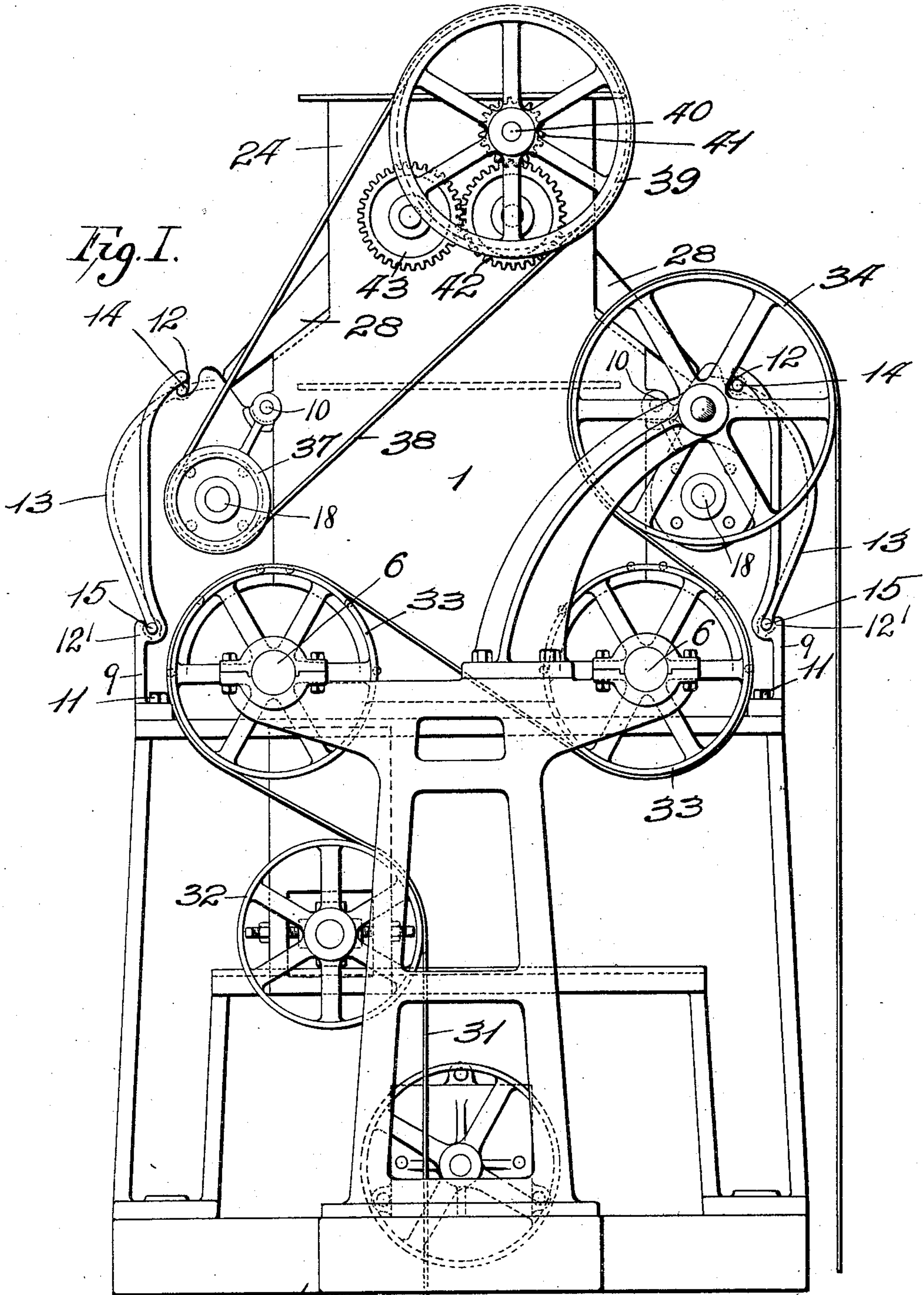


W. L. NAHM & E. J. O'BRIEN, JR.  
 DUPLEX APPARATUS FOR DELINTING COTTON SEED.  
 APPLICATION FILED NOV. 9, 1908.

934,336.

Patented Sept. 14, 1909.

4 SHEETS—SHEET 1.



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*E. M. Harrington.*

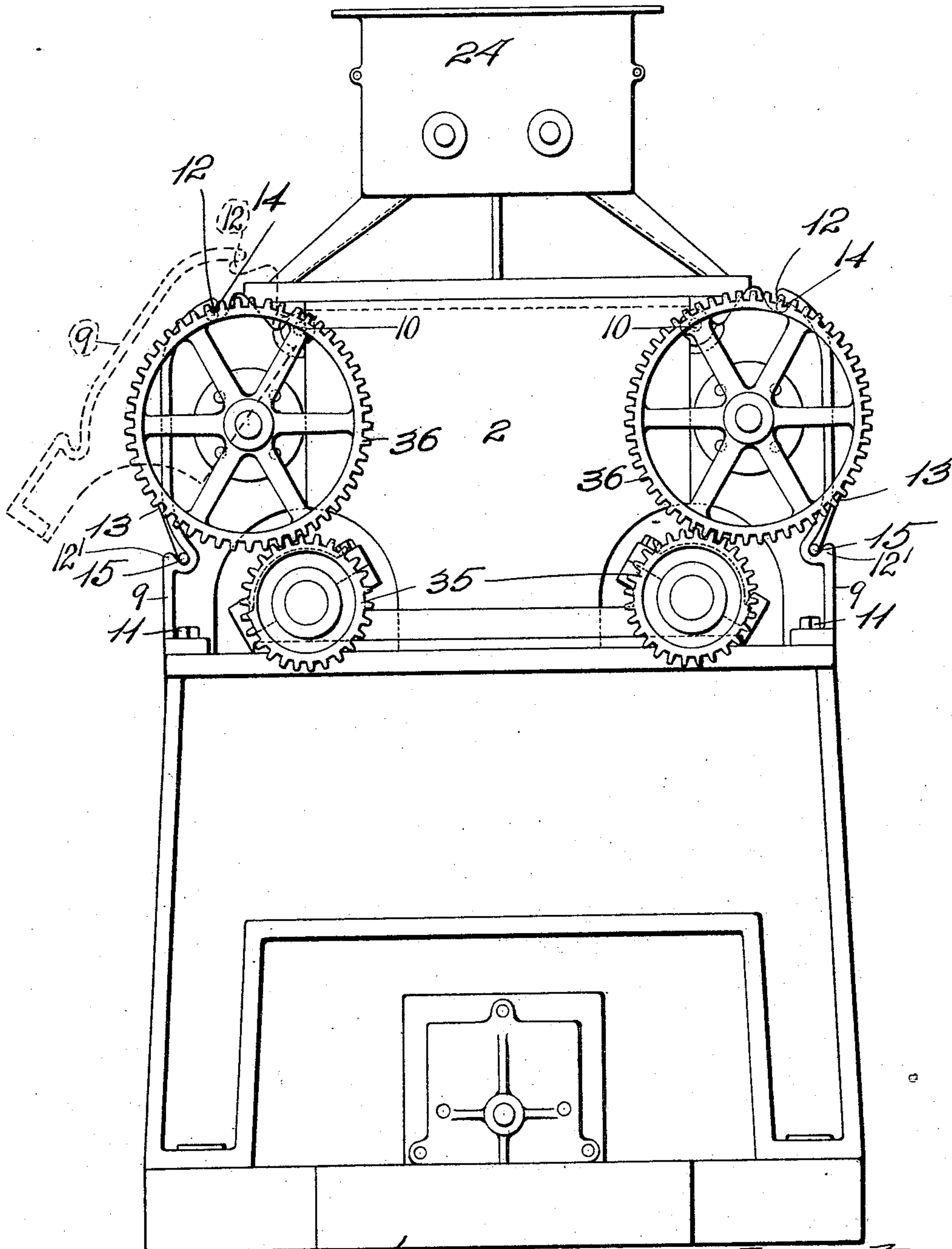
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*Fig. II.*



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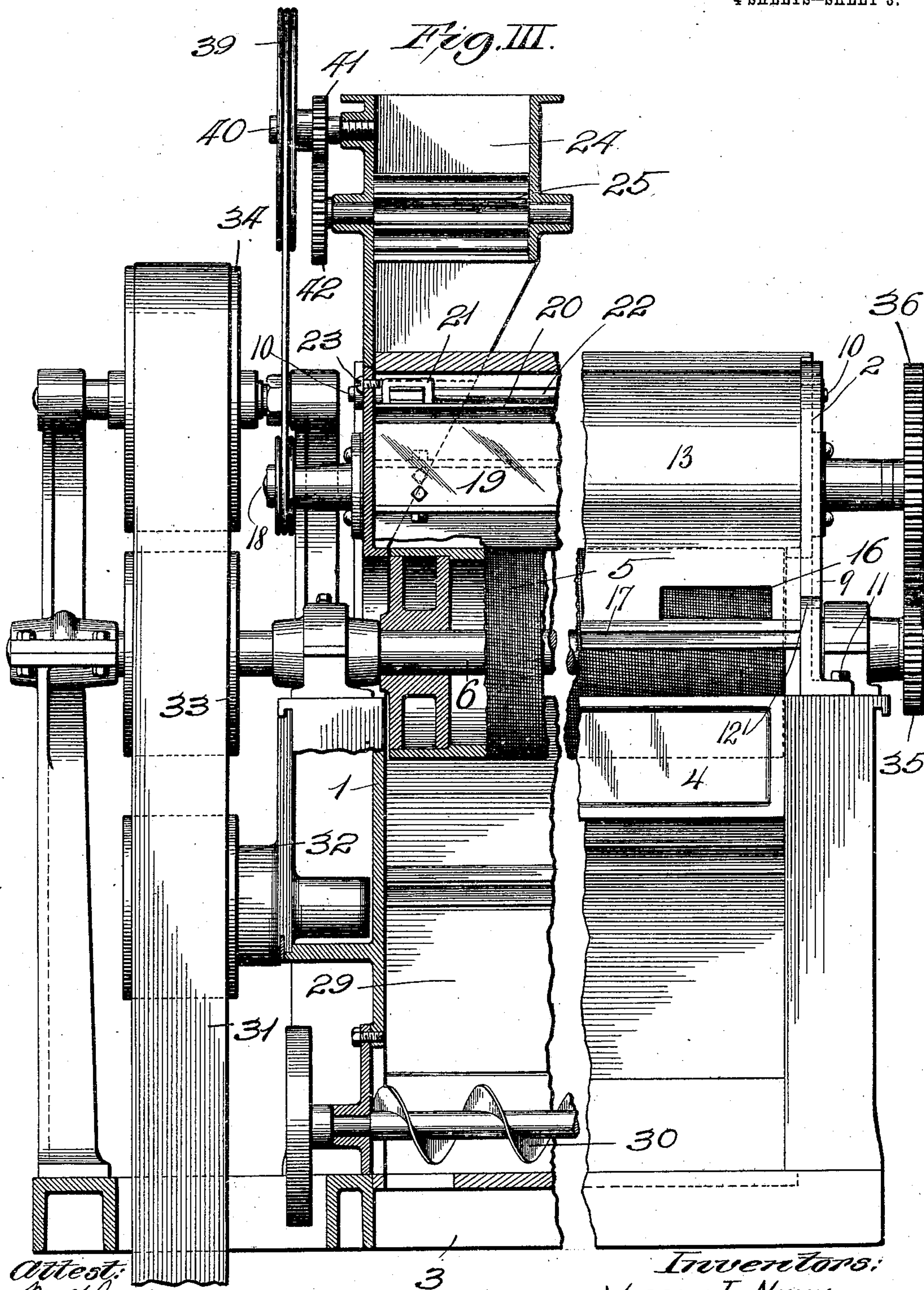


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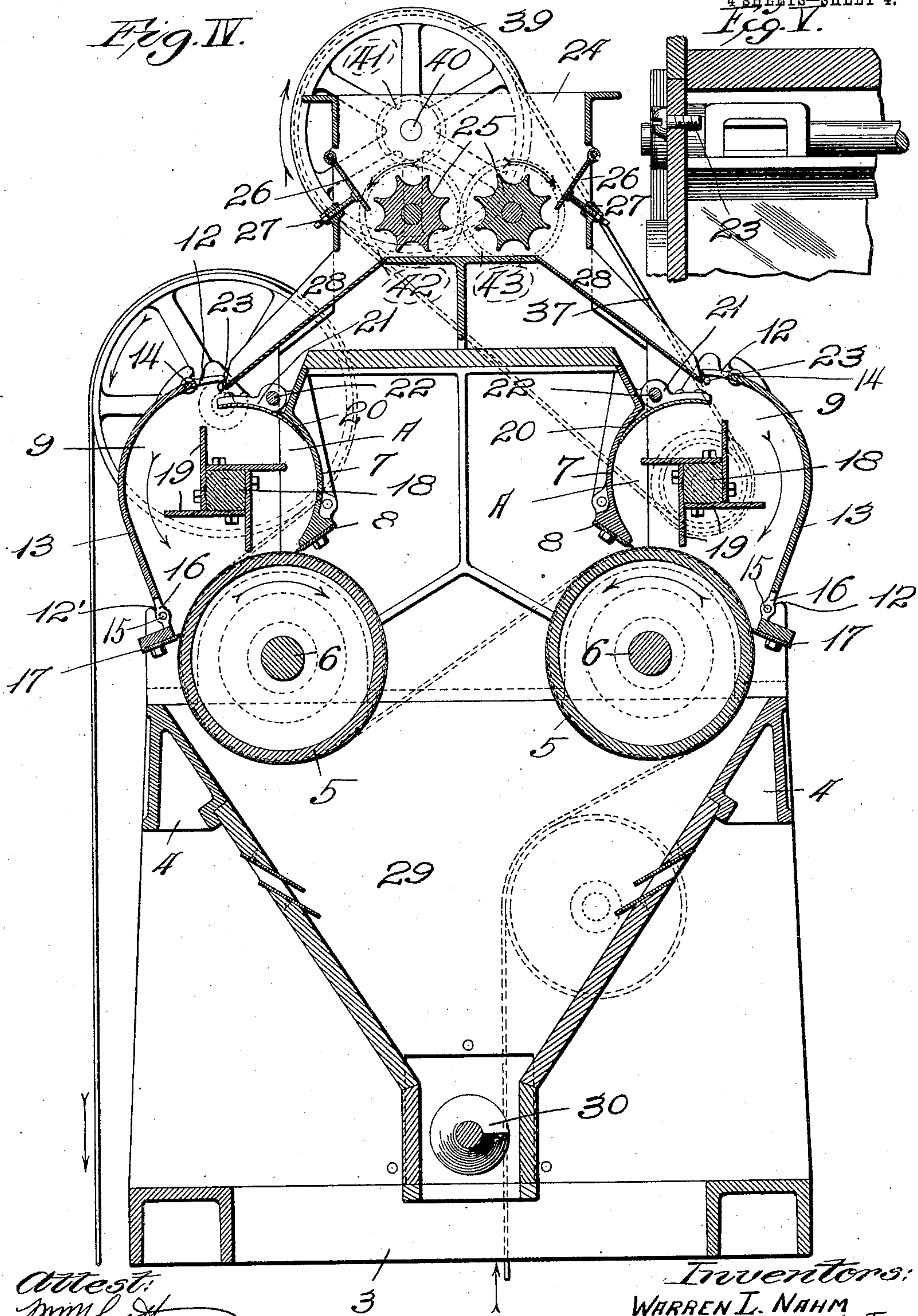


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# UNITED STATES PATENT OFFICE.

WARREN L. NAHM, OF ST. LOUIS COUNTY, AND EDWARD J. O'BRIEN, JR., OF ST. LOUIS, MISSOURI, ASSIGNORS TO ST. LOUIS DELINTER MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION.

## DUPLEX APPARATUS FOR DELINTING COTTON-SEED.

934,336.

Specification of Letters Patent.

Patented Sept. 14, 1909.

Application filed November 9, 1908. Serial No. 461,659.

*To all whom it may concern:*

Be it known that we, WARREN L. NAHM and EDWARD J. O'BRIEN, Jr., citizens of the United States of America, residing in the county of St. Louis and State of Missouri, and in the city of St. Louis and State of Missouri, respectively, have invented certain new and useful Improvements in Duplex Apparatus for Delinting Cotton-Seed, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to an apparatus for delinting cotton seed, or in other words for removing the short fibers of cotton from the seed after the bulk of the cotton has been separated therefrom in any usual way.

Figure I is an end elevation of our apparatus. Fig. II is an elevation of the end of the apparatus opposite that illustrated in Fig. I. Fig. III is in part a side elevation of the apparatus and in part a vertical longitudinal section with the central portion of the apparatus broken out. Fig. IV is a vertical cross section through the apparatus. Fig. V is an enlarged vertical longitudinal section taken through parts of the apparatus at the location of one of the delinting chambers.

In the accompanying drawings:—1 and 2 designate the ends of our apparatus which are supported upon a base 3 and are joined to each other above the base by longitudinal tie members 4, (see Figs. III and IV).

5 designates a pair of delinting cylinders that are carried by supporting and operating shafts 6 which are mounted in suitable journal boxes supported by the ends 1 and 2 of the apparatus. The delinting cylinders extend longitudinally of the apparatus and preferably have knurled or serrated peripheral abrading surfaces by which the cotton fiber is caught during the operation of the apparatus, as will hereinafter appear. Above the delinting cylinders are delinting chambers A which are approximately closed at their bottoms by the cylinders and extend longitudinally of the apparatus.

7 designates inner delinting chamber walls preferably of curved shape and which are arranged between the ends of the apparatus and above the delinting cylinders. Each inner wall 7 has secured to it at its lower end a

stop blade 8, that is arranged obliquely relative to the periphery of the delinting cylinder beneath it and is adapted to prevent the cotton seed delivered into chamber A from being carried by the delinting cylinder beneath the blade from the delinting chamber. 9 designates end plates the upper ends of which are hinged at 10, see Figs. I and II, to the ends of the apparatus above the delinting chambers and which are adapted to be maintained in vertical and lowered positions to constitute partial closures for the ends of the delinting chambers during the use of the apparatus, the said end walls being so maintained by any suitable means such as bolts or screws 11 that pass through flanges or feet at the lower ends of the plates and into the ends of the apparatus. Each end plate 9 is provided at its upper end with a socket 12.

13 are outer delinting chamber walls preferably of curved shape and which are separated from and oppose the inner walls 7 of the delinting chambers. The outer walls 13 are provided at their upper edges with studs 14 extending outwardly from their ends and adapted to be removably seated in the sockets 12 in the end plates 9 and they are provided at their lower edges with end studs 15 adapted to seat in sockets 12' at the outer edges and near the lower ends of the end plates 9. In each outer delinting chamber wall 13 near one end thereof is a discharge opening 16 through which the delinted seed escapes, as will hereinafter appear.

17 are guard blades attached to the outer delinting chamber walls at their lower ends and which are presented to the peripheries of the delinting cylinders and serve to prevent the descent of the seed being operated upon between said cylinders and the bottoms of said outer chamber walls.

18 designates carrier shafts extending longitudinally of the apparatus and located centrally within the delinting chambers A, each of these shafts being equipped with a series of carrier wings 19 by which the cotton seed to be delinted is whirled in a roll within the delinting chambers while being subjected to the abrading action of the delinting cylinders. At the top of each delinting chamber is an inlet throat through which the cotton seed to be delinted enters the delinting chamber at the end thereof



farthest removed from the discharge opening 16 previously mentioned. These inlet throats are controlled by gates 20 that extend longitudinally of the delinting chambers and which are pivotally supported by hinges 21 to which the gates are secured and which are fitted to shafts 22 mounted in the ends of the apparatus. The shafts 22 also serve as the pivotal or hinge connections for the end plates 9. The gates 20 extend inwardly or rearwardly into engagement with the inner walls 7 of the delinting chambers and due to such engagement the degree to which they may be moved downwardly in the delinting chambers is restricted. The gates are adapted to rest upon the rolls of cotton seed being moved in circular paths by the carrier wings 19 in the delinting chambers during operation of the apparatus to hold said roll compressed at the tops of the chambers in order that the seed may enter through the inlet throats, and the upward movement of the gates under pressure exerted by the rolls of seed is restricted by stops 23, (see Figs. III, IV, and V,) that extend through the end walls 9 above the free forward edges of the gates.

24 designates a feed hopper at the top of the apparatus common to both of the delinting chambers A, and 25 are feed rolls operable in said hopper. The cotton seed to be delinted is delivered into the feed hopper and fed in an outward direction by the feed rolls to cause it to pass downwardly between the feed rolls and feed regulators comprising valve plates 26 and adjusting screws 27.

28 are chutes extending downwardly from the feed hopper and into which the seed falls as it passes between the feed wheels and the feed regulators to be conducted to the inlet throats of the delinting chambers A.

29 designates a hopper beneath and common to both of the delinting cylinders and which, in connection with the space within the apparatus aside from that occupied by the delinting cylinders and the delinting chambers serves as a receiver for the lint or fiber that is separated from the cotton seed by the delinting cylinders and discharged therefrom into said receiver. The hopper preferably contains at its bottom a conveyer 30 by which the material delivered into said receiver may be discharged from the apparatus, but the material may be discharged from the receiver in any suitable manner.

In the practical use of our apparatus, the cotton seed to be delinted is delivered into the feed hopper 24 and discharged therefrom by the feed rollers to descend into the delinting chambers A in which the seed is whirled in rolls due to the action of the carrier wings 19 carried by the shafts 18. The carrier wings and their shafts are rotated in the directions indicated by the arrows, (Fig. IV.) The constantly moving seed is main-

tained in contact with the peripheries of the delinting cylinders 5 which are rotated in the directions indicated by the arrows, (Fig. IV,) or in directions the reverse of the direction of the rotation of the carrier blades, and as a consequence the lint or fiber is gathered by the delinting cylinders from the seeds and, after passing the stop blades 8, is discharged from the cylinders into the central receiver in the apparatus. The feed hopper is located at one end of the apparatus, or in other words, above one end of each delinting chamber A, and the end of the apparatus above which the feed hopper is located is that farthest removed from the discharge openings 16 of the delinting chambers. The delinting cylinders are, as a consequence, permitted to act upon the seed being operated upon immediately after the seed enters the delinting chambers and this action is continued until such time as the seed is gradually carried toward the discharge opening 16 and finally escapes there-through in a delinted state.

The important features in our apparatus to which we wish to direct attention are those of the delinting chambers being partly produced by the pivotally mounted end plates 9 and the outer delinting chamber walls 13, in order that said parts may be readily swung outwardly relative to the adjacent parts of the apparatus to afford access to the delinting chambers and the parts therein whenever such access is desired; as, for instance, in the removal of the delinting cylinders.

Another important feature to which we wish to direct attention is that of the outer walls 13 being loosely and detachably mounted in the end plates 9, thereby permitting the ready separation of these walls from the end plates to provide access into the delinting chambers around the carrier blades therein and without interfering with the rolls of seed that may have become present in the delinting chambers due to the operation of the apparatus.

The various rotating parts of the herein described apparatus are operated through the medium of a main drive belt 31 that may be driven by power applied thereto in any suitable manner. This drive belt operates upon idlers 33 fixed to the shafts 6 of the delinting cylinders 5 to drive said cylinders and also upon idler pulleys 32 and 34, the course of the belt being such as to cause the delinting cylinders to be rotated in opposite directions relative to each other. The delinting cylinder shafts have fixed to them at their ends, opposite those equipped with the pulleys 33, pinions 35 that are arranged in mesh with the spur wheels 36 fixed to the carrier shafts 18. One of the shafts 18 has fixed to it at the end opposite to that equipped with the spur wheel 36 a pulley 37 that receives a belt 38 by which power is



transmitted to a pulley 39 that is mounted upon a stud shaft 40 supported by the feed hopper 24. This last named pulley has associated with it a pinion 41 that acts to drive a spur wheel 42 fixed to the shaft of one of the feed rolls 25, and which is arranged in mesh with a second spur wheel 43 fixed to the other feed roll.

We claim:—

1. An apparatus for delinting cotton seed comprising a rotatable delinting cylinder, a delinting chamber associated with the delinting cylinder, having an inlet throat, and constructed with an inner wall provided with a stop blade, hinged end plates and an outer wall, provided with a guard plate and with a discharge opening and removably seated on the end plates, a rotatable carrier shaft having wings and located within the delinting chamber, a feed hopper having a feed roll and a chute between the feed hopper and the inlet throat.

2. An apparatus for delinting cotton seed comprising a rotatable delinting cylinder, a delinting chamber associated with the delinting cylinder, having an inlet throat, and constructed with an inner wall provided with a stop blade, hinged end plates, and an outer

wall provided with a guard plate and with a discharge opening and removably seated on the end plates, a rotatable carrier shaft having wings and located within the delinting chamber, a pivoted gate within the delinting chamber for controlling the cotton seed roll, a feed hopper having a feed roll and a chute between the feed hopper and the inlet throat.

3. An apparatus for delinting cotton seed comprising a rotatable delinting cylinder, a delinting chamber associated with the delinting cylinder having an inlet throat, and constructed with an inner wall provided with a stop blade, hinged end plates having lower and upper sockets and an outer wall provided with lower and upper studs occupying the sockets, with a guard plate and with a discharge opening, a rotatable carrier shaft having wings and located within the delinting chamber, a feed hopper having a feed roll and a chute between the feed roll and the inlet throat.

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In the presence of—

H. G. COOK,

E. M. HARRINGTON.