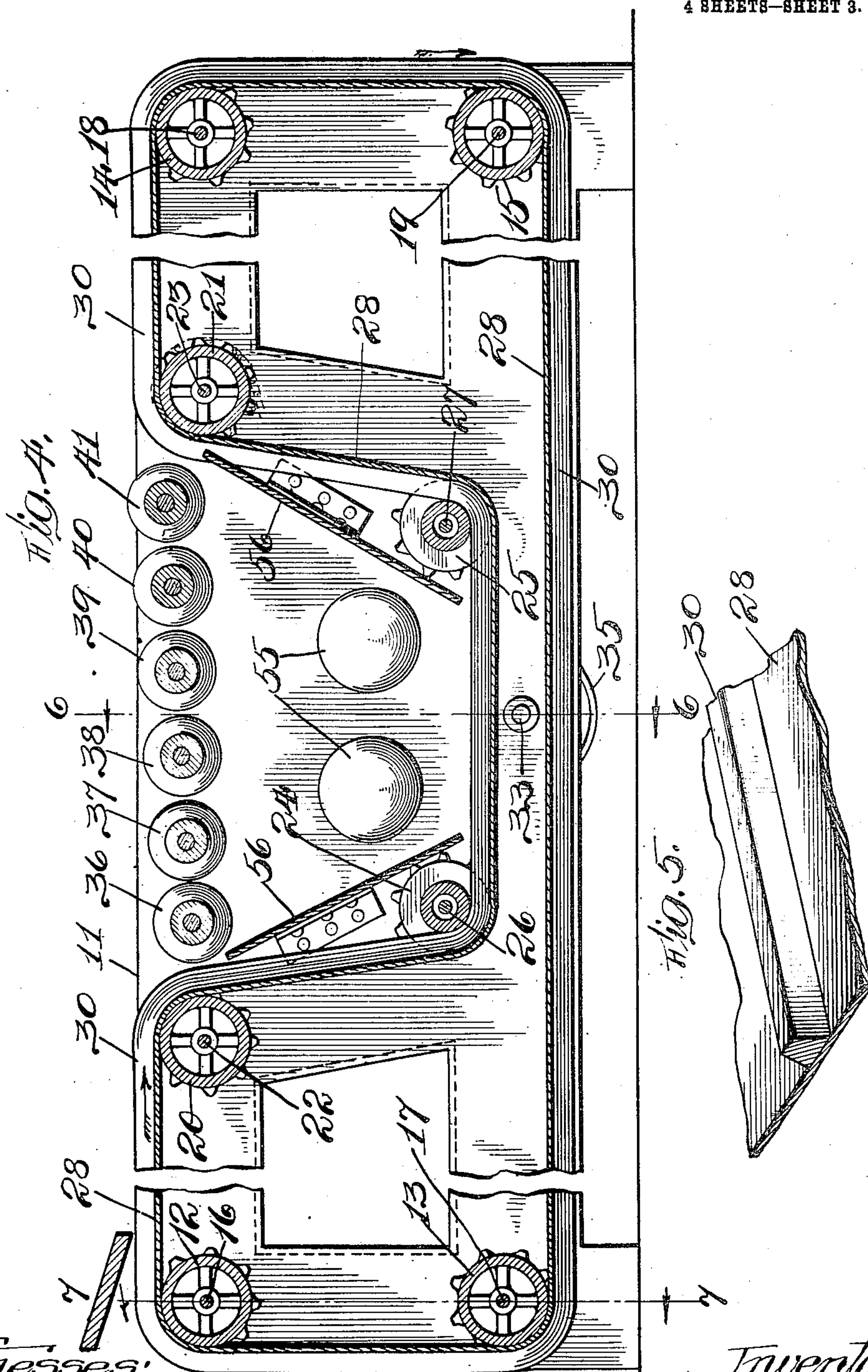
PATENTED FEB. 12, 1907.

A. I. MOTTAGART.

MACHINE FOR TESTING EGGS.

APPLICATION FILED AUG. 27, 1906.

4 SHEETS—SHEET 3.



Witnesses:
G. V. Donarum.
W. H. DeBuse.

Inventor
Alexander J. M. Faggart
by Bond, Adams, Putnam & Jackson
Attorneys

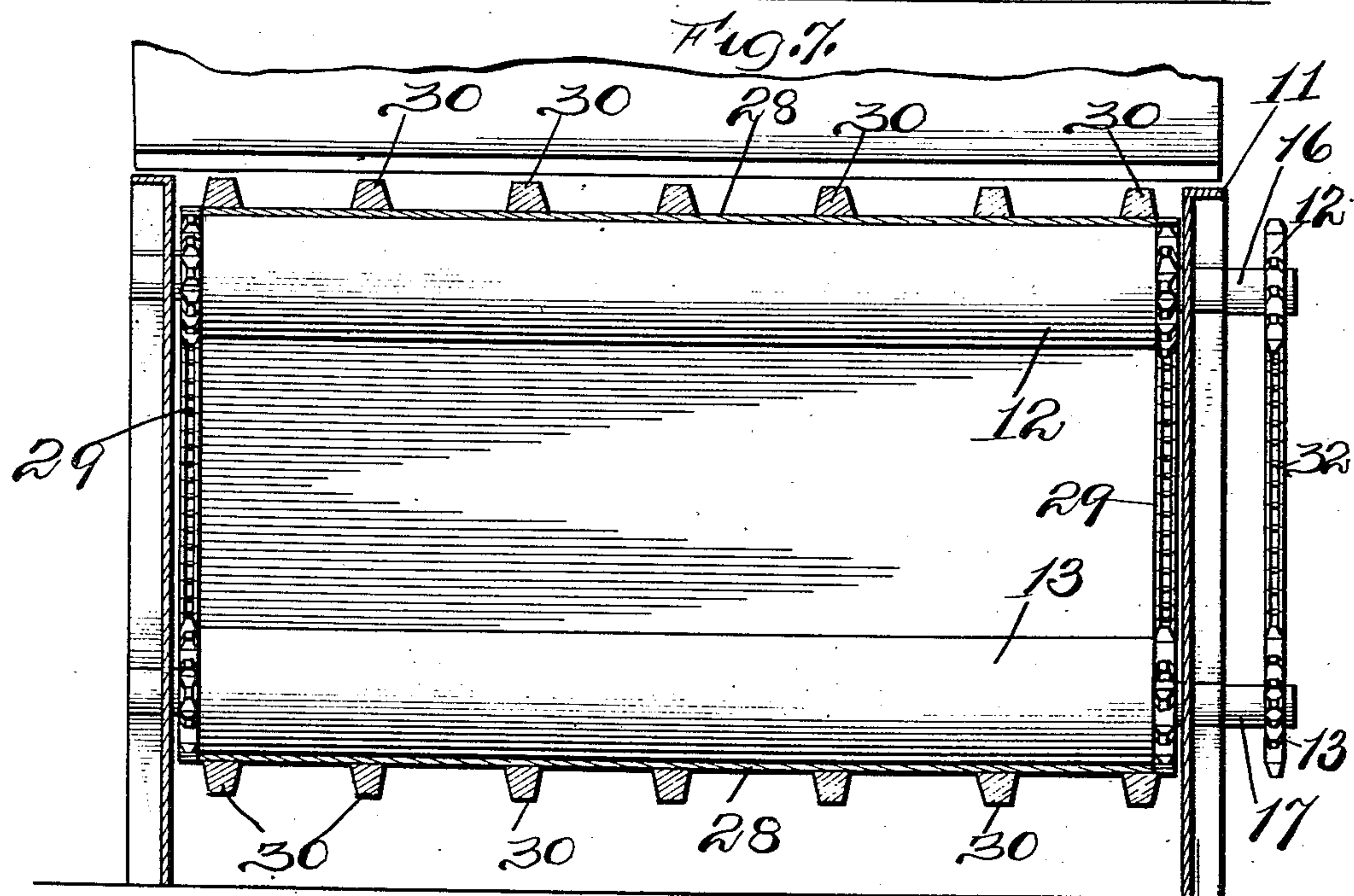
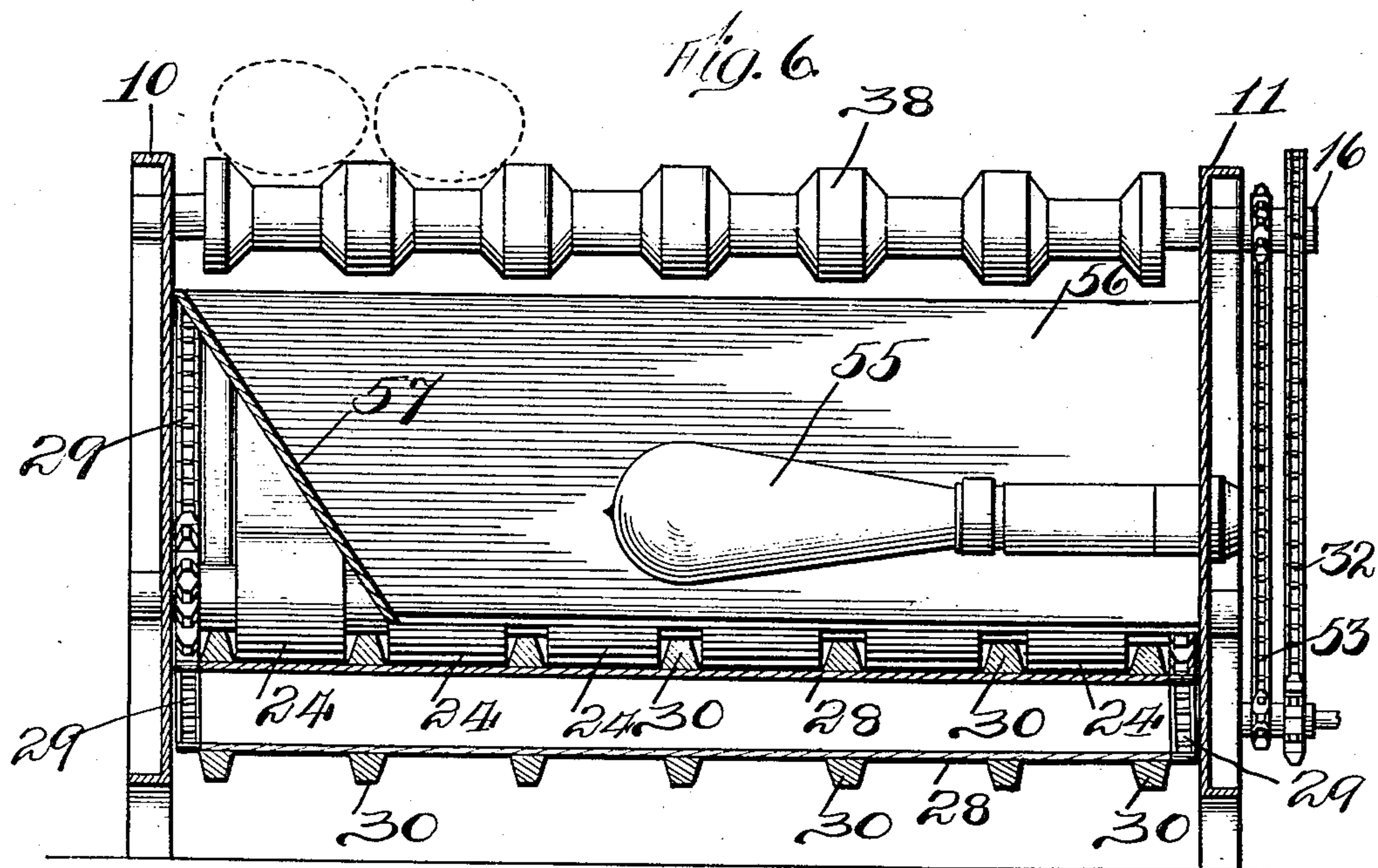
No. 843,622.

PATENTED FEB. 12, 1907.

A. I. McTAGGART;
MACHINE FOR TESTING EGGS.

APPLICATION FILED AUG. 27, 1906.

4 SHEETS—SHEET 4.



Witnesses:
C. V. Donarum.
W. H. DeBuck.

Inventor:
Alexander J. McTaggart
By Boyd Adams, Richard Jackson
Attorneys

UNITED STATES PATENT OFFICE.

ALEXANDER I. McTAGGART, OF CHICAGO, ILLINOIS, ASSIGNOR TO FAIRBANK CANNING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

MACHINE FOR TESTING EGGS.

No. 843,622.

Specification of Letters Patent.

Patented Feb. 12, 1907.

Application filed August 27, 1906. Serial No. 332,166.

To all whom it may concern:

Be it known that I, ALEXANDER I. McTAGGART, a citizen of the United States, residing at Chicago, county of Cook, State of Illinois, have invented certain new and useful Improvements in Machines for Testing Eggs, of which the following is a specification, reference being had to the accompanying drawings.

10 This invention relates to machines for testing eggs, and has for its objects to provide new and improved devices by which a large number of eggs are moved at the same time over a light-chamber and to provide means for turning the eggs during their passage over such light-chamber and also at one stage of their forward movement retarding such forward movement, so as to upend the eggs more or less, whereby by these various move-
20 ments a more thorough and complete examination of the eggs may be had than in previous machines. I accomplish these objects by the means illustrated in the drawings and hereinafter described.

25 That which I believe to be new will be set forth in the claims.

In the drawings, Figure 1 is a plan view. Fig. 2 is a side elevation, one of the side frames of the machine being broken away near one end. In dotted lines in this figure is also shown the means for driving the endless conveyer-belt and the egg-supporting rollers. Fig. 3 is a detail showing the construction of one of the rolls over which the
35 endless conveyer-belt passes. Fig. 4 is a vertical section at line 4 4 of Fig. 1. Fig. 5 is a detail, being a perspective view of a portion of the endless conveyer-belt. Fig. 6 is a vertical cross-section at line 6 6 of Fig. 4. Fig.
40 7 is a vertical cross-section at line 7 7 of Fig. 4.

Referring to the several figures of the drawings, in which corresponding parts are indicated by like reference characters, 10 11 indicate two correspondingly-shaped side pieces constituting the supporting-frame of the machine.

12, 13, 14, and 15 indicate rolls located near each corner of the machine and each
50 made fast to a shaft journaled in the side frames 10 and 11, said shafts being indicated, respectively, by 16, 17, 18, and 19. 20 21 indicate similar rolls, each located near the upper part of the machine and each suitably

secured to a shaft journaled in the side frames 55 10 and 11, said shafts being indicated, respectively, by 22 and 23. 24 and 25 indicate two other similar rolls located a short distance above the lower edges of the side frames 10 and 11 and each secured to a shaft
60 journaled in such side frames, said shafts being indicated, respectively, by 26 and 27.

28 indicates an endless belt which constitutes a conveyer, said belt being of a width substantially equal to the space between the
65 two side frames 10 and 11. This belt is provided at each edge with a sprocket-chain 29, properly secured to the belt, the links of the chain being adapted to be engaged by sprocket-wheels secured to the shafts of each
70 of the rolls before mentioned. As shown, this endless conveyer-belt is divided longitudinally into a plurality of spaces or divisions by ribs 30, such ribs being preferably of
75 leather, rubber, or other comparatively soft material that will not interfere materially with the flexibility of the belt and will not be likely to damage the eggs that are placed
80 upon and carried by the belt. The longitudinal spaces or divisions on the face of the belt that are formed by these ribs are to be of a width to adapt eggs to lie therein with their ends toward such ribs. In Fig. 4 is shown the arrangement of this endless conveyer-belt around the various rolls, and from
85 such figure it will be seen that the ribbed face of the belt is brought against the two lower central rolls 24 and 25, and hence those rolls are provided with grooves 31, as clearly shown in Fig. 3, to receive the ribs 30. The
90 other rolls have plain faces, inasmuch as the smooth or unribbed side of the conveyer-belt bears upon them.

The shaft of each one of the rolls, heretofore referred to, projects beyond one of the
95 side frames—in the construction shown the side frame 11—and is provided on such projecting end with a sprocket-wheel, and around such sprocket-wheels passes an endless sprocket-chain 32, the arrangement of
100 such chain with respect to the sprocket-wheels on the shafts 18, 19, 22, 23, 26, and 27 being clearly indicated in Fig. 2 in dotted lines, and it is to be understood that it passes around the sprocket-wheels on the shafts 16
105 and 17 exactly as is indicated by the chain 29. (Shown at the left-hand side of the said Fig. 2.) Inasmuch as the main driving-chain 32 takes

exactly the same course as the chain 29 on the conveyer-belt the representation of the chain 29 at the left-hand side of Fig. 2 prevents the representation of chain 32 by dotted lines at that end of the machine.

33 indicates a shaft journaled in the frame of the machine near the bottom of the machine and about midway of its ends, upon which shaft is secured a gear 34, (best shown in dotted lines in Fig. 2,) which gear engages and drives the drive-chain 32. As shown, the gear engages that portion of the chain extending between the sprocket-wheels on the projecting ends of the shafts 17 and 19 and also that portion of the chain extending between the sprocket-wheels on the projecting ends of the shafts 26 and 27.

35 indicates a pulley on the end of the shaft 33, which is adapted to be driven by a suitable driving-belt.

36, 37, 38, 39, 40, and 41 indicate rollers, each journaled in suitable bearings in the side frames 10 and 11, said rollers being located near the upper edge of the said side frames and in the construction shown over the central portion of the machine. These rollers are parallel with each other and, as best shown in Fig. 1, are each correspondingly cut away or grooved and the cut-away or grooved portions arranged opposite to each other, thereby leaving between adjacent rollers a comparatively large opening into which eggs can settle and be held so that the light from below will strike a large surface of each egg. These egg-receiving spaces are indicated by 42 and are in line with the longitudinal spaces on the face of the conveyer-belt formed by the ribs 30.

As clearly shown in Fig. 4, the rollers are in different horizontal planes, the first roller 36, over which eggs are first passed from the conveyer-belt 28, being the lowest and each of the succeeding rollers being on a slightly higher plane than the preceding roller. The object of thus placing the rollers in different horizontal planes I will explain when describing the operation of the machine as a whole. These rollers are not all driven at the same speed, but, on the contrary, the intermediate pair of rollers are driven at a lower rate of speed than are the other two pairs of rollers, such other two pairs of rollers being driven at the same speeds. The shafts of the rollers 36 and 37 project beyond the side frame 11, and upon such projecting ends are secured sprocket-wheels 43 and 44, respectively, which are engaged by a sprocket-chain 45, that is also engaged and driven by a sprocket-wheel 46 on the projecting end of the shaft 22. The two rollers 40 and 41, located at the opposite side of the central pair of rollers, also have their shafts equipped with similar sprocket-wheels, (indicated by 47 and 48, respectively,) which sprocket-wheels are driven by a sprocket-chain 49, that passes

over a sprocket-wheel 50 on the end of the shaft 23. 51 and 52 indicate sprocket-wheels on the projecting ends of the shafts of the intermediate pair of rollers 38 and 39, over which sprocket-wheels passes a sprocket-chain 53, that also passes over a smaller sprocket-wheel 54 on the same shaft 33 that the sprocket-wheel 34 is secured upon, and by reason of this sprocket-wheel 54 being smaller than any of the other sprocket-wheels it is evident that the intermediate pair of rollers 38 and 39 are driven at a less speed than the rollers at each side thereof, the object of which will be hereinafter explained. The arrangement of these sprocket wheels and chains employed for driving them is clearly shown by dotted lines in Fig. 2, and from Fig. 1 it will be seen that the sprocket-chains 45, 49, and 53 lie between the side frame 11 and main drive-chain 32.

As clearly shown in Fig. 4, the location of the rolls 24 and 25 near the lower edge of the side frames and the running of the endless conveyer-belt beneath these rolls forms a central well or chamber beneath the series of egg-supporting rollers. Within this well or chamber thus formed are located two lamps 55, such lamps being preferably electric globes, as indicated. At opposite ends of the well or chamber are affixed suitable inclined reflectors 56, and at one side of the well or chamber is located another inclined reflector 57. By this arrangement of reflectors the rays of light will penetrate through the openings between the egg-supporting rollers, so that the operator's sight is not affected by such rays and yet the desired effect will be produced upon the eggs being examined.

In operation with the endless conveyer-belt driven in the direction indicated by the arrows in Fig. 4 and with the series of rollers 36 to 41, inclusive, being rotated by the sprocket-chains, as hereinbefore described, the operator will place upon the endless conveyer-belt at the receiving end of the machine a large quantity of eggs, such eggs lying between the ribs 30. Each of the spaces or divisions between the ribs on the face of the belt will have a large number of eggs and will be kept continuously supplied with eggs by the operator. The forward movement of the conveyer-belt will cause the eggs to pass onto the series of egg-supporting rollers over the central well or chamber, and such eggs will settle into the spaces caused by the cut-away portions or notches of these rollers. The rollers themselves are fixed rollers—that is, they are journaled in position—and have no other movement than the rotary movement imparted to them by the driving mechanism referred to. As before explained and as clearly shown in the drawings, each succeeding roller is in a slightly higher plane than the preceding one, and by this arrangement the forward movement of the eggs is somewhat

retarded and for moving the eggs forward over the various rollers reliance is placed more upon the pressure exerted by the eggs being carried forward by the conveyer-belt than upon the rotation of the rollers themselves, although such rotation, of course, assists in this forward movement. The checking of the forward movement by reason of the slight upward inclination that the eggs have to pass over in moving across the rollers also affords sufficient time for the inspector to give each egg the necessary examination to determine its quality. Furthermore, the rotation of these rollers rolls the eggs so as to aid in bringing the eggs to positions for thorough inspection.

I have called attention to the fact that the central pair of rollers 38 and 39 are driven at a less speed than the rollers at each side of them, and the object in thus driving these central rollers at a less speed than the others is to cause the eggs to be more or less up-turned and thereby enable the inspector to readily determine the character of the air-chamber in the eggs. I have found in practice that the eggs upon being brought to these slower rotating rollers are so turned and the turning of the eggs in this manner affords additional opportunity for a thorough inspection.

By means of my improved machine the eggs to be inspected will be moved forward regularly and evenly over the light-chamber, will be rotated during a portion of such movement, and will be also turned, as before described, so that their ends point in a different direction from that in which they pointed when they first started moving over the light-chamber, and by reason of these various movements the inspector will be afforded every opportunity for thoroughly examining every egg passing over the machine. After passing over the rollers the eggs will be again delivered to the endless conveyer-belt, being deposited thereon between the ribs on the face of the belt and from such belt will be taken off by hand or delivered as desired.

The dividing-ribs on the face of the belt act to keep the various streams of eggs separated and also act to properly deliver the eggs to and receive them from the cut-away or recessed portions of the rollers.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an egg-testing machine, the combination with a light-chamber, of a series of rollers over said chamber adapted to have an axial movement only, a conveyer for delivering eggs to the rollers, and means for rotating the rollers, substantially as described.

2. In an egg-testing machine, the combination with a light-chamber, of a series of rollers over said chamber adapted to receive and support eggs, a conveyer for delivering eggs to the rollers, and means for rotating

some of the rollers at less speed than the others, substantially as described.

3. In an egg-testing machine, the combination with a series of rollers and a stationary support therefor, of an endless conveyer leading toward under and away from said rollers, and means for rotating the rollers, substantially as described.

4. In an egg-testing machine, the combination with a support comprising a pair of side frames, of a series of rollers journaled in said side frames, an endless conveyer-belt leading toward under and away from said rollers, said conveyer-belt forming the ends and bottom of a well or chamber, and means for rotating the rollers, substantially as described.

5. In an egg-testing machine, the combination with a support comprising a pair of side frames, of an endless conveyer-belt extending substantially horizontal at opposite ends of the support and depressed at its central portion whereby it forms the ends and bottom of a well or chamber, and means over such well or chamber adapted to receive eggs from the said conveyer-belt, substantially as described.

6. In an egg-testing machine, the combination with a support comprising a pair of side frames, of an endless conveyer-belt extending substantially horizontal at opposite ends of the support and depressed at its central portion whereby it forms the ends and bottom of a well or chamber, and means over said well or chamber adapted to receive and transport eggs from the said conveyer-belt, substantially as described.

7. In an egg-testing machine, the combination with a fixed supporting-frame, of a series of rollers arranged side by side journaled therein, said rollers being located in different horizontal planes, and a conveyer for conducting eggs to said rollers, substantially as described.

8. In an egg-testing machine, the combination with a fixed supporting-frame, of a series of rollers arranged side by side journaled therein, said rollers being located in different horizontal planes, means for rotating said rollers, and a conveyer for conducting eggs to the rollers, substantially as described.

9. In an egg-testing machine, the combination with a fixed supporting-frame, of a series of rollers journaled therein adapted to support eggs placed thereon, said rollers being located in different horizontal planes, means for rotating two adjacent rollers at different speeds, and a conveyer for conducting eggs to the rollers, substantially as described.

10. In an egg-testing machine, the combination with a supporting-framework having a light-chamber formed therein, of a series of rollers journaled over said light-chamber, said rollers being located in different hori-

zontal planes, means for rotating the end rollers at one speed and intermediate rollers at another speed, and a conveyer for conducting eggs to the rollers, substantially as described.

11. In an egg-testing machine, the combination with a supporting-framework having a light-chamber formed therein, of a series of rollers journaled over said light-chamber, the axes of said series being in an inclined plane, and a conveyer for conducting eggs to the lowermost roller, substantially as described.

12. In an egg-testing machine, the combination with a supporting-framework having a light-chamber formed therein, of a series of rollers journaled over said light-chamber, the axes of said series being in an inclined plane, a conveyer for conducting eggs to the lowermost roller, and means for rotating the rollers, substantially as described.

13. In an egg-testing machine, the combination with a supporting-framework having a light-chamber formed therein, of a series of rollers journaled over said light-chamber, and a conveyer-belt for conducting eggs to the rollers, one face of said conveyer-belt being divided longitudinally into a plurality of spaces, substantially as described.

14. In an egg-testing machine, the combination with a well or chamber and a lighting means therein, of a series of rollers over said well or chamber, said rollers being located in different horizontal planes, and a conveyer for conducting eggs to said rollers, substantially as described.

15. In an egg-testing machine, the combination with a well or chamber and a lighting

means therein, of a series of rollers over said well or chamber, said rollers being located in different horizontal planes, and a conveyer for conducting eggs to and away from said rollers, said conveyer extending under said rollers, substantially as described.

16. In an egg-testing machine, the combination with a well or chamber and a lighting means therein, of a series of rollers over said well or chamber, said rollers being located in different horizontal planes, means for rotating said rollers, and a conveyer for conducting eggs to and away from said rollers, said conveyer extending under said rollers, substantially as described.

17. In an egg-testing machine, the combination with a well or chamber and a lighting means therein, of a series of rollers over said well or chamber, said rollers being located in different horizontal planes, means for rotating some of the rollers at a less speed than the others, and a conveyer for conducting eggs to and away from said rollers, said conveyer extending under said rollers, substantially as described.

18. In an egg-testing machine, the combination with a series of rollers located in different horizontal planes, of a conveyer for conducting eggs to and away from said rollers, said conveyer extending under said rollers and forming the end walls and bottom of a light-chamber, substantially as described.

ALEXANDER I. McTAGGART.

Witnesses:

THOS. M. FAGAN,
WILLIAM H. DE BUSK.