

No. 629,484.

Patented July 25, 1899.

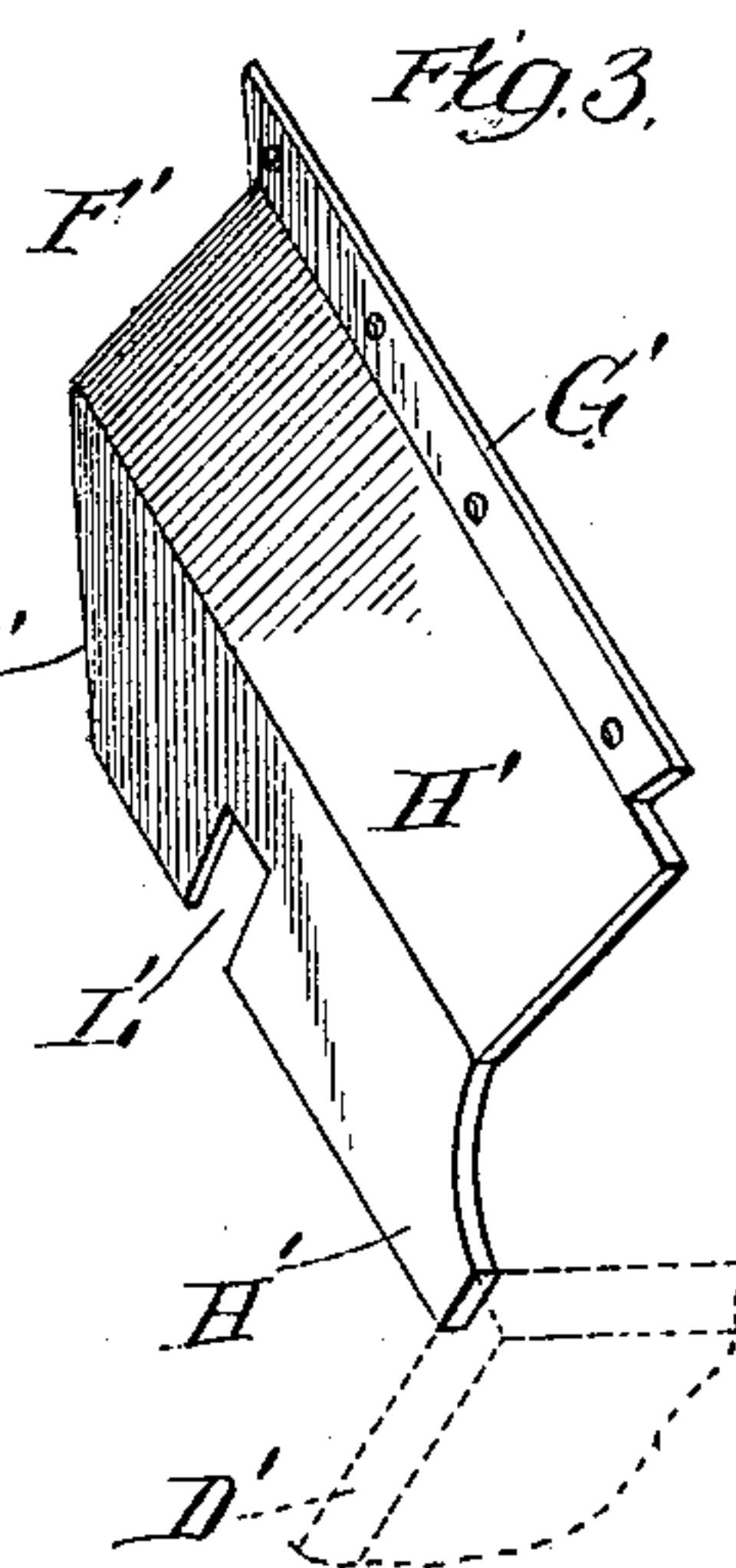
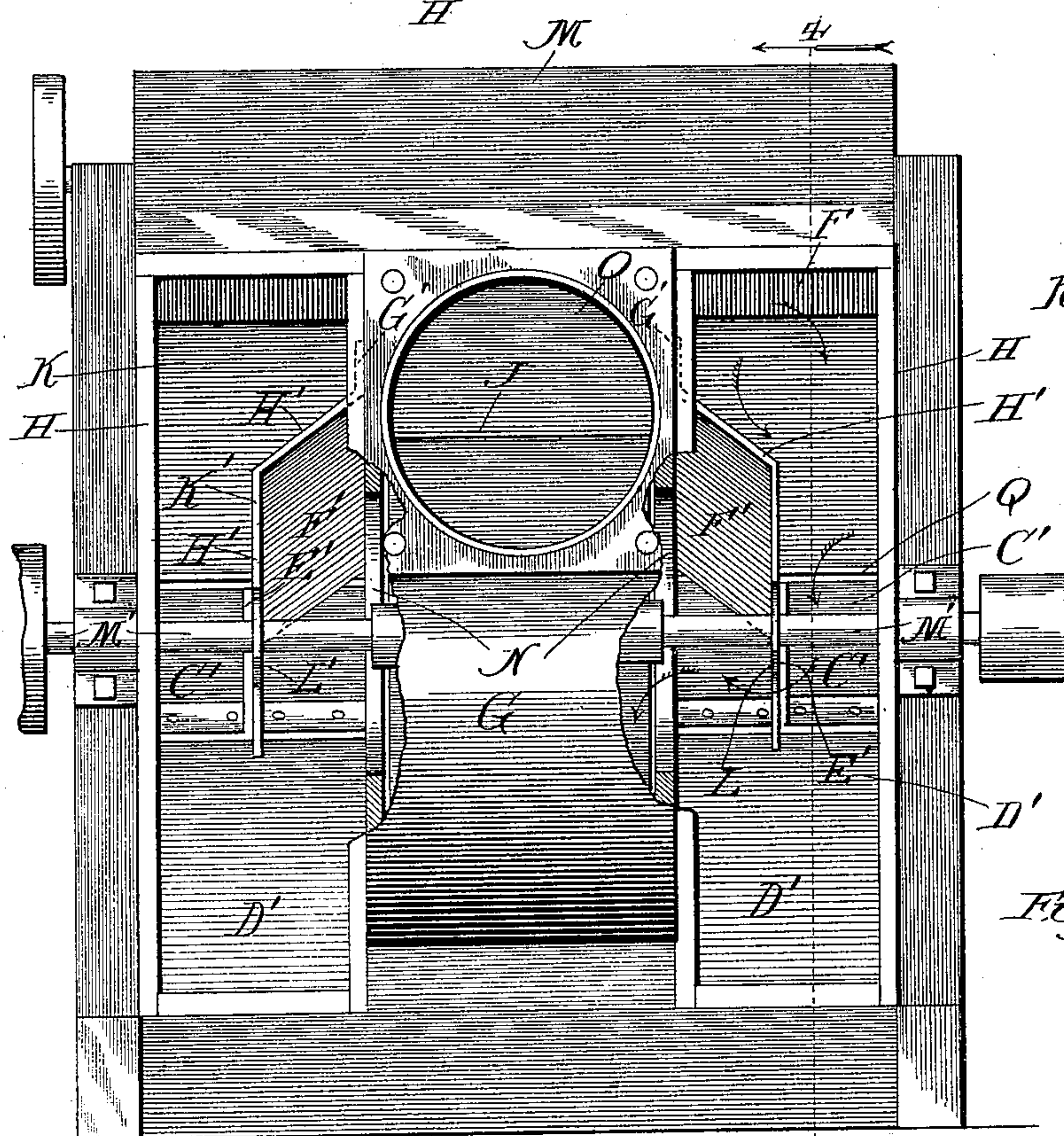
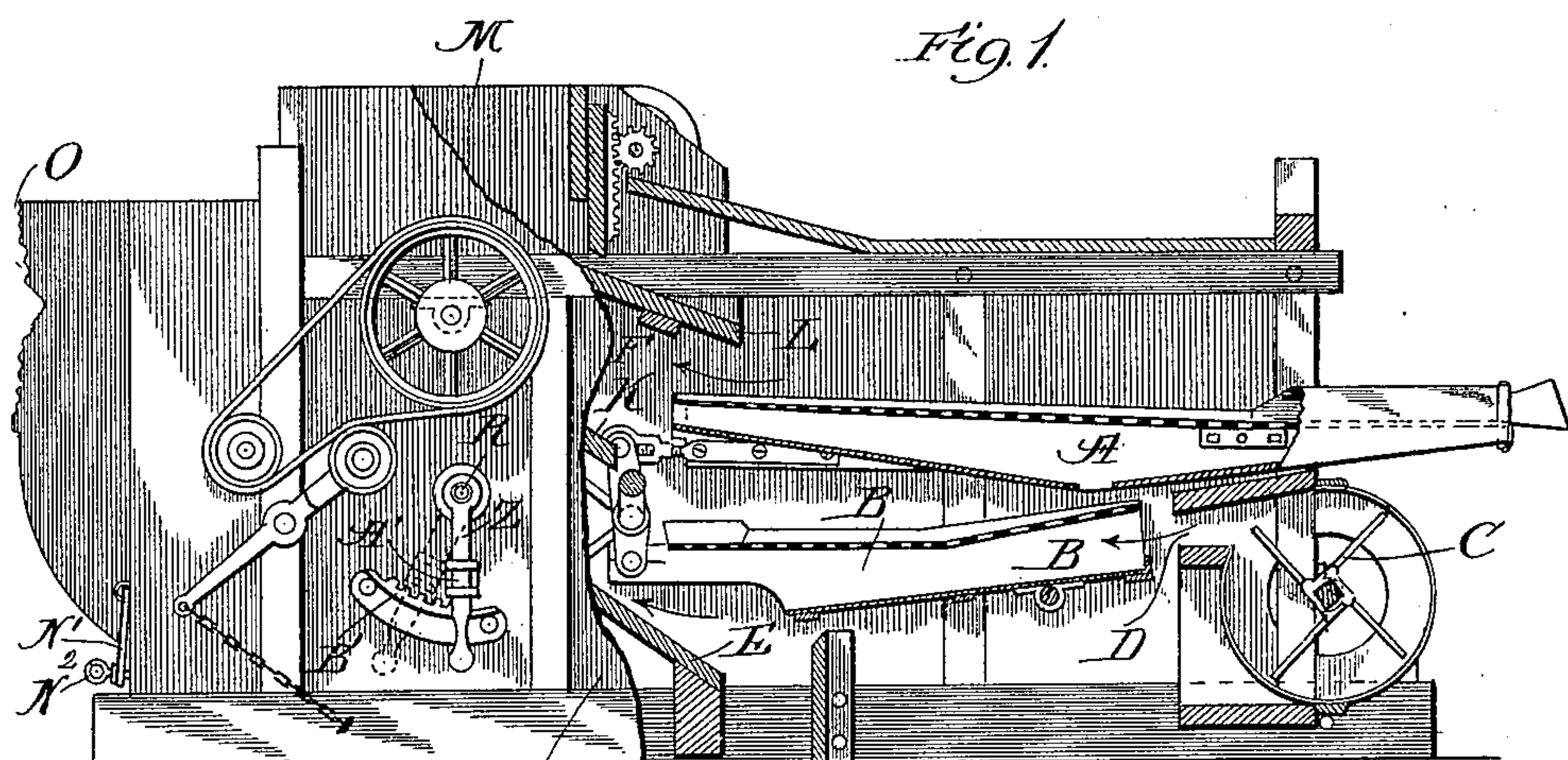
J. Q. ADAMS.

CLEANER FOR CORN OR OTHER CEREALS.

(Application filed Oct. 8, 1898.)

(No Model.)

3 Sheets—Sheet 1.



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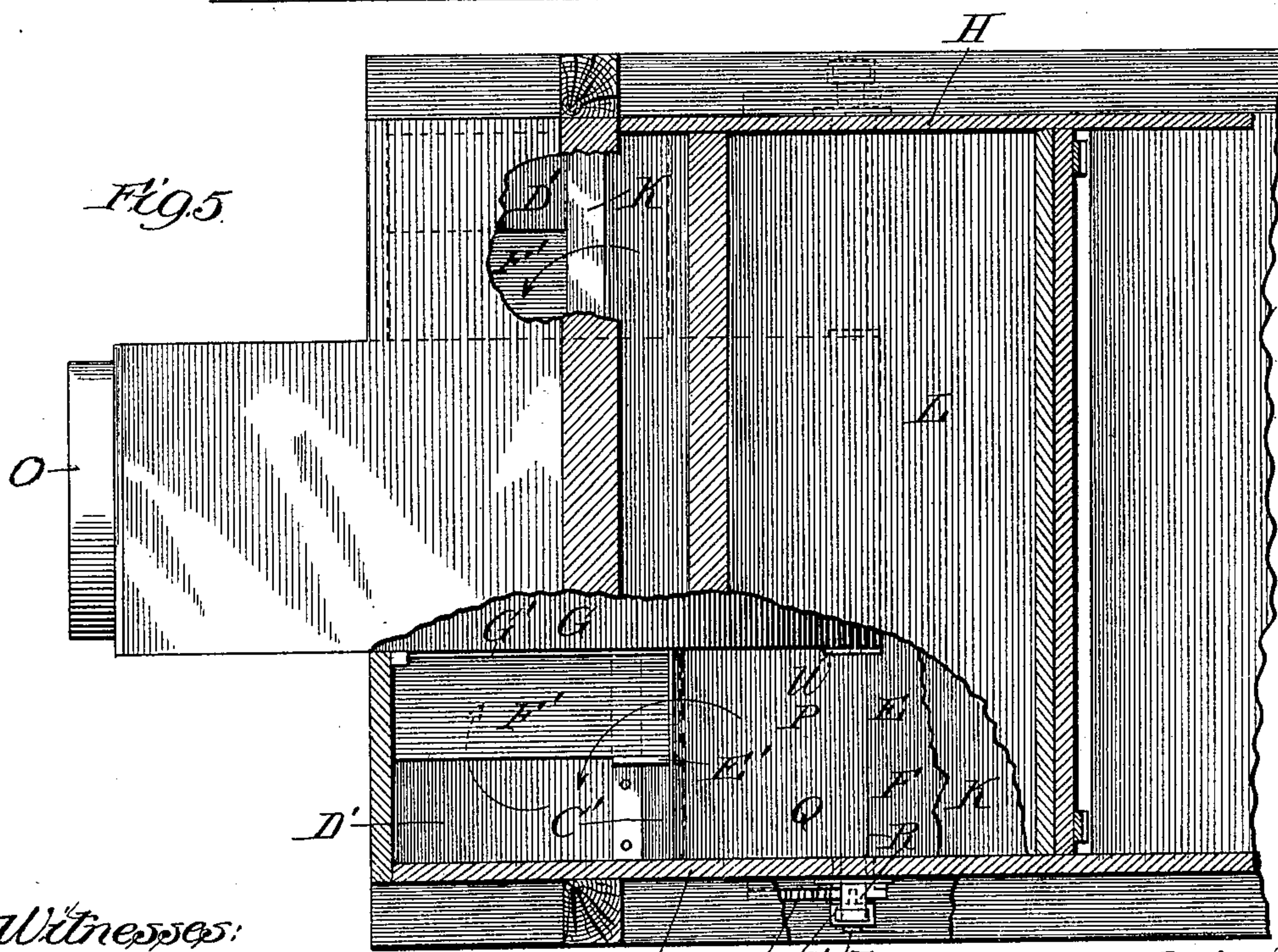
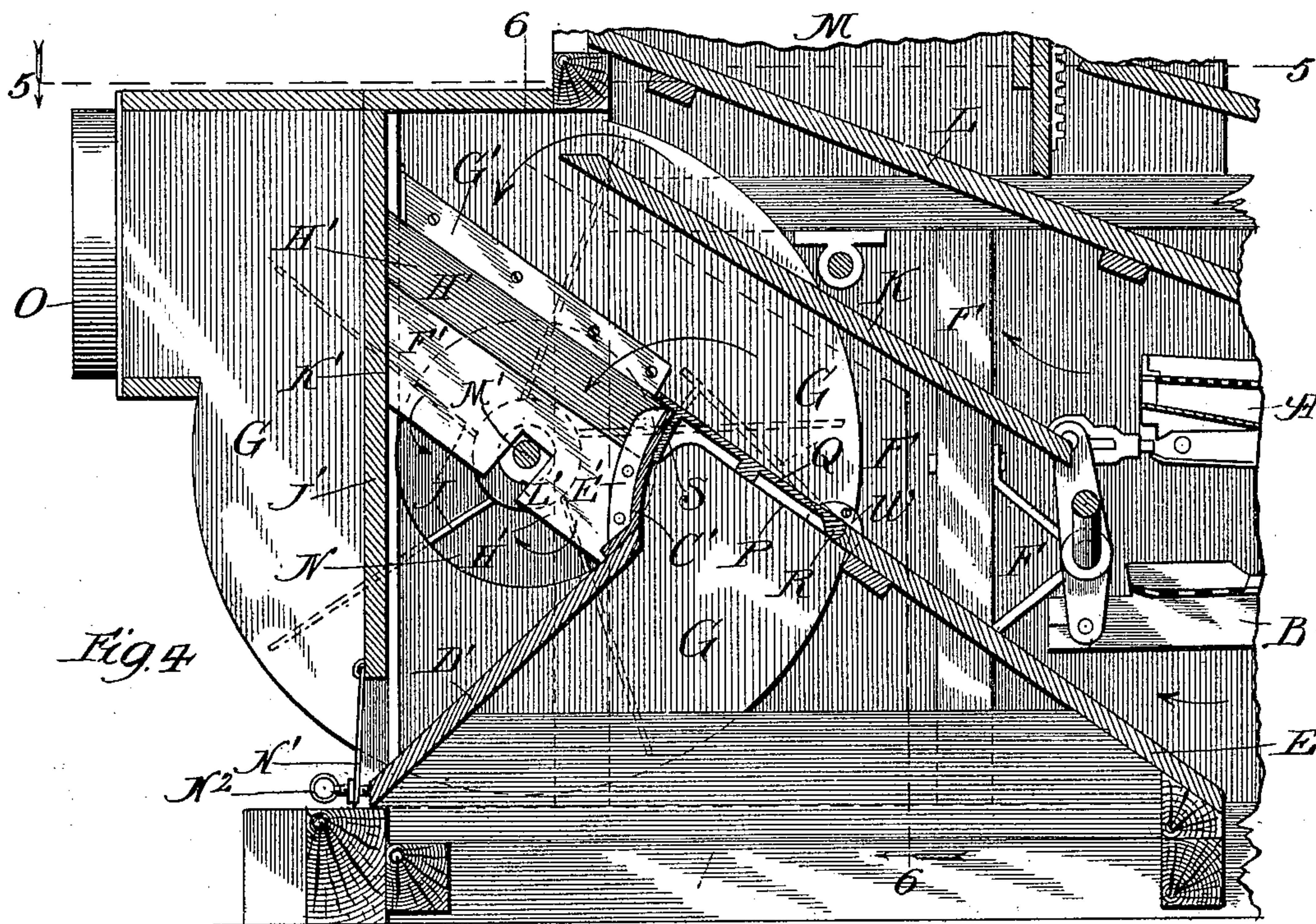
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3 Sheets—Sheet 2.



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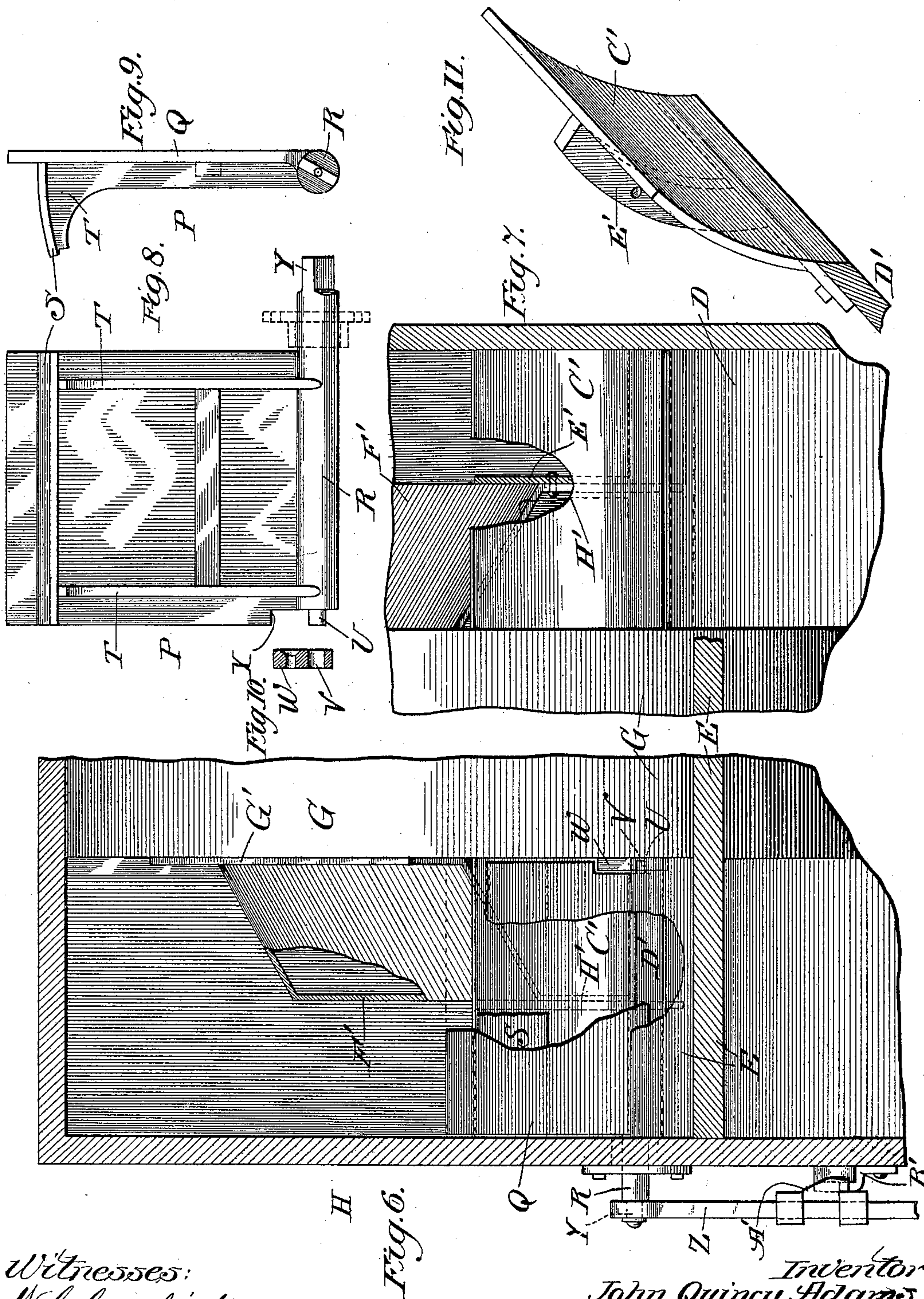
**J. Q. ADAMS.**

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(Application filed Oct. 8, 1898.)

(No Model.)

3 Sheets—Sheet 3.



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# UNITED STATES PATENT OFFICE.

JOHN QUINCY ADAMS, OF MARSEILLES, ILLINOIS.

## CLEANER FOR CORN OR OTHER CEREALS.

SPECIFICATION forming part of Letters Patent No. 629,484, dated July 25, 1899.

Application filed October 8, 1898. Serial No. 693,009. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN QUINCY ADAMS, a citizen of the United States, residing at Marseilles, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Cleaners for Corn or other Cereals, of which the following is a specification.

My invention relates to certain improvements in cleaners for corn and other cereals, and it can also be applied to any sheller or threshing-machine, although I have shown it as embodied in a cleaner apart from any shelling apparatus.

My invention relates more particularly to that class of cleaners in which a blast-fan is combined with a suction-fan and the necessary shaking-sieves for separating the dust and dirt from the grain and carrying it to the suction-fan, whence it is discharged at any convenient point.

One feature of my invention is directed to making a portion of the floor of the channel leading to the suction-fan from the sieves adjustable, so as to vary the angle thereof, and thus increase or diminish the space through which the blast of air must pass, thus enabling me to more perfectly control the discharge of the dust from the machine and to prevent any possible discharge of the grain therewith.

Another feature of my invention is comprised in the employment of shields interposed in the direct path of the air between the shaking-sieves and the entrance of the suction-fan chamber, so as to prevent the possibility of any grain being carried into the suction-fan.

Referring to the sheets of drawings, in which the same letters of reference are used to designate identical parts in all the views, Figure 1 is a side elevation, partly in section, of the complete machine. Fig. 2 is an end elevation of the same on a slightly-enlarged scale and with some of the casing removed or broken away to show the interior construction. Fig. 3 is a perspective view of one of the shields. Fig. 4 is a sectional view on the line 4 4 of Fig. 2. Fig. 5 is a plan view, partly in section, on the line 5 5 of Fig. 4, with some of the casing broken away to show the interior construction. Figs. 6 and 7 are sectional

views through the two sides of the machine on the line 6 6 of Fig. 4, some of the parts being broken away to disclose interior portions. Figs. 8 and 9 are an inverted plan view and side elevation, respectively, of the adjustable section of the dust-chute. Fig. 10 is a sectional view through one of the bearings of said adjustable section, and Fig. 11 is an inverted perspective view of the casting cooperating with said adjustable portion.

Referring to Fig. 1, in which the parts of the cleaner as hitherto constructed by me are shown in section, A represents the shaking-screen whose office is primarily to separate the shelled corn from the cobs, and B is the shaking-screen located beneath and cooperating with the first-mentioned screen and whose function is to separate the corn from the chaff and the dust.

C represents the customary blast-fan, journaled in a suitable casing and driven by suitable connections with the driving-shaft and directing a stream of air through the outlet D beneath and through the sieve-surface of the shaking-screen B, the direction of the passage of the air being indicated by the arrows. The current of air passing beneath and through the screen B is directed against the inclined plate E, which forms part of the bottoms of the wind-channels F, which are arranged on either side of the substantially circular suction-fan casing G. These channels F have their outer sides formed by the sides H of the principal casing of the machine, and their inner sides are formed by the respective sides of the casing G for the suction-fan J. The upper portions of these channels are formed by the plate or strip K, which extends on either side of the casing G and also entirely across the main casing of the machine below the casing G, thus being substantially of a U shape. This strip K also forms the bottom of a channel which receives the air more particularly from the upper shaking screen or shoe A, the top of which channel is formed by the bottom L of the hopper M, while its sides are formed by the sides H of the casing previously mentioned. The sides G of the casing for the suction-fan are each provided with the central circular aperture N, through which the dust and chaff from the channels F and the upper channel just de-



scribed are drawn into the suction-fan, so as to be discharged therefrom through the circular aperture O. All these parts are of the customary construction as previously employed by me.

Instead of making the bottom E of the channel F continuous clear up to the aperture N, as heretofore, I make the upper portion thereof adjustable by the employment of the section P, which is best shown in Fig. 7. This section consists of the main plate or body portion Q, which terminates in the rock-shaft R at its lower end and has projecting from the under side of its upper end the curved flange S, which has the strengthening-ribs T leading therefrom down to the shaft R. This shaft R is pivotally mounted at its inner end by the pintle U, which takes in the circular bearing V, formed in the segmental bearing-plate W, which is secured to the side of the casing G. The plate P has the cut-away portion X to accommodate the bearing-plate W, so that a substantially air-tight junction will be formed in all positions of the section P. The other end of the shaft R passes through any desired form of a bearing in the outer casing of the machine and terminates in the rectangular portion Y, which is adapted to receive the handle Z, (see Fig. 1,) which has a latch A' playing over the notched segment B', by which the shaft R is secured in any desired position of adjustment. The curved flange S coöperates with the casting C', (shown in perspective in Fig. 8,) which casting is secured to the inclined board or plate D' at its lower end and has its sides in contact with the side G of the casing for the suction-fan and with the side H of the main casing. Its inner surface is curved to correspond to the curve of the flange S, which is in contact therewith, and when the section P is in its lowest position its plate Q rests on the upper edge of the casting C'.

The casting C' has formed on its outer side the flange E', to which is bolted a portion of one end of the shield F'. (Shown in perspective in Fig. 3.) This shield F' is composed of a substantially rhomboidal sheet of metal bent into the shape shown and secured by the vertical portion G' to the side G of the casing for the suction-fan, while the portion H', which is arranged obliquely in two planes, has its lower end in contact with the upper side of the inner half of the casting C'. The upper end of this portion H' is in contact with the vertical portion J' of the casing. The portion K' of the shield F' is substantially vertical and has its upper end bearing against the casing J' and its lower end against the casting C' and the inclined piece D'. A notch L' is provided, through which the shaft M' of the suction-fan passes. From a careful consideration of the location and form of this shield or plate F' it will be seen that it covers considerably over one-half of the aperture N, leading to the suction-fan. The object of this shield is to prevent any corn which may be

accidentally drawn up through the channel F from entering into the suction-fan, as it is forced out to a considerable distance from the aperture N and passes about two-thirds of the length of said aperture before there is any possibility of its being drawn into the aperture by the suction of the atmosphere. Owing to the weight of the corn as compared with the dust and chaff which the suction-fan is designed to attract, the effect of gravity will be sufficient to cause the corn to fall the remaining distance past the aperture N and into the pocket formed by the inclined strip D' and the vertical portion J' of the casing, at the lower point of which pocket a door N' is provided through which any corn or grain that may have accumulated may be removed. On the other hand, the dust and chaff being so light and being powerfully driven by the blast-fan C, as well as drawn by the suction-fan J, which takes in all the air started by the blast-fan C, has no difficulty in turning the corner formed by the interposition of the shield F' and then being drawn into the suction-fan, whence it is discharged through the aperture O. I provide the door N' with a set-screw N<sup>2</sup>, taking against the bottom of the plates D' and by which the door may be opened as much or as little as may be desired. The suction of the fan J creates a pressure against the door N', holding it as nearly closed as the set-screw N<sup>2</sup> will permit, and also an upward draft through the opening, tending to carry back any dust, while permitting the corn that may have been accidentally carried over to escape.

The operation of the adjustable section P is as follows: If this section is in its lowermost position, so that it practically forms a uniform continuation of the bottom E of the chute F, and the draft of air formed by the blast-fan and the suction-fan is so strong as to carry some of the grain from the screen B up through the chute F and into the suction-fan, the section P will be turned up, say, to the dotted-line position of Fig. 4, and thus not only serves to lessen the channel through which the air shall pass, and thus diminish its efficiency in carrying up the heavier particles, such as the grain, but the heavier particles instead of being bodily carried by the air usually slide up on the plates E, and thus when they come to the part P, having the greater inclination, the resistance and the attraction of gravitation become more effective to overcome the tendency of the blast to carry them upward, and they fall back.

In describing the construction I have simply described the channel on one side of the suction-fan; but it will be understood from the drawings that a similar channel is formed on the other side, while the main body of the machine from the blast-fan C up to the casing G for the suction-fan is not separated into channels.

While I have shown my invention as embodied in the form which I at present consider



best adapted for the purposes in hand, it will be understood that it is capable of some modifications, and I do not desire to be limited to the exact construction herein shown or to its employment in a cleaner alone, as it can be employed in any combined separator and cleaner.

What I claim, and desire to secure by Letters Patent of the United States, is—

10 1. In a machine of the class described, the combination of the pivoted plate P forming a portion of the bottom of an air-passage, and having the curved flange S, with the casting C' having its inner surface curved to correspond to the flange S with which it coöperates.

2. In a machine of the class described, the combination with the suction-fan J, of a casing G having the aperture N therein, the passage F leading to said aperture, an adjustable plate P forming a portion of the bottom of said passage and having the curved flange S, the shield F' placed at the end of the passage F and partially covering the aperture N, and the casting C' having the curved surface coöperating with the flange S, and the rib E' to which the shield F' is secured, substantially as shown and described.

3. In a machine of the class described, the structure comprising the inclined plates E and D', the plate K, the side H of the machine, the fan-casing G, with the plate P pivoted at its lower end to the plate E and forming a continuation thereof, and its upper end furnished with the flange S, and the casting C' fastened

to the upper end of the plate D' with which the flange S of the plate P coöperates, substantially as and for the purpose described.

4. In a machine of the class described, the structure comprising the inclined plates E, K and D', the side H of the machine, the fan-casing G having the aperture N therein, with the plate P pivoted at its lower end to the plate E and forming a continuation thereof and its upper end furnished with the flange S, and the casting C' having the rib E' and fastened to the upper end of the plate D' with which the flange S coöperates, and the shield H' fastened to the rib E' and to the fan-casing G and partially covering the aperture N, substantially as and for the purpose described.

5. In a machine of the class described, the structure comprising the inclined plates E, K and D', the side H of the machine, the side of the fan-casing G, the vertical wall J', with the plate P pivoted at its lower end to the plate E and forming a continuation thereof and its upper end furnished with the flange S, the casting C' fastened to the upper end of the plate D' and having the rib E' thereon, and the shield H' fastened to the rib E' and to the fan-casing G and extending along the line of the plate E to the wall H', and partially covering the aperture N in the fan-casing G, substantially as and for the purpose described.

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