

No. 637,930.

Patented Nov. 28, 1899.

L. E. GAISSER.
CORN SHELLER.

(No Model.)

(Application filed Jan. 31, 1898.)

Fig. 1.

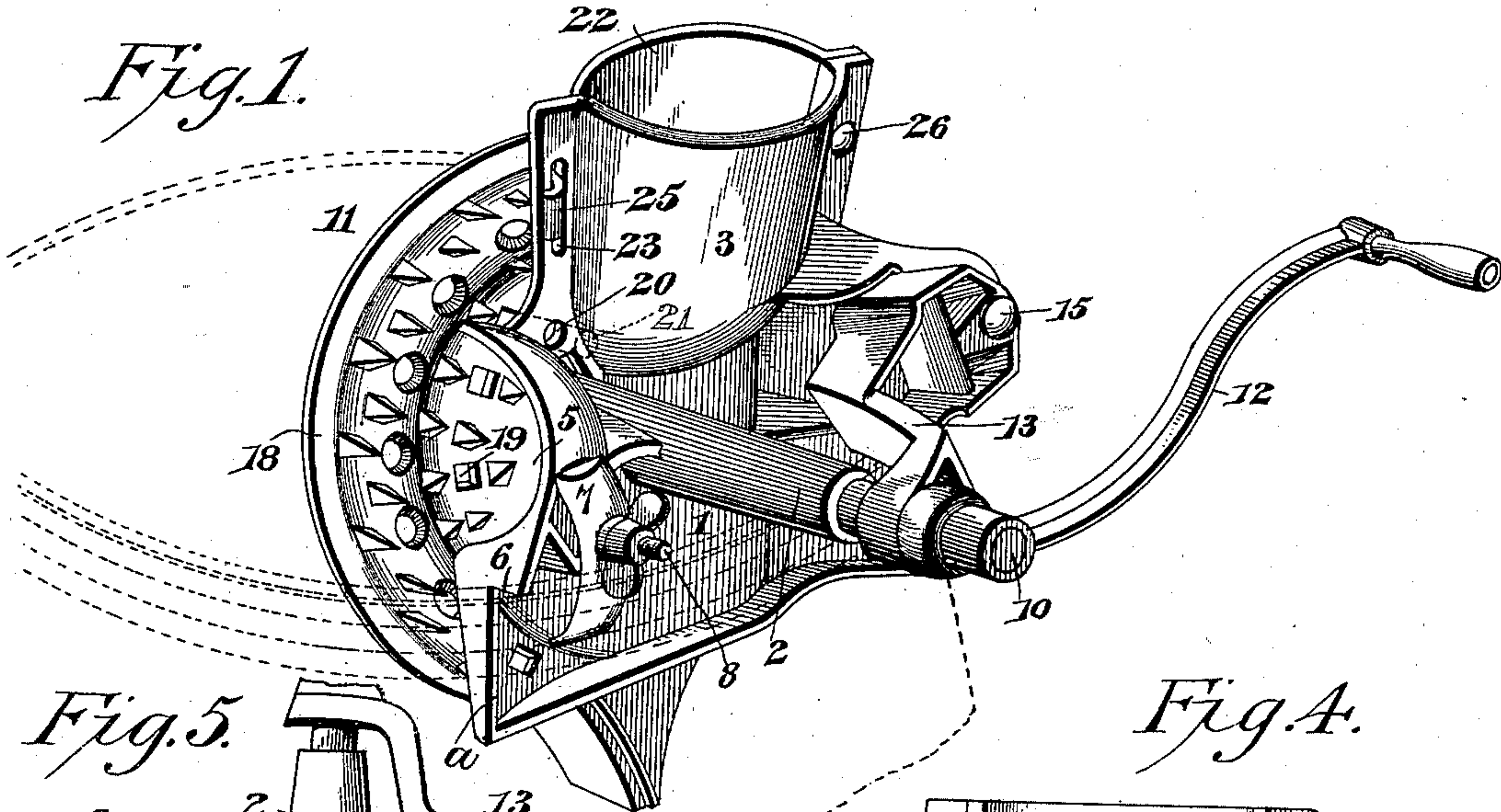


Fig. 5.

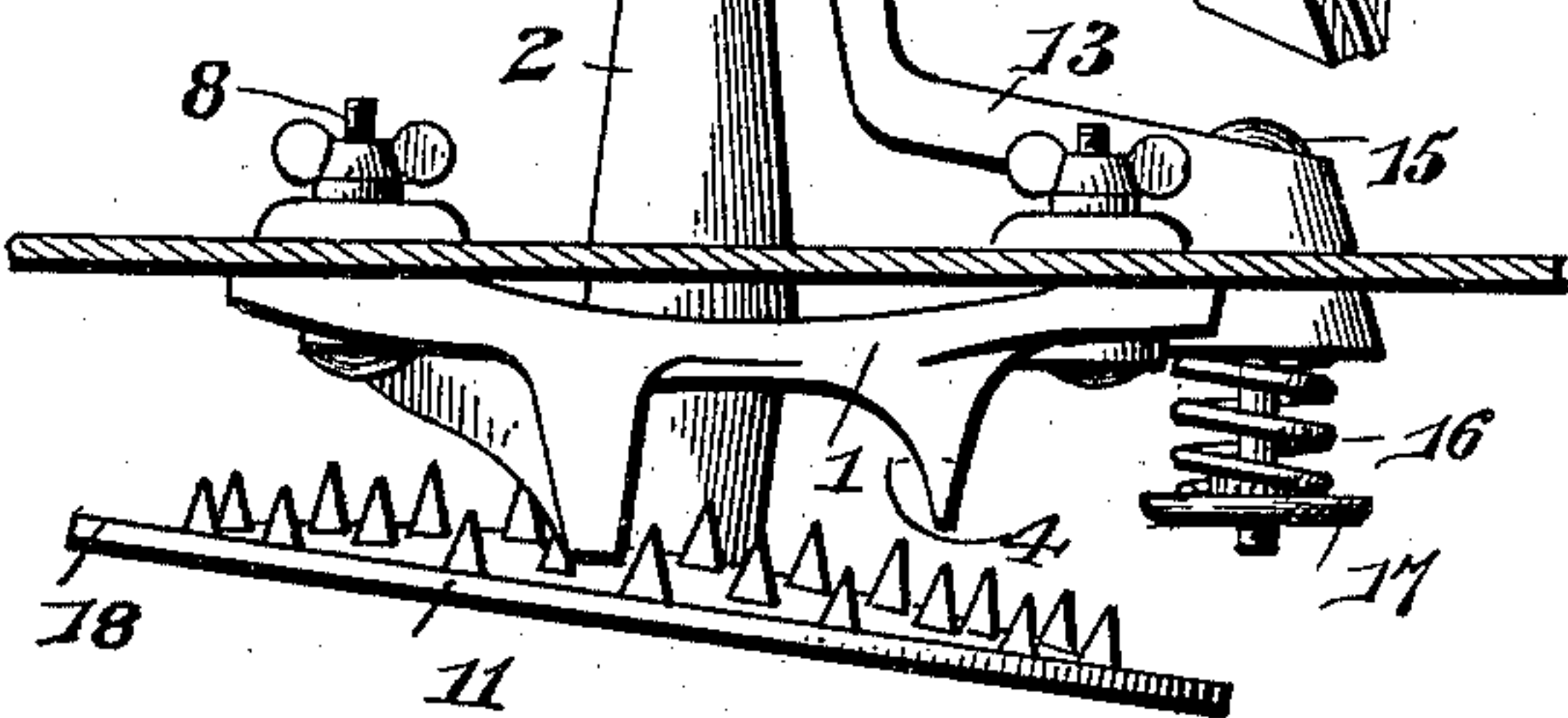


Fig. 4.

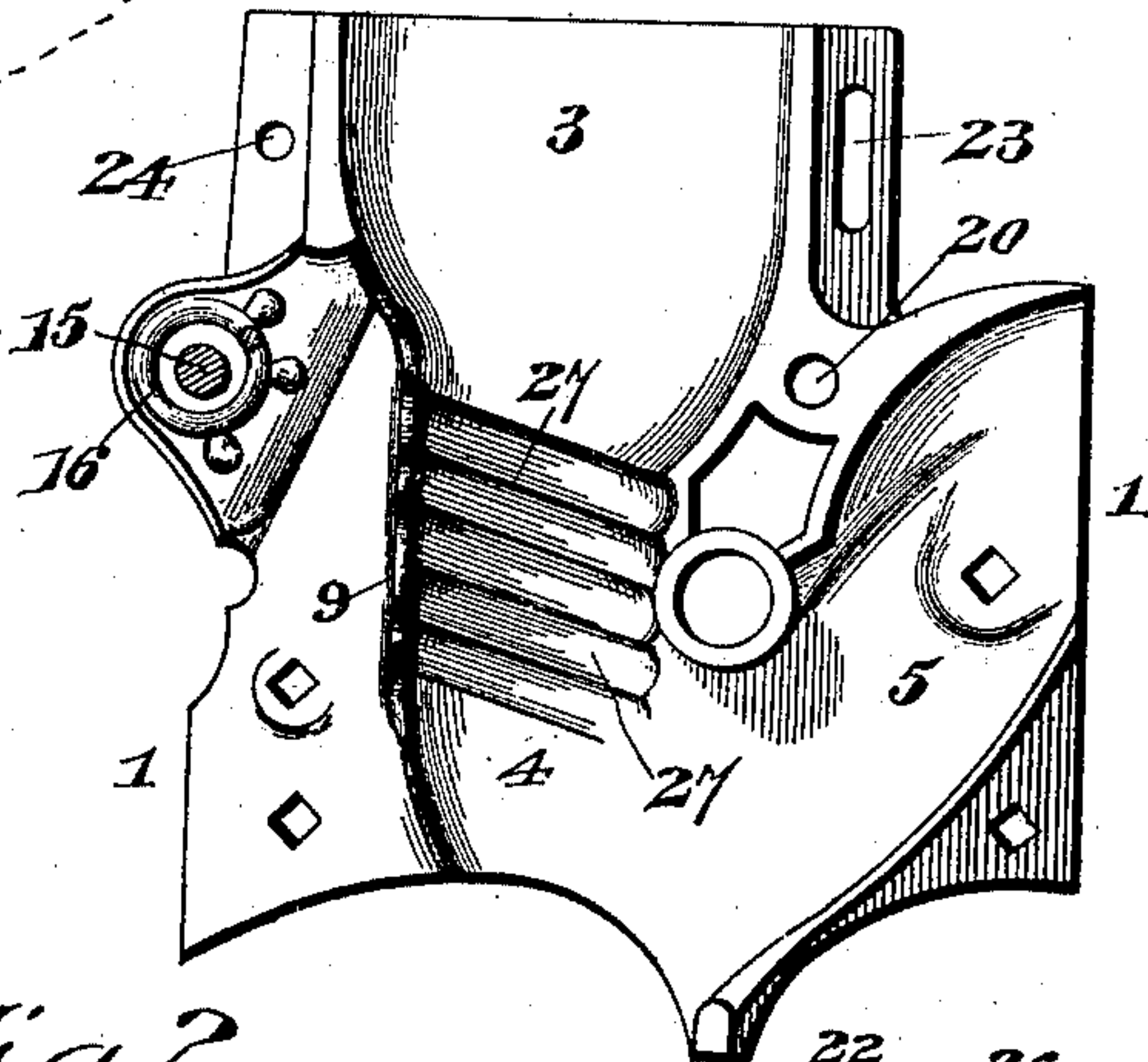


Fig. 3.

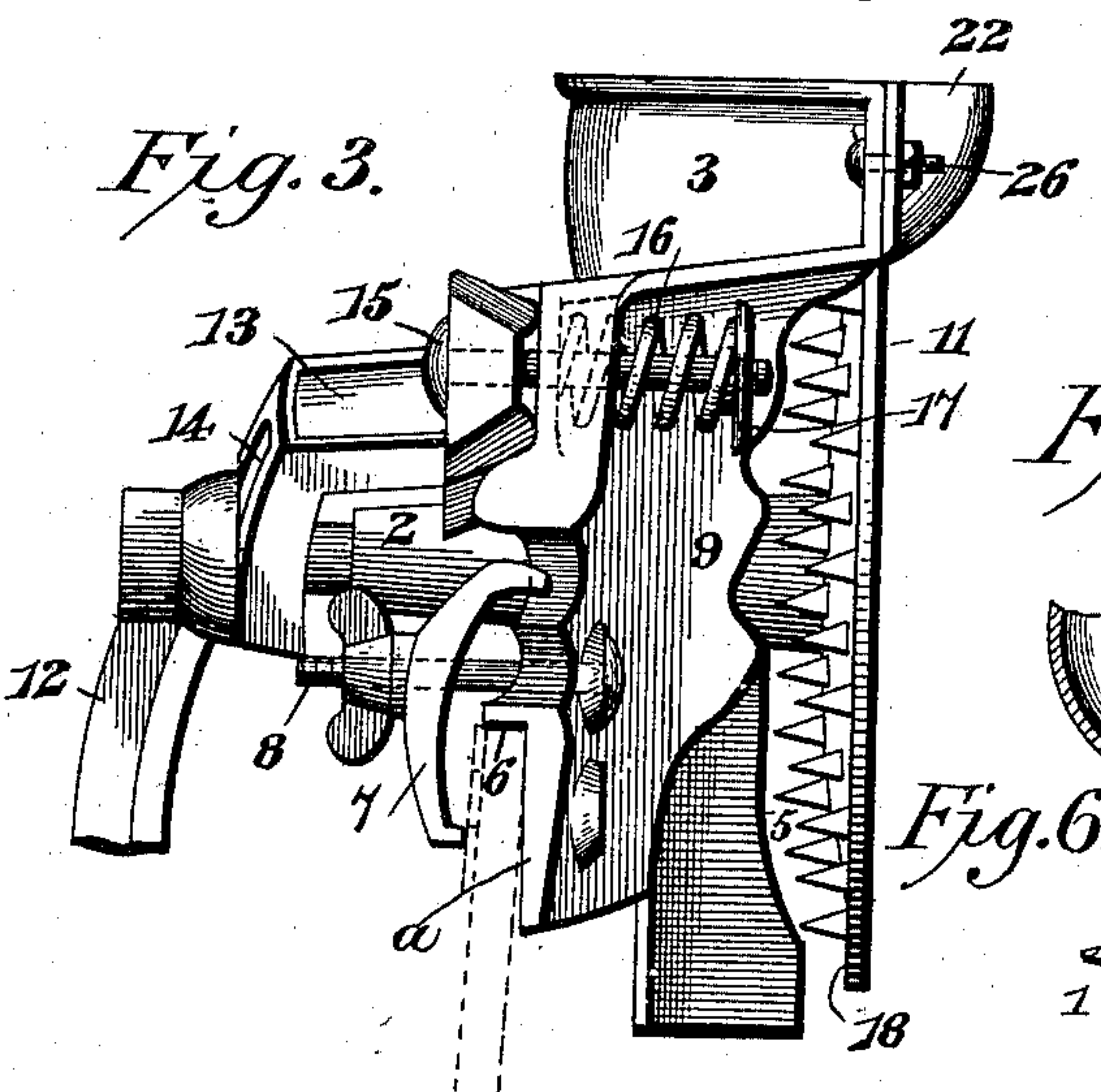


Fig. 2.

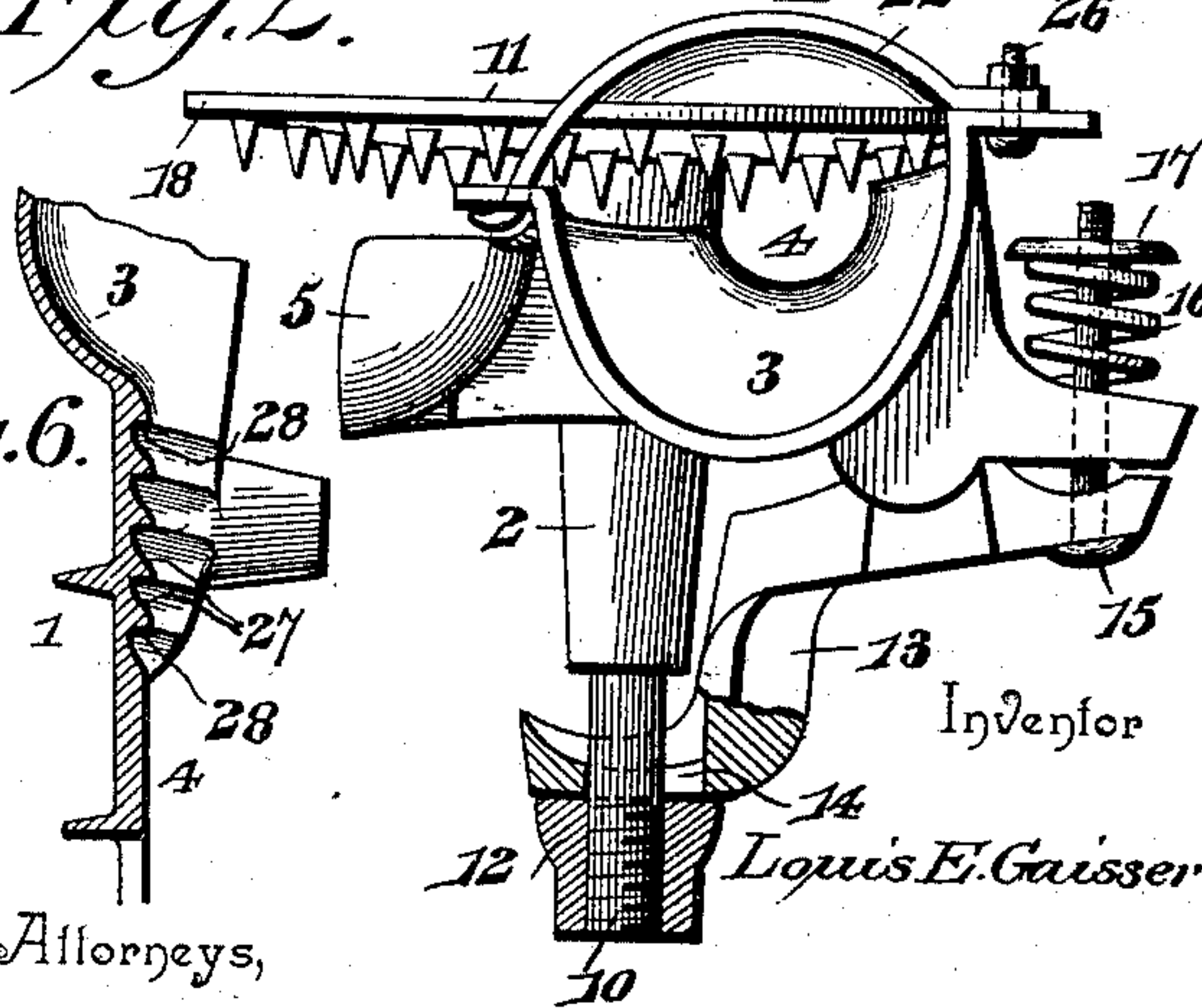
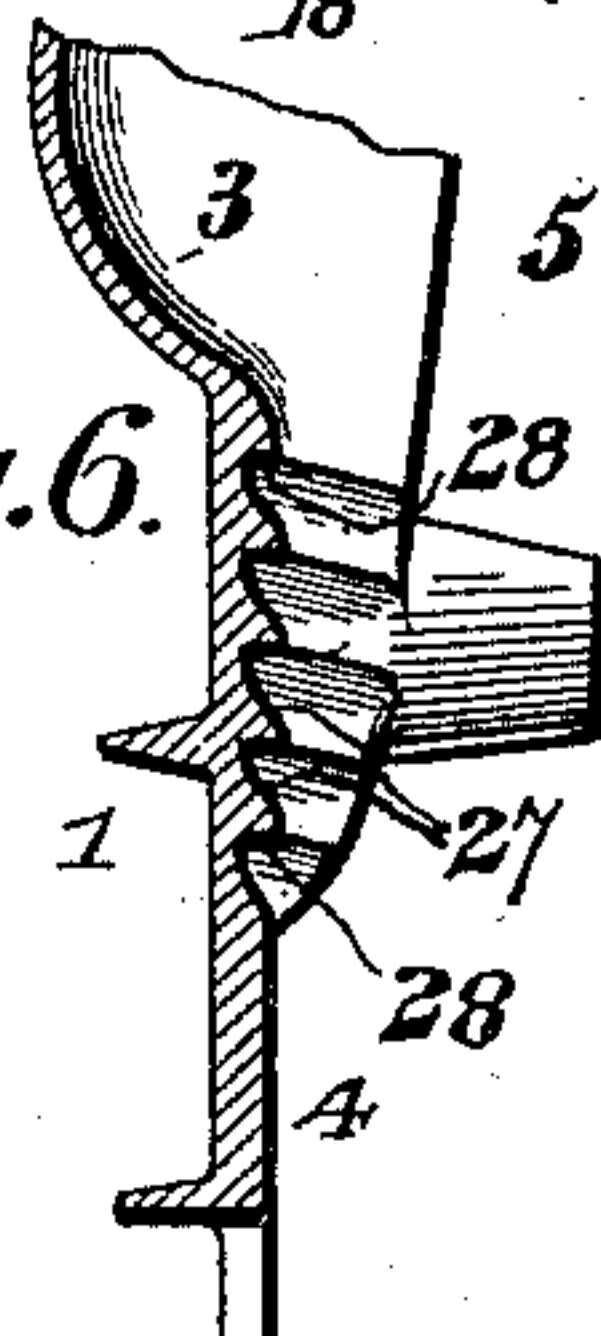


Fig. 6.



Witnesses

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By his Attorneys,

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UNITED STATES PATENT OFFICE.

LOUIS E. GAISSER, OF CLARKSVILLE, TENNESSEE, ASSIGNOR TO ALICE R. GAISSER, OF SAME PLACE.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 637,930, dated November 28, 1899.

Application filed January 31, 1898. Serial No. 668,641. (No model.)

To all whom it may concern:

Be it known that I, LOUIS E. GAISSER, a citizen of the United States, residing at Clarksville, in the county of Montgomery and State of Tennessee, have invented a new and useful Corn-Shell, of which the following is a specification.

My invention relates to corn-shelling machines, and particularly to an improvement upon a machine for which Letters Patent No. 550,557 were granted to me on November 26, 1895; and the objects in view are to provide an improved construction of bearing-plate for the frame whereby the apparatus may be attached to either a round-walled receptacle, such as a barrel or tub, or a flat-walled receptacle, such as a box; to provide an improved construction of hopper having a detachable rear wall adapted to guide an ear during its introduction into the throat of the feed-channel; to provide means for guiding the cobs as they leave the machine to prevent the contact thereof with the hand of the operator; to provide such a construction and relative arrangement of shelling-disk and frame as to insure the discharge of the cobs outside of the receptacle for the corn, whereby the necessity of manual intervention in guiding the cobs is avoided; to provide an improved construction of shelling-disk whereby the grains of corn are removed from the cob by lateral pressure in contradistinction to an abrasive or cutting contact and whereby the scattering of detached grains is prevented; to provide an outlet for the detached grains to prevent the cracking or crushing thereof, and to provide an improved construction of tension device whereby the spring-adjusting means is located in a plane in rear of the supporting-frame of the machine and whereby the lever is fulcrumed for free-rocking movement.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claim.

In the drawings, Figure 1 is a perspective view of a corn-shelling apparatus constructed in accordance with my invention, the same being shown applied to a barrel, which is in-

dicated in dotted lines. Fig. 2 is a top plan view of the apparatus, portions of the pressure-lever and crank-arm being broken away. Fig. 3 is a side view of the machine as seen from the corn-delivery side thereof. Fig. 4 is a rear view of the frame, the shelling-disk being omitted. Fig. 5 is an inverted plan view of the machine, showing a box or other receptacle wall in section to indicate the relative positions of the parts of the machine with relation to such wall. Fig. 6 is a detail sectional view of a portion of the frame, taken longitudinally through the feed channel or chute to show the preferred form of feed-ribs.

Similar reference characters indicate corresponding parts in all the figures of the drawings.

The frame 1 of the machine embodying my invention consists, essentially, of an approximately flat plate, integral with which are formed a front stationary hopper-section 3, which is open at its rear side and is approximately semicircular in plan, an integral rearwardly-open feed channel or chute 4, communicating with the lower end of said half-hopper, a cob-discharge channel 5, inclined with relation to the length of said feed chute or channel and communicating at its lower end with the lower end of said chute or channel, said discharge-channel being open at its rear side and having a flared mouth, of which the front wall is bulged or convexed forwardly to form a guard to prevent cobs in leaving the channel from being thrown forward, and an integral shaft-bearing 2, which is disposed at an angle to the plane of the body portion or plate of the frame, whereby the shelling-disk 11, which is rigidly attached to the rear end of said shaft and is located in rear of the frame, is disposed in an angular position with that side which is contiguous to the discharge-channel closer to the plane of the plate than that side which spans the open side of the feed chute or channel. Obviously an ear of corn before it is shelled is of larger diameter than the cob after the grains of corn have been removed, and it is my object to so dispose the shelling-disk with relation to the feed chute or channel and the discharge-channel as to insure the efficient engagement of

the teeth of the disk with the ear and cob throughout the passage of the latter through the machine; but in addition to maintaining the shelling-disk in engagement with the ear and cob the inclined position of said disk has the effect of carrying the cob forward as it ascends the discharge-channel, whereby when it leaves said channel it is adapted to drop on the outside of the plane of a receptacle-wall to which the machine is attached. The shelling-disk is so located with relation to the frame as to close or form the rear walls of the feed and discharge channels, no auxiliary frame or wall being employed to house the disk, and therefore I have found it desirable in applying the spurs to the disk to terminate the same short of the periphery of the disk, and thereby leave a plain or unobstructed marginal surface 18, which by extending beyond the outermost annular series of spurs or teeth serves, in the first place, to guide an ear in its downward passage into the hopper, and, in the second place, to prevent the scattering of those grains of corn which are detached by the spurs near the lower portion of the disk and cause the grains thus detached to drop perpendicularly into the receptacle to which the apparatus is attached. Also, to facilitate the feeding movement of the ear I preferably convex the disk forwardly and employ spurs or teeth of approximately uniform projection, whereby the terminals of said spurs or teeth are arranged in a convexed plane parallel with the surface of the disk, the preferred form of spurs or teeth being pyramidal or flat-sided and tapered toward their extremities. Also, to lighten the construction of the disk and facilitate the escape of detached grains of corn I provide the same with inner and outer series of openings, of which the inner series 19 is located at an interval from the center of the disk corresponding with that of an opening 20 in the frame, whereby either of the openings in the series 19 may be arranged in registration with the opening 20 for the reception of a holding or locking pin or bolt 21, which is indicated in dotted lines in Fig. 1, to secure the disk against rotation with relation to the frame. Furthermore, to facilitate the discharge of the grains of corn and prevent the cracking or crushing thereof I provide the outer wall 9 of the feed chute or channel with a series of notches forming corn-delivery spaces, and with these corn-delivery spaces communicate channels between spirally-disposed feed-ribs 27, formed in the feed chute or channel, said channels and ribs inclining downward from the outer side or wall 9 toward the vertical plane of the shaft 10 of the shelling-disk, as shown in Fig. 4. The preferred construction of feed-ribs 27 is shown in detail in Fig. 6, the same having inclined or slightly-rounded upper sides and abrupt lower sides or shoulders 28, which positively prevent the upward movement of an ear during its passage through the feed chute or

channel and at the same time cause a rotary movement of the ear to bring the different portions of its surface successively into operative relation with the spurs or teeth of the disk to insure an efficient removal of the corn from the cob.

The lower or plate portion of the frame 1 is flanged forwardly, as shown at *a*, with the edges of the flanges at the sides and bottom of the plate arranged in a common plane for contact with the surface of the wall of a receptacle and constituting a bearing-surface, which is adapted to be seated upon either a rounded or flat wall, as of either a barrel or tub or a box, and in coöperative relation with these bearing-flanges and adapted for contact with the exterior surface of the receptacle-wall upon which said flanges are seated are clamps 7, suitably engaged at their upper ends with the front side of the frame to prevent lateral displacement and engaged at intermediate points by adjusting-bolts 8, having thumb-nuts or equivalent means for exerting pressure upon the clamps to force their lower free ends into frictional contact with the exterior surface of the receptacle-wall. These clamps are preferably bowed forwardly between their extremities, and the bearing portions of the flanges *a* terminate at their upper ends in abrupt shoulders 6 to rest upon the upper edge of the wall of a receptacle.

Fitted upon the front end of the shelling-disk shaft 10, as by intermeshing screw-threads, is a crank-arm 12, having an enlarged hub or central portion forming a shoulder which projects laterally beyond the surface of the shaft, and mounted for rocking movement upon the frame is a bearing-lever 13, having its inner end slotted, as at 14, to receive the shaft 10 and bear against a shoulder formed by the rear end of the enlarged hub portion of the lever 12, said bearing-lever being actuated by suitable tension devices, whereby a constant forward pressure is exerted upon the shaft of the shelling-disk to force said disk forwardly or toward the feed and discharge channels of the machine. This bearing-lever may be efficiently mounted upon the frame by providing it at a point between its extremities and near its outer end with a rounded depression or cavity 13^a to receive a rounded boss or bearing-web 13^b, which may be cast integral with the frame, and an efficient tension device for use in connection with this bearing-lever consists of a bolt 15, extending rearwardly through registering openings in the outer extremity of the lever 13 and a contiguous lateral projection of the frame and fitted at its rear end with an adjusting nut or disk 17, between which and said ear or projection of the frame is located a coiled spring 16. In my former patent above mentioned is illustrated a bearing-lever and a coöperating tension device consisting of a bolt, nut, and spring; but said parts are arranged in the reversed relation to that shown and described herein, in that

the bolt extends forwardly from the frame through the outer end of the bearing or pressure lever, with the adjusting nut or disk fitted upon the front extremity thereof and with the spring bearing against the front side of said lever; but I have found in practice that by extending the bolt rearwardly through the bearing or pressure lever and the lateral projection of the frame and locating the spring and adjusting-nut in rear of said fixed portion of the frame I am enabled to attain a more compact disposition of the parts, whereby the contact of the hands and clothing of the operator with the tension device is avoided, said rearwardly-projecting portion of the bolt, with the coöperating spring and adjusting-nut, being arranged to one side of the hopper and adjacent to the plane of the shelling-disk, and, furthermore, by the above-described improved arrangement of parts I am enabled to provide a fixed seat for the front end of the spring, or that end which is opposite to the adjusting nut or disk, whereby the spring is released by lateral strain and a more efficient application of pressure to the lever is secured. Furthermore, by arranging the parts as herein shown and described I am enabled to shorten the outer arm of the lever, for the reason that the bearing of the head of the bolt upon the lever occupies less space than the end of the tension-spring, and hence it is possible to employ a stiffer spring and attain a desired operation of the parts with a less movement of the short or outer arm of the lever, it being well known that the range of effective movement of a spring of the type shown and described is limited and that the stiffer the spring the shorter is the range of movement. It is necessary in this relation to use a spring of considerable strength, while the shelling-disk must be capable of a range of movement adapting the apparatus to accommodate ears of widely-different diameters.

When it is desired to remove or apply the crank-arm, a pin or bolt such as that above referred to, as at 21, may be engaged with the opening 20 in the frame and a registering opening 19 in the disk to lock the disk and shaft against rotation.

In connection with the fixed front hopper-section 3 I also employ, particularly for large ears of corn, an auxiliary or removable rear hopper-section 22, which extends rearwardly beyond the plane of the disk 11, is provided at one side with a curved tongue 25 for engagement with a vertical slot 23 in a lateral flange of the fixed hopper-section, and provided at the other side with an opening for registration with a corresponding opening in an outer flange of said fixed hopper-section to receive a bolt 26. This auxiliary or removable hopper-section insures the guiding of an ear of corn during the first portion of its movement and enables the operator after placing the end of the ear of corn in the hop-

per to release said ear and avoids the necessity of manually holding and feeding the ear until it is properly engaged by the spurs or teeth of the shelling-disk.

It will be seen, furthermore, that the entire frame structure, including the fixed bearing-plate, hopper, shaft-bearing, feed and discharge channels, and the bearing-rib for the pressure-lever, may be formed in a single casting, whereby the only detachable portions of the apparatus are the disk, with its shaft, the pressure-lever and tension devices, the clamps, and the crank-arm, each of which is exteriorly accessible and is removable without affecting the relative positions of the means for feeding and guiding an ear and cob; also, the arrangement of the shelling-disk to close the feed and discharge channels provides for the complete exposure of said channels by the dismounting of the disk, and it is owing to the fact that said channels are completely open at their rear sides and are spanned solely by the shelling-disk that I find it desirable to construct said disk with a marginal unobstructed deflecting-surface to prevent the scattering of the grains of corn, and particularly during the rapid operation of the machine.

It will be understood that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Having described my invention, what I claim is—

In a corn-sheller, the combination of the frame 1, provided with feed and discharge channels which connect at their lower ends, and having a shaft-bearing 2, the shelling-disk 11 placed at an inclination to the frame, and which disk is provided with a plain marginal surface 18 which extends beyond the outer coned series of spurs or teeth and which disk is also provided with the flange A⁶, and the shaft which extends through the bearing 2, and a handle secured to the outer end of the shaft, combined with the locking-plate 21, the bearing-lever 13 having its inner end slotted to receive the shaft 10, a suitable tension device applied at the outer end of the lever, the rear hopper-section 22 secured to the frame which is provided with the ribs 27 having the shoulders 28; the shelling-disk being provided with a series of openings through which the locking-pin 21 is made to catch, and the frame being provided with an opening 20 through which the pin is passed; the parts being arranged substantially as shown and described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

LOUIS E. GAISSER.

Witnesses:

C. B. LYLE,
S. E. WILSON.