

No. 767,086.

PATENTED AUG. 9, 1904.

J. P. SCOVILL.

MACHINE FOR SHELLING PEAS, BEANS, OR THE LIKE.

APPLICATION FILED MAY 28, 1903.

NO MODEL.

2 SHEETS—SHEET 1.

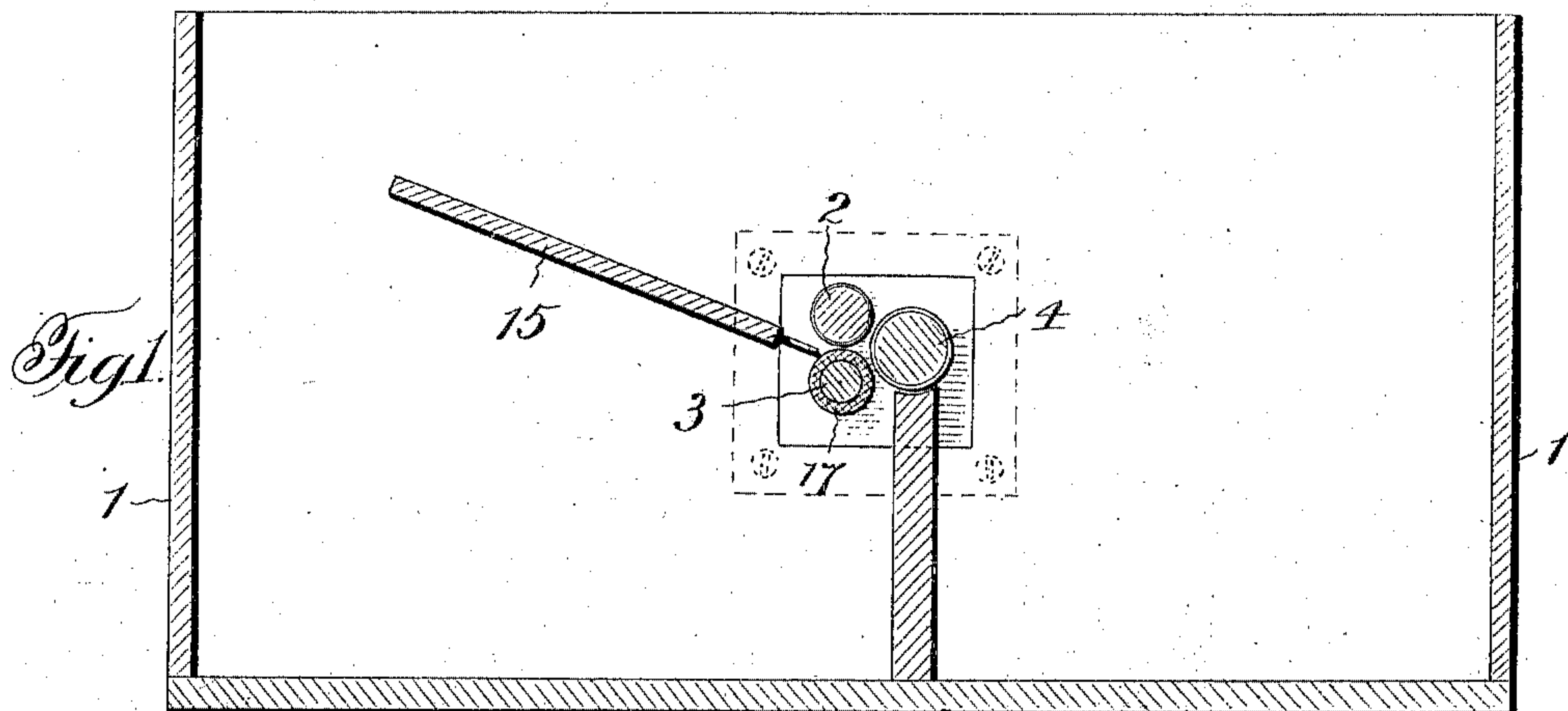


Fig. 3.

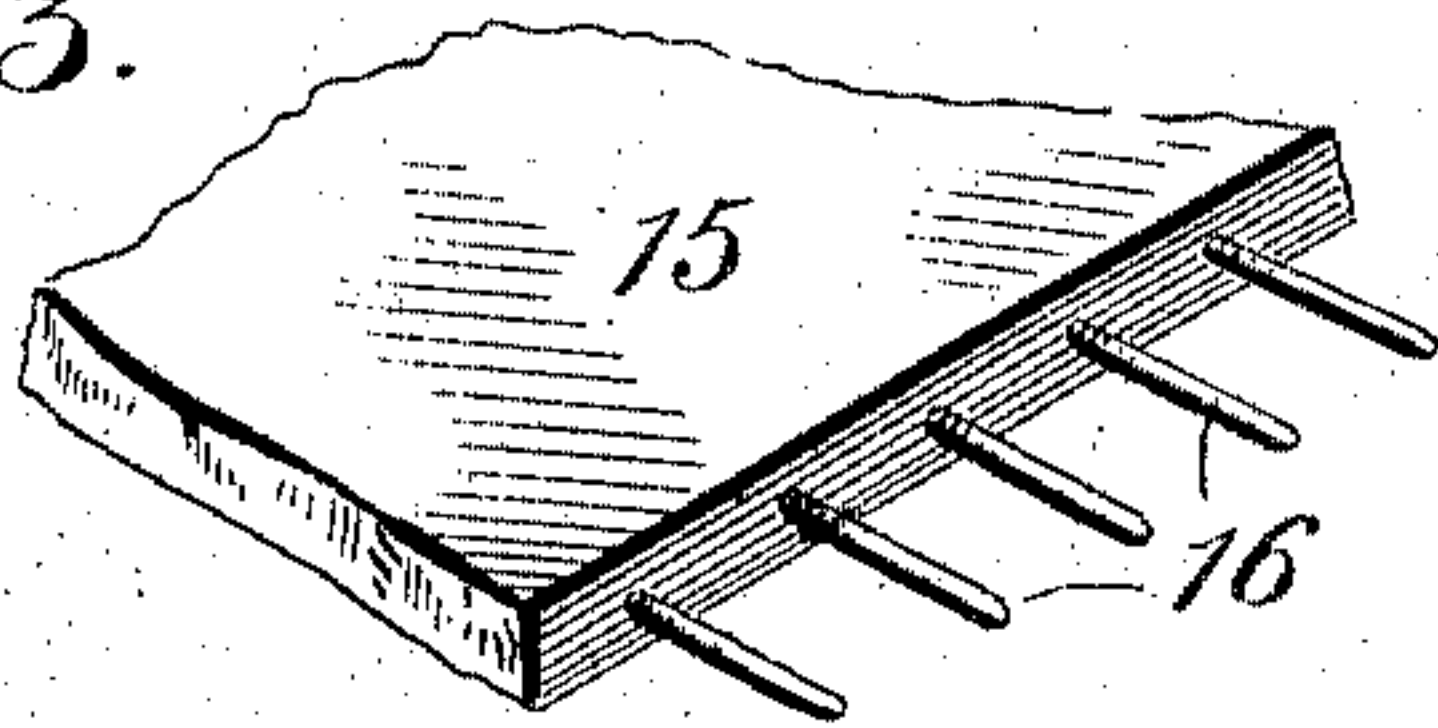


Fig. 2.

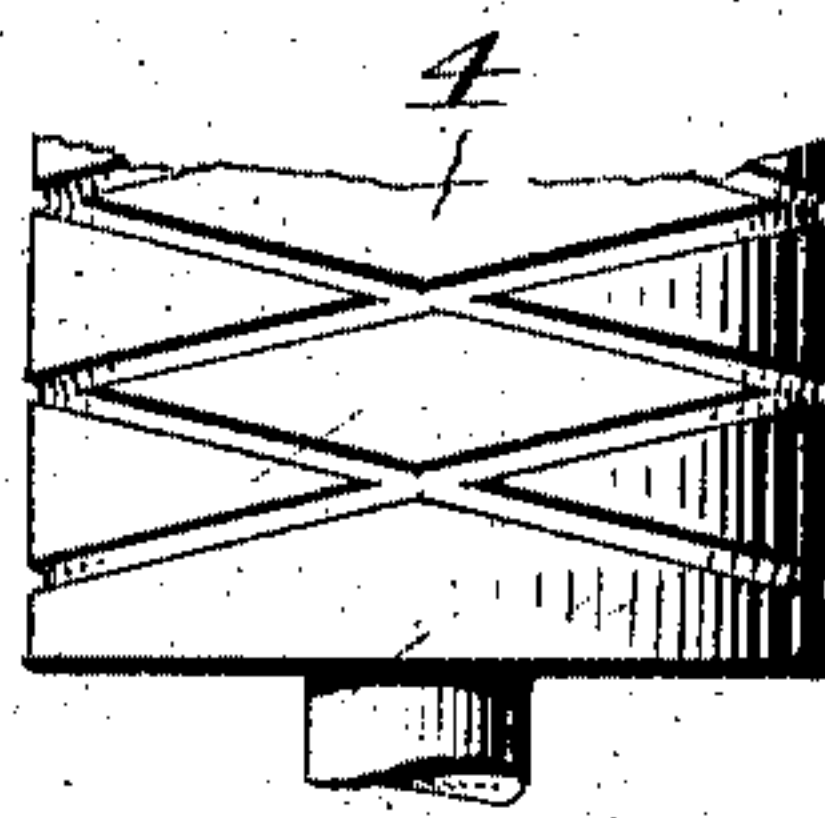
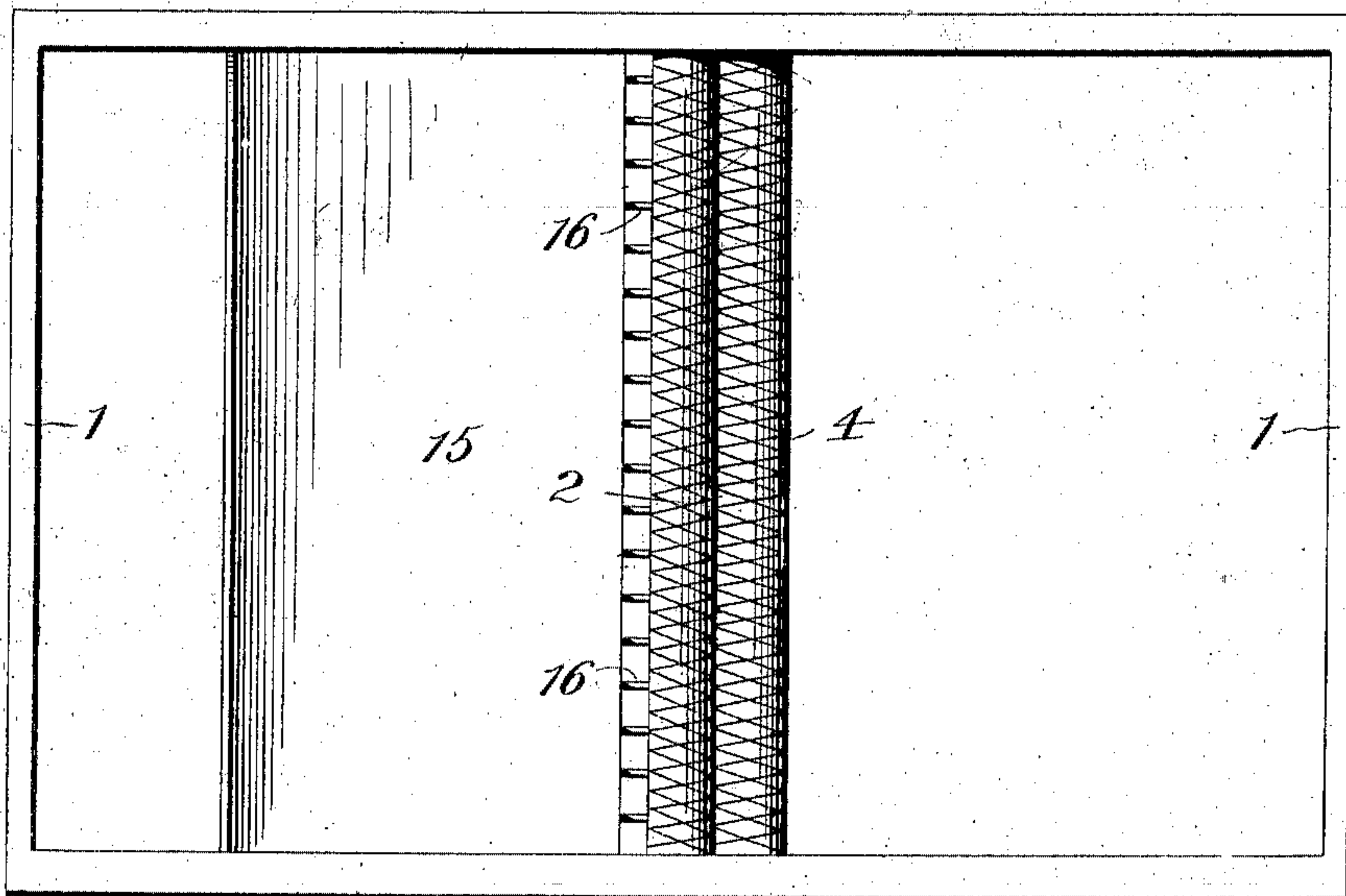


Fig. 4.



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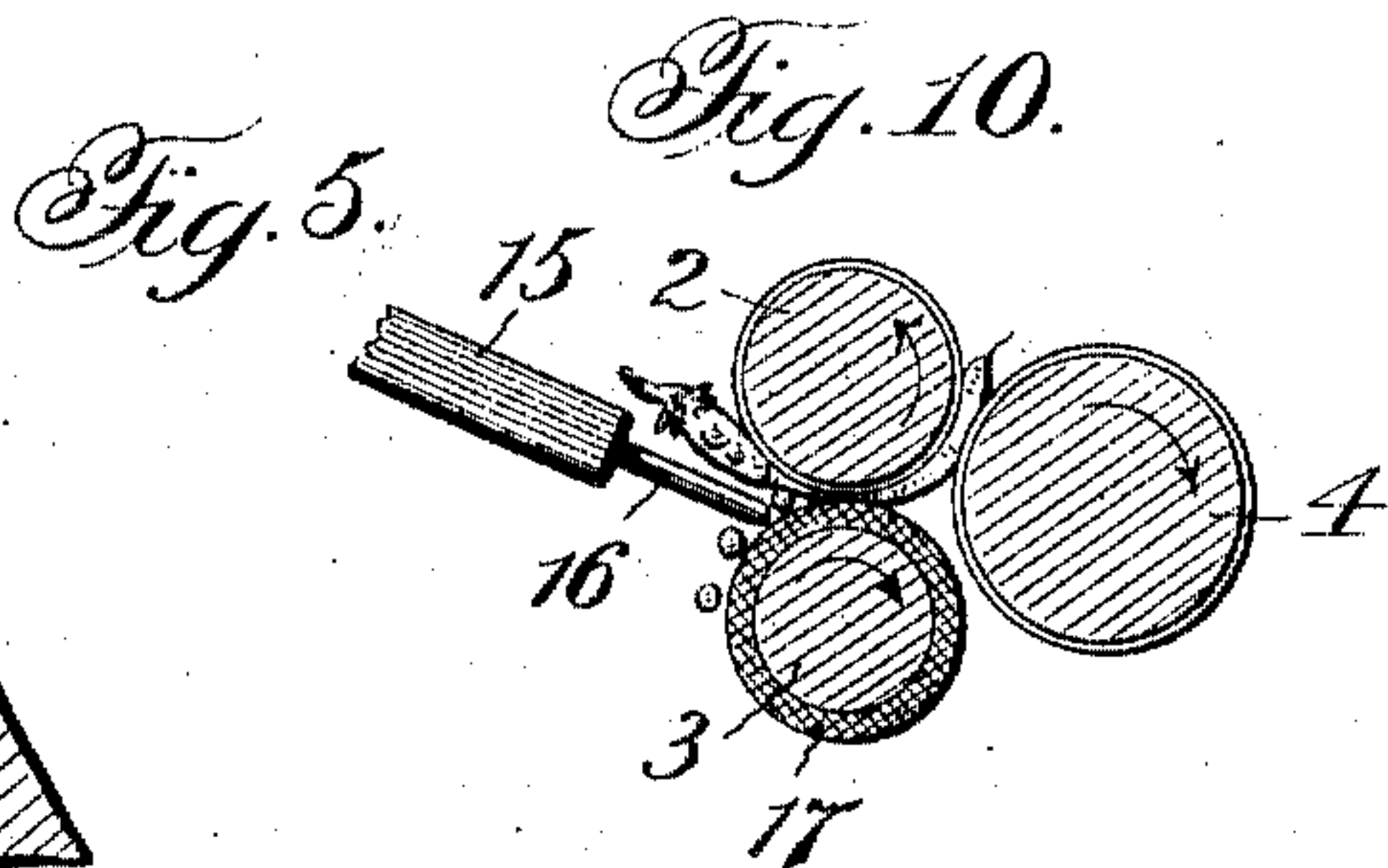
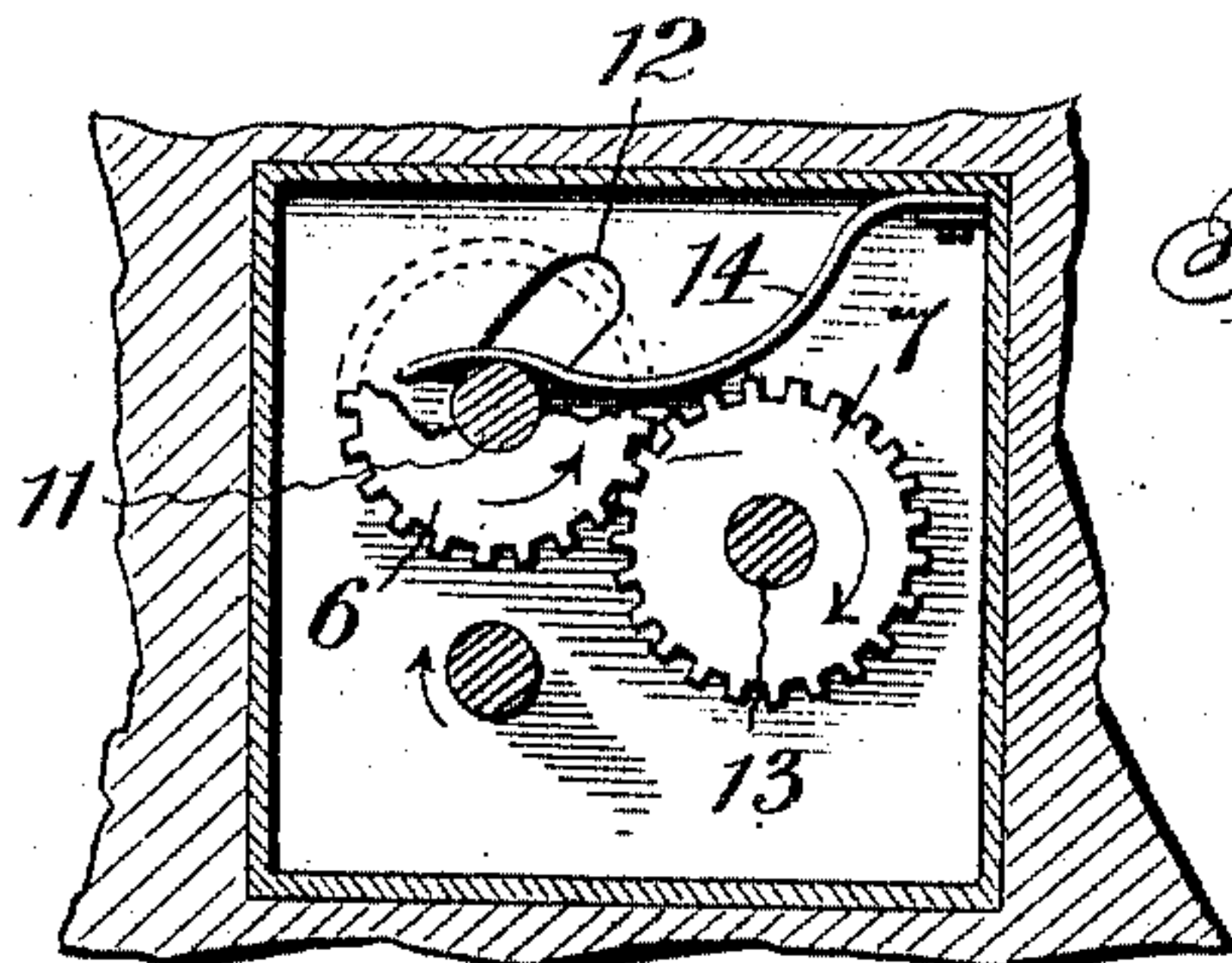


Fig. 6.

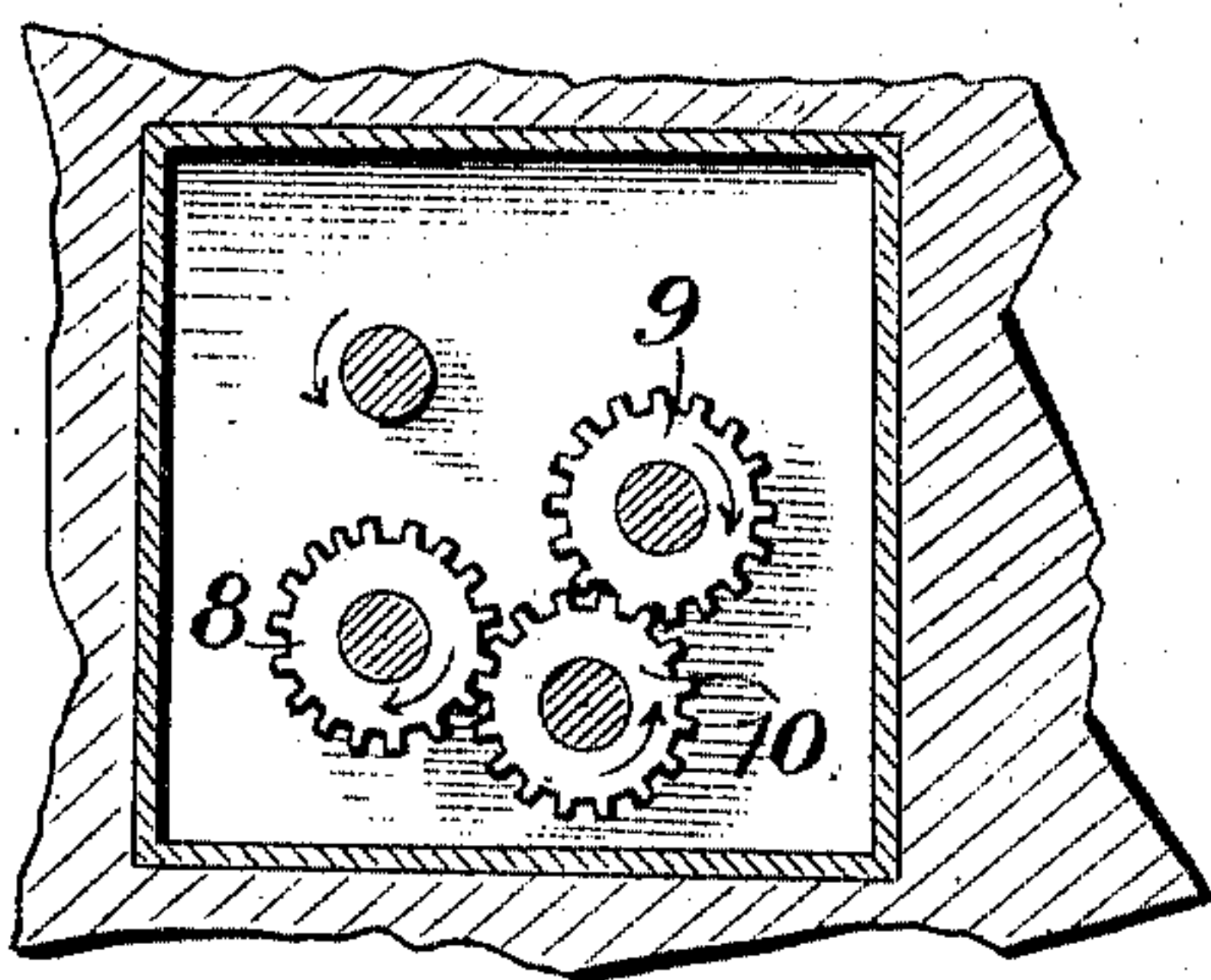


Fig. 9.

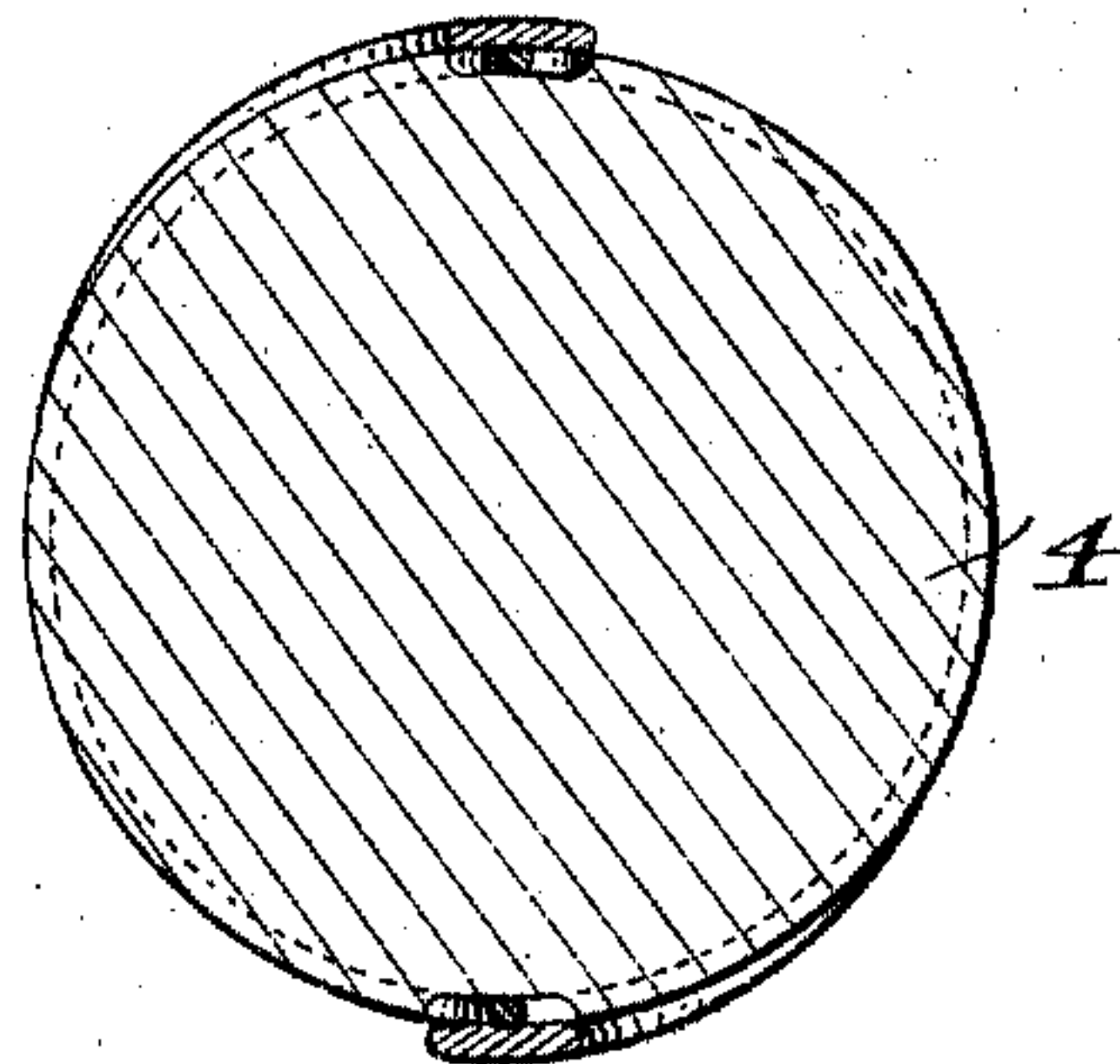
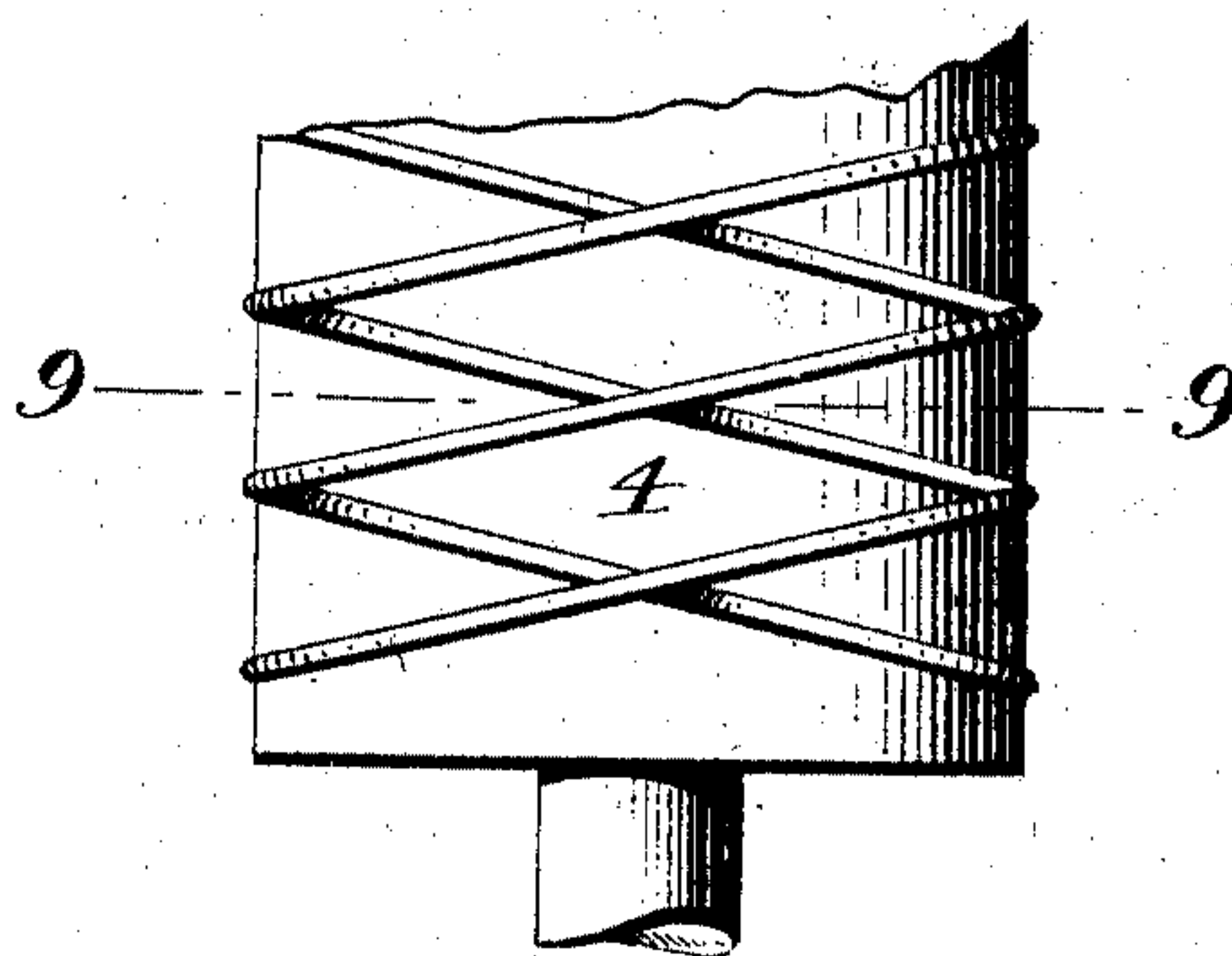
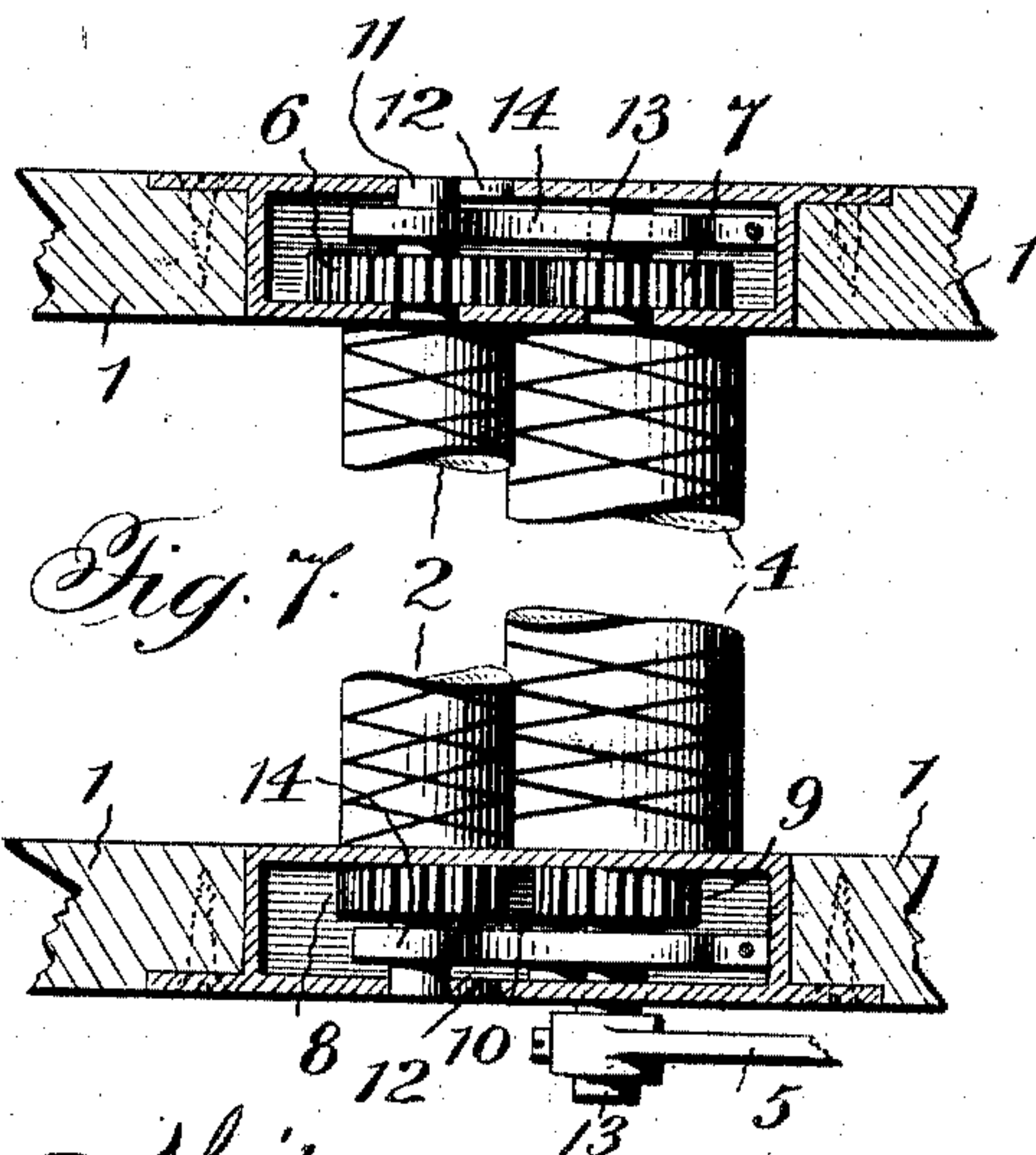


Fig. 8.



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UNITED STATES PATENT OFFICE.

JAMES P. SCOVILL, OF WYOMING, OHIO.

MACHINE FOR SHELLING PEAS, BEANS, OR THE LIKE.

SPECIFICATION forming part of Letters Patent No. 767,086, dated August 9, 1904.

Application filed May 28, 1903. Serial No. 159,145. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. SCOVILL, of Wyoming, Hamilton county, Ohio, have invented certain new and useful Improvements in Machines for Shelling Peas, Beans, or the Like, of which the following is a specification.

This invention relates to improvements in machines for shelling peas, beans, and other legumes by the use of shelling-rollers which apply pressure to the pods progressively and in such manner as to split the pods and squeeze the peas or beans from them. One of the difficulties of this plan of operation is that if made large enough in diameter to readily catch the pods the rolls are apt to crush the peas or beans, while if made small enough in diameter to do their work without this crushing the rolls frequently fail to properly catch or take hold of the pods and the machine clogs. As a means of obviating this difficulty the present improvement contemplates providing one or more of the shelling-rolls with crossed helical threads, which will serve to catch the pods and draw them between the rollers. In its most approved form such screw-threads will be provided by grooving the roller helically in opposite directions and then winding a wire in each of the grooves, so that it will be held firmly against the displacement, but will project out of the grooves far enough to form distinct ribs which will cross each other at frequent intervals in a diamond pattern well calculated to catch the surface of the pod. The opposing rolls may be provided with such crossed screw-threads; but a very satisfactory feeding action may be obtained if only one of the rolls is thus constructed, especially if the opposing roll be made of rubber or provided with a resilient yielding surface. In any case the feeding-in or shelling rolls proper will be of small diameter, usually not over one inch or thereabout, and will be mounted to rotate in opposite directions and with their adjacent surfaces quite close together or actually in contact with each other. In the approved construction herein shown the upper of the two shelling-rolls is provided with crossed screw-threads of the character above mentioned, while the lower roll is smooth, but has its sur-

face covered with rubber or like elastic substance capable of yielding to fit, as it were, the screw-threaded surface of the upper roll. One of these two rolls—the upper one, as herein shown—is yieldingly mounted with respect to the other, but has springs applied so as to normally hold it against the opposing roll, and the two rolls are geared together, so that their proximate surfaces move in the same direction and tend to draw in the pods, which are fed against their entering side. Such two rolls alone will suffice to accomplish the desired shelling action; but as a further improvement it has been found advisable to provide a third roll directly behind the other two and in such proximity to them that the pods passing between the first two rolls will be sharply deflected and caused to break, and thus more readily permit the egress of the peas or beans from the pods.

The object of the invention is to provide an improved construction in devices of the character referred to; and it consists in the matters herein set forth, and particularly pointed out in the appended claims, which will be fully understood from the following description of the construction illustrated in the accompanying drawings, in which—

Figure 1 is a sectional side elevation of a pea-shelling machine embodying my invention in one form. Fig. 2 is a top plan view thereof. Fig. 3 is a perspective detail of the feed plate or board. Fig. 4 is a detail of a helically-grooved feeding-roller. Fig. 5 is a sectional detail showing the driving-gearing for the upper feed-roll. Fig. 6 is a similar view showing the driving-gear for the lower feed-roll. Fig. 7 is a top plan detail showing the driving-gearing for both the upper and the lower feed or shelling rolls. Fig. 8 is an enlarged detail of the more approved construction of crossed threads on the upper shelling-roll. Fig. 9 is a sectional detail thereof, taken on the line 9-9 of Fig. 8. Fig. 10 is a sectional detail showing the action of the third roll in bending the pods so as to break them.

In said drawings, 1 designates any suitable box or receptacle between the opposite sides

of which are journaled a pair of shelling-rolls 2 and 3, as well as a third deflecting-roll, 4, the latter being herein shown as somewhat larger in diameter than the other two. The shelling-rolls 2 and 3 are arranged with their axes in the same vertical plane in this instance, while the third roll is directly behind and about opposite the opening between them. Any suitable driving device or connection, such as a crank 5, is applied to the rolls, and in this instance to the third roll 4, which is made to drive the other two rolls by suitable intermeshing gearing. For the upper roll 2 this gearing is direct—*i. e.*, it consists of two spur-gears 6 and 7, mounted directly upon the shafts of the rolls 2 and 4 and intermeshing with each other, so as to drive the rolls in opposite directions, Fig. 5. For the lower roll 3 the gearing comprises spur-gears 8 and 9, fixed directly to the shafts of the rolls 3 and 4, but intermeshing with an idle gear 10, by which the direction of rotation of the roll 3 is reversed from that of the upper roll 2, Fig. 6. The object of thus separating the gearing for driving the two shelling-rolls is to permit one of them to be movably mounted with relation to the other without disturbing their driving connections. Accordingly in the present instance the ends of the upper roll-shaft 11 are journaled in slots 12, and springs 14 are applied to normally hold this roll down against the lower feed-roll 3. These springs will yield, however, to permit a separation of these rolls in case the character of the pods or vines passing between them should require it, and by making the slots 12 concentric to the shaft 13 of the roll 4, to which the roll 2 is directly geared, as above described, this movement of the roll 2 may be permitted without any interference with the driving action of the roll 4 or any disturbance of the continuous and opposite rotation of the two shelling-rolls 2 and 3.

In the use of this machine the pods will be fed between the shelling-rolls 2 and 3 on their entering side by any suitable feed mechanism or guide, such as the table 15, Figs. 1 and 2, which is herein shown as extending downward toward the rolls at a considerable angle to the horizontal and as terminating at its edge near the rolls in a series of fingers 16, Fig. 3, across which the pods will slide, but between which the peas or beans may drop into the bottom of the box beneath. In the smaller machine, intended for domestic purposes and for restaurants, hotels, and the like, picked pods only will be introduced; but in the more elaborate machines intended for canneries the entire vine, as well as the pod, may be passed between the rolls. In either case the action of the shelling-roll will be to apply pressure progressively along the pods, so as to split them and force the peas or beans out

on the entering side of the roll, where they will drop down between the fingers 16. This action will be greatly aided by the presence of the third roll, 4, the direction of movement of which is herein shown as opposite to that of the upper roll 2, so that the pods will be carried upwardly between these rolls at an acute angle to the direction at which it entered the rolls 2 and 3 from the inclined feed-table 15, with the result that they will tend to be broken open on their under side in such manner as to permit the peas to more readily escape from them.

The upper shelling-roll 2 is herein shown as provided with crossed screw-threads, Figs. 4 and 8, which serve, as hereinbefore stated, to grip the surfaces of the pod and positively draw them in between the rolls. The lower shelling-roll 3 is not in this instance thus constructed, but is provided with a rubber surface 17, which will yieldingly cooperate with the threaded surface of the upper roll 2 in its gripping action upon the pods. In a simpler form the crossed threads of the upper roll may be made by simply grooving the roll helically right and left after the manner shown in Fig. 4. In a further development of the invention the roller will first be grooved in this manner and then afterward applied with a wire thread, which will be wrapped about the roller with its inner portion occupying the grooves, as shown in Figs. 8 and 9. The latter construction is somewhat more expensive, but is preferred as giving a more positive grip to the roll by which the continuous feeding into the pods is rendered more certain and the clogging of the machine prevented notwithstanding the small diameter of the rolls employed. It will, however, be understood that any form of crossed threading or grooving tends strongly in this direction and is comprehended within the broad spirit of my invention.

I claim as my invention—

1. A roll for shelling peas, beans, and the like, provided with continuous intersecting right and left hand helical ribs, substantially as described.

2. A roll for shelling peas and the like, provided with intersecting right and left hand threads formed by wires inserted in helical grooves in the rolls, substantially as described.

3. In a machine for shelling peas, beans, and the like, the combination with a pair of closely-adjacent rolls, geared to rotate in opposite directions, one of said rolls being provided with helical ribs, means for resiliently pressing the rolls together, of a third roll arranged behind and opposite the opening between the other two rolls, substantially as described.

4. In a machine for shelling peas, beans, and the like, the combination with upper and lower rolls geared to rotate together in oppo-

site directions, one of said rolls being resilient and the other being provided with helical threads, of a third roll mounted behind and opposite the opening between the first two rolls and geared to rotate in the same direction as the lower roll, substantially as described.

5. In a machine for shelling peas, beans, and the like, the combination with upper and lower shelling-rolls geared to rotate in opposite directions, one of said rolls being resilient and the other being provided with right and left helical ribs, of an inclined feed-table extending downwardly toward the rolls to discharge the pods between them on the entering side, and a third roll arranged behind and opposite the other two rolls and geared to rotate in the same direction as the lower roll, substantially as described.

6. In an apparatus of the class described, the combination of a pair of closely-adjacent rolls geared to rotate in opposite directions, one of the rolls being ribbed, means for resiliently pressing the rolls together, and of a deflecting device arranged behind and opposite the opening between said rolls, substantially as described.

7. In an apparatus of the class described, the combination of a pair of closely-adjacent rolls geared to rotate in opposite directions, one of said rolls being provided with intersecting right and left hand continuous ribs, and a deflecting device arranged behind and opposite the opening between said rolls, substantially as described.

8. In an apparatus of the class described, the combination of a pair of closely-adjacent rolls geared to rotate in opposite directions, one of said rolls being provided with intersecting right and left hand continuous ribs, substantially as described.

9. In an apparatus of the class described, the combination of a pair of closely-adjacent rolls geared to rotate in opposite directions, one of said rolls being provided with intersecting right and left hand threads, and the other roll being provided with a resilient surface, substantially as described.

10. In an apparatus of the class described, the combination of a pair of closely-adjacent shelling-rolls, one of said rolls being provided with grasping means consisting of continuous helical threads on its face and the other of said rolls being provided with a resilient surface and means for resiliently pressing the rolls together.

11. In an apparatus of the class described, the combination with upper and lower rolls geared to rotate in opposite directions, one of said rolls being provided on its face with intersecting right and left hand rounded ribs, of a third roll mounted behind and opposite the opening between said first two rolls and geared

to rotate in the same direction as one of said rolls, substantially as described.

12. In an apparatus of the class described, the combination with upper and lower shelling-rolls geared to rotate in opposite directions, one of said rolls being provided with intersecting right and left hand ribs on its surface, of an inclined feed-table extending downwardly toward the rolls to discharge the pods between them on the entering side, and a third roll arranged behind and opposite the other two rolls and geared to rotate in the same direction as one of said rolls, substantially as described.

13. In an apparatus of the class described, the combination of a pair of shelling-rolls one of which is provided with intersecting right and left hand ribs formed by wires inserted in helical grooves in the roll, and the other of which is provided with a resilient face.

14. In an apparatus of the class described, the combination of a pair of shelling-rolls and means for rotating them in opposite directions, one of said rolls being provided with a resilient face and the other being provided with continuous intersecting right and left hand threads, substantially as described.

15. In an apparatus of the class described, the combination of a pair of shelling-rolls, one of them being resiliently pressed toward the other, a third roll behind said shelling-rolls, means for directly gearing the rear roll to the resiliently-pressed roll at one end, and means at the other end for indirectly gearing said rear roll to the other shelling-roll, substantially as described.

16. In an apparatus of the class described, the combination of a pair of shelling-rolls one of which is provided with intersecting right and left helical threads, and a deflecting-roll journaled at the exit side of said shelling-rolls and provided with projections on its face, for the purpose set forth.

17. In an apparatus of the class described, the combination of a pair of shelling-rolls, one of them being resiliently pressed toward the other, a third roll behind said shelling-roll means for directly gearing the rear roll to one of the shelling-rolls at one end, and means at the other end for indirectly gearing said rear roll to the other shelling-rolls.

18. In an apparatus of the class described, the combination of a pair of shelling-rolls, one of which is provided with helical threads on its surface and the other of which is provided with a resilient surface, a third roll behind said shelling-rolls, means for directly gearing the rear roll to one of the shelling-rolls and means at the other end for indirectly gearing said rear roll to the other shelling-rolls.

19. In an apparatus of the class described, the combination of a pair of closely-adjacent shelling-rolls, and means for rotating them in

opposite directions, one of said rolls being
provided with a substantially continuous heli-
cal thread and the other of said rolls being
provided with a resilient surface, for the pur-
5 pose set forth.

In testimony that I claim the foregoing as
my invention I affix my signature, in presence

of two subscribing witnesses, this 11th day of
May, A. D. 1903.

J. P. SCOVILL.

Witnesses:

HENRY W. CARTER,
K. A. COSTELLO.