

A. A. ZALONDEK.
COTTON GIN.
APPLICATION FILED JUNE 4, 1914.

1,155,188.

Patented Sept. 28, 1915.

2 SHEETS—SHEET 1.

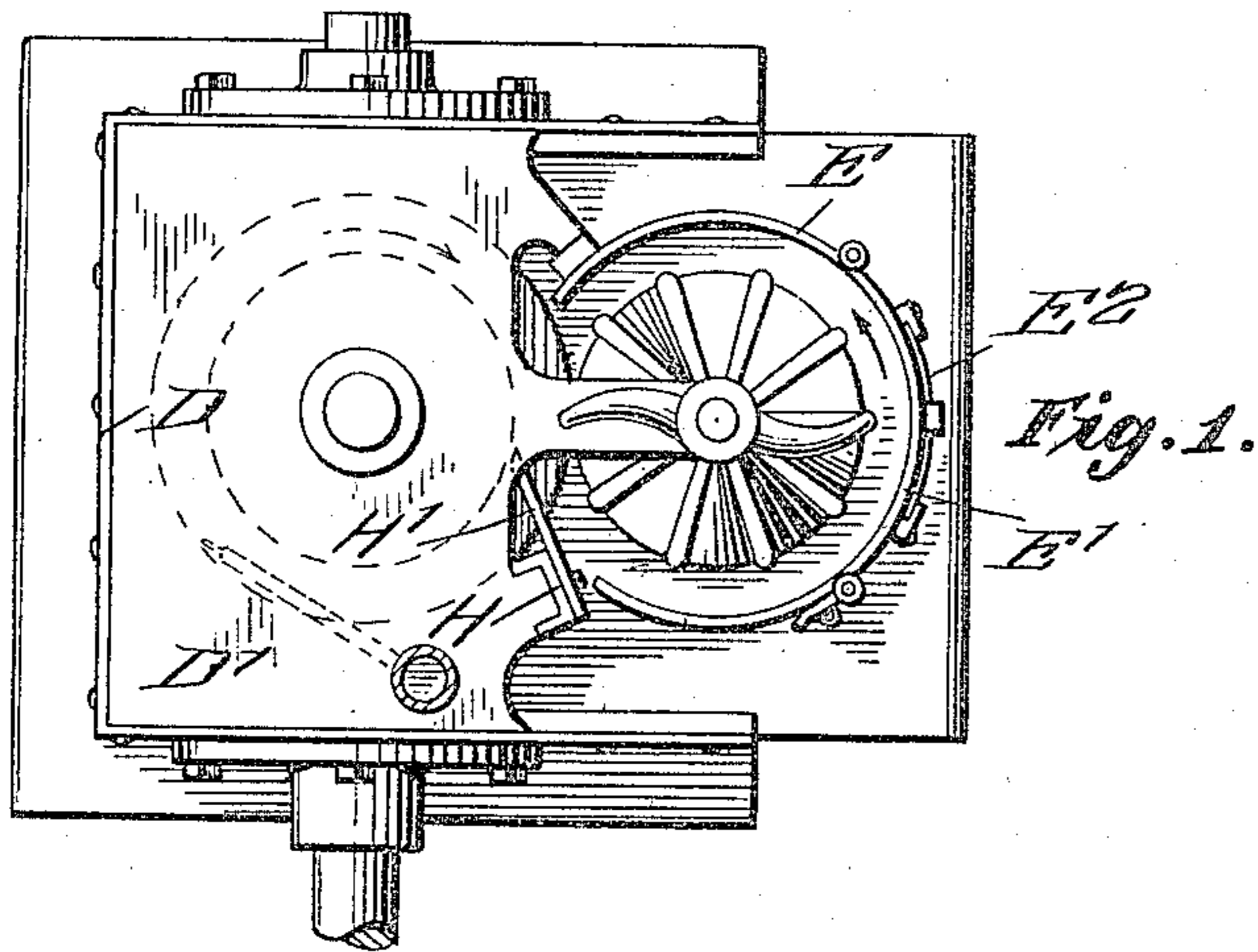


Fig. 6.

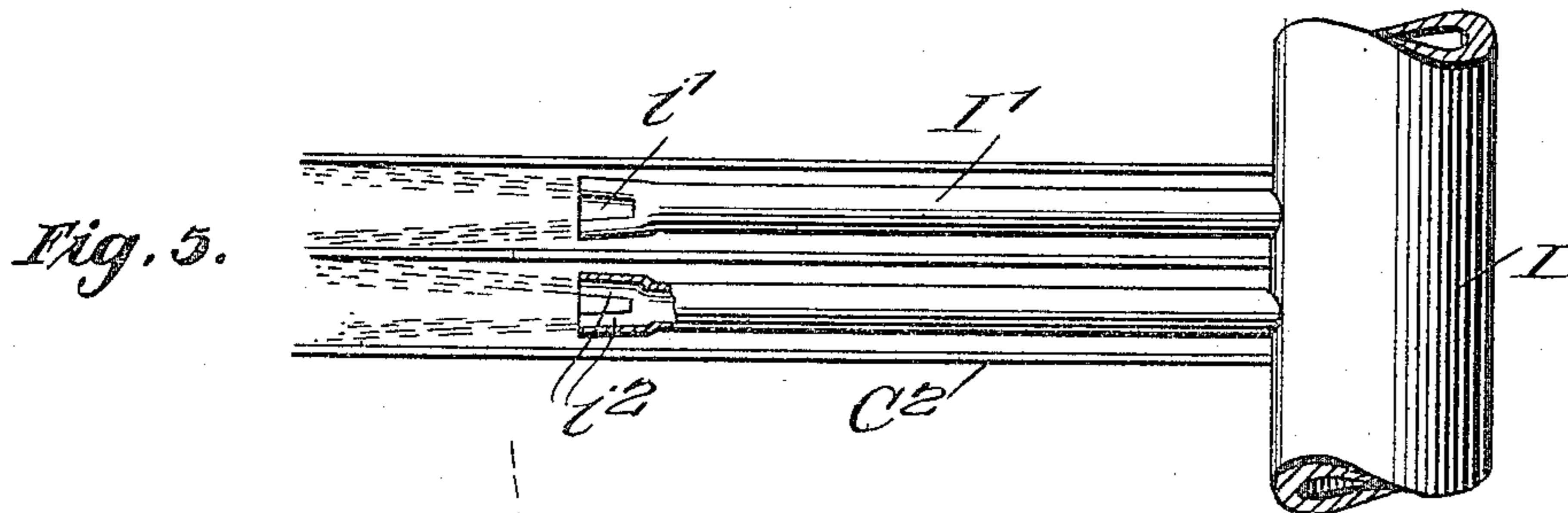
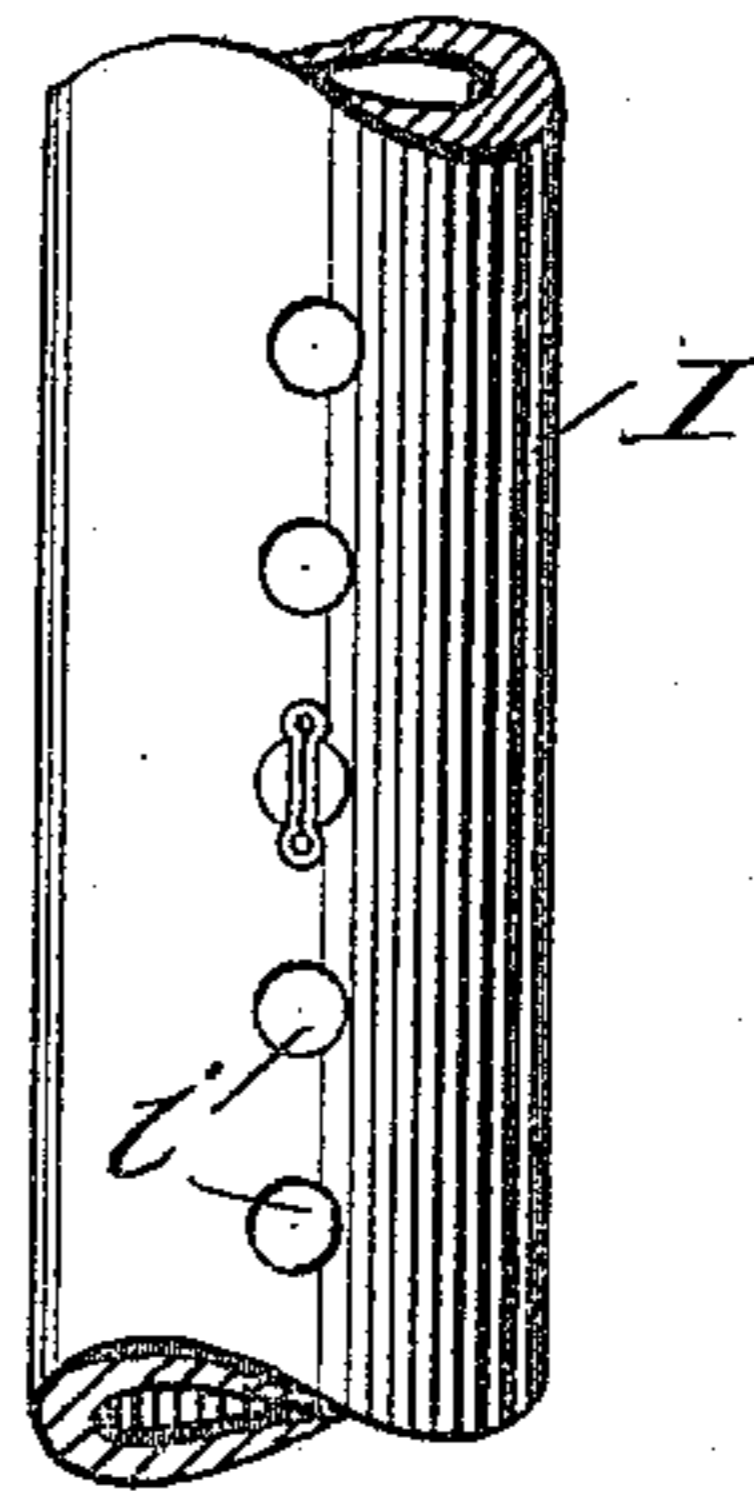
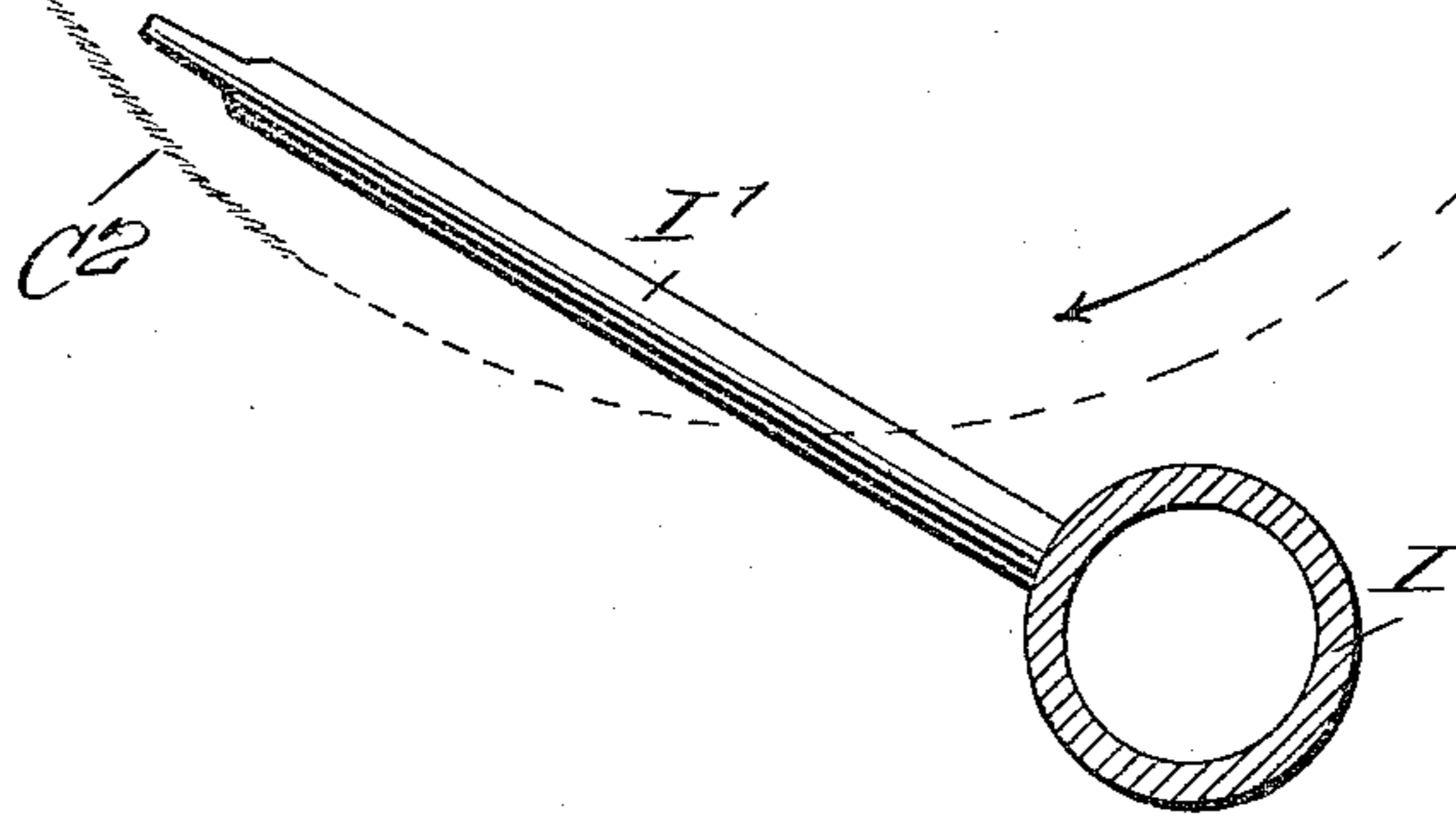


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 2.

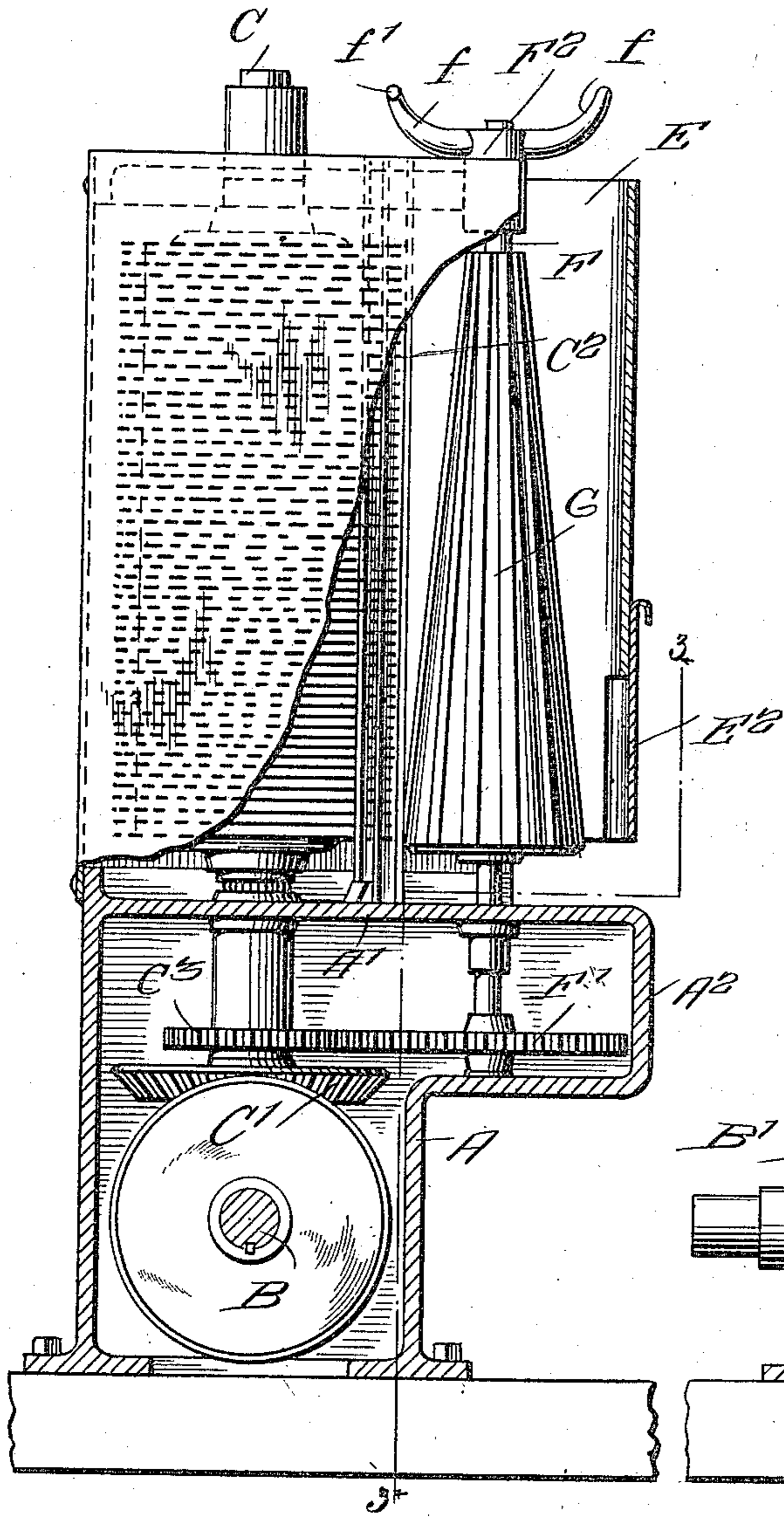
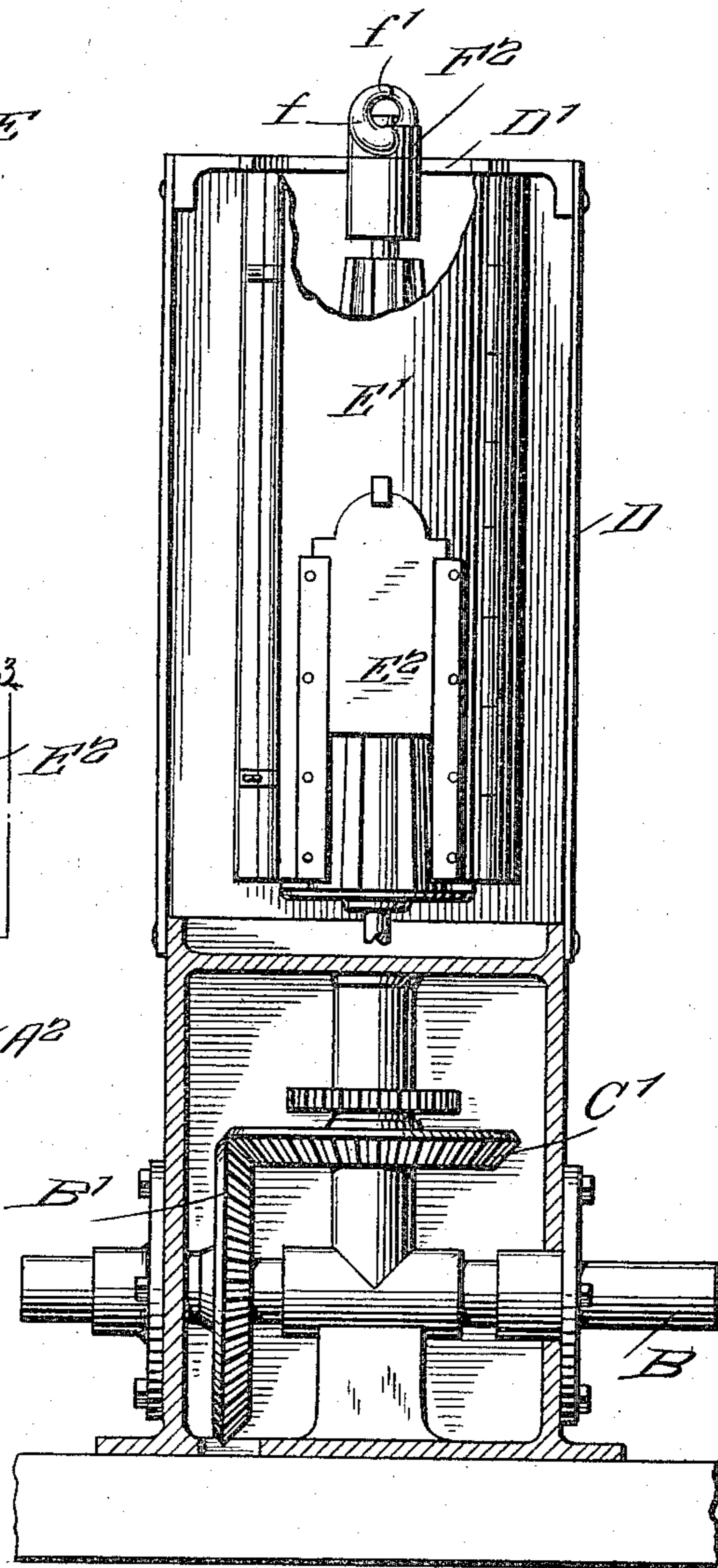


Fig. 3.



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COTTON-GIN.

1,155,188.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ANTON A. ZALONDEK, a citizen of the United States, and a resident of Capitol Hill, in the county of Oklahoma and State of Oklahoma, have invented an Improvement in Cotton-Gins, of which the following is a specification.

My present invention relates to cotton gins, and my object is to provide an apparatus of this character which will obviate many of the difficulties incident to ginning machinery now in general use and which usually includes a horizontal shaft on which the saws are mounted and spaced apart to operate through a breast of ribs in their rotation, the cotton to be ginned being fed onto this breast and acted upon by the saws in the well known manner.

Ginning machinery of the character mentioned is universally open to several objections, among which is the lack of any means for discharging the accumulating trash and refuse matter, such trash being collected and retained with the cotton "roll" on the breast. In overcoming this important difficulty I attain other advantages as regards simplicity and reduced cost, as well as reduction of space required for installation and operation, by the gin shown in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a plan view. Fig. 2 is a side elevation partly broken away and in section. Fig. 3 is a view partly in front elevation and partly in vertical section, taken there-through substantially on line 3—3 of Fig. 2. Fig. 4 is a detail horizontal section through the air supply pipe of the cotton removing nozzles. Fig. 5 is an elevation of a portion of the air supply pipe with a pair of its nozzles, one of which is partly broken away and in section, and looking from the side thereof, and Fig. 6 is a similar view looking at the pipe endwise of its nozzles.

Referring now to these figures it will be seen that I provide an upright cotton gin, the lower portion of which is in the form of a hollow gear casing A, horizontally through the lower portion of which is journaled the main driving shaft B having a bevel gear B' thereon within the casing. The casing is also arranged to support in its top plate A' a journal for the lower portion of the vertical saw shaft C, the lower extremity of which depends within the gear casing A and is provided with a bevel gear C' in mesh

with the bevel gear of the driving shaft B before mentioned.

The saw shaft C extends vertically above the gear casing A within an upright rectangular box D, through the top D' of which the upper extremity of the said shaft is journaled, and is provided with the usual circular gin saws C² spaced apart in a vertical series within the box.

The front side of the box D as will be seen by reference to Figs. 1 and 3 is open above the forwardly extended upper portion A² of the gear casing A and above which extension A² is arranged a vertical cylindrical shell E secured with its lower end spaced above the top A' of the gear casing and with its rear inner open portion toward the gin saws to receive the peripheries of these saws partially therein as will be plainly seen from Fig. 1. Vertically through this shell E is mounted a shaft F, the lower end of which depends through the top A' of the gear casing and within the forward extension A² of said casing and is provided with a pinion F' in mesh with a somewhat smaller pinion C³ mounted on the saw shaft C above its bevel gear C'.

At the upper extremity of shaft C which projects above the open top of the shell E is secured a head F² having feed arms f projecting in relatively opposite directions therefrom and spirally curved and terminating in upwardly and laterally inclined end hooks f' whereby to feed cotton from an upper supply pipe, hopper or the like, not shown, downwardly into the upper open end of the shell E, at the front side of which is hinged a main door E' through which ready access may be had to the cotton space within the shell E and to the conical fluted roller G which is secured upon the shaft F with its smaller end uppermost and its enlarged lower end spaced above the top A' of the gear casing A.

Vertically along one side of the series of gin saws and between the box D and the shell E is arranged a vertical supporting beam H to which are secured the outer ends of a vertical series of horizontal ribs H', the inner free ends of which project between the several saws C² in order to perform the functions of the ribs in the gins now in use.

Upstanding within the box D at one side of the vertical series of saws is an air supply pipe I having equidistantly spaced ports i from which project a vertical series of noz-

zle pipes I', the outer free ends of which are projected between and tangentially of the several gin saws C² in the manner best shown in Figs. 1, 4 and 5, and the outer ends
 5 of which pipes are crimped centrally at i' in order to provide separate discharge ports i² at slightly diverging angles with respect to one another and thus direct jets of air against the adjacent surfaces of the saws
 10 above and below the same as will be plainly seen in Fig. 5.

Thus it will be seen that the gin saws and the conical fluted roller G are rotated in operation in relatively opposite and at substantially different speeds, the speed of
 15 movement of the gin saws being greater than that of the roller. The cotton to be ginned is, by means of the head F², fed evenly into the upper end of the shell E around the
 20 fluted roller, the latter causing the cotton, at its upper or smaller end, to begin to revolve around it as a core.

The travel of the cotton around in the shell E will be retarded somewhat due to the slower relative rotation of the fluted roller
 25 G to that of the gin saws, and the frictional resistance of the wall of the shell itself, so as to permit of a maximum action of the gin saws upon the moving cotton "roll" thus
 30 formed.

As the ginning action of the saws gradually reduces the bulk of the cotton, it gradually works downward on the fluted roller G and is spread to the action of the saws in
 35 such downward movement so that in the course of this movement all of the cotton seed will be acted upon by each of the saws of the entire series until the completely ginned seed with the trash and refuse mat-
 40 ter are discharged from the lower end of the shell E and removed.

The discharge space at the lower end of the shell E may be increased by vertical adjustment of a supplemental discharge door
 45 E² movable in guides upon the lower portion of the main door E' of the shell.

In the meantime the cotton collected by the gin saws is continuously removed therefrom by the action of the several nozzles I'
 50 arranged as before described and may be removed at one side of the shell E.

Thus with a machine constructed and operating in this manner, the working load is distributed evenly throughout the series of
 55 saws C² and the ginning operation is effectively completed in considerably less time than it can be done with the machines now in use.

It is perfectly apparent that a machine
 60 such as I propose is considerably more simple and less expensive than those now in use and that it requires less space for its installation and operation than the usual horizontal gins. It is also apparent that by the
 65 use of a machine such as I propose seed

cotton will be prevented from passing out unginced and that there will be no idle saws until the roll of cotton begins to gin out. Furthermore there can be no overlap of
 70 ginning periods in ginning custom cotton as each roll is ginned entirely out before the next roll is begun, thus avoiding the danger of mixing a high grade of cotton of one customer with the low grade of another.
 75 Furthermore the trash is continuously discharged throughout the entire operation of the gin. It is to be understood, however, that this gin is not confined to the ginning of seed cotton but may be used with equal
 80 facility and equal effective results in connection with the delinting of cotton seed as required in mill service.

I claim:

1. In a cotton gin, the combination of a lower gear casing, a drive shaft journaled
 85 horizontally through the lower portion of the casing, a substantially rectangular box secured in upright position upon the gear casing and open at its front side, a saw shaft
 90 journaled vertically through the boxing and through the upper portion of the gear casing, gears connecting the said saw shaft to the said drive shaft, a vertical series of gin-
 95 ning saws mounted in spaced relation upon the saw shaft within the box, a shaft journaled vertically through the upper portion of the gear casing and extending parallel
 100 with and spaced from the saw shaft at the open side of the box, gears connecting said shaft with the saw shaft, a conical fluted roller mounted on the latter shaft with its
 105 smaller end uppermost and its lower enlarged end spaced above the top of the gear casing, a shell open at its upper and lower ends and disposed around the said fluted
 110 roller and its shaft and open adjacent to the saws, the lower open end of the said shell being spaced above the top of the gear casing, an adjustable discharge door mounted
 115 in guides on the lower portion of the said shell, and a feeding head secured upon the upper end of the roller shaft and having outwardly projecting spirally curved arms,
 all for the purpose described.

2. In a cotton gin, the combination of a
 115 lower gear casing, a drive shaft journaled horizontally through the lower portion of the casing, a substantially rectangular box secured in upright position upon the gear
 120 casing and open at its front side, a saw shaft journaled vertically through the boxing and through the upper portion of the gear casing, gears connecting the said saw shaft to the said drive shaft, a vertical series of gin-
 125 ning saws mounted in spaced relation upon the saw shaft within the box, a shaft journaled vertically through the upper portion of the gear casing and extending parallel
 130 with and spaced from the saw shaft at the open side of the box, gears connecting said

shaft with the saw shaft, a conical fluted roller mounted on the latter shaft with its smaller end uppermost and its lower enlarged end spaced above the top of the gear casing, and a shell open at its upper and lower ends and disposed around the said fluted roller and its shaft and open adjacent to the saws, the lower open end of the said shell being spaced above the top of the gear casing.

3. In machinery of the character described, the combination of a vertical saw shaft, saws mounted horizontally thereon in spaced relation, a beam mounted to extend vertically along the series of saws, a plurality of ribs secured to the beam and having their free ends extending between the saws, a shaft mounted parallel with the saw shaft and spaced therefrom, a conical fluted roller mounted upon the last mentioned shaft, means for driving the saw shaft, and geared connections between the saw shaft and the roller shaft, all for the purpose described.

4. In machinery of the character described, the combination of a vertical series of ginning saws, a conical roller arranged and operating at one side of the series of saws with its smaller end uppermost, means for rotating the saws and roller in relatively opposite directions and at different speeds, a shell open at its base and in which the roller is mounted, and a box in which the saws are mounted, opening at one side into the roller shell, all for the purpose described.

5. In machinery of the character described, the combination of a vertical series of ginning saws, a conical feed roller mounted and operating at one side of the series of saws with its smaller end uppermost, means for rotating the roller and saws and housings communicating with one another and in which the said saws and said roller are disposed.

6. In machinery of the character described, the combination of a vertical series of ginning saws, a conical fluted feed roller arranged and operating at one side of the series of saws, means for rotating the said roller and saws in definite relation with respect to one another, and housings communicating with one another and in which the saws and feed roller are disposed.

7. In machinery of the character described, the combination of a vertical series of saws and a conical fluted feed roller arranged vertically along and operating at one side of the series of saws, for the purpose described.

8. In machinery of the character described, the combination of a vertical series of ginning saws, and a conical feed roller mounted vertically along and operating at one side of the series of saws, with its smaller end uppermost.

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Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."