

(No Model.)

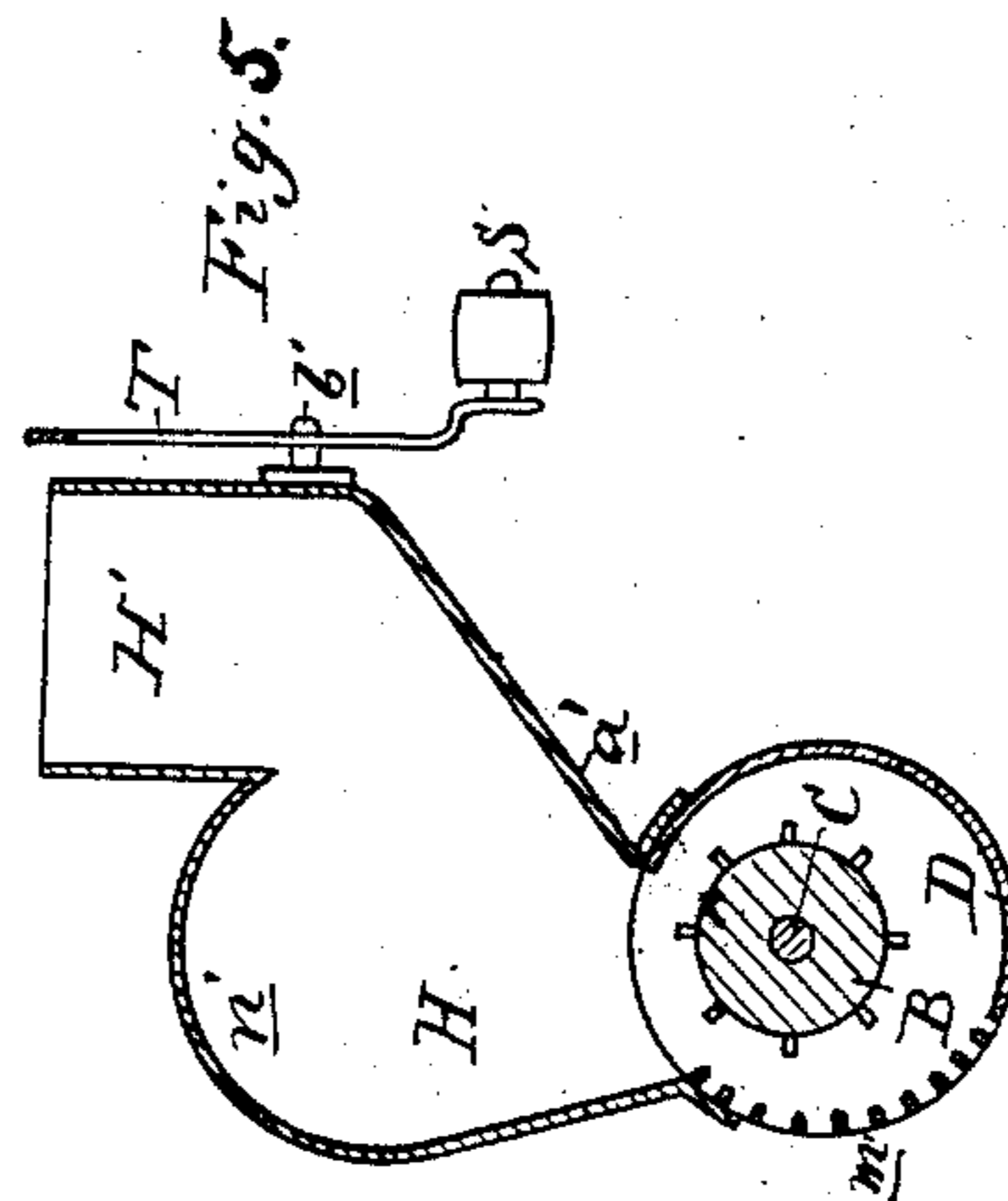
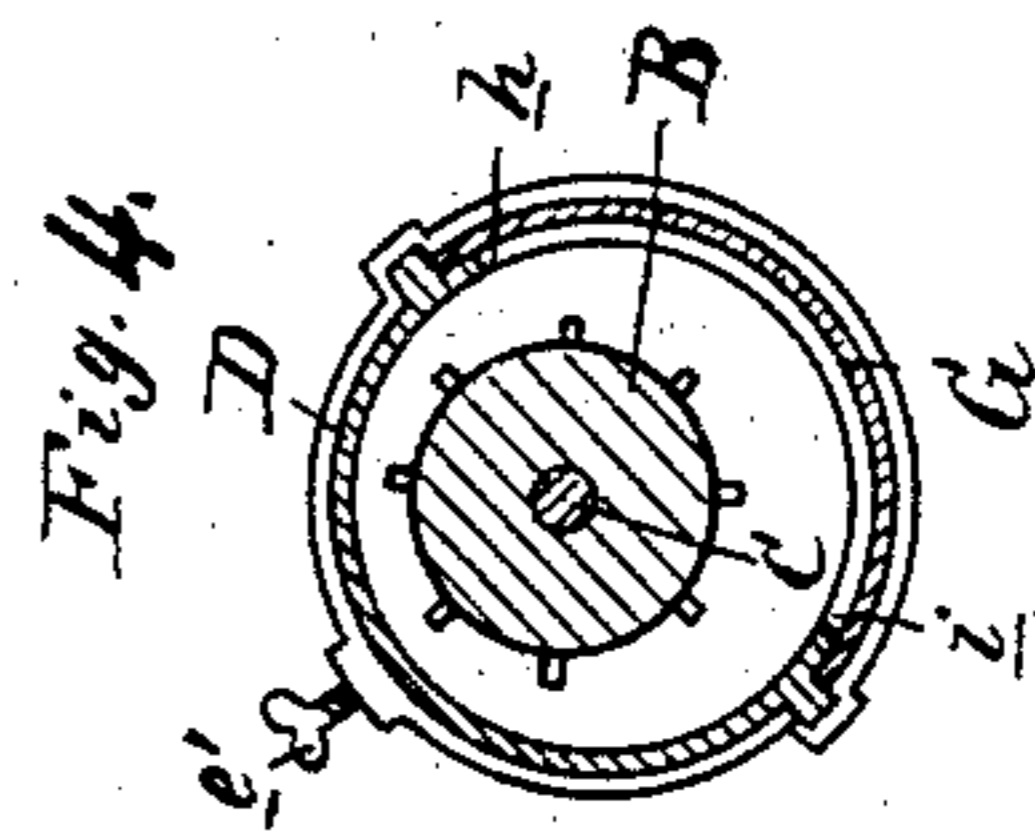
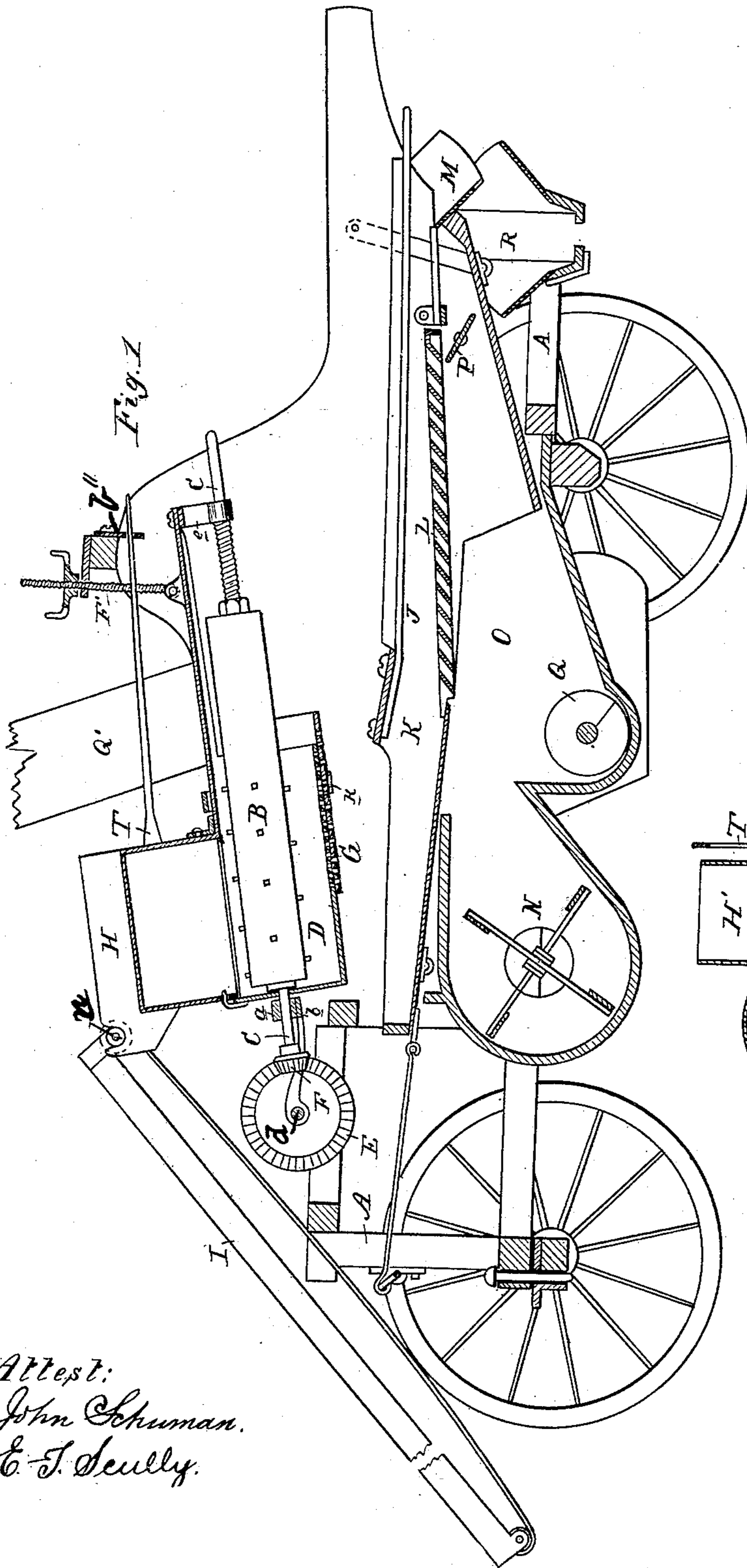
C. ROBERTS.

2 Sheets—Sheet 1.

CORN SHELLER.

No. 354,239.

Patented Dec. 14, 1886.



Attest:
John Schuman.
C. J. Scully.

Inventor:
Cyrus Roberts.
by his Atty
W. S. Sprague

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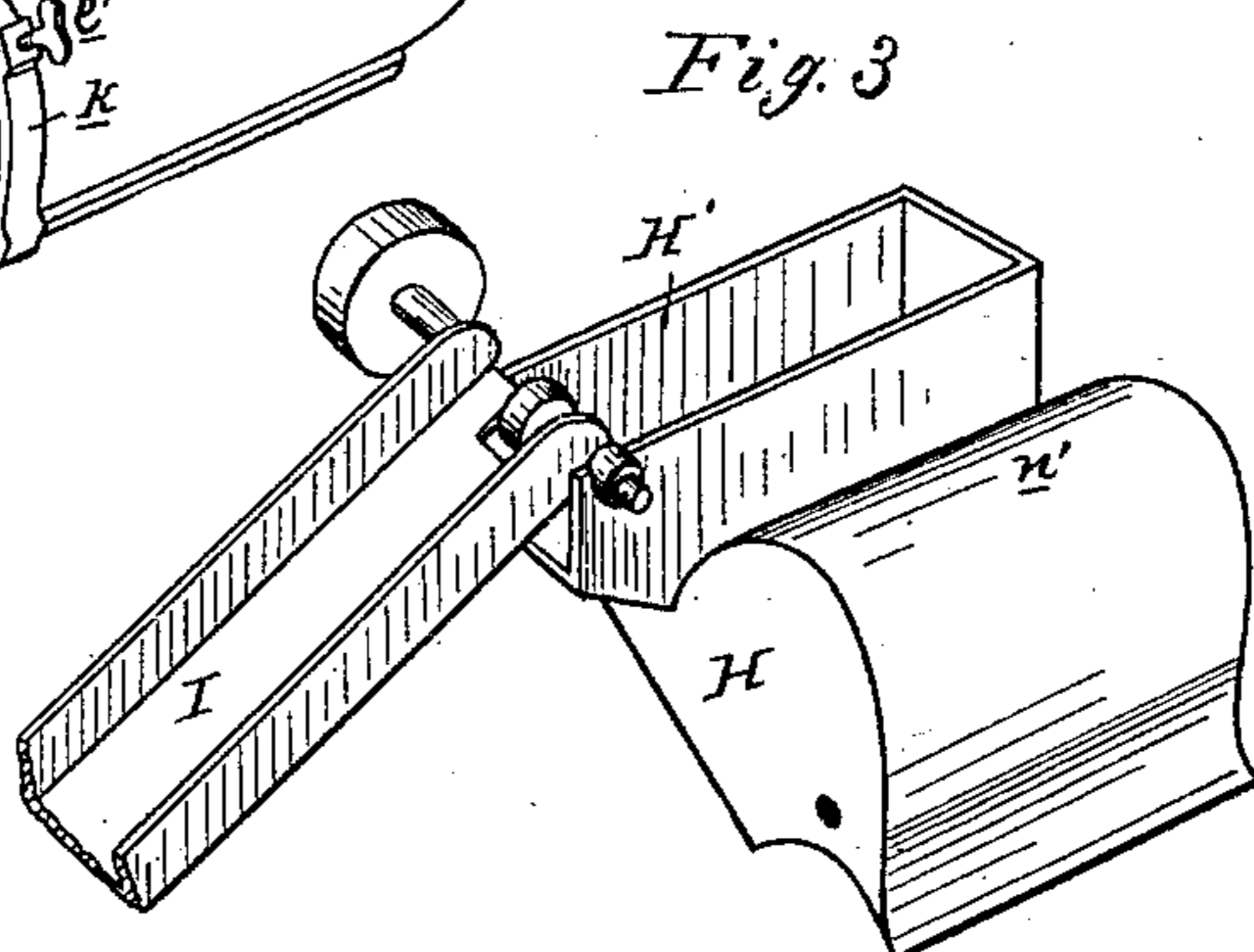
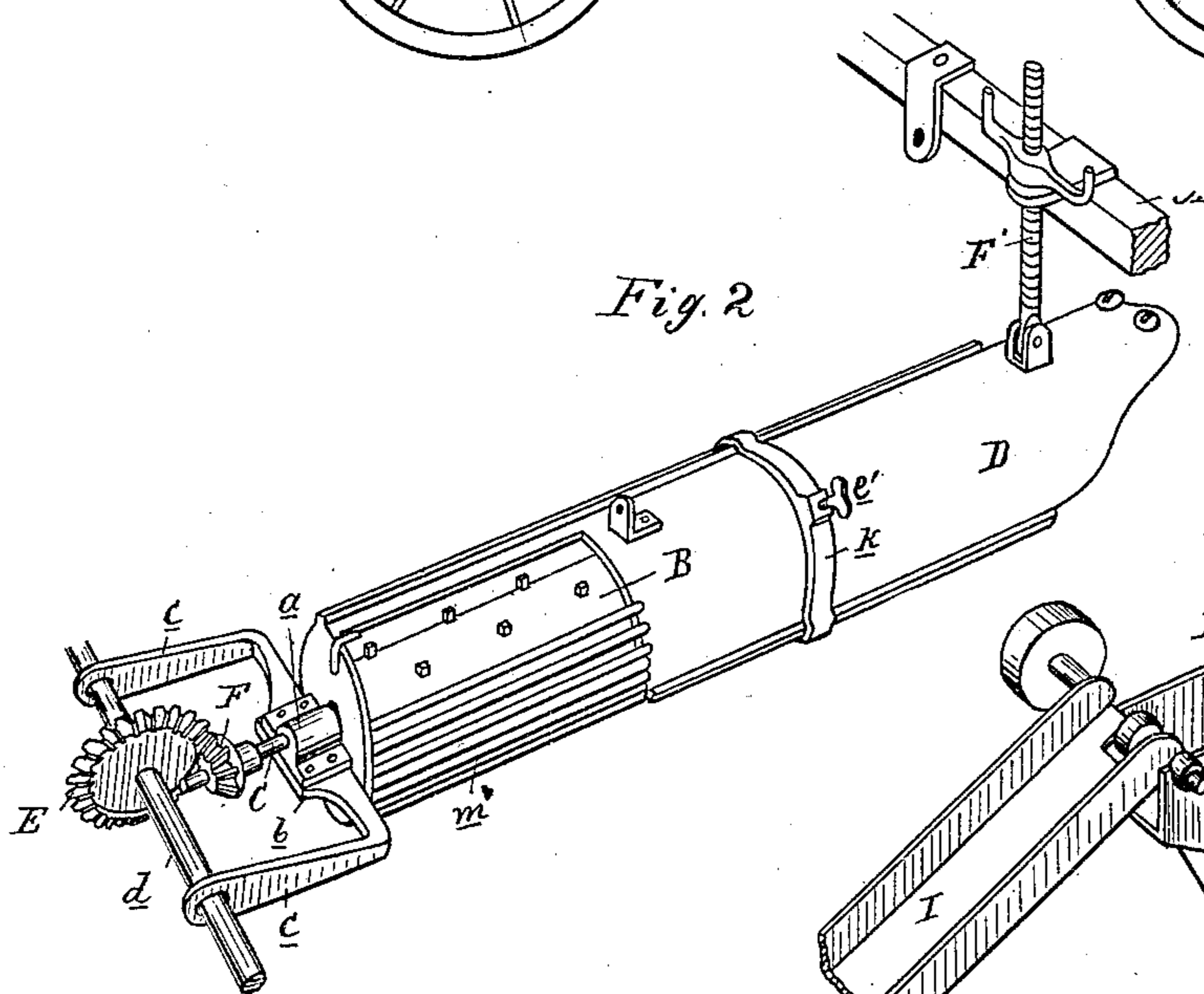
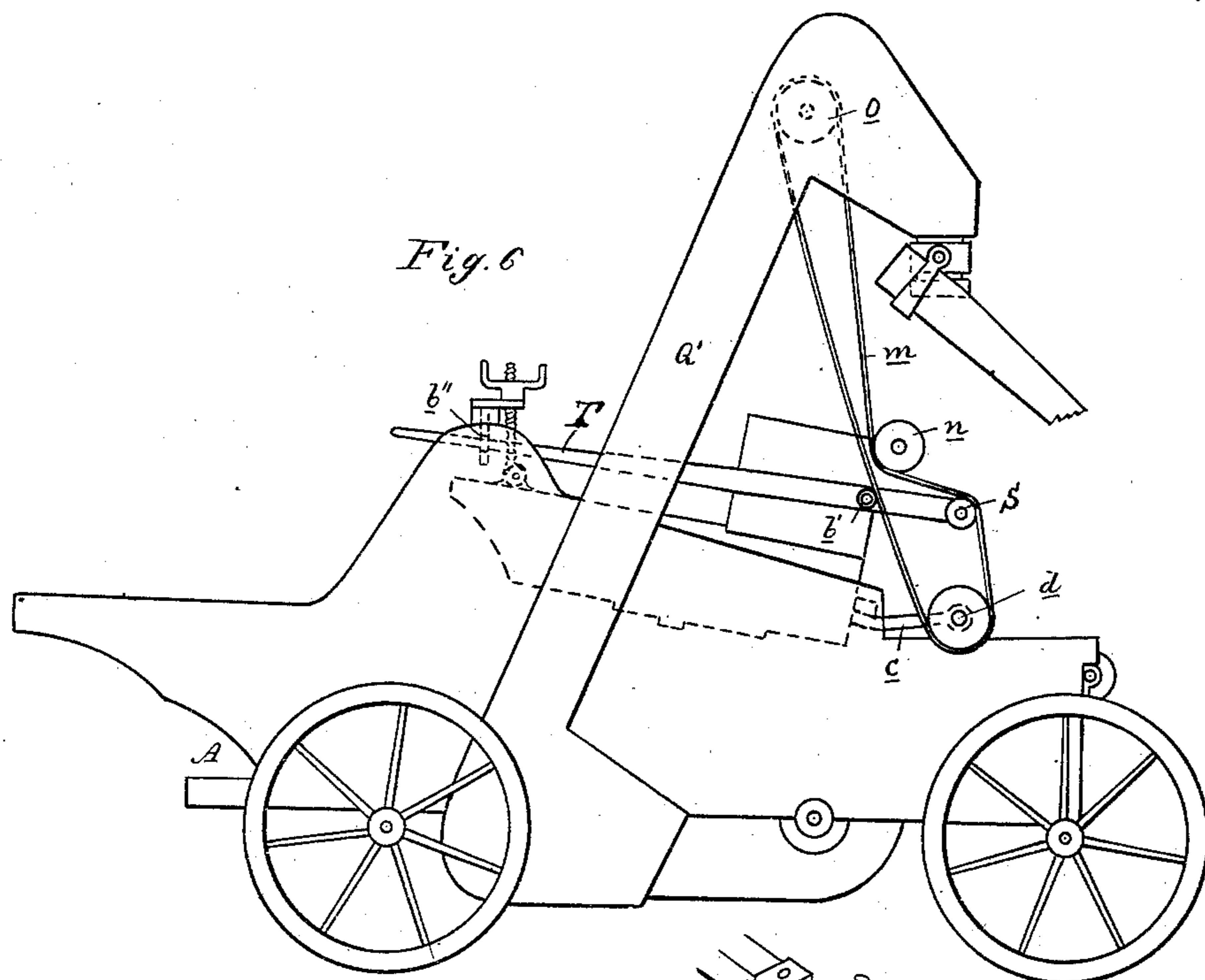
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UNITED STATES PATENT OFFICE.

CYRUS ROBERTS, OF THREE RIVERS, MICHIGAN.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 354,239, dated December 14, 1886.

Application filed January 29, 1886. Serial No. 190,212. (No model.)

To all whom it may concern:

Be it known that I, CYRUS ROBERTS, of Three Rivers, in the county of St. Joseph and State of Michigan, have invented new and useful Improvements in Corn-Shellers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

10 This invention relates to certain new and useful improvements in the construction of corn-shellers, by means of which better results are had than have heretofore been obtained.

15 The invention consists in the peculiar combination and the novel construction, arrangement, and adaptation of parts, all as more fully hereinafter described and claimed.

20 Figure 1 is a vertical longitudinal section through a corn-sheller, showing my improvements. Fig. 2 is a detached perspective view of the shelling-cylinder and case and its driving mechanism. Fig. 3 is a detached perspective view of the hopper, showing also the upper end of the elevator. Fig. 4 is a cross-section of the shelling-cylinder and its case. Fig. 5 is a vertical cross-section through the hopper and the shelling-cylinder and its case, showing also the self-adjusting belt-tightener. 30 Fig. 6 is a diagram side elevation showing the drive-connection for the feed and shelled-corn elevators.

In the drawings, B represents the shelling-cylinder, having teeth projecting therefrom, and preferably arranged spirally around such cylinder. C is the shaft upon which such cylinder is secured. This shaft at one end is supported in the box *a*, which is secured centrally to the bail *b* of a yoke, of which *c* are the arms, the unconnected ends of which are sleeved upon the main driving-shaft *d*. A bevel-wheel, E, on said shaft *d* engages with a bevel-pinion, F, on the shaft C, and thereby gives the necessary motion to the shelling-cylinder. 45 The other end of the shaft C is supported by a hanger, *e*, pendent from the top and rear end of the cylinder-inclosing case D, which is supported by an adjusting-screw, F', suitably secured to the frame A. By these means of supporting the shelling-cylinder and its surrounding case the rear end of the same may

be adjusted higher or lower, as occasion may require. The front end of the case has a head secured to the bail *b* of the yoke.

H is the hopper, with a vertical mouth, H', 55 leading into a chamber with an inclined floor, *a'*, which guides the contents to the cylinder, as clearly shown in vertical section in Fig. 5 of the drawings. The vertical mouth of the hopper is to one side of the axis of the cylinder and its case, thereby allowing the formation of an enlarged chamber immediately over the entrance to the cylinder-case, which chamber is covered by a curved roof, *n'*, so constructed as to arrest any ears of corn that 60 might be accidentally thrown out by the cylinder and deflect them to the inclined floor, to be reconducted to the cylinder.

S is a belt-tightening wheel, sleeved upon a suitable wrist-pin, secured to and projecting 70 from the lever T, which is pivotally secured, as at *b'*, to the side of the hopper, while its rear end passes loosely through an eye, *b''*, on the frame of the machine. This belt-tightener operates, as shown in Fig. 6, to tighten the drive-belt *m*, which transmits motion from the main shaft *d* to the drive-pulley *n* of the feed-elevator, and to the drive-pulley *o* of the shelled-corn elevator Q'. It will be seen that if the belt-tightener pulley S were supported on a 80 rigid arm from the hopper it would not have movement enough to compensate for the lengthening or shortening of the belt *m* whenever the shelling-cylinder is raised or lowered; but by securing it on the end of the lever T, arranged 85 as described, its movement is increased in the proper ratio to keep the belt *m* always tight, irrespective of the adjustment of the shelling-cylinder. The end of the lever T within the eye *b''* remains stationary, thus allowing the 90 wheel S to accommodate itself to the lengthening and shortening of the belt occasioned by the raising and lowering of the cylinder.

The shelling-cylinder is supported eccentric to the axis of the case D. The reasons for 95 this will be better understood from what follows hereinafter. This case D, cylindrical in form, is imperforate for a portion of its length, nearest the front end thereof, except the opening which communicates with the hopper and 100 the opening in which the shelling-bars *m'* are secured. The rear part of the case is cut away

at the side of its periphery, either in whole or in part, although I prefer to cut this part wholly out for about half such periphery—say from the point *h* to the point *i*—as shown in the cross-section of the cylinder and its case, Fig. 4. Then a curved cover, *G*, is fitted to this cut-away portion, and adapted to be projected or retracted longitudinally, to partially or wholly inclose such opening, as the exigencies of the existing circumstances may require. The rear end of the case is without any closing-head, and the slide or cover *G* is secured in place by a band, *k*, having a set-screw, *e'*, by means of which such slide is secured in any adjusted position. If the whole of this part of the case is not cut away, but a number of openings made instead, extending one behind the other in the longitudinal direction of the case, as shown in Fig. 1, then the slide should be similarly provided with corresponding openings, as shown in the same figure, so that it will act as a cut-off, and when moved for the purpose it will close the openings nearest the front end first, and the others *seriatim*, as required; or each individual opening may be provided with its individual sliding cover, and still be within the spirit of my invention, which in this particular is so to construct the case that the point of delivery therefrom may be regulated from front to rear thereof, as may be required.

Of course, should the inclosing-case extend to the rear end of the shelling-cylinder and be imperforate, the discharge of the husks and corn-cobs would be at such open end. The condition of the material as to moistness or dryness demands that these varying conditions be provided for. If quite moist, the discharge should be at the end of the case; if less moist, the discharge is made nearer the front end of the case, and if quite dry the cut-away portion of the case should be inclosed by the full retraction of the slide.

I am aware that it has been proposed to use for shelling corn a single taper truncated cone within a cylindrical case, and I am also aware that a shelling-cylinder has been supported eccentrically within its case; but I make no claim to such construction. I deem it important that the shelling-cylinder be supported within its case above the horizontal axis thereof, but in line with a line drawn vertically through the center of the case, the advantages of which arrangement are: first, to bring the shelling-cylinder into action as near as possible to the mouth of the hopper; second, as the shelling-bars *m'* are in the side of the case, and as the teeth of the shelling-cylinder are brought into action at the upper

ones of said bars, the danger of choking in the case is avoided; third, the "backlash," as it is usually termed by the operators of such machines, is entirely prevented, as the material is discharged more eccentrically; and, fourth, if in the operation of the machine the slide is completely retracted, so as to wholly unclosethe cut-away portion of the case, a much greater space is left between the cylinder and the parts underneath than would otherwise be the case. This prevents any tendency of the cylinder to carry over and back the material already discharged upon the parts below.

K is a shoe carrying a riddle, *L*, and a cob-separator, *J*. *N* is a fan; *O*, the wind-chamber; *Q*, the conveyer; *Q'*, the shelled-corn elevator, and *P* the adjustable wind-guide; but as these form no part of the invention herein described no reference to them is deemed necessary, the more especially as they are fully described in another concurrent application for a patent of even date herewith, No. 190,211.

What I claim as my invention is—

1. The cylindrical case *D*, combined with the shelling-cylinder *C*, supported within said case above the horizontal axis thereof in line with a line drawn vertically through its center, whereby choking in the case is avoided, substantially as described.

2. In a corn-shelling machine having a toothed shelling-cylinder eccentrically supported within a cylindrically-shaped case, in combination with such case, a slide-band, *k*, and set screw *e'*, substantially as and for the purposes set forth.

3. In a corn-shelling machine, the combination, with the adjustably-inclined cylinder, of the yoke *b*, main driving-shaft *d*, supported thereby, the pulley *n* on the drive-shaft of the feed-elevator, the pulley *o* on the shaft of the shelled-corn elevator *Q*, the belt *m*, lever *T*, pivoted to the side of the hopper, the wheel *S* on one end of said lever and constructed to bear on said belt, and the eye *b''*, engaging the free end of said lever, substantially as and for the purposes specified.

4. The combination, with the frame *A*, the shelling-cylinder, its driving-shaft *d*, and the inclosing-case, of a rocking bail sleeved on said driving-shaft *d* and supporting the end of said shaft and cylinder, ears on the opposite end of said case, and the adjusting-screw *F'*, pivoted at one end in said ears and tapped through the frame *A*, substantially as described.

CYRUS ROBERTS.

Witnesses:

H. S. SPRAGUE,
E. J. SCULLY.