

No. 791,318.

PATENTED MAY 30, 1905.

W. S. CANNADAY.
DELINTING MACHINE.
APPLICATION FILED MAY 5, 1904.

2 SHEETS—SHEET 1.

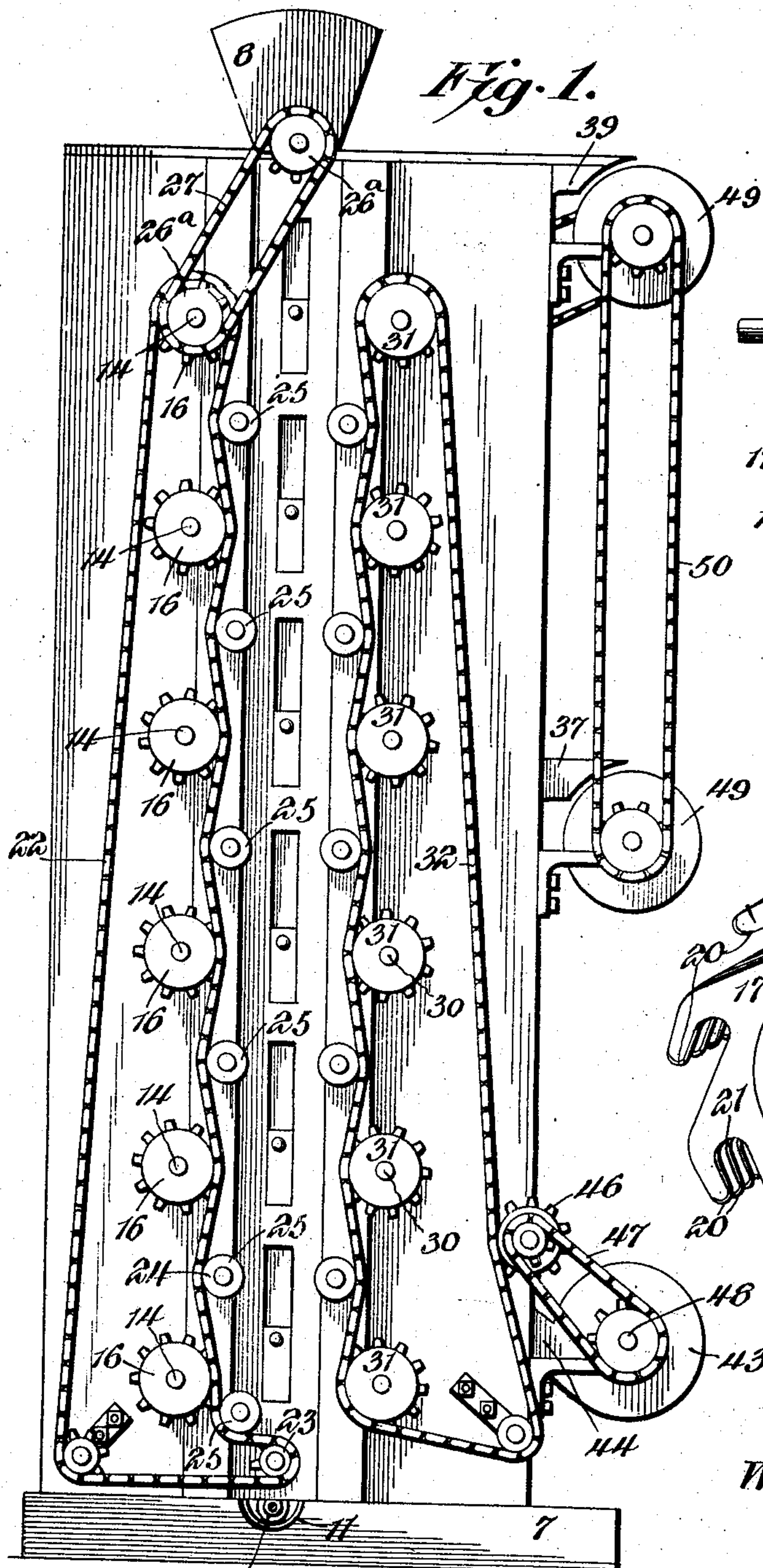


Fig. 4.

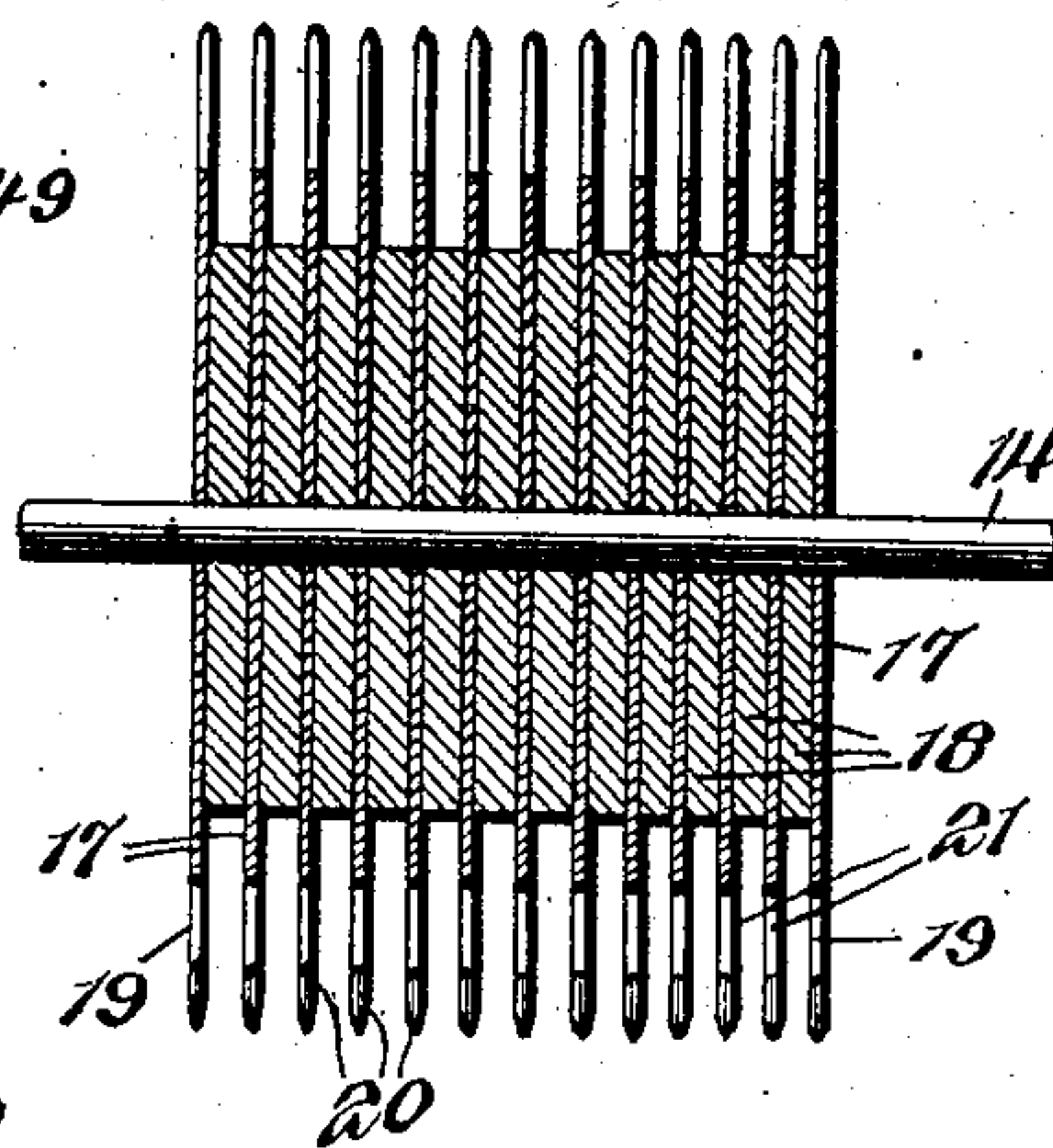
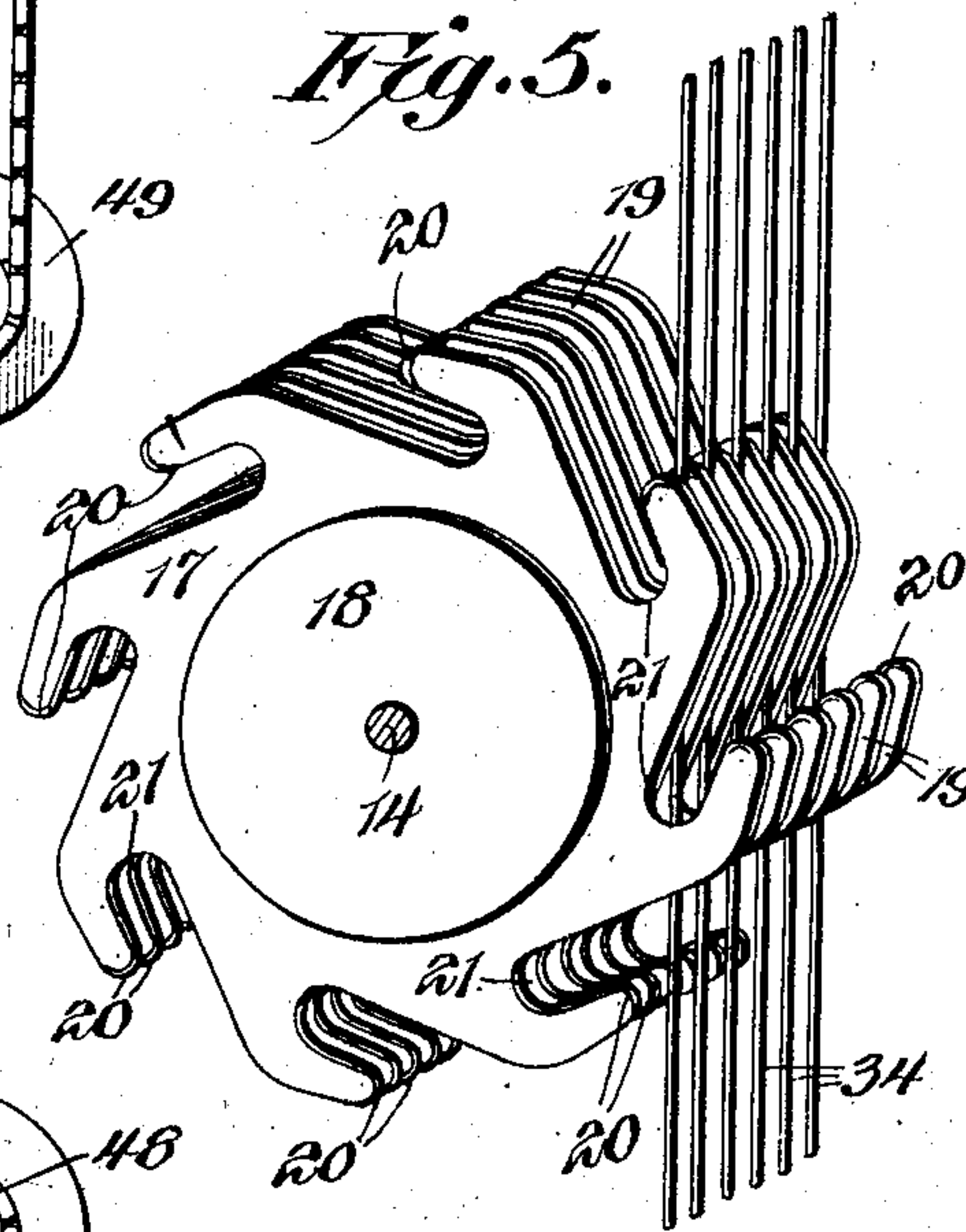


Fig. 5.



Winfield S. Cannaday,
Inventor,

Witnesses
Howard W. Orr.
B. G. Foster.

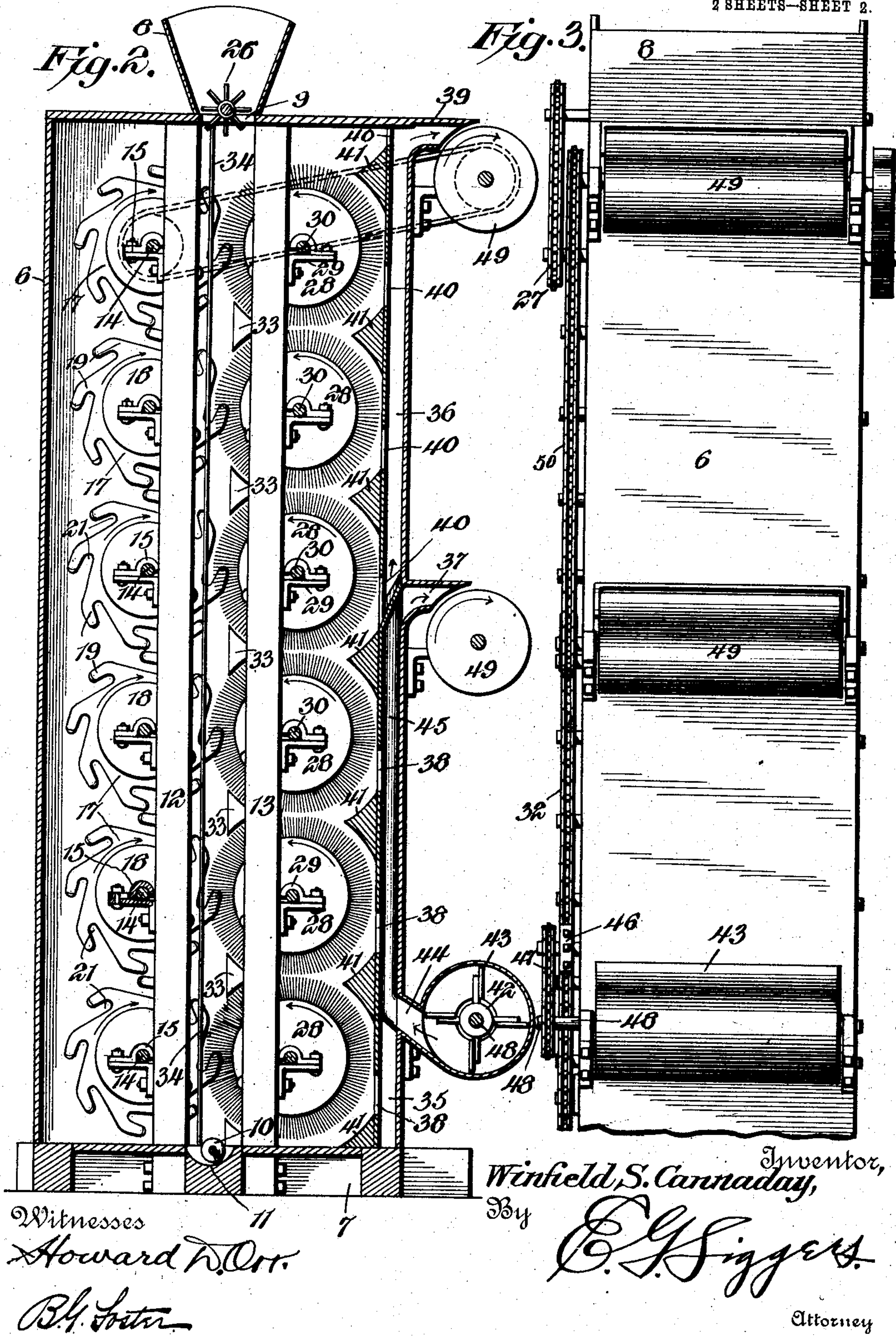
By
E. G. Siggers
Attorney

No. 791,318.

PATENTED MAY 30, 1905.

W. S. CANNADAY.
DELINTING MACHINE.
APPLICATION FILED MAY 5, 1904.

2 SHEETS—SHEET 2.



UNITED STATES PATENT OFFICE.

WINFIELD S. CANNADAY, OF WASHINGTON COURT-HOUSE, OHIO.

DELINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 791,318, dated May 30, 1905.

Application filed May 5, 1904. Serial No. 206,552.

To all whom it may concern:

Be it known that I, WINFIELD S. CANNADAY, a citizen of the United States, residing at Washington Court-House, in the county of Fayette and State of Ohio, have invented a new and useful Delinting-Machine, of which the following is a specification.

This invention relates to improvements in machines for removing the lint from cotton-seed; and the object is to provide a novel structure of a simple nature wherein the seeds are subjected to a thorough scouring to completely remove the lint therefrom without cracking or injuring said seed.

Another object is to provide a machine of this character that will occupy comparatively little floor-space and is so constructed and arranged that the parts are readily accessible for the purpose of repair and renewal.

Another and very important object is to construct the machine so that the different grades of lint will be automatically sorted and separately delivered, thereby securing a more valuable product.

The preferred embodiment of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a side elevation of the machine. Fig. 2 is a vertical sectional view therethrough.

Fig. 3 is an end elevation of said machine.

Fig. 4 is a detail sectional view through a portion of one of the retarding devices. Fig. 5

is a detail perspective view of one of said retarding devices, showing the arrangement of the retaining rods or wires.

Similar reference-numerals indicate corresponding parts in all the figures of the drawings.

In the embodiment illustrated an upright casing 6 is employed, comprising side walls, a top, and a bottom mounted upon a suitable base-frame 7. On the central portion of the top is mounted a hopper 8, the lower end of which is alined with an opening 9, formed in the top of the casing. The bottom of said casing directly beneath this hopper is provided with a suitable delivering device (shown in the form of a screw conveyer 10) that discharges the cleaned seeds to a spout 11, extending from the lower portion of the casing.

Within the casing are mounted spaced standards 12 and 13, located on opposite sides of the opening 9 and the conveyer-screw 10 and extending from the top to the bottom of said casing. On one of these standards, as 12, is supported a vertical series of retarding devices, which being duplicates but one need be described. A horizontally-disposed shaft 14 is journaled in suitable adjustably-supported boxes 15 and projects at one end through the casing. Upon the projecting end is mounted a suitable driver, shown in the present instance as a sprocket-wheel 16. The shaft carries within the casing a plurality of very thin steel-plate disks 17, spaced apart by suitable washers 18. These disks are provided with peripheral tangentially-disposed hook portions 19, the outer edges 20 of which are ground or sharpened. As a result of this arrangement open-sided laterally or tangentially disposed pockets 21 are provided, that extend the length of the retarder and have open slots therethrough formed by the spaces between the disks. As shown in Fig. 2, the retarders are of sufficient diameter to project beneath the hopper and are mounted so that the open mouths of the pockets when disposed beneath said hopper are uppermost. They are revolved to carry the portions beneath the hopper downwardly, this revolution being accomplished by a suitable sprocket-chain 22 or other element engaging the wheels 16 and also a sprocket 23, mounted upon the projecting end of the shaft of the screw conveyer 10. Idlers 25 maintain operative engagements between the wheels and the chain. An agitator or feeding device 26 is located in the lower end of the hopper 8 and is also preferably driven from the uppermost shaft 14 by suitable sprockets 26^a and a connecting-chain 27.

Coacting with each of the retarding devices above described is a rotary delinting-brush 28, journaled in boxes 29, secured to the standards 13. The shafts 30 of these brushes also project beyond the casing and carry on their projecting ends sprockets 31, engaged by an endless chain 32. The mechanism is so arranged that the brushes will be operated at a very high rate of speed as compared with

the retarders. As shown in Fig. 2, the inner portions of the brushes overlap the retarders, and thus operate successively in the pockets thereof during the revolution of the same.

5 These overlapping portions are located in a seed passage-way, one wall of which is defined by the brushes and triangular bars 33, disposed between the inner portions thereof. The other wall is formed of retaining rods or
10 wires 34, extending from the top to the bottom of the casing and passing between the spaced disks, the space between the wires being, preferably, just sufficient to permit the passage of said disks.

15 The side of the casing in rear of the delinting-brushes is formed into lower and upper air-conduits 35 and 36, which are alined, the former terminating substantially midway between the top and bottom of the casing and
20 having an outstanding delivery-spout 37. This conduit has communication by means of inlet-openings 38 with the lower portion of the interior of the casing directly adjacent to the lower portions of the three lowermost
25 brushes. The upper conduit 36 terminates at the top of the casing in an outstanding delivery-spout 39 and is provided in its inner wall with inlet-openings 40, communicating with the interior of the upper portion of the
30 casing contiguous to the three upper brushes. Directly below the inlet-openings 38 and 40 are triangular deflector-blocks 41, constituting, in effect, partitions between the rear or outer portions of the brushes and directing the lint
35 therefrom to the openings 40.

A single fan 42 is preferably employed for delivering blasts or drafts of air through both the conduits 35 and 36, said fan being mounted in a casing 43, arranged at the lower end
40 of the machine and having a divided delivery-spout 44, one portion of which communicates directly with the conduit 35, the other being extended, as shown at 45, to the upper conduit 36. The fan is driven in any suitable
45 manner, shown in the present instance from a sprocket-wheel 46, which meshes with the chain 32, and having a sprocket connection 47 with the fan-shaft 48. In connection with the separate conduits lint-collecting means
50 are employed in the form of rollers or drums 49, journaled on the exterior of the casing and extending across, but in spaced relation to, the delivery-spouts 37 and 39. These rollers are connected by a sprocket-chain 50 and
55 are driven in any suitable manner.

The operation of the machine may be briefly described, as follows: Assuming the various parts in operation, it will be apparent that the brushes rotating very much faster than
60 the retarders will operate through the same, and because of the sharpened edges no resistance will be afforded by the fingers or hooks thereof. If now cotton-seed is passed into the hopper 8, it will be fed upon the upper-
65 most retarder, or, more accurately, upon the

portions thereof projecting into the passage-way. As already explained, the hooks thereof are moving downwardly with their open sides uppermost, so that the seeds will drop
into the pockets, and the brush will thor- 70 oughly clean and scour the same, detaching the longer lint and carrying it rearwardly. Said seeds are securely held by the pockets, and, moreover, the brush while passing between the disks is stiffened thereby, so that the ac- 75 tion upon the seeds is at all times assured and peculiarly efficient. Said seeds will be retained in the passage-way and expelled from the pockets of the uppermost retarder by the wires or rods 34, and consequently they will 80 drop into the succeeding retarder, where they will be acted upon by the next brush, and thus the seeds will pass successively through the retarders until they reach the conveyer at the bottom. It will be apparent that during 85 such passage said seeds will be continuously turned over and thoroughly acted upon by the brushes, so that when they reach the bottom they will be thoroughly delinted. The lint is carried rearwardly by the various brushes and 90 is drawn by the suction action of the fan-blasts through openings 38 and 40 into the conduits, thence delivered from the spouts against the rollers, where it is collected. As the uppermost sets of delinting devices secure 95 the better grade of lint, it will be seen that this better grade will consequently be delivered to the upper roller, while the shorter and less valuable grade removed by the lower set will in like manner be delivered to the lower 100 roller. Consequently the lint obtained is automatically graded. When in the course of time the disks become worn, they can be properly dressed and when replaced can be adjust- 105 ed to the brushes by moving the bearings 15 toward the said brushes.

It will be obvious that any number of the coating sets of retarders and delinters can be employed as desired and, furthermore, that the same can be driven in any suitable man- 110 ner. Other changes in the size, shape, proportion, and minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention. 115

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

1. In a delinting-machine, the combination with a rotary retarder having open-sided seed-receiving seats, of means for feeding the seed into said seats, and a brush for acting upon the seed when in the seats. 120

2. In a delinting-machine, the combination with a rotary retarder comprising spaced disks having open-sided seed-receiving seats, of means for feeding the seed into the seats, and a brush operating between the disks and upon the seed in the seats thereof. 125

3. In a delinting-machine, the combination 30

with a rotary retarder having open-sided seed-receiving seats, of a rotary brush acting against one side of the retarder and in the seats thereof, and means located above the co-acting portions of the retarder and brush for delivering the seed into the open sides of the seats.

4. In a delinting-machine, the combination with a passage-way for the seed, of a rotary retarder journaled at one side of the passage-way and having open-sided seats that successively pass therethrough, a rotary brush journaled at the opposite side of the passage-way and acting against the portions of the retarder within the passage-way, and means for feeding the seed downwardly into the passage-way and upon the portions of the retarder located therein.

5. In a delinting-machine, the combination with a passage-way for the seed, of a rotary retarder journaled at one side of the passage-way and having open-sided seats that successively pass downwardly therethrough with their open sides uppermost, a rotary brush journaled at the opposite side of the passage-way, said brush acting against the portions of the retarder within the passage-way and across the seats thereof, and means for feeding the seed downwardly into the passage-way and into the seats of the retarder.

6. In a delinting-machine, the combination with a passage-way, of a rotary retarder journaled at one side of the passage-way and having spaced disks that project into said passage-way, said disks being provided with peripheral series of hooks that project upwardly during their passage through the passage-way, a brush journaled at the opposite side of the passage-way and projecting into the same, said brush coacting with the hooks, and means for feeding seed into the passage-way, said hooks being located in the path of movement of the seed and receiving the same within their open portions.

7. In a delinting-machine, the combination with a casing having a passage-way therein, of a rotary retarder journaled within the casing and comprising spaced disks having peripheral hooks that operate through the passage-way, a brush projecting into the passage-way and having the portion therein operating against the hooks, and spaced retainer-rods defining one side of the passage-way, said rods extending between the disks.

8. In a delinting-machine, the combination with a plurality of movable retarding devices having open-sided seed-receiving pockets, said devices delivering the seed from one to another, of delinting-brushes coacting with the different retarding devices and operating on the seeds located in the seed-receiving pockets thereof.

9. In a delinting-machine, the combination with a plurality of rotating retarding devices

disposed one below the other and each having a peripheral series of open-sided seed-receiving pockets, said devices delivering the seed downwardly from one to another, of delinting means coacting with the retarding devices and operating upon the seed contained in the pockets thereof.

10. In a delinting-machine, the combination with a series of retarders having tangentially-disposed fingers, forming similarly-disposed pockets, said retarders being located one below the other, of rotary delinting-brushes coacting with the corresponding sides of the retarders, means for delivering seed to the uppermost retarder and into the pockets thereof, and a delivery device located below the lowermost retarder.

11. In a delinting-machine, the combination with an upright casing, of a feeding device located on the upper portion of the casing, a delivery device located in the bottom of the casing below the feeding device, a vertical series of rotary retarders journaled within the casing and each comprising spaced disks having tangentially-disposed hook portions forming open-sided seats, the inner and downwardly-movable sides of the retarders being located beneath the feeder and above the delivery device, a vertical series of retainer-rods secured within the casing and extending between the disks of the various retarders, a vertical series of rotary delinting-brushes operating against the portions of the retarders that are disposed beneath the feeder, and means for rotating the retarders and brushes at different rates of speed.

12. In a delinting-machine, the combination with an upright casing, having a feeder in its top and a seed-delivering device in its bottom, of spaced upright supporting-beams located within the casing on opposite sides of the feeder and delivering device, a vertical series of retarders journaled on one beam and projecting into alinement with the feeder, a plurality of revoluble delinting devices journaled on the other beam and acting against the portions of the retarders located beneath the feeder, and means for revolving the retarders and delinting devices at different speeds with the portions beneath the feeding device moving in a downward direction.

13. In a delinting-machine, the combination with a movable retarding device, of a delinting-brush coacting therewith, means for removing the lint from the brush and collecting the same, another movable retarder receiving the seed from the first retarding device, a delinting-brush coacting therewith, and means for removing the lint from the last-mentioned brush and collecting the same.

14. In a delinting-machine, the combination with a rotary retarding device, of a rotary delinting-brush coacting therewith, means for directing a blast of air across the brush, a col-

lecting device located in said blast of air, another rotary retarding device receiving the seed from the first-mentioned retarding device, another rotary delinting-brush coacting with said second retarding device, means for directing another blast of air across said second delinting-brush, and another collecting device located in the blast for receiving the lint carried thereby.

10 15. In a delinting-machine, the combination with sets of coacting rotary brushes and rotary retarding devices coacting therewith, of means for delivering separate blasts of air across certain of the brushes, and separate collectors located in the blasts for receiving the lint carried thereby.

16. In a delinting-machine, the combination with a seed-holder, of a brush coacting therewith, an air-conduit coacting with the brush and having a delivery-spout, and a collecting-roller disposed across said spout.

17. In a delinting-machine, the combination with a casing, of a movable seed-holder located therein, a rotary brush coacting with the seed-holder and engaging the seed carried thereby, an air-conduit having an inlet-opening disposed contiguous to the brush and being furthermore provided with a delivery-spout, and a collecting device disposed across the spout.

18. In a delinting-machine, the combination with separate retarding devices, one of said devices receiving the seed and delivering it to the other, of separate delinting-brushes coacting with the retarding devices, separate air-conduits having inlet-openings disposed respectively contiguous to one of the brushes, said conduits having discharge-spouts, means for delivering blasts of air through the con-

duits, and collecting means movably mounted across the spouts. 40

19. In a delinting-machine, the combination with an upright casing, of a vertical series of retarders and delinting-brushes located therein, said delinting-brushes coacting with the retarders, vertically-disposed conduits having offset discharge-spouts, means for delivering blasts of air through the conduits, and collecting-rollers journaled across the spouts, said conduits having inlet-openings disposed contiguous to certain of the brushes. 45 50

20. In a delinting-machine, the combination with a rotary retarder having open-sided seed-receiving seats, of means for feeding the seed into the said seats, and delinting means for acting upon the seed when in the seats. 55

21. In a delinting-machine, the combination with a rotary retarder comprising spaced disks having open-sided seed-receiving seats, of means for feeding the seed into the seats, and delinting means operating between the disks and upon the seed in the seats thereof. 60

22. In a delinting-machine, the combination with a plurality of movable retarding devices having open-sided seed-receiving pockets, said devices delivering the seed from one to another, of delinting means coacting with the different retarding devices and operating on the seeds located in the seed-receiving pockets thereof. 65

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses. 70

WINFIELD S. CANNADAY.

Witnesses:

M. J. STURGEON,
J. L. MILLIKAN.