

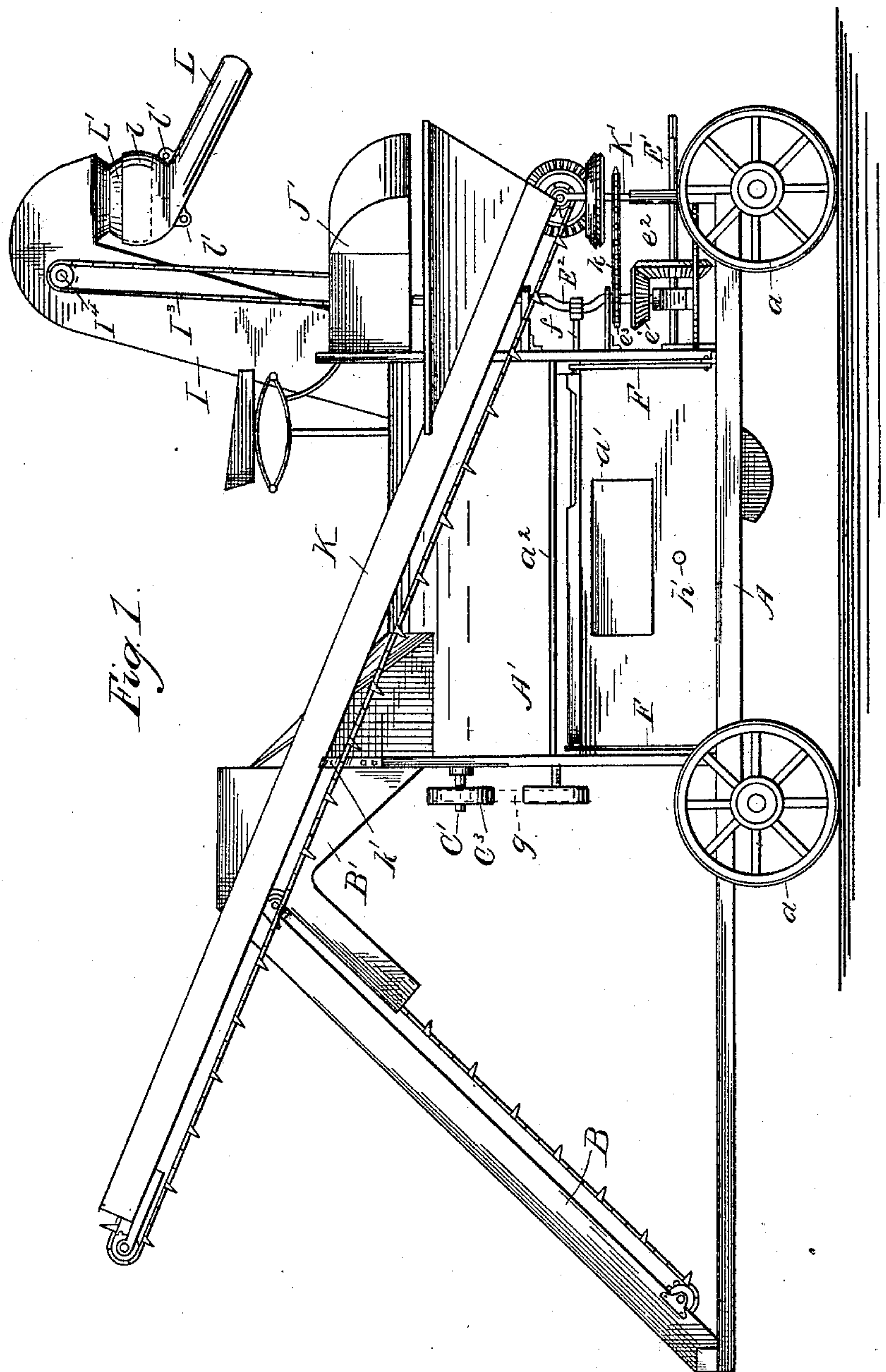
(No Model.)

4 Sheets—Sheet 1.

J. H. GILMAN.
CORN SHELLER.

No. 398,146.

Patented Feb. 19, 1889.



Witnesses.

B. M. Whitaker.
A. M. Best.

Inventor:
John H. Gilman.

By Edwin Thacher
Attys.

(No Model.)

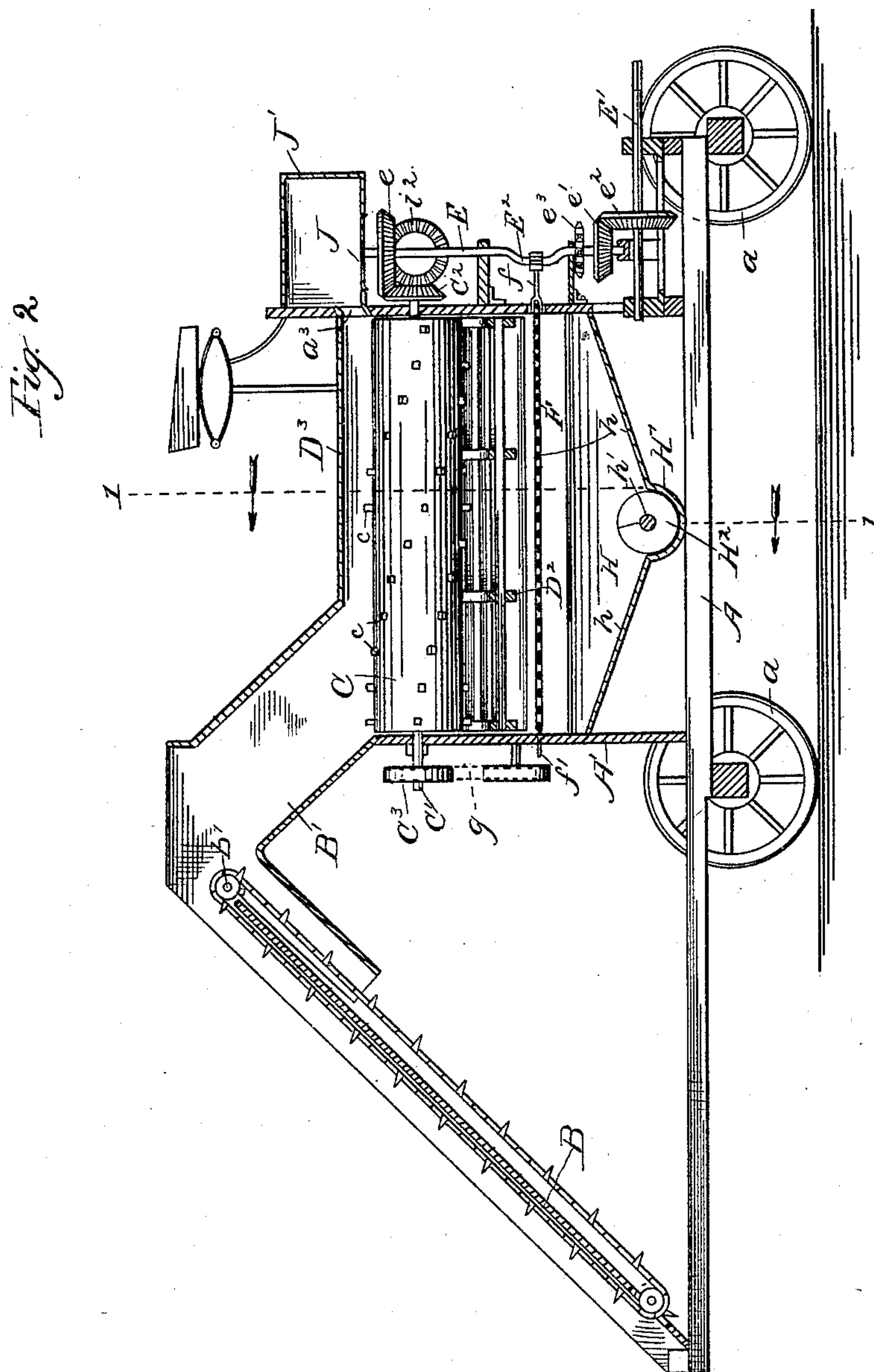
4 Sheets—Sheet 2.

J. H. GILMAN.

CORN SHELLER.

No. 398,146.

Patented Feb. 19, 1889.



Witnesses.

B. M. Whitaker.
A. M. Best.

Inventor:
John H. Gilman.

By Edbern Thacher
Attys.

(No Model.)

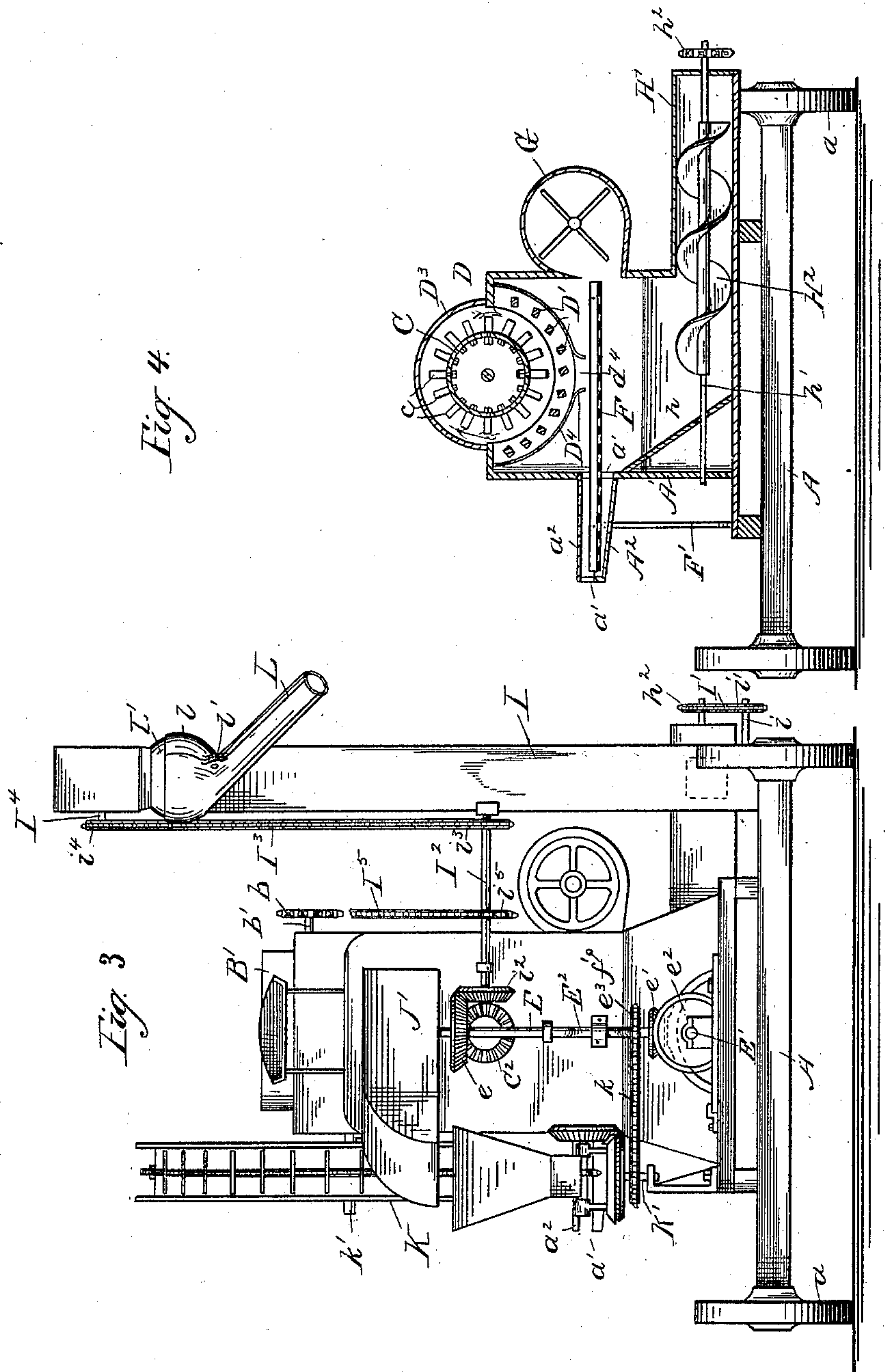
4 Sheets—Sheet 3.

J. H. GILMAN.

CORN SHELLER.

No. 398,146.

Patented Feb. 19, 1889.



Witnesses.

B. M. Whitaker.
A. M. Best.

Inventor:
John H. Gilman.

By Edmund Whacker
Atty³.

(No Model.)

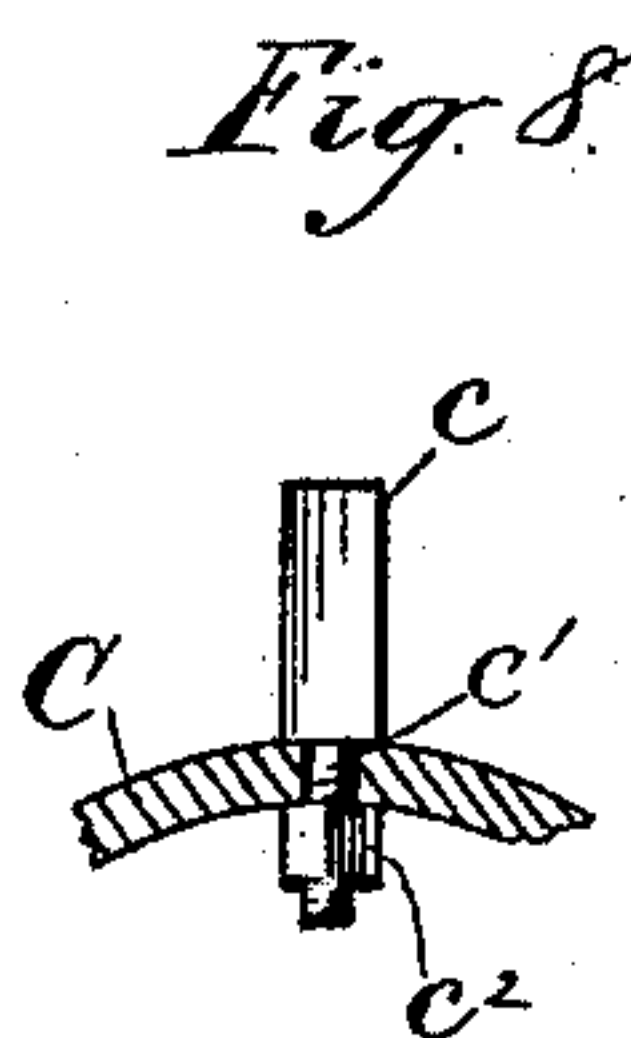
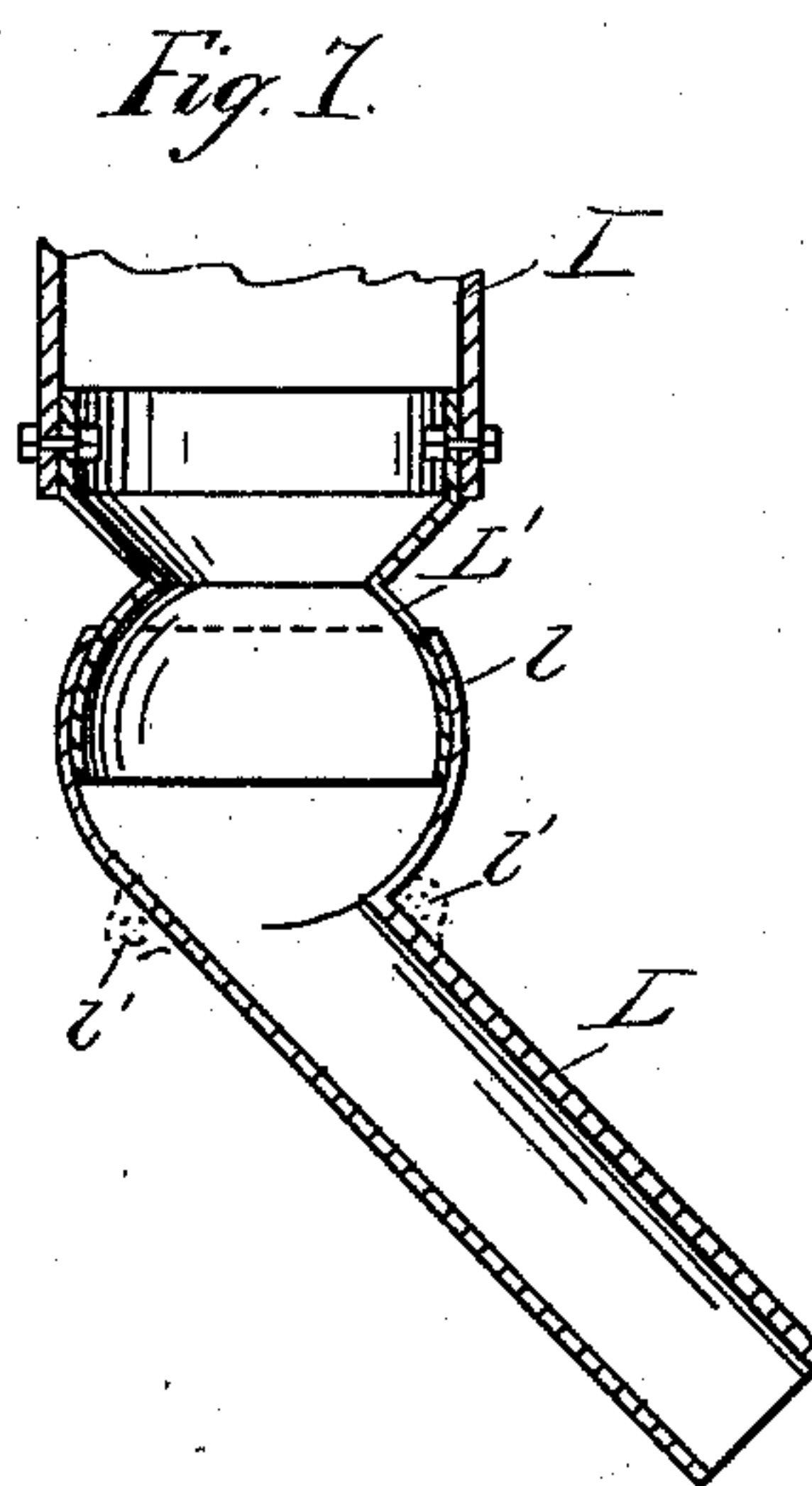
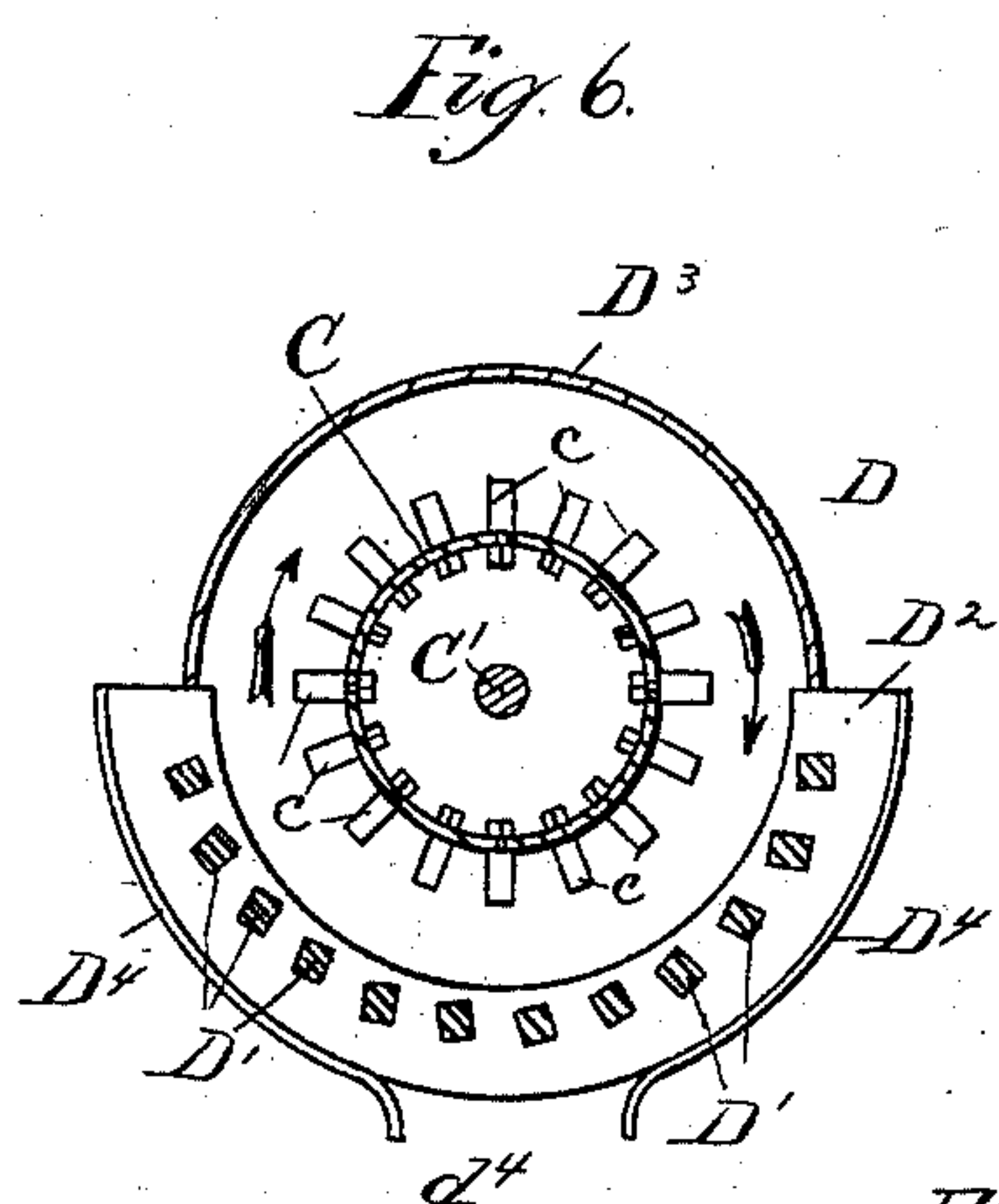
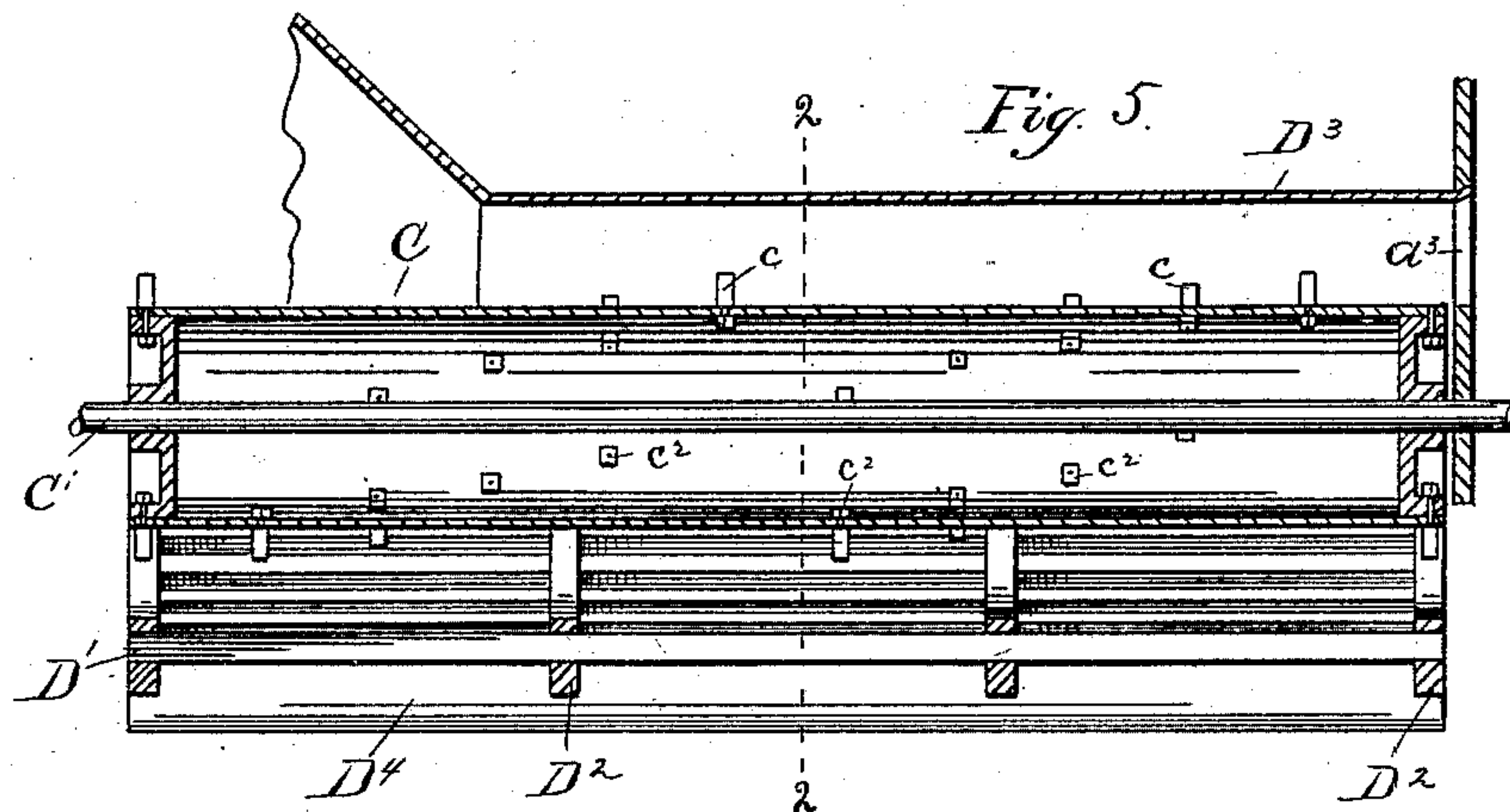
4 Sheets—Sheet 4.

J. H. GILMAN.

CORN SHELLER.

No. 398,146.

Patented Feb. 19, 1889.



Witnesses.

B. M. Whitaker.
A. M. Best.

Inventor
John H. Gilman

By Edw. M. Wheeler
Attys.

UNITED STATES PATENT OFFICE.

JOHN H. GILMAN, OF OTTAWA, ILLINOIS, ASSIGNOR TO THE KING & HAMILTON COMPANY, OF SAME PLACE.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 398,146, dated February 19, 1889.

Application filed May 3, 1888. Serial No. 272,702. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. GILMAN, a citizen of the United States, residing at Ottawa, in the county of La Salle and State of Illinois, have invented a certain new and useful Improvement in Corn-Shellers, which is fully set forth in the following specification, reference being had to the accompanying drawings, in which—

10 Figure 1 represents a side view of a machine embodying my invention; Fig. 2, a central longitudinal sectional view of the same; Fig. 3, an end elevation; Fig. 4, a transverse sectional view taken on the line 1 1 of Fig. 2; 15 Fig. 5, a central longitudinal sectional view of the shelling-cylinder and its casing; Fig. 6, a transverse sectional view of the same, taken on the line 2 2 of Fig. 5; Fig. 7, a sectional view of the elevator-spout, and Fig. 8 a detail view showing the manner of connecting the shelling-teeth to the cylinder.

Like letters refer to like parts in all the figures of the drawings.

25 My invention relates to corn-shellers in which the grains of corn may be separated from the cob, screened, and discharged from the machine at one point, while the cobs are discharged separately at another point.

30 To these ends my invention consists in certain novel features, which I will now proceed to describe, and will then particularly point out in the claims.

In the drawings, A represents a suitable frame, which forms the base of the machine, and which is mounted upon wheels *a*, by means of which the machine may be transported from place to place, as desired. Upon this frame there is mounted a suitable casing, A', within which the shelling mechanism 40 proper is mounted. At the rear of the machine is mounted an inclined conveyer or elevator, B, of any suitable construction, which serves as a feeder to feed the ears of corn to the shelling mechanism.

45 At the top of the feeder B there is arranged a feeding-spout, B', extending downward and forward to the shelling mechanism and opening into the casing thereof, through which spout the ears of corn pass downward to the 50 shelling mechanism.

The shelling mechanism is arranged in the

upper portion of the casing A', and consists of a cylinder, C, constructed, preferably, of metal and hollow, said cylinder being mounted on a shaft, C', which is itself mounted in suitable bearings in the casing A'. This cylinder 55 is provided with a series of rows of shelling-teeth, *c*, the said rows being arranged in spirals extending around the cylinder from end to end thereof. Each tooth is provided 60 with an angular body extending radially outward from the cylinder, and with a round shank or stem, *c'*, which passes through a corresponding aperture in the cylinder C, and is threaded at its inner end to receive a nut, 65 *c*², by means of which the tooth is secured in position.

The cylinder C is surrounded by a case, D, which operates in conjunction with the teeth of the cylinder to remove the grains of 70 corn from the cobs, or, in other words, to shell the corn. This case consists of a series of bars, D', square or angular in cross-section, extending longitudinally and parallel to the surface of the cylinder, and so arranged as to 75 present one of their angles or edges toward the teeth of the cylinder. The bars D' are set at a slight angle to each other, which is considerably less than forty-five degrees, so that while an edge is presented to the shell- 80 ing-cylinder the opening between the bars toward the cylinder will not be V-shaped, as shown in Fig. 6 of the drawings. If this opening is V-shaped, there is a tendency of the corn to wedge or clog between the bars, 85 so as to interfere somewhat with free clearance. These bars are arranged at such distances apart as to permit the shelled grains of corn to pass freely through the intermediate spaces, and at the same time prevent the 90 cobs from passing through said spaces. In making this arrangement of the said bars they are to be turned so that the edge or corner on the inside face, which stands toward the movement of the shelling-cylinder, will be 95 raised somewhat above the opposite inside corner. This will provide a rough shelling-surface with somewhat sharp corners or edges standing opposed to the revolution of the shelling-cylinder. The operation of shelling 100 will obviously be improved by this construction, and the filling up of spaces to make a

smooth surface will be obviated. They are held in position by means of supports D^2 , curved to conform to the shape of the case, or, in other words, circular in form, through which supports the bars D' pass, as shown in Figs. 5 and 6. In the present instance I have shown the upper portion of the case D as composed of a smooth semi-cylindrical shell, D^3 , the lower half only being composed of bars D' ; but it is obvious that the entire case D may be constructed of the bars D' , if desired. The lower half of the case D is inclosed by means of an outer casing, D^4 , open at the bottom, as shown in Fig. 6 at d^4 , to allow the grains of corn to pass through. The cylinder C is driven by means of an upright shaft, E , mounted in suitable bearings at the front of the machine, said shaft being provided with a bevel-gear, e , which meshes with a corresponding bevel-gear, C^2 , on the front of the shaft C' .

The vertical shaft E is provided near its lower end with a bevel-gear, e' , and there is arranged on the front of the machine, in suitable bearings thereon, a horizontal shaft, E' , provided with a bevel-gear, e^2 , which meshes with the bevel-gear e' . The horizontal shaft E' is connected to the shaft of the horse-power, or is driven from any other suitable source of power, and serves to impart motion to the various mechanisms composing the apparatus in the manner hereinafter described.

Immediately below the cylinder C and its case D there is arranged a screen, F , upon which the shelled corn falls after passing through the case. This screen has a reciprocating motion imparted to it by means of a pitman, f , one end of which is connected to the front end of the screen, while the other end is connected to a crank, E^2 , formed on the upright shaft E . The screen F extends outward some distance beyond the casing A' , at one side thereof, the said casing being provided with a lateral opening, a' , through which the said screen passes, and with an inclined extension, A^2 , arranged under the projecting portion of the screen, and serving to receive the grains of corn which fall through the said extended portion and return them to the interior of the casing. A similar extension, a^2 , of the casing extends over the top of the screen. At the opposite side of the casing A' there is arranged a blower, G , driven by means of a belt, g , from a pulley, C^3 , on the rear end of the shaft C' . The screen F is supported and guided on the side adjacent to this blower by means of pins f' , which pass through suitable bearings in the casing A' . The other side of the screen F is supported by means of uprights or standards F' , mounted on the frame A outside of the casing A' , and arranged at each end of the extension A^2 of said casing.

Beneath the screen F the casing A' is provided with a bottom having inclined or sloping walls h , the same forming a hopper or box, H , terminating in a trough, H' , which runs

transversely of the machine. Within this trough there is arranged a spiral conveyer, H^2 , mounted on a shaft, h' , which serves to feed the shelled corn along the said trough and discharge it into the elevator I . This elevator is of any suitable construction, and is arranged with its lower end immediately adjacent to the end of the trough H' . A shaft, i , at the lower end of the elevator is provided with a sprocket-wheel, i' , over which and over a sprocket-wheel, h^2 , on the end of the shaft h' there passes a sprocket-chain, I' , by means of which the spiral conveyer H^2 is operated.

I^2 represents a shaft mounted in suitable bearings on the front of the machine and provided with a bevel-gear, i^2 , which meshes with the bevel-gear e on the vertical shaft E . A sprocket-wheel, i^3 , is mounted on the shaft I^2 , and over this sprocket-wheel there passes a sprocket-chain, I^3 , which also passes over a sprocket-wheel, i^4 , on the shaft I^4 at the top of the elevator and serves to impart movement to the said elevator. There is also mounted on the shaft I^2 , at about the center thereof, a sprocket-wheel, i^5 , over which passes a sprocket-chain, I^5 . This sprocket-chain also passes over a sprocket-wheel, b , on the upper shaft, b' , of the feeder B , and serves to impart motion to the same.

Upon the upper end of the shaft E there is arranged a throwing disk or wheel, J , inclosed in a suitable casing, J' . The cobs are discharged from the shelling mechanism through an aperture, a^3 , in the end of the casing thereof, and the throwing-disk J is arranged immediately adjacent to the said aperture, so that the cobs are discharged upon the said throwing-disk and delivered thence to the cob-stacker.

K represents the cob-stacker, which is of any suitable construction, and which is pivoted in the usual manner, so as to swing both vertically and horizontally. It is mounted upon a shaft, K' , at one corner of the machine, and is driven by means of a chain, k , passing around a sprocket-wheel, e^3 , on the shaft E . The support K' for the said stacker is arranged at the extreme corner of the frame A , and is thus not only in front of the casing A' , but also to one side of the same. By reason of this arrangement the cob-stacker may be swung from a position parallel to the side of the machine, as shown in the drawings, around to a position parallel or almost parallel to the front of the machine, or, in other words, through three-quarters of a circle. Upon the side of the casing A' there is mounted a bracket, k' , and when the cob-stacker K is swung around into position parallel with the side of the casing A' it is supported by means of the said bracket k' , and in this position is out of the way and renders the machine more compact during transportation.

Upon the discharge end of the elevator there is mounted a discharge-spout, L , which is provided at its upper end with a spherical

socket, l , which fits over a corresponding ball or spherical terminus, l' , on the elevator I . The spout L is made in two longitudinal sections connected together by lugs and bolts l' , so as to permit of its being properly connected to the elevator. It will be seen that the spout is connected to the elevator by means of a ball-and-socket joint, which permits free movement of the spout in all desired directions and enables me to direct the discharge of shelled corn in any desired direction.

The operation of the machine will be readily understood from the preceding description, and is as follows: The ears of corn are carried upward by means of the feeder B and discharged through the feeding-spout B' to the shelling mechanism. The spiral teeth c of the cylinder C feed the ears of corn gradually along, and at the same time they are shelled by means of the said teeth co-operating with the bars D' , which said bars, being arranged so as to present their angles to the ears and teeth, operate in the most efficient manner to effect this result. The shelled corn passes down between the bars and through the opening d' and falls upon the reciprocating screen F . While resting upon and passing through the said screen it is subjected to the action of the blower G , which sends a blast of air across the said screen and removes all chaff and impurities therefrom. The extension of the screen F beyond the body of the casing A serves to provide a larger screening-surface and retain the grains of corn, which would otherwise be blown off the said screen along with the chaff. The shelled corn then falls into the hopper H , and the screw conveyor H^2 feeds the same along positively to the elevator I , by means of which it is elevated and discharged in any desired direction through the spout L . The cobs are discharged through the aperture a^3 upon the throwing-wheel J , which latter throws them into the cob-stacker K , they being guided during their passage by the casing A' . The cob-stacker discharges them at any desired point and elevation.

It is obvious that various modifications in the details of construction may be made without departing from the principle of my invention, and I therefore do not wish to be understood as limiting myself strictly to the precise details hereinbefore described, and shown in the drawings.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a corn-sheller, the toothed shelling-cylinder, in combination with a series of square or angular bars parallel to the cylin-

der and set at an angle to each other somewhat less than forty-five degrees, substantially as and for the purposes specified.

2. In a corn-sheller, the shelling mechanism, in combination with a vertical shaft arranged at the end thereof and provided with a throwing disk or wheel upon which the cobs are discharged, substantially as and for the purposes specified.

3. In a corn-sheller, the shelling-cylinder, in combination with the cylinder-casing having a cob-discharge aperture, a^3 , the vertical shaft E , provided with a throwing-wheel, J , arranged at said aperture, and the casing J' , substantially as and for the purposes specified.

4. In a corn-sheller, the main casing A' , provided with a lateral opening, a' , in one side thereof, in combination with the incline A^2 and cover a^2 , projecting from the side of said casing, and the reciprocating screen F , extending out through said lateral opening in the casing and reciprocating between the incline A^2 and cover a^2 , substantially as and for the purposes specified.

5. In a corn-sheller, the vertical driving-shaft E , in combination with the shelling-cylinder geared to said shaft, the transverse shaft I^2 , also geared to the shaft E , the feed-elevator B , the sprocket-wheel i^5 on the shaft I^2 , and chain I^5 , running thence to the feed-elevator, the shelled-corn elevator I , and the sprocket-wheel i^3 , also on the shaft I^2 , and the chain I^3 , running thence to the driver of the said elevator, substantially as and for the purposes specified.

6. In a corn-sheller, the main or supporting frame, in combination with a casing containing the shelling mechanism mounted thereon and a cob-stacker pivoted to the main frame at one corner thereof and outside of the casing, whereby the stacker may be turned around against the side of the casing, substantially as and for the purposes specified.

7. In a corn-sheller, the main or supporting frame, in combination with the casing A' , mounted thereon and containing the shelling mechanism, the cob-stacker mounted on a pivotal support at one corner of the frame and outside of the casing, and a bracket, k' , mounted on the casing and adapted to receive and retain the cob-stacker when turned back against the side of the casing for transportation, substantially as and for the purposes specified.

JOHN H. GILMAN.

Witnesses:

FRANK G. ALLEN,
CLARENCE GRIGGS.