

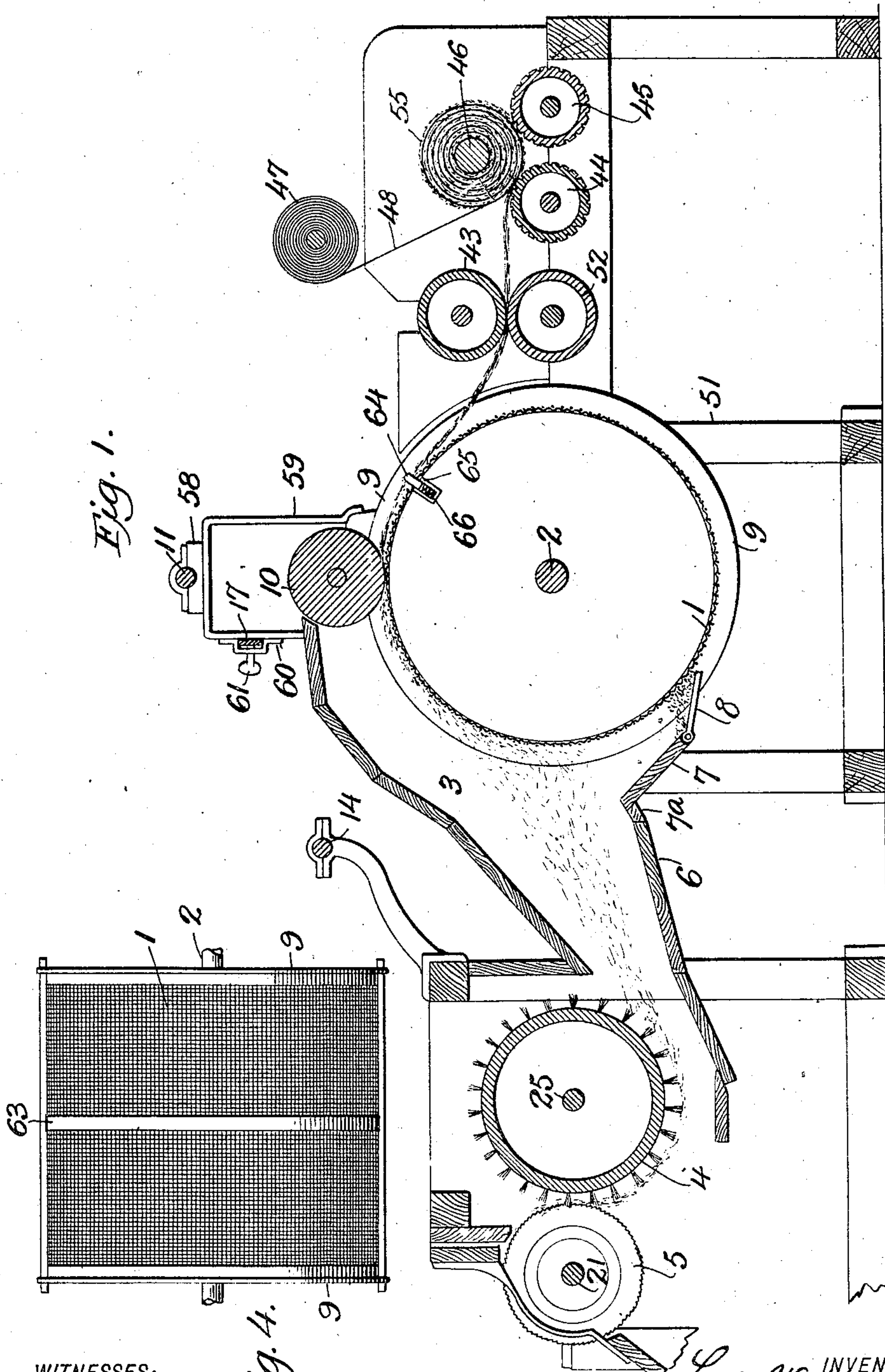
No. 889,461.

PATENTED JUNE 2, 1908.

L. W. HASKELL & J. DAVIDSON.
MACHINE FOR MAKING LINTER BATS.

APPLICATION FILED JUNE 6, 1905.

4 SHEETS—SHEET 1.



WITNESSES:
James J. Duhamel
J. Heiberg.

Fig. 4.

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BY THEIR ATTORNEY

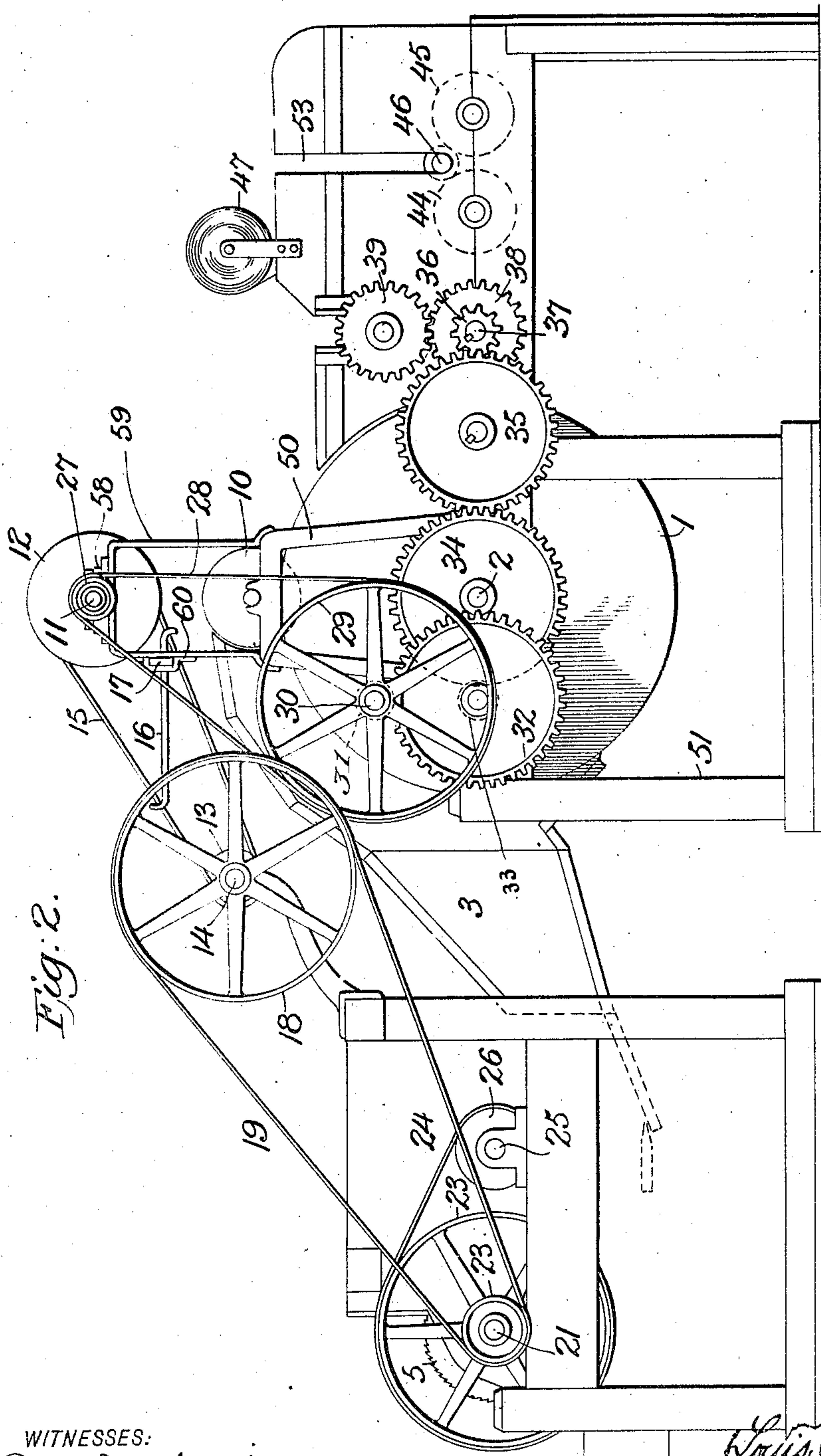
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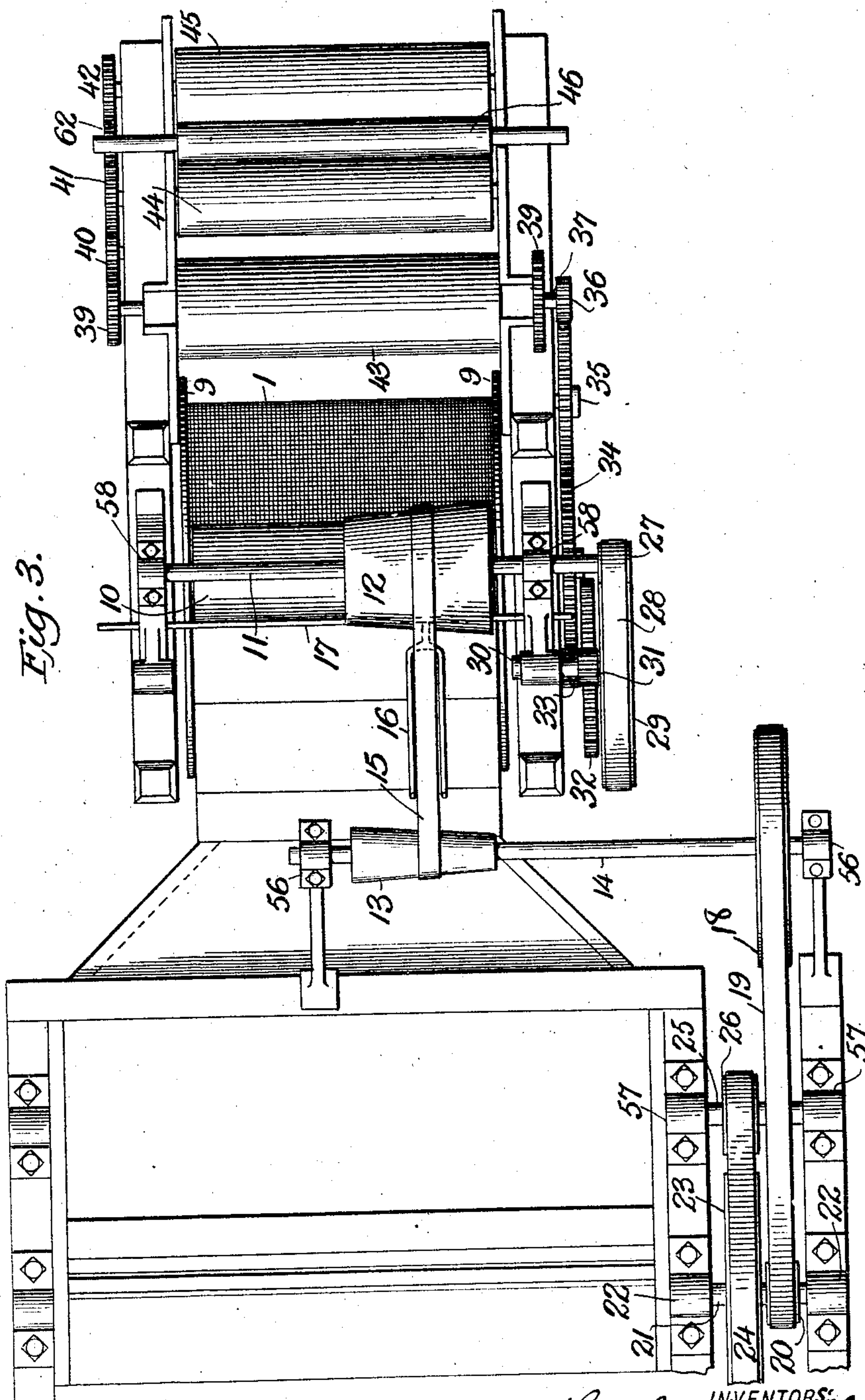
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4 SHEETS—SHEET 3.



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4 SHEETS—SHEET 4.

Fig. 6.

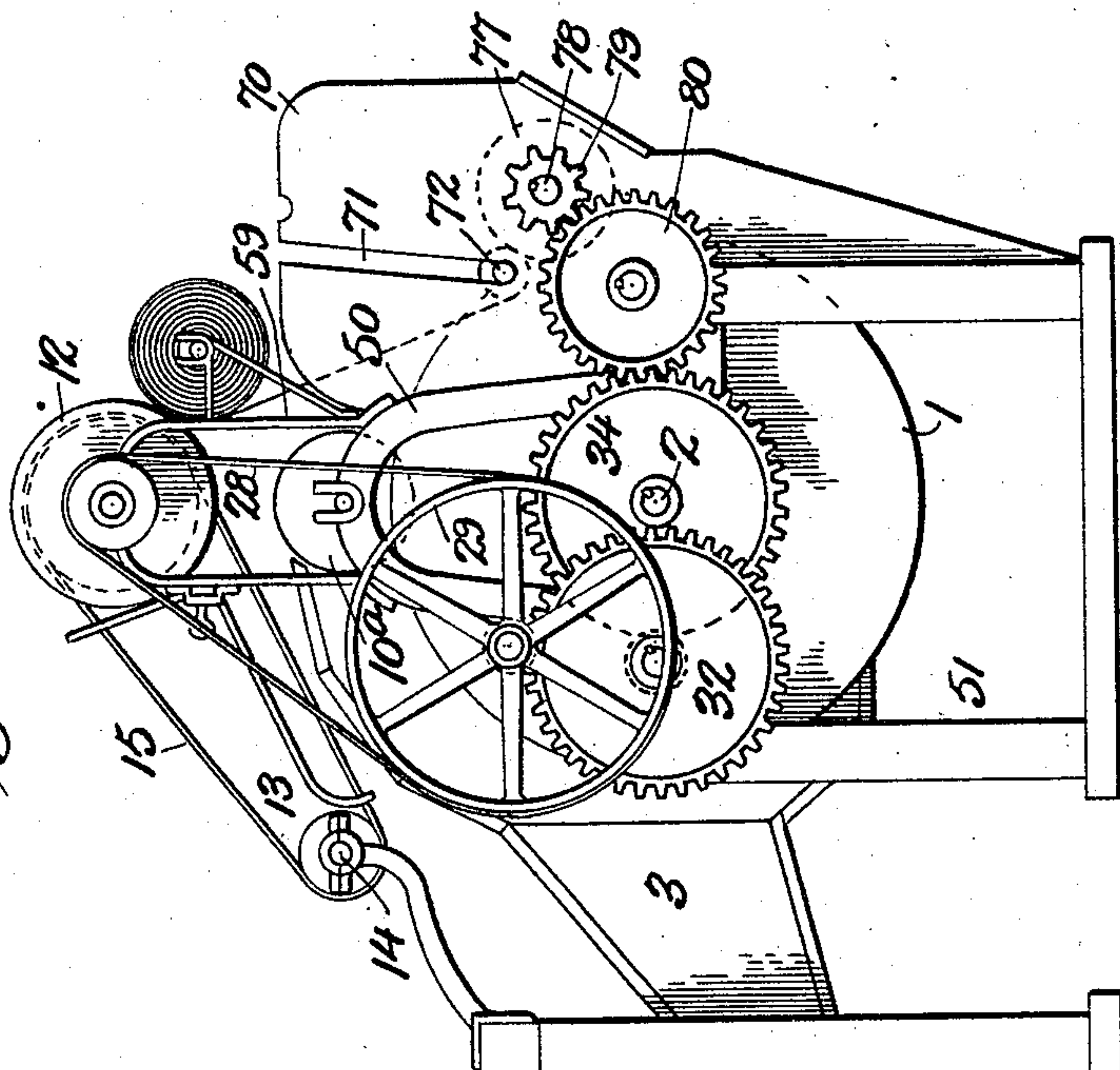
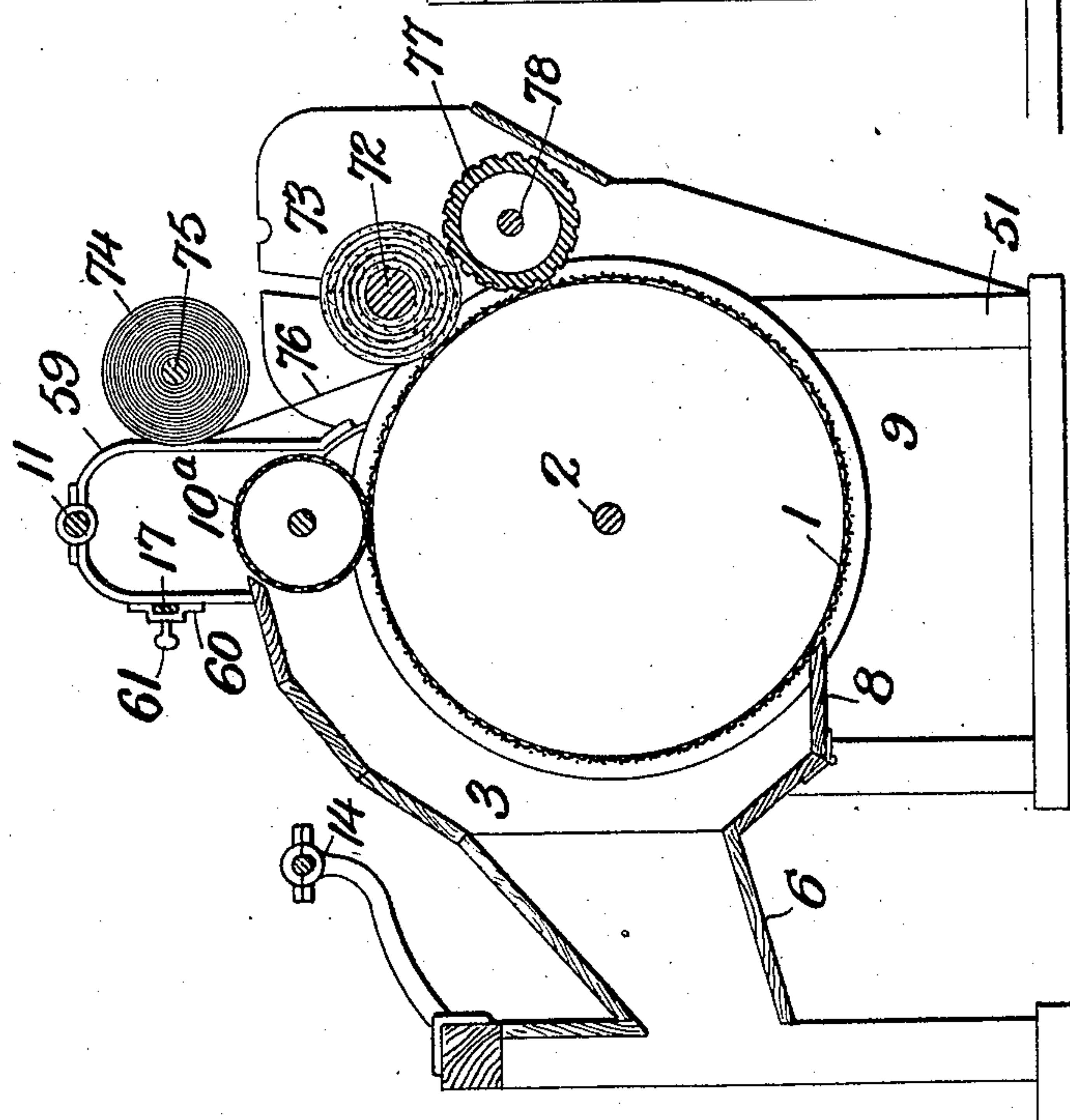


Fig. 5.



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UNITED STATES PATENT OFFICE.

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MACHINE FOR MAKING LINTER-BATS

No. 889,461.

Specification of Letters Patent.

Patented June 2, 1908.

Application filed June 6, 1905. Serial No. 263,908.

To all whom it may concern:

Be it known that we, LOUIS W. HASKELL and JOSEPH DAVIDSON, citizens of the United States of America, and residents, respectively, of the city, county, and State of New York, and of Atlanta, county of Fulton, and State of Georgia, have invented certain new and useful Improvements in Machines for Making Linter-Bats, of which the following is a specification.

Our invention relates to a machine for manufacturing and forming linter-bats, the object being to make the bat more uniform as to thickness, etc., than heretofore, and to so roll the same with an intervening separating layer of paper or similar material that the bat can be readily unrolled and laid out in a sheet.

The invention consists essentially in a novel combination and arrangement of mechanical elements for securing the object in view, and more particularly in means for regulating the speed of the condenser drum, means for more effectively directing the current of air against a larger part of the condenser drum than has heretofore been the case, means for regulating the width of the sheet of cotton and also its length, means for furnishing an intervening layer of paper or similar material which rolls up with the cotton, means for adjusting the appurtenances of the condenser drum with reference to making the cotton layer more or less lofty, and also in various other details and peculiarities in the construction, arrangement and combination of the various parts, whether used with or without a linting machine, substantially as will be hereinafter fully described and claimed.

In the accompanying drawing illustrating our invention; Figure 1 is a longitudinal section of our improved linter machine. Fig. 2 is a side elevation. Fig. 3 is a top plan view. Fig. 4 is a detail side view of the condenser cylinder. Fig. 5 is a section of a modified form of the machine. Fig. 6 is a side view of this modification.

Similar numerals of reference designate corresponding parts throughout the different figures of the drawing.

In the ordinary and well-known construction of linters for use with cotton seed for divesting them of the short cotton fiber adhering thereto after the process of ginning, it is customary to employ linting mechanism consisting essentially of saws, as 5,

which strip the fiber from the seed, brushes, as 4, which take the fiber from the saws and deliver it into a chute, as 3, the latter leading to a revolving cylinder commonly called a condenser, as 1, which is clothed with wire cloth. These parts in general are indicated in the longitudinal sectional view of Fig. 1, though we have not thought it necessary to illustrate the details of other mechanism appurtenant to and cooperating with the saws, brushes, etc., and neither have we deemed it necessary to indicate with any minuteness the precise construction of the latter. The flue or air passage 3 may partake of a wide variety of forms, and is intended principally as a channel through which the cotton is driven by a blast of air generated by the linter brush against the surface of the condenser 1. Said condenser is mounted on a central shaft 2 and is provided at each end with a flange 9. So far as our invention is concerned, however, we are not restricted to a combination of our improvements with brushes for generating the air blast and driving the cotton against the condenser, but the cotton or other fiber might be subjected to any process which would tear it to pieces and suspend it in the air and drive it against the condenser, as for instance, a rag picker or similar cleaning device might be used, the linting machine described and shown is therefore given by way of example only.

Coming now to describe our improvements, the bottom 6 of the flue 3 is provided with an upwardly inclined lip or upturned section 7^a which will direct the cotton or other fiber upwardly as it passes thereover, and also with a downwardly inclined section 7, to which is hinged a leaf or flap 8, the outer edge of which lies close to the surface of the condenser 1. Said flap 8 is fastened in any desired manner so that it may normally occupy the position shown in Fig. 1. But it can be released when desired and dropped so as to open the bottom of the flue 3 and permit removal of such hard substances or refuse as may have accumulated upon it. This arrangement in the bottom of the flue 3 enables the blast to deflect the cotton with greater certainty upward against the surface of the condenser 1, and the depressed area consisting of parts 7 and 8 provides that there may be a larger portion of the surface of condenser 1 exposed to the air and to the reception of cotton thereon, and also pro-

vides a sort of pocket, of which the hinged flap 8 constitutes the bottom, to receive all heavy particles that fall down out of the cotton into this pocket, said pocket assisting therefore in cleaning the cotton.

Above the condenser 1 is supported a roller 10, the bearings for the journals of the roller being in the side frames 50 (see Fig. 2) mounted on the main frame 51, or other kinds of supports may be furnished. This roller 10 performs chiefly the function of a weight resting on the cotton that accumulates on the face of the condenser 1. The supports for the roller 10 may be arranged in any desired manner to permit the roller to be located at a greater or less distance from the surface of the condenser. This enables the sheet of cotton to be made more or less compact, and the resulting bat to be more or less lofty, as desired.

The layer of condensed cotton which accumulates on the surface of the condenser 1, passes therefrom into and between two smooth rollers 43 and 52 journaled horizontally in the main frame of the machine, the roller 43 being vertically above the roller 52. These rollers have a feeding function and feed the cotton forward to the horizontal rollers 44 and 45, which are preferably corrugated or grooved, over which rollers the bat passes and then rolls around and upon the winding mandrel 46 whose journaled ends lie within the vertical slots 53 in the main frame, in which slots said journals travel up accordingly as the bat increases in size as the result of the continued rolling of the cotton on the mandrel 46.

47 indicates a roll of paper supported above the rollers of which we have just been speaking, and from roller 47 the paper passes downward to the roller 46 and rolls inside of the bat 55, so that the layers of cotton that are rolled upon the mandrel 46 are separated by the intervening sheet of paper. This is found to be a great advantage, inasmuch as the different layers of cotton do not come directly in contact with each other, and hence the bat 55 is readily unrolled into a flat sheet again when desired, for the paper keeps the different layers of cotton distinct from each other and permits of this unrolling and also makes a smoother bat.

The speed of revolution of the condenser 1 can be varied so that it will run faster or slower. When it runs slowly the cotton fiber will accumulate more thickly thereon with the result that the bat will be more lofty. Supported in bearings 56, 56 carried by suitable arms or brackets as indicated in Fig. 3 is a horizontal shaft 14 on which is a cone pulley 13 near one end, and near the other end a belt pulley 18. Around the pulley 18 runs a belt 19 which likewise passes around a small pulley 20 on a shaft 21 supported in bearings 22 and carrying the saws 5, see Figs.

2 and 3. On the saw driving shaft 21 is also a pulley 23 and a belt 24 passes around it and likewise around a small pulley 26 on a horizontal shaft 25 carried in bearings 57 and belonging to the brush 4. Furthermore, vertically above the condenser 1 is a horizontal shaft 11 supported in bearings 58 on the side frame 59, which are preferably carried by the side frames 50 above mentioned as sustaining the weight of the roller 10. Shaft 11 carries a cone pulley 12, larger than the cone pulley 13 and reversely placed with reference thereto so that the two pulleys may coact in conjunction with a belt 15 surrounding both of them. Said belt is shiftable by means of a fork 16 carried by a horizontal bar 17 which slides within sockets 60 on the lateral frames 59 and is held in any desired position of adjustment by any suitable device, as for instance, a locking button or pin, as 61. Thus it will be seen that by means of the cone pulleys the speed of the shaft 11 may be increased or diminished, assuming that the shaft 14 runs at a constant speed. On the outer end of the shaft 11 is a small pulley 27 and a belt 28 passes around it and also around a larger pulley 29 on the end of a shaft 30 supported in the side frame of the machine and carrying alongside of the pulley 29 a pinion 31 which engages a gear wheel 32 on a stud projecting from the main frame, said stud carrying also fixed thereon a small pinion 33. This latter pinion 33 engages a gear wheel 34 on the shaft 2 of the condenser 1. In this way power is imparted from the shaft 11 to the condenser. Obviously, therefore, the speed of the condenser may be lessened or increased by a proper shifting of the belt 15 through the action of the belt-shifting device 16.

The gear wheel 34 on the condenser shaft 2 engages and drives a transmission gear 35 on a stud on the main frame, which in turn actuates a pinion 36 on one of the journals 37 of the lower feed roller 52, there being likewise on the same journal 37 a gear wheel 38 which engages and drives a similar gear wheel 39 on the journal of the upper feed roller 43. On the opposite journal of the lower feed roller 52 is a gear wheel 39 which engages an intermediate gear wheel 40 carried by a stud on the frame, and gear 40 in turn engages and drives the gear wheel 41 on the journal of the roller 44. Gear wheel 41 meshes with an intermediate 62 which engages the teeth of another gear wheel 42 on the journal of the corresponding roller 45. It will be seen that by means of the gearing just specified the feed rollers 43 and 52 are positively driven, as also the rollers 44 and 45.

The cotton fiber which passes through the flue 3 and is spread over the surface of the condenser 1 will, under ordinary circumstances, if there are no obstructions on the surface of the condenser, make a uniform and

even sheet which will be more or less lofty, as I have described, accordingly as the condenser 1 moves faster or slower, and as the roller 10 is positioned a greater or less distance from the surface of said condenser. In this case the width of the sheet would be equal to the width of the condenser between the flanges 9, and its length would depend on the length of the operation. It is desirable often, however, to form the bat of a less width than the width of the condenser, and furthermore to separate the cotton sheet into lengths which will be readily apparent upon the unrolling of the bat in case a rolled bat is formed, or upon the delivery of the sheet from the condenser drum in case rolling is dispensed with. One way of making the bats less in width is to encircle the condenser 1 at one or more points with a circumferential band, as 63. In this case the cotton will fail to adhere to the condenser on the line of this band or rib because there will be no air blast at this point to hold the fiber against the condenser, and accordingly while the rest of the surface of the condenser will be covered with a deposit of fiber of greater or less thickness there will be one or more lines according to the number of circumferential bands which may be called lines of division, and when the sheet of cotton leaves the condenser these lines will permit the sheet to be easily severable. Similarly we arrange means to enable the cotton to be separated into predetermined lengths by providing the condenser 1 with a longitudinal rib 64 set into a longitudinal groove 65, in which, beneath the rib 64, may, if desired, be some spring device as 66. The rib 64 projects longitudinally on the surface of the condenser in like manner as the circumferential band or rib 63 projects transversely, and accomplishes a similar function, in that it provides a longitudinal line on which the deposit of cotton will fail owing to the absence of the air blast at this point. There may be any number of these longitudinal ribs 64 according to the length which it is desired to form the sheet. This rib 64 is easily removable from the slot 65 so that the entire surface of the condenser may be used for forming one sheet when desired.

Various changes and modifications in the construction and arrangement of the various parts may be made without departing from our invention.

We wish to call attention to the fact that in mills working what is known as the single flue system, that is to say, mills having two or more linting machines connected to one long flue, the cotton being driven through the flues and collected on a large condenser, we can apply our invention with the same facility as in mills of other classes, it being entirely possible to manufacture the bats on these large condensers with perfect suc-

cess. Therefore, it makes no difference what the arrangement of the flues may be, or the construction of the linting machines, or other means for conducting the cotton to the condenser, or the size of the condenser, or the location of the flues leading thereto, inasmuch as all these inventions come within the scope of our improvements.

Certain modifications which we deem of particular importance are illustrated in Figs. 5 and 6. Here we employ a light wire cloth roller 10^a to replace the solid wooden roller 10 which lies on the top of the condenser 1 and serves to make the bat more or less lofty. This light roller 10^a consists preferably of a number of light heads of wood or other material fitting snugly on a shaft and having a wire cloth folding around the periphery of these heads or spiders, forming a drum and providing a cylindrical surface through which the air is allowed to percolate in and out. This tends to give a somewhat freer outlet for the air which is crowded into the flue 3 by the action of the brush 4, and also causes the bat to be somewhat more lofty, because there is very much less weight applied to the bat owing to the difference in the weight of the wood and the wire cloth. The bat thickens up and the air pressure in the lint flue is relieved, causing less lint to be dropped with the motes. Further, in the modification in Figs. 5 and 6, the bat is wound directly from the condenser without the assistance of the feed rollers 43 and 52, and only one corrugated roller is used instead of the pair 44 and 45.

70 denotes a modified form of the frame of the machine, having therein vertical slots 71, in which plays the mandrel 72, on which the bat 73 is wound, receiving during this winding the paper sheet 76.

75 denotes the mandrel of the paper roll 74, suitably supported, from which the sheet 76 leads and rolls into the bat 73.

77 indicates a corrugated roller whose shaft 78 is suitably journaled in the frame 70 in such a position that the roller 77 rotates in close proximity to the condenser 1, and also to the bat 73. Inasmuch as the roll of paper is mounted above the condenser the paper can easily be directed into the bat, winding successfully into the roll as shown in Fig. 5. The corrugated roll 77 forms, with the condenser, winding rolls between which the winding mandrel 72 for the bat is placed. This corrugated roll 77 has its shaft 78 provided with a pinion 79, which is driven by the intermediate gear 80 mounted on a suitable stud on the frame and actuated by the gear wheel 34 on the shaft 2 of the condenser. The intermediate gear wheel 80 substitutes for the intermediate 35, shown in Fig. 2. The corrugated roll 77 is driven at the same peripheral speed as the condenser. This arrangement of parts is simpler than

that shown in Figs. 1, 2 and 3, and is productive of excellent results in practice.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent, is:—

1. In a linter bat machine, the combination with a grooved condenser cylinder, of a flue through which the fiber passes to the surface of the cylinder, and a removable longitudinal rib set in the groove on said cylinder for determining the division point of the lint deposited thereon.
2. In a linter bat machine, the combination with a grooved condenser cylinder of a flue through which the fiber passes to the surface of the cylinder, a removable longitudinal rib set in said groove, and a spring device in said groove.
3. The combination with a grooved condenser cylinder, of a roller hung above the same, and a longitudinal rib removably inserted in the groove in the cylinder and intended to obstruct the deposit of cotton along the longitudinal line in order to enable the easy division of the cotton sheet into convenient lengths.
4. In a linter bat machine, the combination with a grooved condenser cylinder, of a flue through which the fiber passes to the surface of the cylinder, removable means set in the said groove of the cylinder for the purpose of determining the division point of the lint

deposited thereon, said means including a yielding device.

5. In a linter bat machine, the combination with a grooved condenser cylinder, of a flue through which the fiber passes to the surface of the cylinder, a removable longitudinal rib in said groove, and means for determining the width of the cotton sheet consisting of circumferential strips on the cylinder.

6. In a linter bat machine, the combination with a condenser cylinder having a longitudinal groove, of a longitudinal rib removably inserted in the said groove in the cylinder for the purpose of obstructing the deposit of cotton along a longitudinal line, and circumferential or transverse bands encircling the cylinder for preventing a deposit of cotton on one or more transverse lines thereof so that the sheet may be easily divisible along said lines.

Signed at New York city this 27th day of May, 1905.

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Signed at Atlanta, Ga., this 1st day of June, 1905.

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