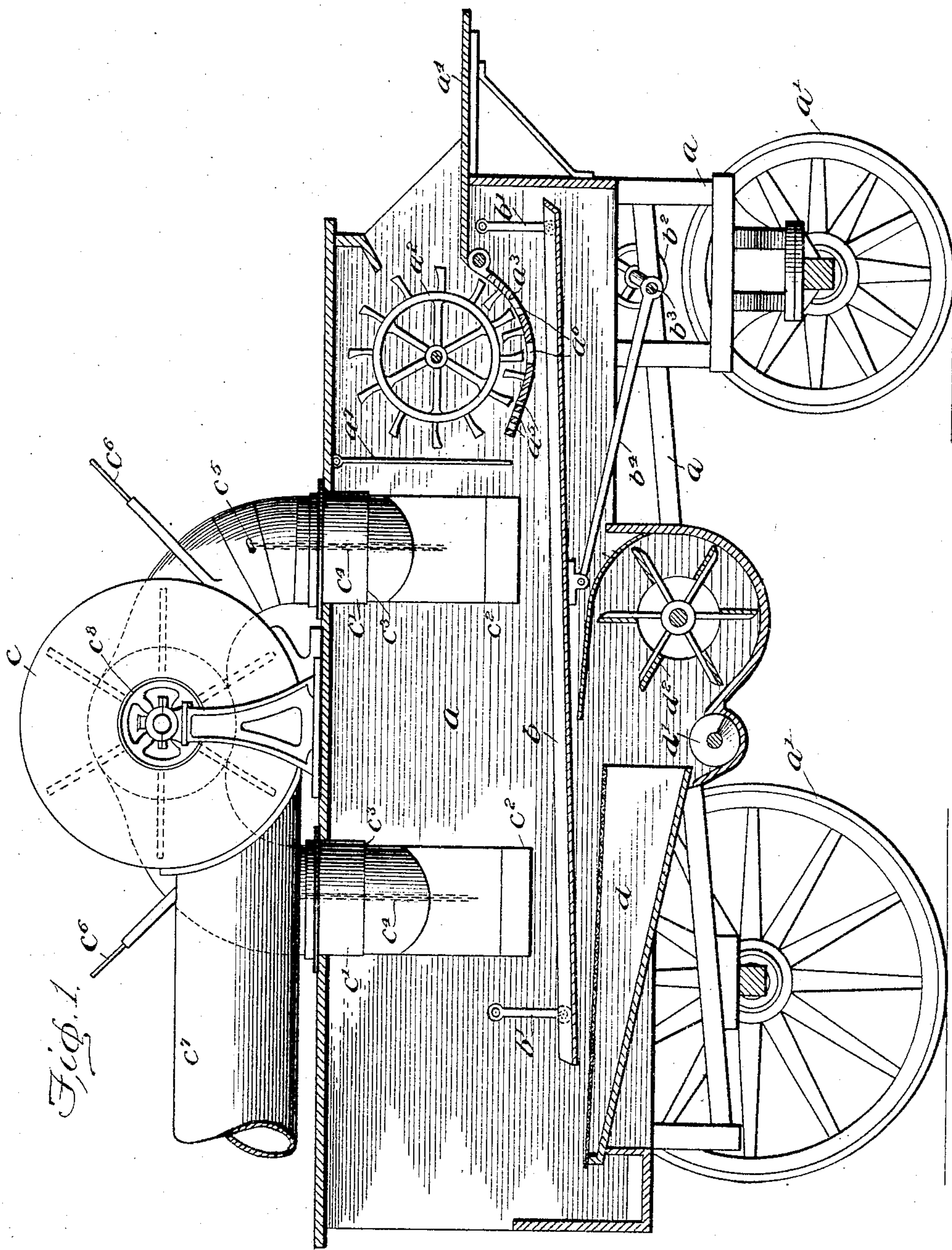


No. 786,303.

PATENTED APR. 4, 1905.

J. D. LITTLE.
THRESHING MACHINE.
APPLICATION FILED MAR. 1, 1902.

2 SHEETS—SHEET 1.



Witnesses

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2 SHEETS—SHEET 2.

Fig. 2.

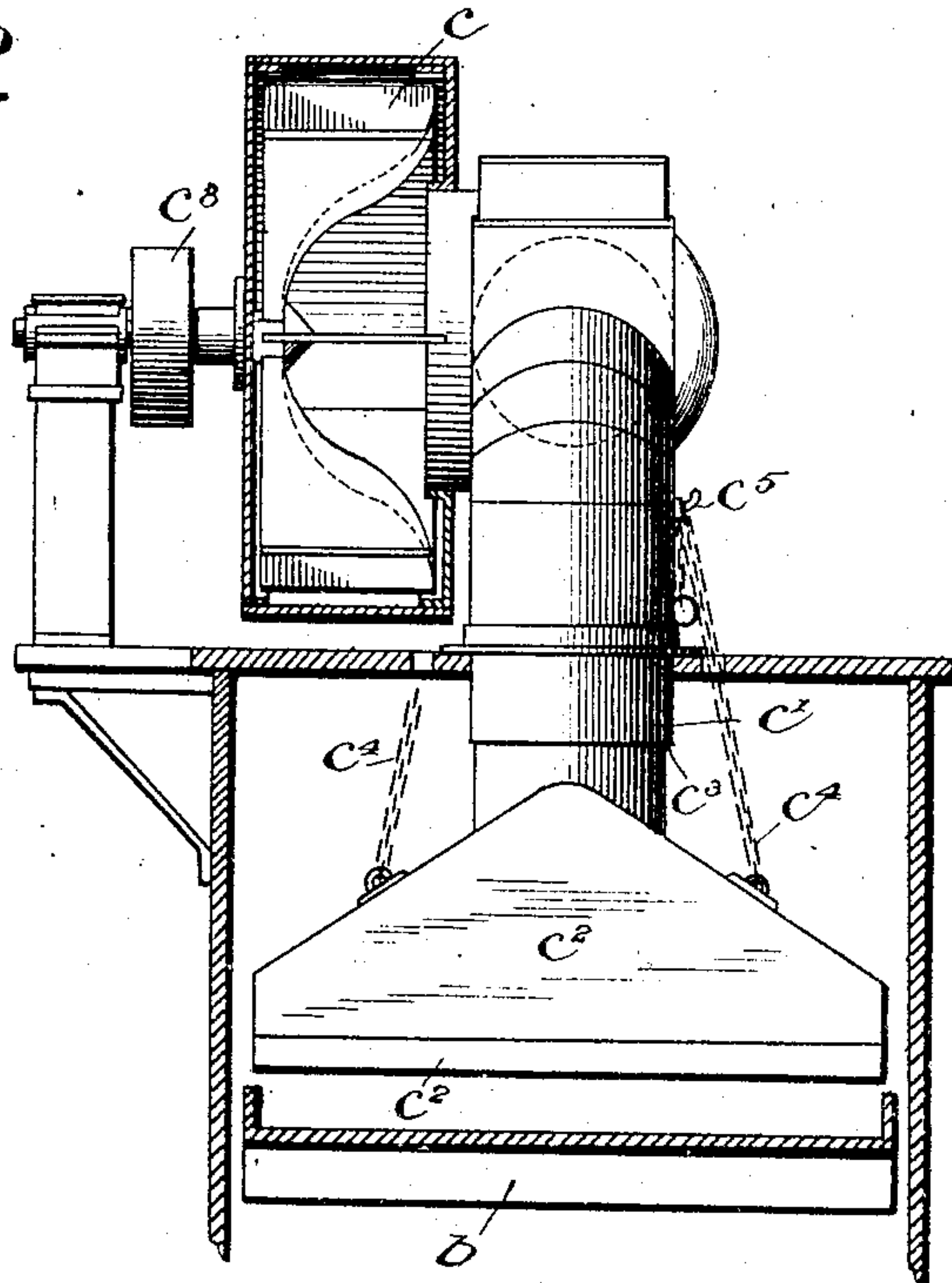
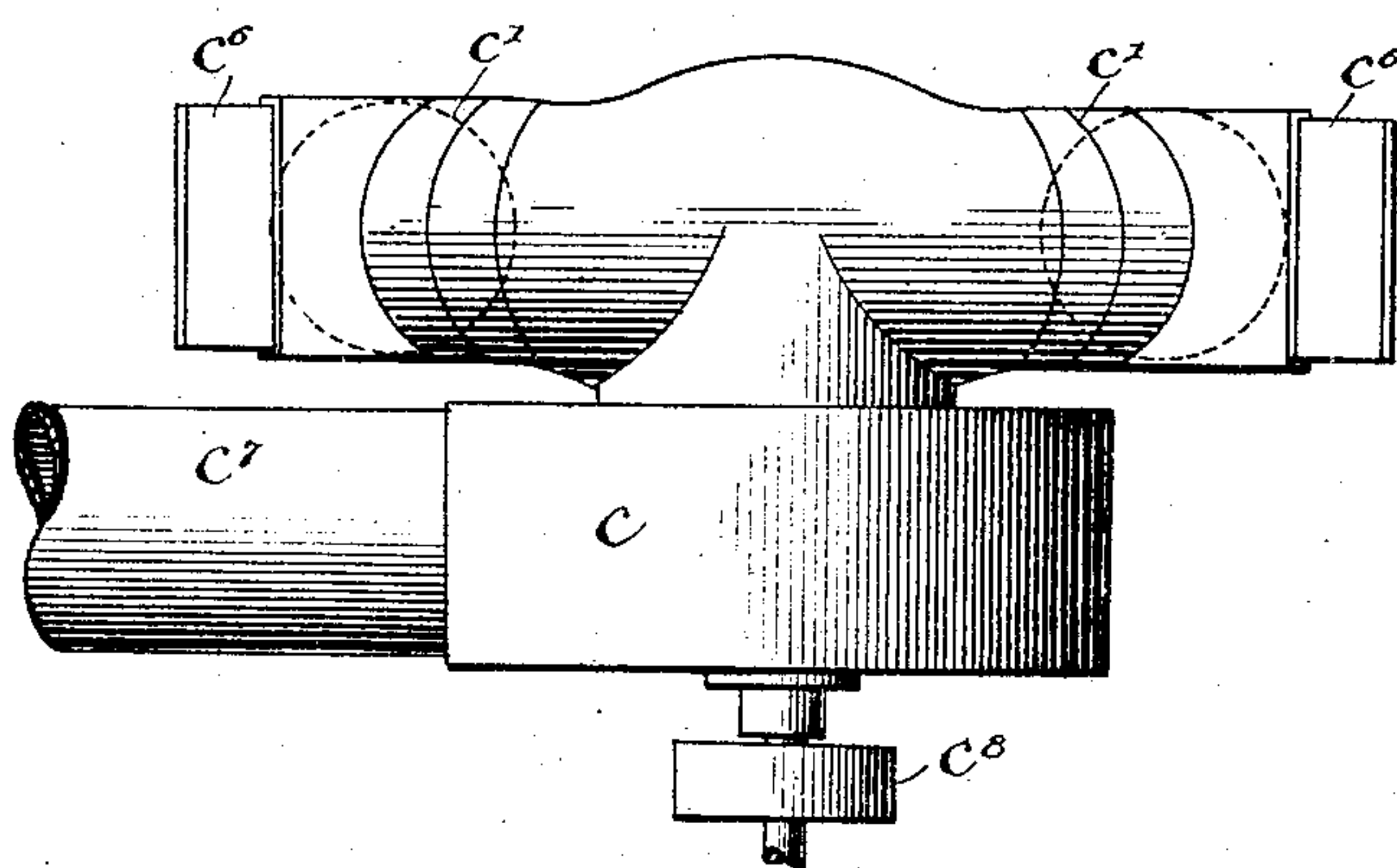


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOSEPH D. LITTLE, OF SPRINGFIELD, OHIO.

THRESHING-MACHINE.

SPECIFICATION forming part of Letters Patent No 786,303, dated April 4, 1905.

Application filed March 1, 1902. Serial No. 96,350.

To all whom it may concern:

Be it known that I, JOSEPH D. LITTLE, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Threshing-Machines, of which the following is a specification.

My invention relates to threshing-machines, and more especially to means for separating small grains from the straw.

The object of my invention is to provide a simple and effective thresher and separator in which the straw is taken from the machine wholly by the aid of an air-current produced by an exhaust or suction, (without the aid of other mechanical devices,) which, by reason of the tendency of the current to straighten out the straw and by the difference in specific gravity between the straw and grain, will separate and discharge the straw from the machine, leaving the grain to pass through the ordinary channel and be further cleaned and discharged as desired.

A further object of my invention is to provide means for adjusting the different parts to the work to be performed and to the conditions of operation.

My invention consists in the various constructions and combinations of parts herein after described, and set forth in the claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of a machine embodying my invention. Fig. 2 is an end view, partly in section, of a portion of the frame, the vibrating pan, the exhaust-fan, with its suction-conduits, and adjustable inlet over said pan; and Fig. 3 is a plan view of the exhaust-fan, with its conduits and valves.

Like parts are represented by similar letters of reference in the several views.

In the drawings I have shown a machine having the main frame a mounted in the usual way on the wheels a' . The ordinary threshing-cylinder a^2 , driven in any suitable manner and having the usual concave a^3 adjacent thereto, extending from the feed-table a^4 , may be used, and at the inner end of said concave I preferably provide the grates a^5 , which, in addition to the perforations a^6 of the concave, permit the separated grain to fall through to

the vibrating pan b . The usual metal flipper a^7 is also preferably employed and is hung adjacent to the threshing-cylinder. Said vibrating pan may be suspended by the links b' from the frame, and the pulley b^2 , driven in any suitable manner, turns the crank b^3 and through the connecting-rod b^4 vibrates the pan.

I have shown and described the usual feeding and threshing devices and vibrating pan; but I do not wish to be understood as confining myself to any particular form of these devices, as various forms may be employed.

Back of the thresher, and preferably at the top of the machine, I place an exhaust-fan c , which may be driven, through the aid of a pulley c^8 , in any suitable way, said fan being provided with one or more exhaust-conduits c' , which extend down into the machine and are preferably formed with an enlarged end c^2 , equal in width with and extending over the vibrating pan in a position to readily gather the straw as it comes from the threshing-cylinder. To the rear of and below the vibrating pan is the usual riddle d and the fan d^2 , by which the grain separated from the straw is further cleaned and discharged through the conveyer d' in the usual way. All of these parts, however, may be varied as desired.

In operation the straw as it is discharged from the cylinder, together with such grain as has not passed through the grates or perforations, is caught by the current of air as it passes from the cylinder. The suction of the fan has a tendency to straighten out the individual straws, and this action, together with the difference in the specific gravity between the grain and the straw, causes a separation of that part of the grain which may have been discharged with the straw from the cylinder and permits it to drop into the vibrating pan, while the straw passes up through the conduit and is discharged to any particular point by the air-blast, no other form of conveyer or mechanical device being employed. Any part of the straw which may become broken or which may escape the action of the blast and fall back into the pan will be carried on the vibrating pan and by the vibrating action thereof gathered to the top of the grain by

reason of the difference in specific gravity, this straw being discharged and a further separation being effected by the use of a second conduit which extends down from the fan at
5 a point behind the first and immediately over the vibrating pan.

In order to insure the best results in carrying off the straw and making the separation, I preferably form the conduits in sections
10 adapted to telescope, as shown at c^3 , so that the enlarged end c^2 of the conduit may be raised or lowered, any suitable means being employed for holding them in adjustable position, chains c^4 and hooks c^5 being shown in
15 the drawings for this purpose.

Means for adjusting the strength of the air-current and also the size of the openings into the conduit may be found desirable. For this purpose I provide valves or slides c^6 in the
20 conduit to regulate the draft. It is obvious that the discharge-pipe c^7 may be of any suitable length to discharge the straw to any place desired.

Where a sufficient separation and delivery
25 of the straw is secured by one conduit the second one may be dispensed with.

It is thought that the operation of the device has been sufficiently described by the foregoing. The straw as it passes from the cylinder, and preferably while still suspended in the air, is caught by the suction or air-current and by the straightening action of the air-current and the greater specific gravity of such grain as is therein will cause the straw to be
30 discharged from the machine free of all grain, thus making a better and more effective separation than where mechanical devices are employed. The chamber in the machine into which the exhaust-conduits extend is, in fact,
40 a separating-chamber, for here the grain is separated from the straw, the straws straightening out in the current in said chamber and dropping the grain, thus causing the separation in said chamber, and the exhaust-conduits
45 form separate passages independent of the separating-chamber for the discharge of the straw from the machine. This construction permits of the use of plain straight exhaust-conduits extending from the fan into said
50 chamber to conduct the straw from the machine, and the separation is made in said chamber by suction and gravity without the aid of other mechanical devices.

Having thus described my invention, I
55 claim—

1. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more conduits extending
60 downwardly into said chamber, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said
65 conduits, substantially as specified.

2. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more plain straight conduits extending downwardly into said chamber, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said plain straight conduits, substantially as specified. 70 75

3. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more telescoping conduits extending downwardly into said chamber, with means to adjust and hold the same in adjusted position, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified. 80 85

4. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more conduits extending downwardly into said chamber, and valves in said conduits to regulate the draft, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified. 90 95

5. In a machine such as described, the combination with threshing devices and a casing forming a separating-chamber, of an exhaust-fan having one or more telescoping conduits extending downwardly into said chamber, with means to adjust and hold the same in adjusted position, and valves in said conduits to regulate the draft, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified. 100 105 110

6. In a machine such as described, the combination with threshing devices, a casing forming a separating-chamber, and a vibrating pan, of an exhaust-fan having one or more conduits extending downwardly into said chamber, whereby the suction produced by said fan will cause the straws to straighten out in the current in said chamber and drop the grain and the straw is discharged from the machine through said conduits, substantially as specified. 115 120

In testimony whereof I have hereunto set my hand this 24th day of February, 1902. 125

JOSEPH D. LITTLE.

Witnesses:

CHAS. I. WELCH,
CLIFTON P. GRANT.