

No. 880,325.

PATENTED FEB. 25, 1908.

N. PEARSE.
COTTON GIN.

APPLICATION FILED OCT. 11, 1905.

3 SHEETS—SHEET 1.

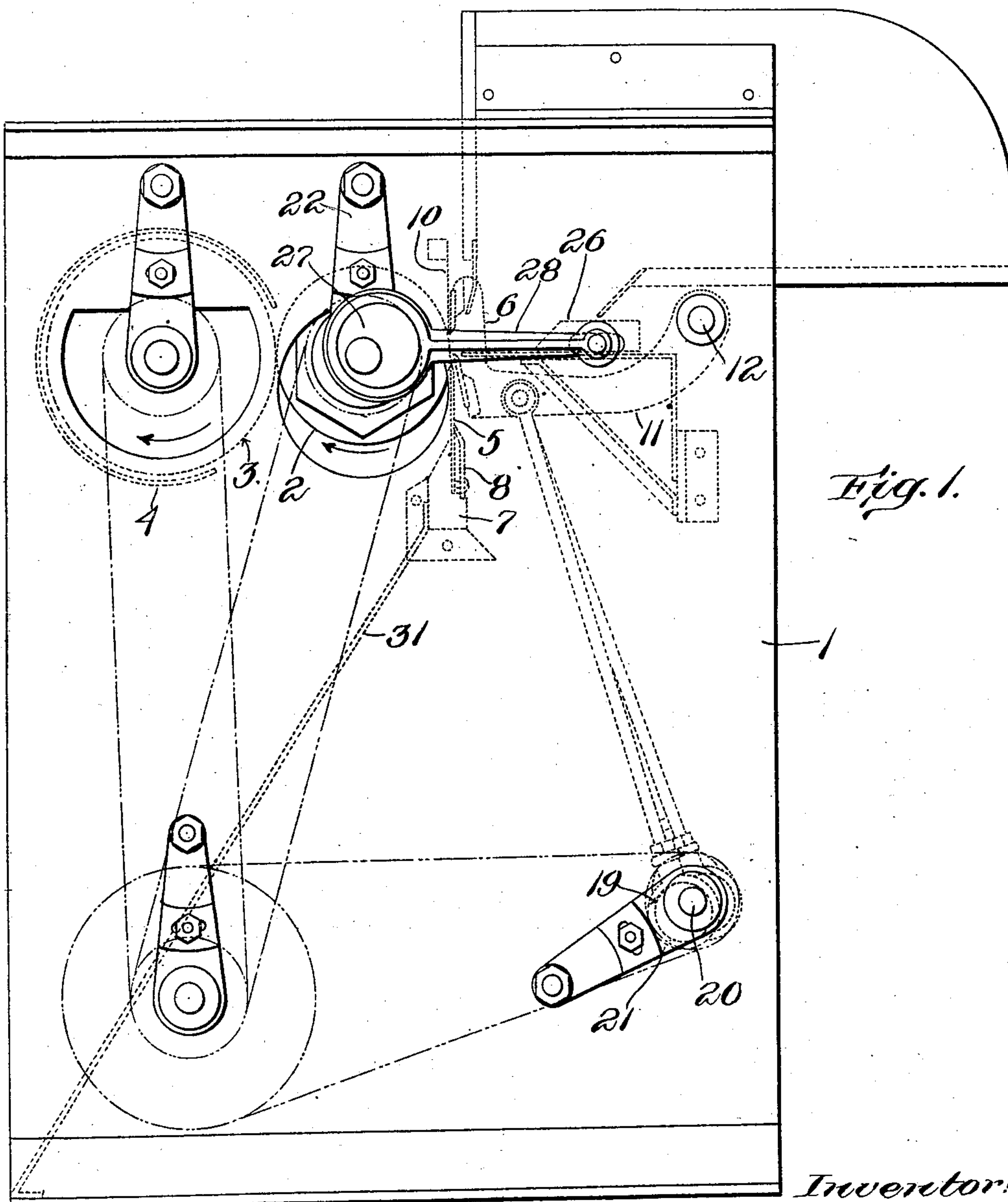


Fig. 1.

Witnesses:

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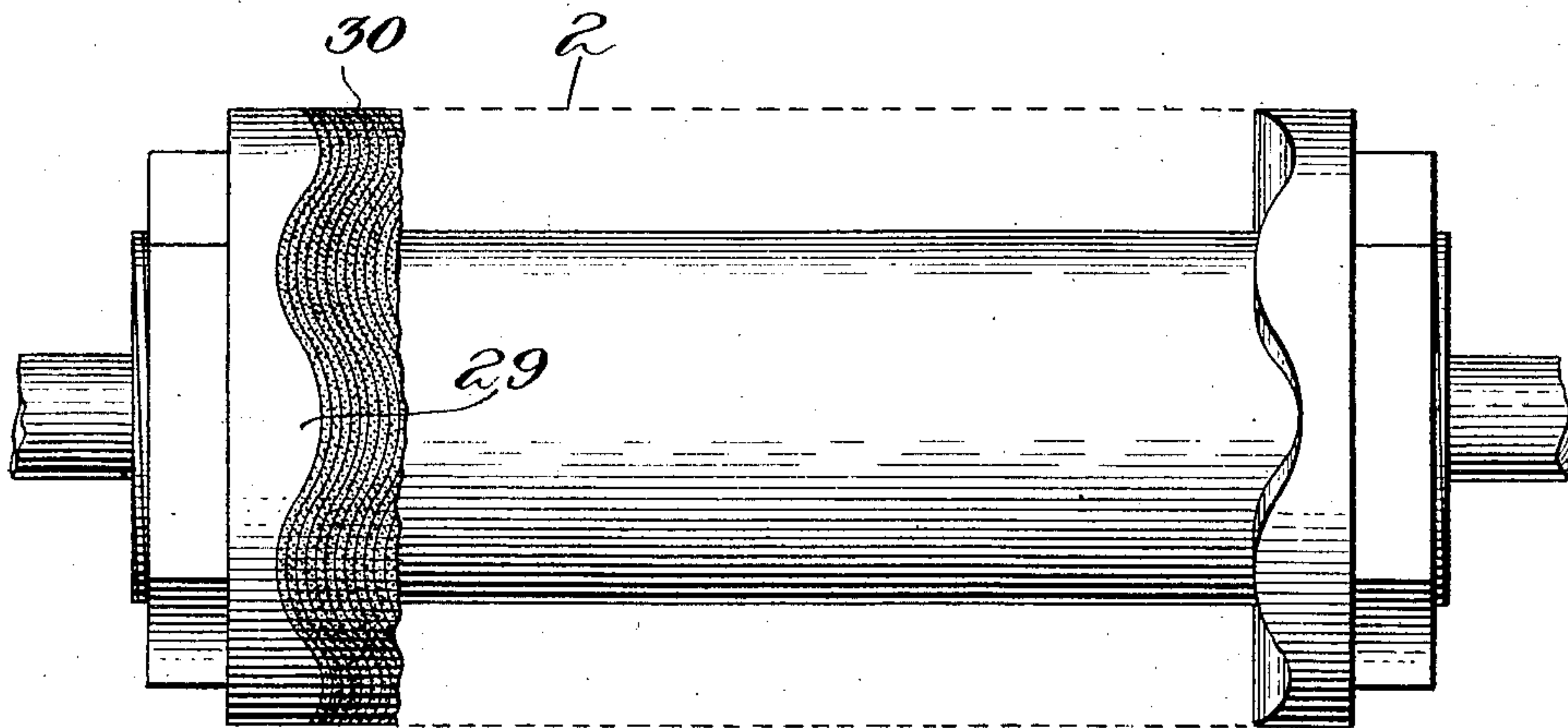
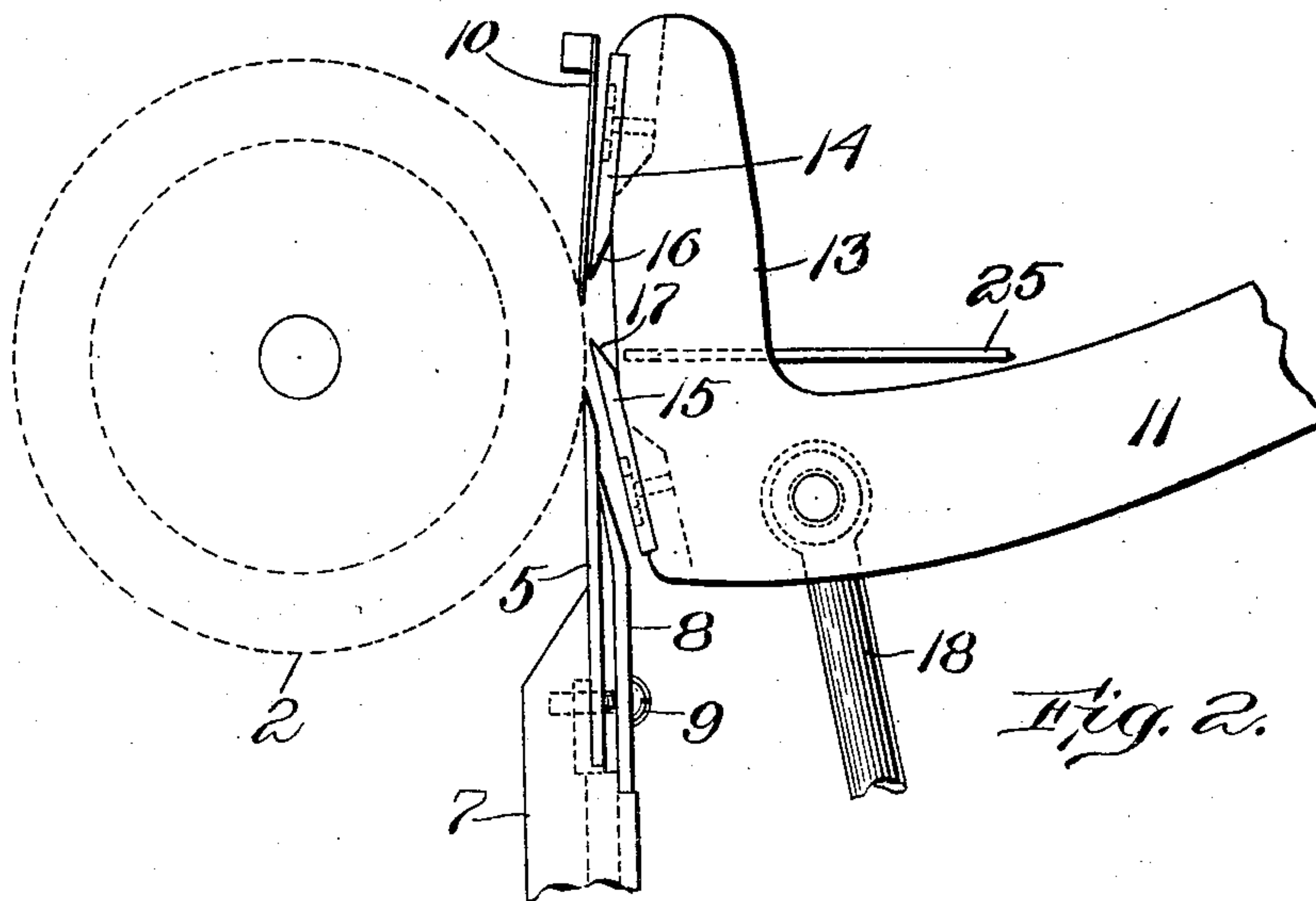


Fig. 3.

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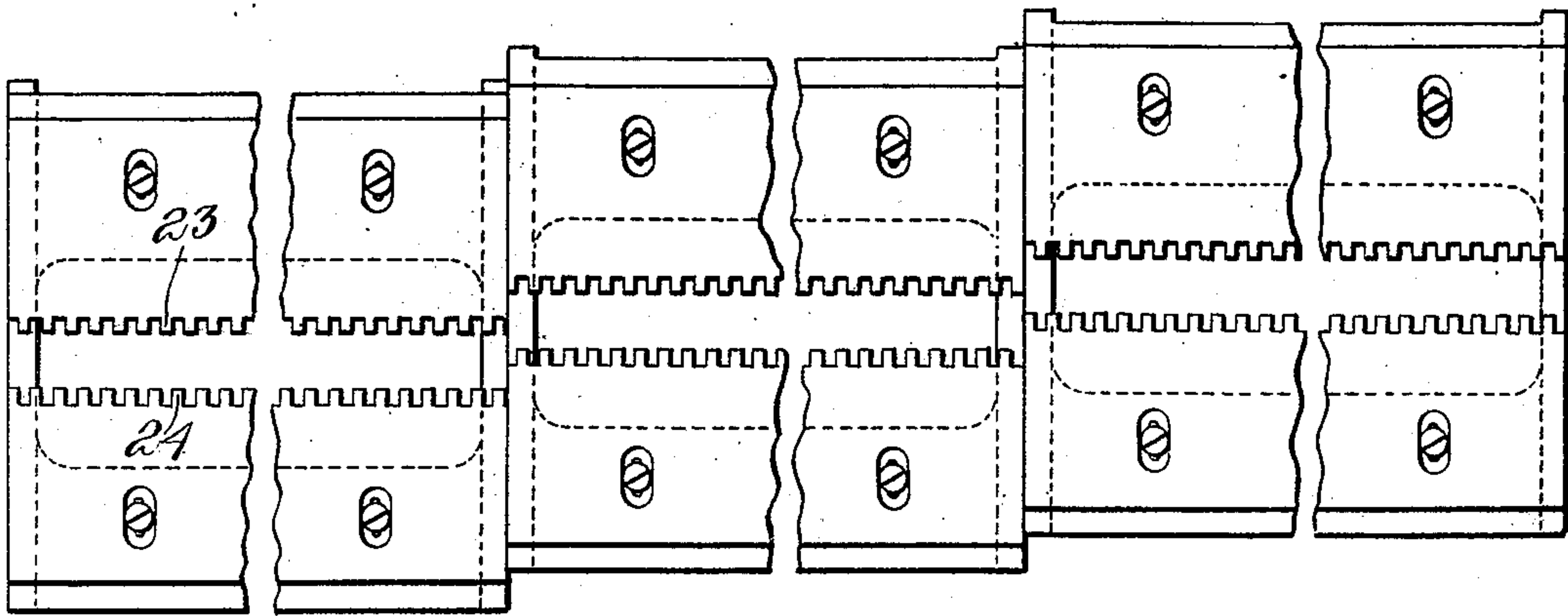


Fig. 4.

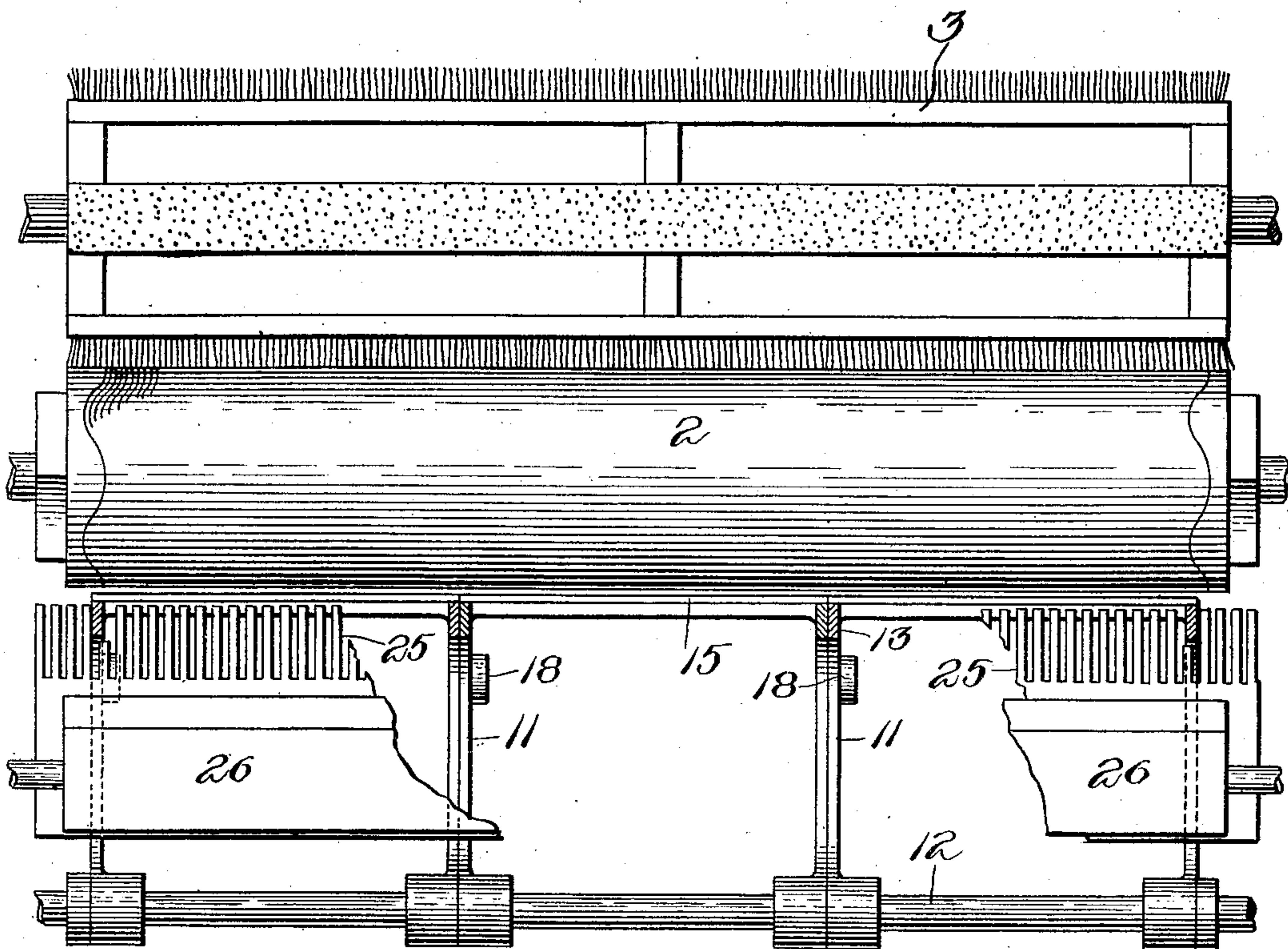


Fig. 5.

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UNITED STATES PATENT OFFICE.

NORMAN PEARSE, OF LONDON, ENGLAND.

COTTON-GIN.

No. 880,325.

Specification of Letters Patent.

Patented Feb. 25, 1908.

Application filed October 11, 1905. Serial No. 282,269.

To all whom it may concern:

Be it known that I, NORMAN PEARSE, residing at London, England, have invented an Improvement in Cotton-Gins, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention has for its primary object the provision of means for ginning and treating cotton and other fibers more effectively, rapidly, and economically, my invention residing principally in providing mechanism in connection with the roll of a roller gin, for producing a balanced, double-beater effect, or opposite reciprocating clearer action, whereby the seeds are tossed from one clearer to the other and are also preferably tumbled laterally until entirely denuded of staple.

In carrying out my invention I provide preferably a comb-like clearer made in a plurality of sections operating out of step with each other and arranged in pairs whose working edges face each other so that one comb or blade of each pair of clearers is always in action, thrusting its teeth forward through the cotton, while its companion comb or blade is retreating therefrom. In connection with this mechanism I provide a pusher and a special form of roll which coöperate to maintain a maximum feed of cotton at the ginning point of the apparatus.

In the drawings, in which I have illustrated one of many embodiments of which my invention is capable, Figure 1 is a view in side elevation, showing those parts of the machine to which my invention relates; Fig. 2 is an enlarged fragmentary detail, mainly in side elevation; Fig. 3 is a top plan view of the roll, partly broken away to show certain details thereof; Fig. 4 is a fragmentary view, in front elevation, of the clearer; and Fig. 5 is an enlarged fragmentary top plan view partly in section.

Mounted in a suitable frame 1 is a roll 2, at the rear of which is a brush-doffer 3 partially incased by a cotton retaining cover 4, and at the front of said roll is a doctor-knife 5 and clearer mechanism 6.

The doctor 5 consists of a usual thin, rigid blade which is herein shown as clamped in a block-support 7 by a guard 8 bolted thereto at 9. The knife 5 stands preferably vertically and is herein shown as mounted at the lower side of the clearer, although it may be otherwise mounted if preferred. Opposite

the knife 5 is a metal plate or guard 10 which coöperates with the roll in very much the same manner as the knife 5 having a thin knife edge like the latter and also serves to prevent seed, etc. from improperly escaping.

The clearer mechanism 6 comprises carrying arms 11 pivoted at 12 and terminating at their forward ends in uprights 13 to which are adjustably secured upper and lower transverse clearers or combs 14, 15 whose operative front edges 16, 17 face each other, being set with a short interval between them, as best shown in Figs. 2 and 4, so as to co-operate alternately with the roll 2. I provide a plurality of sets or pairs of these clearers or beater-blades 14, 15, each consisting of a number of sections working out of step with each other and with the other clearer, being reciprocated by any suitable means as by links 18 and eccentrics 19. The eccentric shaft 20 is supported in adjustable brackets 21 so as to vary the throw of the clearer with relation to the roll 2, and the roll is similarly mounted in an adjustable bracket 22 for varying its nip on the cotton.

As the clearers are reciprocated out of step with each other, it is obvious that not only will the several combs 15 be moving out of step and in different directions, but the opposing combs 14 will at the same time be performing an exactly reverse movement, thereby securing a maximum counterbalancing effect and eliminating vibration as far as possible. One or the other of each pair of clearers is doing work all the time, the comb 14 operating when the clearer is moving down, and the comb 15 operating when the clearer is moving up. Moreover, by having a double set of clearers facing each other, they maintain a constant agitation of the cotton, tending to keep the seeds rolling up and down as the fiber is pulled therefrom. To still further facilitate the latter operation, I provide an increased working surface capable of engaging more seeds than could be placed side by side in a direct line, the means herein shown consisting of providing teeth 23 on the combs 14, and teeth 24 on the combs 15 set out of line with each other, so that the teeth 23 come opposite the indentations between the teeth 24. This serves to increase the ginning edge of the beater-blades 14, 15 and gives a rapid shifting and tumbling movement to the cotton seeds. Also I prefer to have the teeth square, although for some purposes they

may be rounded, as the shoulders or corners tend to still further increase the efficiency of the ginning. Preferably the teeth and spaces between them are co-equal, being
5 slightly deeper than their width for increasing their rolling tendency.

The square-ended teeth present their flat ends or edges to the cotton and thereby get a positive ginning action, as distinguished
10 from a glancing or indirect blow, as would be the case if the sides were inclined or not flat-edged. Such an inclined edge or spike formation of teeth tends to twist the cotton and pull it together, which is injurious. Also,
15 by having the projections or teeth of one clearer opposite the spaces or indentations of the other, an even ginning results.

A usual grid 25 projects adjacent the ginning area of the roll and clearer for supporting the cotton, and the latter is maintained in proper ginning position by a feeder or
20 pusher 26 operated by eccentrics 27 on the roll shaft and links 28 extending therefrom. To still further facilitate the stripping of the fiber from the seeds, I arrange the fiber-catching points of the roll (the roll being of the kind composed of alternate rings or
25 layers of horse-hair cloth or the like and leather or other intermediate binding agent) in a wavy line which gives a superior gripping surface as the roll revolves. This may be accomplished in various ways, one means therefor being shown in Fig. 3, where it will
30 be seen that I provide a metal cap 29 having its inner surface provided with bulges or unevennesses, so that when the rings 30 of horse-hair cloth are clamped tightly in place the horse-hair points or ends will stand in a
35 wavy line, as clearly shown at 30. This coöperates with the lateral shifting tendency given to the cotton by the arrangement of teeth 23, 24, so that as the cotton shifts laterally to one side and the other, the grabbing points of the teeth shift like-
40 wise because of this wavy construction. As the cotton is ginned and doffed, it falls on an inclined chute 31. I have omitted as many details of the mechanism as possible in order that those portions of the machine which
45 constitute my invention will be more clearly apprehended.

In operation, the cotton is delivered by any suitable feeding mechanism to the gin and is kept constantly pushed forward by
55 the pusher 26, dirt and coarser debris falling through the grid 25, and as the fibers are caught by the rotating roll 2 and pulled under the doctor or knife 5, the seeds are instantly given an unrolling and stripping
60 movement from the fiber as the descending comb 14 enters the fiber behind the seeds. This movement takes place at successive periods along the length of the roll, due to the dissimultaneous forward movement of
65 the sections of the multi-part clearer. Im-

mediately thereafter as the comb 14 moves backward or up again, the opposite comb
15 engages the cotton behind the seeds on the lower side of the latter and repeats the same rolling and stripping movement but in
70 an opposite direction, rolling the seeds toward and over the guard 10. This reverse movement is also transmitted dissimultaneously throughout the length of the roll
75 because of the sectional character of the clearer. At the same time the seeds are tumbled or moved laterally to a slight extent because of the arrangement of the teeth of the opposite combs, so that a seed which
80 has been carried down between two teeth comes in contact, upon the return movement, with the end of an opposite tooth instead of being engaged by the adjacent sides of two teeth, and hence it receives a tendency to shift from one side or the other of
85 said tooth, said tendency being facilitated by the wavy, or zigzag arrangement of the grabbing points of the roll, as shown at 30. The cotton fiber itself is engaged by the extended stripping surface of the dentated
90 edges of the opposite combs, and as the latter are rapidly reciprocated and mutually engage the fiber, first on one side and then on the opposite side, as the fiber is slowly drawn in by the roll, the result is that an
95 extremely rapid and clean ginning takes place. The roll is kept clean by the doffer 3 in usual manner.

If it is desired to adjust the gin to take up wear or to accommodate it to a different variety of staple, the opposite combs may be
100 adjusted toward each other, or the entire clearer may be adjusted up or down with relation to the knife or doctor, the latter being tightened or loosened with relation to the
105 roll by the adjustment of the clamping plate or guard 8, and the roll 2 may be adjusted toward or from the clearer. I set the clearers so that the bottoms of the indentations of the clearers pass beyond the edge of the
110 knife, thereby increasing the rapidity of seed-stripping.

As already intimated, I do not intend to restrict myself to the constructional details herein shown, as many variations may be
115 resorted to within the spirit and scope of my invention. For instance, while I prefer to mount the opposite transverse clearers or combs on the same carrier and to maintain them invariably apart while working, yet,
120 except as otherwise specified in the claims, I do not restrict myself thereto.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a cotton gin or the like, a ginning roll, a doctor, an opposite guard plate having a knife edge adapted to strip the seed, said plate facing said doctor opposite the
125 roll, opposite clearers respectively adjacent
130

said doctor and guard plate, and operating mechanisms for said clearers operating to bring them alternately into coöperation with the doctor and the guard plate respectively.

5 2. In a cotton gin or the like, a ginning roll, a doctor, and opposite clearers moving approximately tangentially to the surface of the roll synchronously toward and from said doctor, each of said clearers being provided at its edge with teeth facing each other, said teeth being flat-ended, and the
10 teeth of one clearer being opposite the indentations of the opposite clearer and arranged to beat the cotton with relation to said doctor forward and laterally, thereby
15 rapidly beating and stripping the cotton from the seed.

3. In a cotton gin or the like, a ginning roll, a doctor, and opposite clearers moving

approximately tangentially to the surface 20 of the roll synchronously toward and from said doctor, each of said clearers being provided at its edge with teeth facing each other, said teeth being flat-ended, being approximately as wide as the opposite indentation, 25 the teeth of one clearer being opposite the indentations of the opposite clearer and arranged to beat the cotton with relation to said doctor forward and laterally, thereby rapidly beating and stripping the cotton 30 from the seed.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

NORMAN PEARSE.

Witnesses:

H. D. JAMESON,
A. NUTTING.