

(No Model.)

2 Sheets—Sheet 1.

J. Q. & O. R. ADAMS.

CORN SHELLER.

No. 313,042.

Patented Mar. 3, 1885.

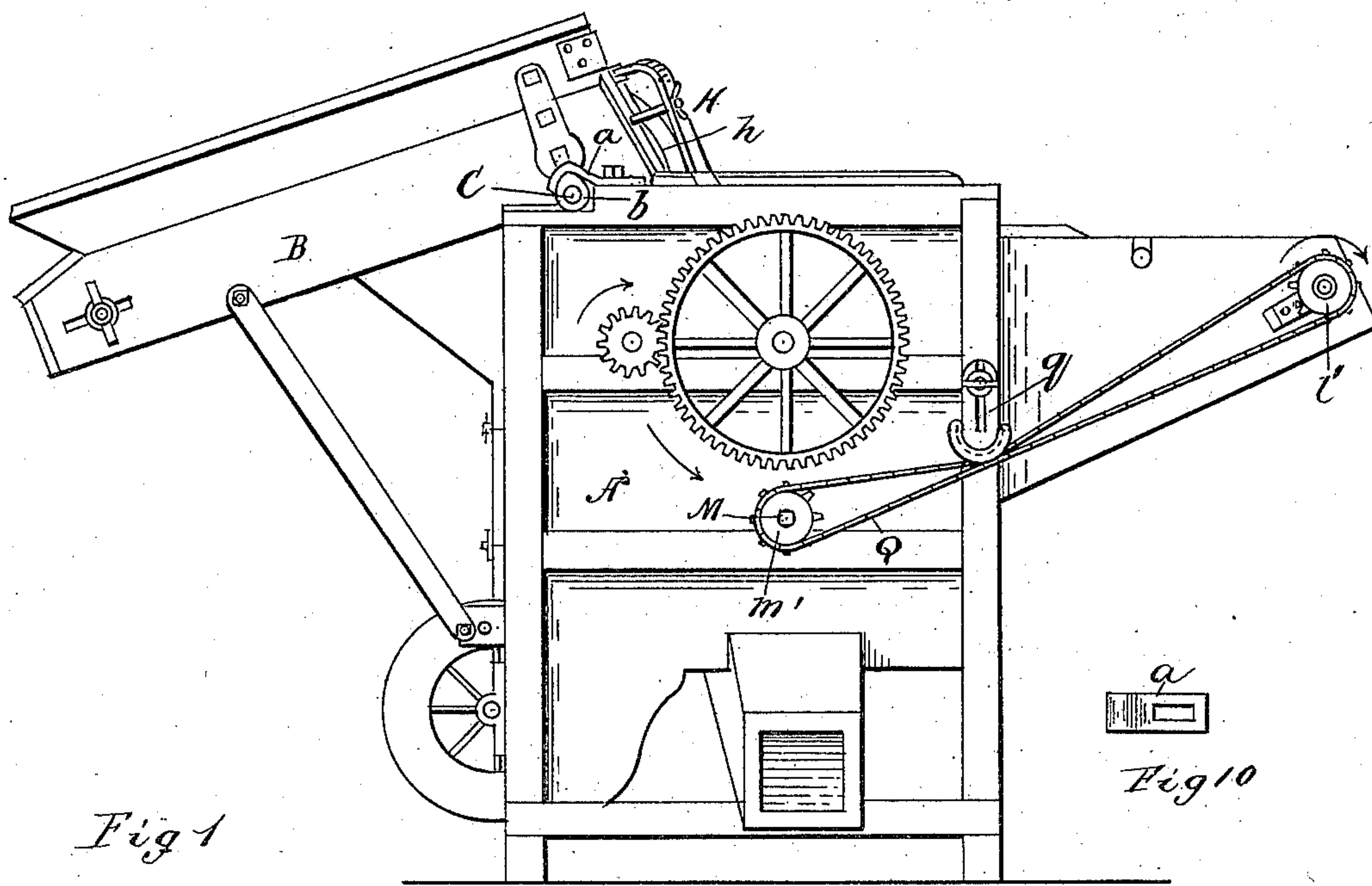


Fig 1

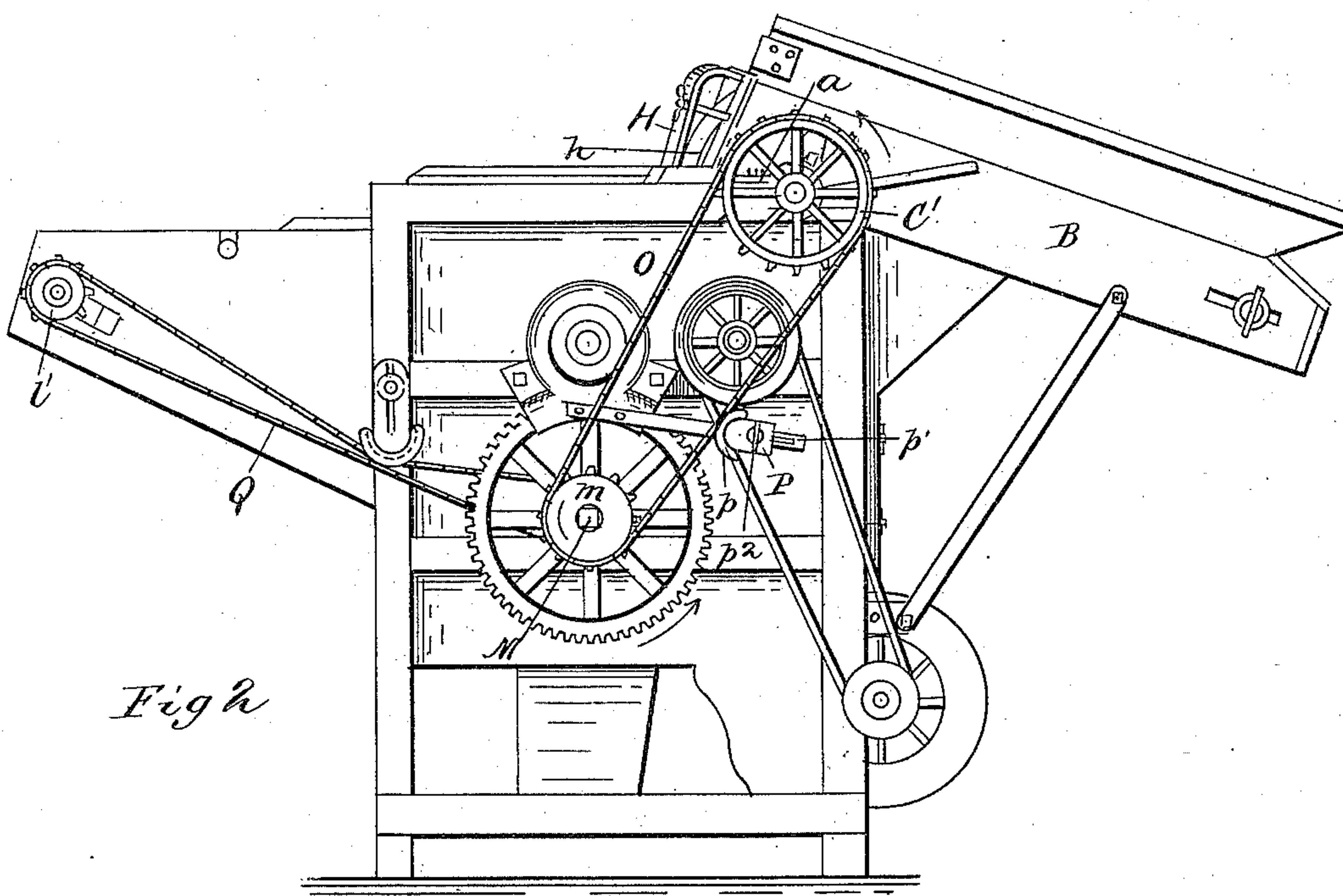


Fig 2

Witnesses

W. C. Corlies

P. E. Remond.

Inventors

John Q Adams and Oliver R Adams

By Edmund T. Tucker
Attorneys

(No Model.)

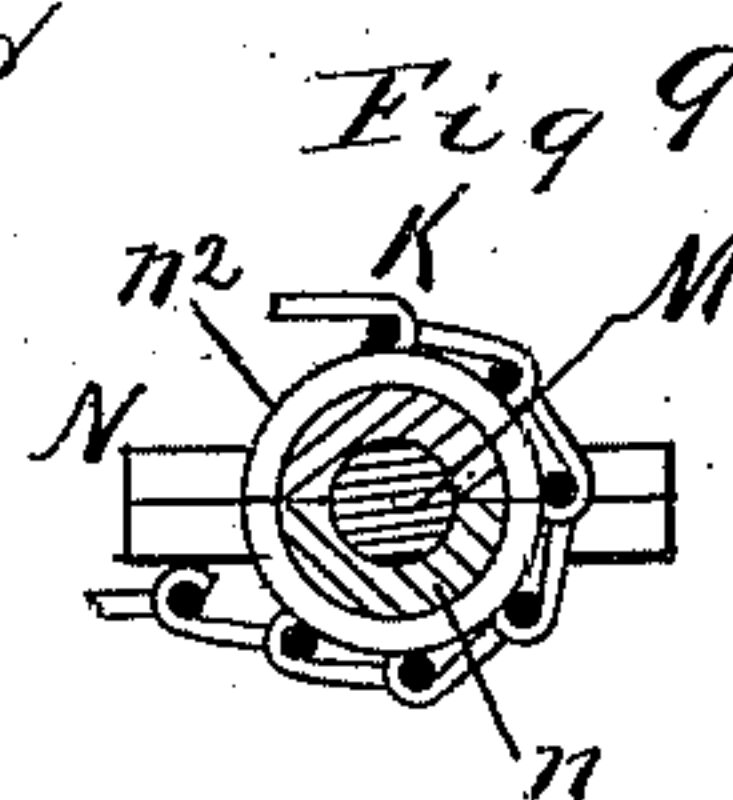
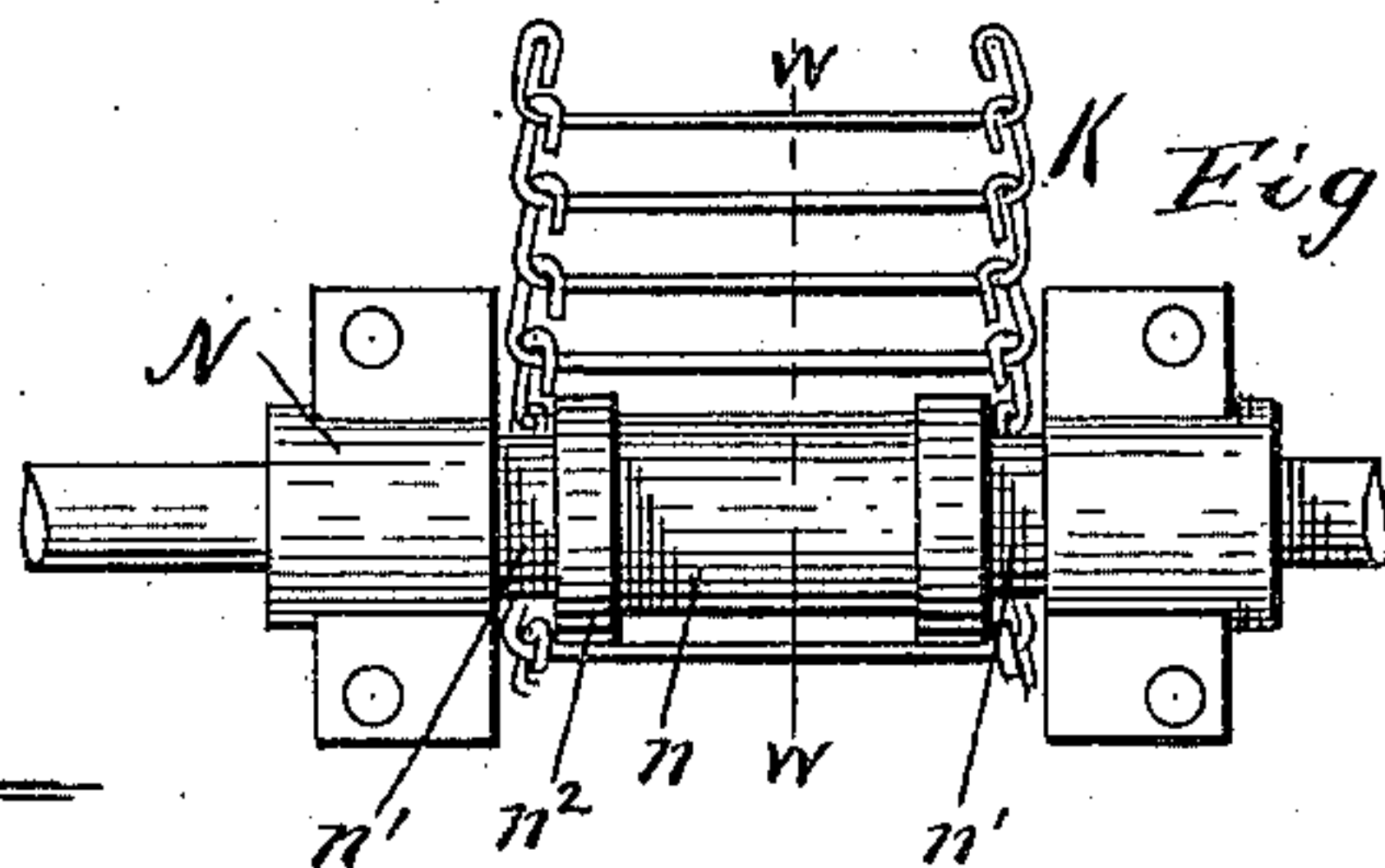
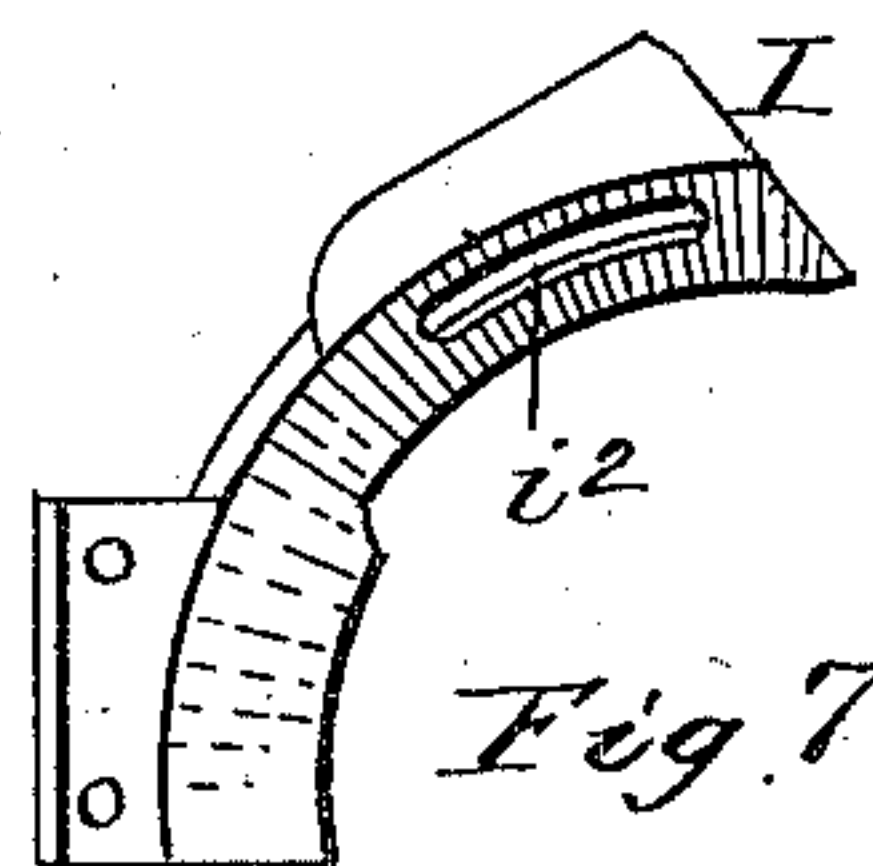
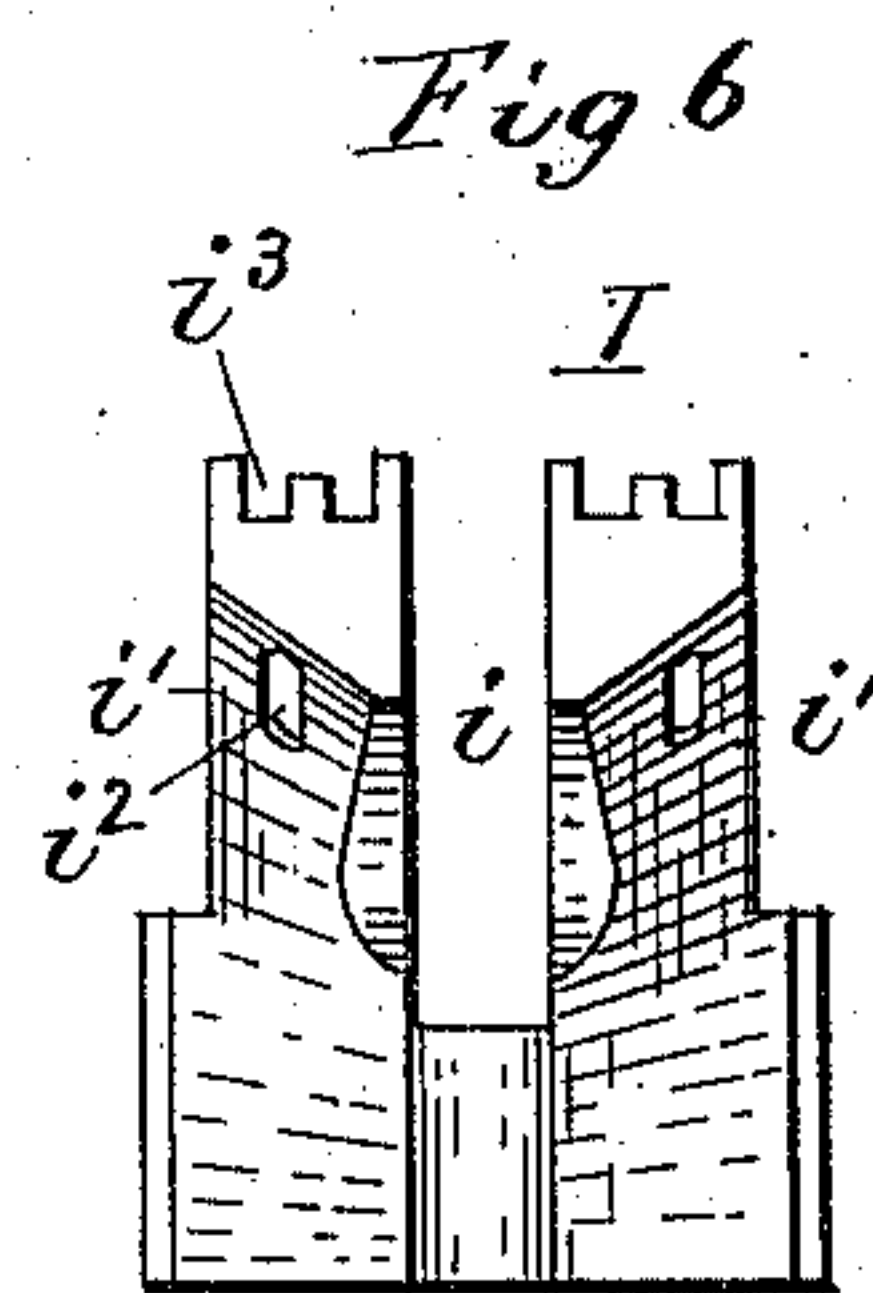
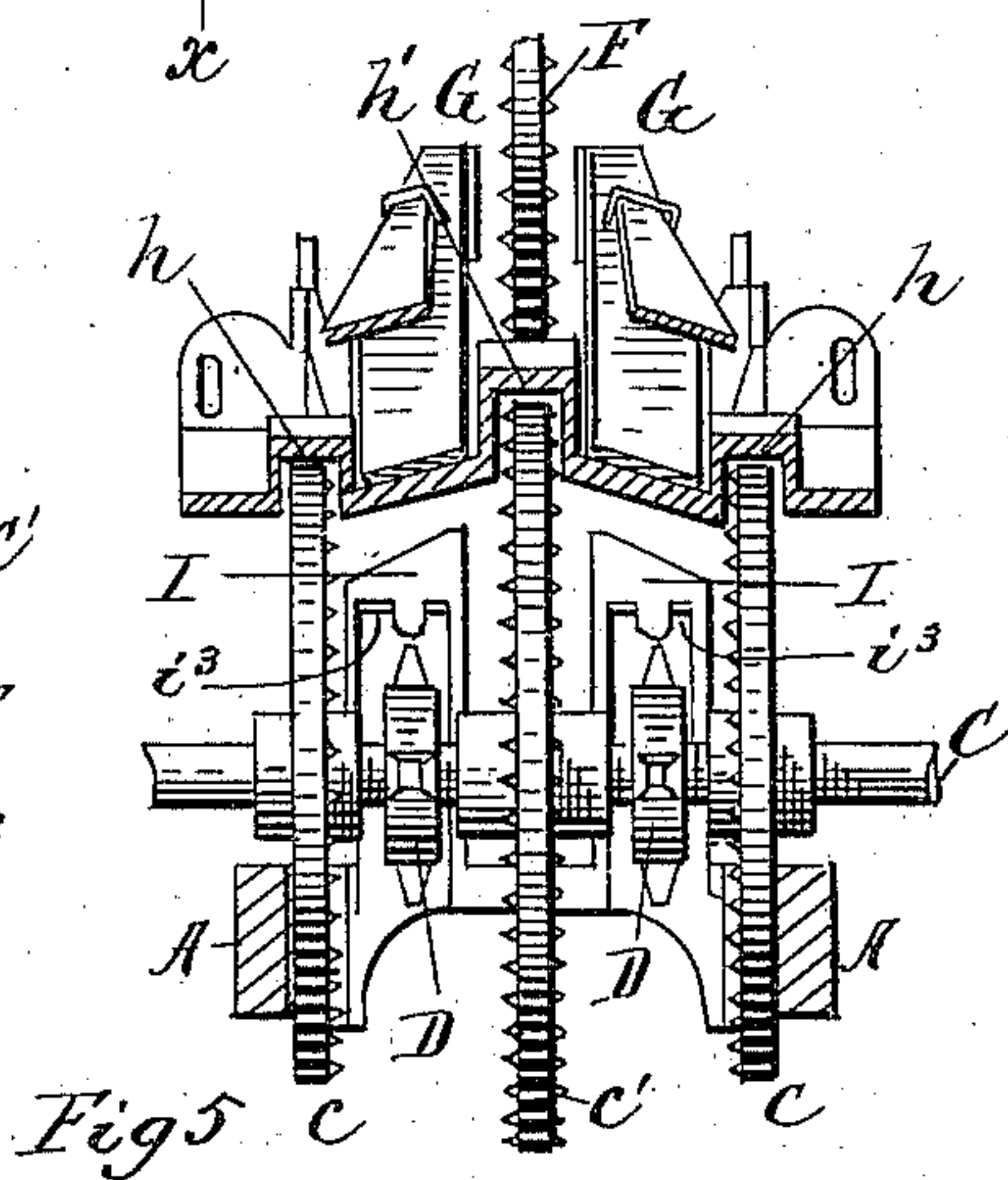
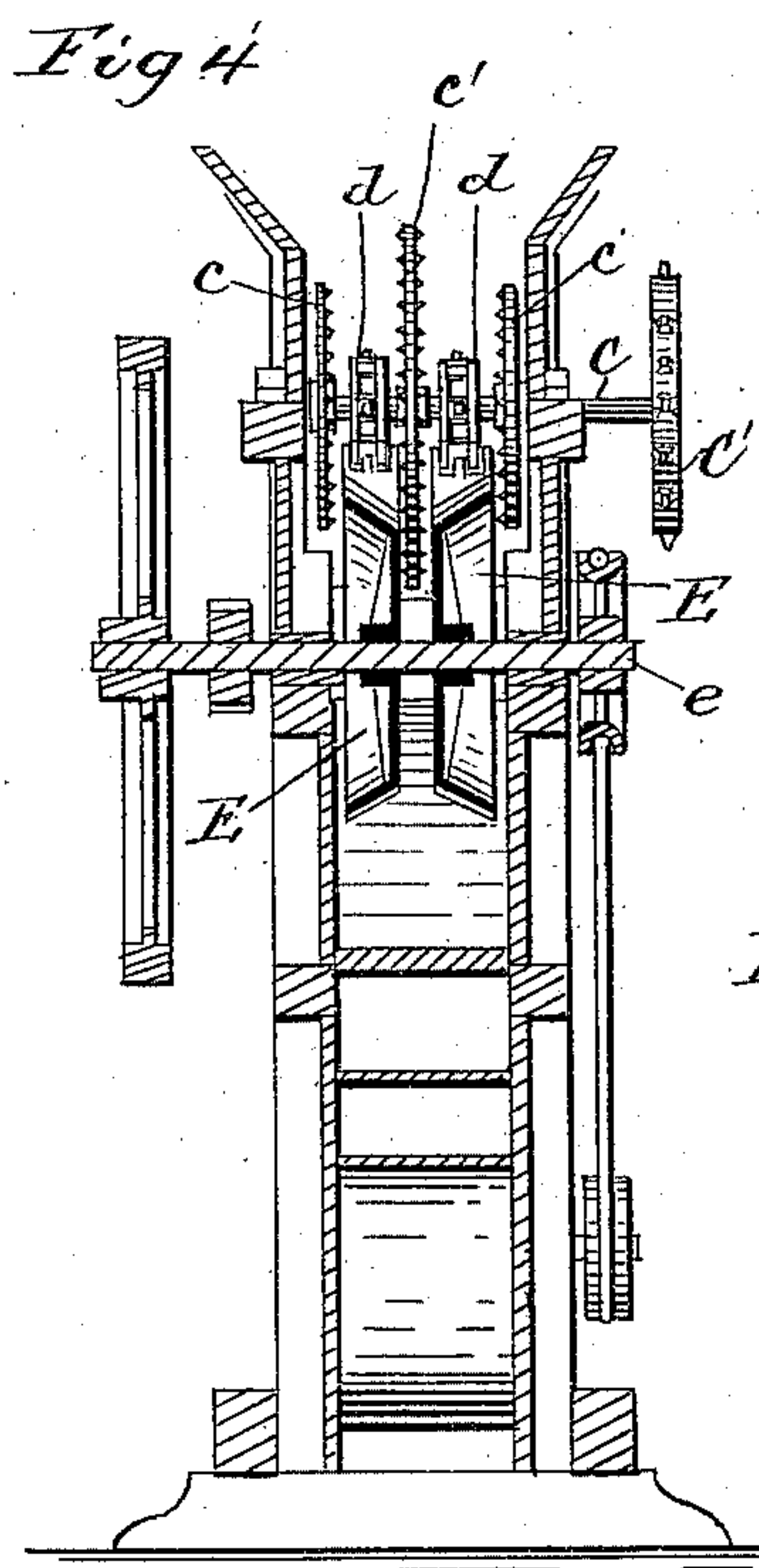
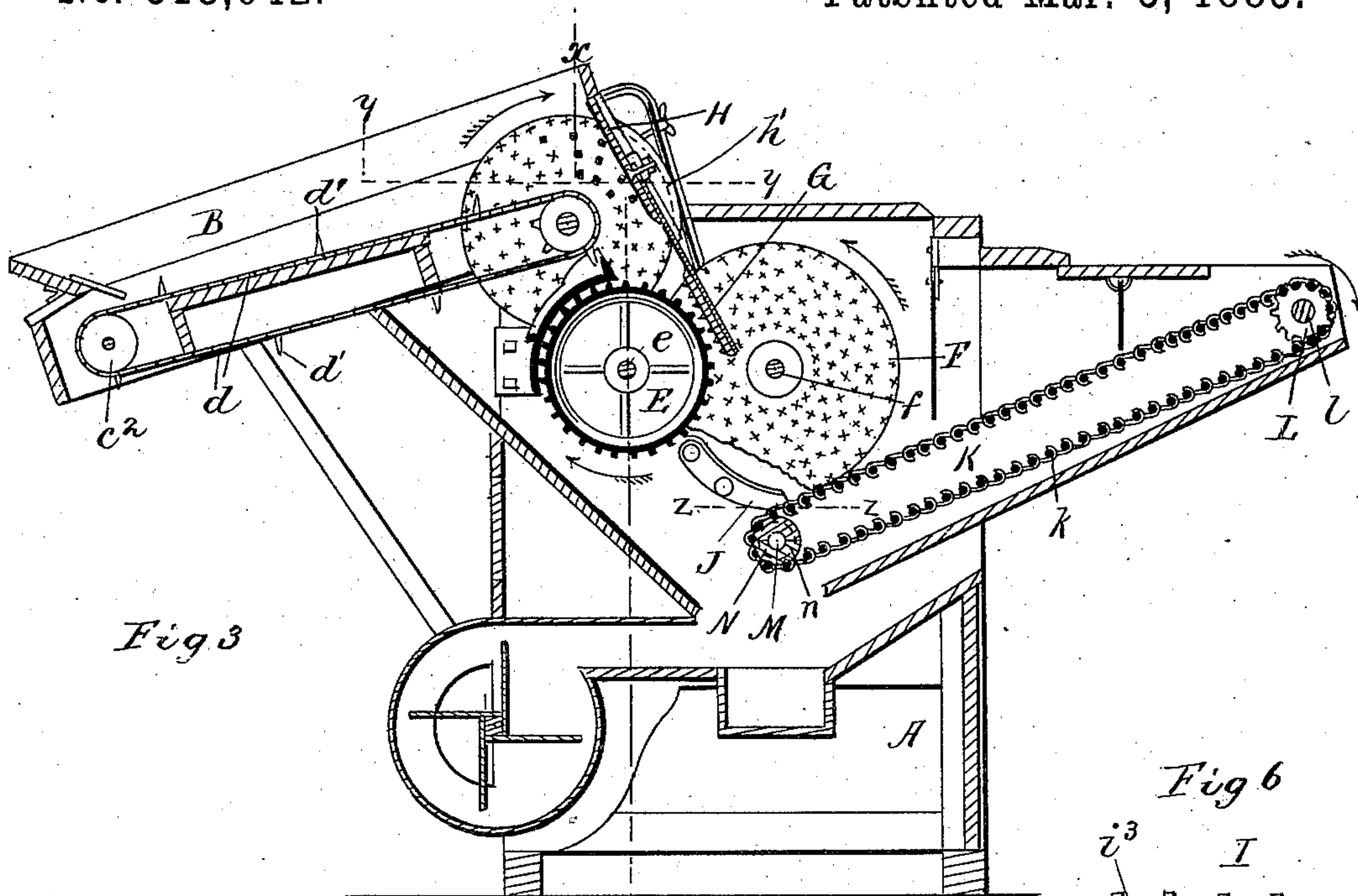
2 Sheets—Sheet 2.

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Witnesses

N. C. Corlies

P. E. Bennet.

Inventors

John Q Adams & Oliver R Adams

By Coburn T. Thacher
Attorneys

Attorneys

UNITED STATES PATENT OFFICE.

JOHN Q. ADAMS AND OLIVER R. ADAMS, OF MARSEILLES, ILLINOIS.

CORN-SHELLER.

SPECIFICATION forming part of Letters Patent No. 313,042, dated March 3, 1885.

Application filed October 20, 1884. (No model.)

To all whom it may concern:

Be it known that we, JOHN Q. ADAMS and OLIVER R. ADAMS, citizens of the United States, and residing at Marseilles, in the county of La Salle and State of Illinois, have invented certain new and useful Improvements in Corn-Shellers, which are fully set forth in the following specification, reference being had to the accompanying drawings, in which—

10 Figure 1 represents a side elevation of a corn-sheller embodying our improvements, taken on the delivery side of the machine; Fig. 2, a similar elevation of the machine, taken on the opposite side thereof; Fig. 3, a vertical longitudinal section of the same; Fig. 4, a transverse section taken on the broken line *x x*, Fig. 3; Fig. 5, a detail plan section of the same, taken on the broken line *y y*, Fig. 3; Fig. 6, an end elevation of the guard-piece which lies over the bevel-runners, taken on an enlarged scale; Fig. 7, a side elevation of the same on the same enlarged scale; Fig. 8, a detail plan section taken on the line *z z*, Fig. 3, and on the same enlarged scale; Fig. 9, a detail section taken on the line *w w*, Fig. 8, on the same enlarged scale; and Fig. 10, a plan view showing the adjustable bearing for the upper end of the elevator.

Our invention relates to that class of corn-shelling machines in which the ears of corn are fed to the shelling devices endwise, and is an improvement on Letters Patent heretofore granted to us, No. 210,074, dated November 19, 1878. In our present improvement we have changed the feeding mechanism relative thereto so that the feed is directly into the shelling devices, and the direction of the feed is up the incline of the elevator and then down a sharp incline into the shelling mechanism. In carrying out this main improvement we have made some special devices for certain parts of the machine.

We will proceed to describe in detail one way in which we have carried out our invention in practical form, and will then point out definitely in the claims the special improvements which we believe to be new and wish to protect by Letters Patent.

In the drawings we have shown a machine which in most of its general features is substantially the same as that illustrated in our

previous patent, mentioned above; hence it will not be necessary to give here a particular and minute description of all the parts of this machine.

In the drawings, A represents the main or supporting frame of the machine, and B the feed-elevator, which is inclined as usual, and is attached to the main frame in any suitable way.

The feed mechanism is composed of chains and picker-wheels, both driven positively. The picker-wheel shaft C is mounted in the main frame near the upper front corner thereof, and fixed upon it are picker-wheels *c c'*, which are of ordinary construction, except that they are somewhat larger than usual, and the wheel *c'* is of greater diameter than the others, and is arranged between them, as shown in Fig. 5 of the drawings, this figure showing the arrangement for two feed-holes of the machine. With an increase in the number of holes it will be understood, of course, that this arrangement is preserved by placing another of the larger picker-wheels, *c'*, outside of one or both of the smaller wheels, and then fixing another of the smaller ones outside of the larger. Sprocket-wheels D are also fixed on the picker-wheel shaft, one being arranged between each two picker-wheels, and over these sprocket-wheels the elevator-chains *d* run, the links being engaged by the projections on the wheels, so as to cause a positive motion. These elevator-chains are provided at suitable intervals with upright projections *d'*, and run over plain sheaves *e* at the lower end of the elevator. The bevel-runners E are mounted on a shaft, *e*, which is arranged a little back of and considerably below the picker-wheel shaft. One bevel-runner is provided for each hole of the machine, and the larger picker-wheel extends down somewhat between the two, as shown in Fig. 4 of the drawings. The smaller picker-wheels also extend down somewhat by the other sides or faces of the bevel-runners, the bevels of which are inclined inward toward the larger picker-wheel. The straight runners F are mounted on a shaft, *f*, which is about on a line horizontally with the shaft of the bevel-runners, and the former are arranged so that there will be one straight runner between each pair of bevel-runners, in the usual

way. This will bring the bevel-runners and the larger picker-wheel in about the same vertical plane. The rag-irons G are mounted on a nose-piece, H, in the usual way. These rag-irons are of usual construction; but the piece to which they are attached is so arranged that they have an almost vertical position to accommodate the new relation of the feed devices and the straight and bevel runners. The nose-piece H is made as usual, except that it is a continuous piece from side to side of the machine, and is provided with recesses h h' for the picker-wheels c c' , respectively, so that these latter wheels are completely covered and protected in the rear by the nose-piece. Obviously, there must be some space between the sprocket-wheels on the picker-wheel shaft and the bevel-runners to permit the clearance of the feed-chain with its carrying projections. To prevent the escape of corn through this space or entrance into it, we provide a guard-piece, I, curved in form and having a deep recess, i , at one end adapted to receive the larger picker-wheel, and the branches or arms i' on each side of this recess are formed and adapted to fit over the respective bevel-runners on each side of this picker-wheel, being extended backward even with or a little beyond the peripheries of the sprocket-wheels, as shown in Fig. 3 of the drawings. The front or lower end of the guard has flanges by which it is fastened to the supporting-frame of the machine, and the upper surface of each arm is grooved or trough-shaped, with a slot, i^2 , cut lengthwise in each one. These slots are to accommodate the outer or higher edges of the bevel-runners. In the face of the upper end notches i^3 are cut, which accommodate the projections on the links of the sprocket-chain, these projections being fastened to opposite side bars of the said links. Below the rag-irons, and just within the peripheries of the straight runners, are guards or shoes J, which fill the space between the bevel-runners and the cob-carrier K, and direct the material delivered from the shelling devices to the latter device. This cob-carrier K is a chain composed of links k , of a well-known construction, and need not be described. At its upper end it passes over sprocket-wheels L of a shaft, l , at the rear end of the machine, by which it is driven positively. Ordinarily the lower end of this chain passes directly around a shaft, M, or around sheaves on said shaft. This shaft is usually the main shaft of the machine—that is, the one to which motion is communicated from the horse-power or other motor. In its ordinary exposed position the silk and other material is liable to collect on this shaft and in time clog the delivery. To avoid this we extend the boxes N of the shaft across the machine from side to side, so as to provide a tubular bearing or sleeve, n , surrounding the shaft between the boxes. This tubular portion may be either cast in one piece with the boxes or parts thereof, or it may be made a separate piece and attached to them in any

suitable way. Next to each box a shallow, narrow groove, n' , is made around the tubular portion, and just inside each groove is raised a thin collar, n^2 , this construction being adapted to the cob-carrier, the straight bars of the links of which ride on the collars, while the bent ends which form the hooks easily pass around in the grooves, and so the carrier-chain is easily slipped around this tubular piece, which fully protects the shaft. It will be understood, of course, that the machine is provided with suitable gearing and other driving mechanism to give the required movements to the several parts and in the required direction. The general construction and arrangement of these devices is, however, so well known that they need not be described here, although we have shown them in full in the drawings, so as to illustrate a complete operative machine. One or two features only require notice.

On the main shaft M is a sprocket-wheel, m , over which a chain, O, runs to a similar wheel, C' , on the picker-wheel shaft, and thereby positive motion is communicated to the latter. In order to keep this main driving-chain taut, we provide a tightener, P, which in this instance consists of a small shoe, p , attached to a slotted arm, p' , which is fastened to its support by means of a screw, p^2 , that passes through the slot, and the latter permits adjustment back and forth to tighten or slacken the chain, being screwed in any position desired by means of the fastening-screw, as shown in Fig. 2 of the drawings. At the other end of the main shaft is a sprocket-wheel, m' , over which a chain, Q, runs to a sprocket-wheel, l' , on the driving-shaft of the cob-carrier, thereby communicating positive motion to the latter. A chain-tightener, q , similar to the one just described is also attached to the frame and arranged to adjust the tautness of this driving-chain Q.

In the improved feeding mechanism which we have described above and shown in the drawings, we dispense entirely with the usual dividing-ridges in the elevator, which have heretofore been arranged so as to divide off the elevator into spaces corresponding to the feed-holes in the machine, these ridges usually rising gradually toward the upper end of the elevator, so as to turn the corn into the respective spaces. With our improvements the elevator is made with a plain bottom across its entire width from the lower to the upper end, there being no projections except those on the feed-chains. We also dispense entirely with fixed partitions in the machine beyond the elevator, which are generally arranged between the respective holes of the machine. These fixed or stationary partitions always operate to impede the feed more or less, and so tend to produce clogging. It will be noticed that the picker-wheels constitute the only divisions for the respective feed-holes of the machine, and hence there are only moving surfaces at the divisions, which, it is

obvious, will tend to prevent clogging instead of aggravating it. The picker-wheel shaft is mounted on the elevator, so that it may be removed with the latter, and the elevator itself is held at the upper end to the main frame by a fastening, *a*, which is slotted, so as to be adjustable on the main frame, and in this instance takes the bearings *b* of the picker-wheel shaft. This feature of adjustability permits the accurate adjustment of the picker-wheels with reference to the other parts of the machine.

In the operation of our machine the corn is thrown into the elevator, as usual, and is carried upward and forward positively by the action of the projections on the feed-chains, which are driven positively, as already described. As these chains run around sprocket-wheels on the picker-wheel shaft, the ears of corn are brought directly in between the picker-wheels, and are fed into the machine by the combined forcing action of the feed-chains and picker-wheels. As soon as the corn reaches the upper end of the elevator-chains, it is turned directly downward at a steep incline, and passes at once to the shelling mechanism described above, so that the path of the corn is first up an incline to the end of the elevator-chains and then down a very sharp incline, the path, in fact, being quite nearly vertical. The positively-acting feed-chains and picker-wheels drive the corn forward and downward to the shelling devices, which operate in the usual manner, and the material discharged therefrom is delivered to the cob-carrier, which also acts as a separator, or to any other separating and discharge device. The grain is separated and delivered in any usual way. The guards between the picker-wheel shaft and bevel-runners prevent the loss of grain through this space, and the guards below the bevel-runners effect the same result at the opening therefrom.

It is obvious that this construction and arrangement of the devices present a very simple combination of parts, in which a great many of the parts contained in the feeding and shelling mechanisms of our former patent, already referred to, are dispensed with, and at the same time the action in every direction is positive and certain, and by practical test we have found it to be exceedingly efficient and satisfactory. We do not wish, however, to be understood as limiting the application of our improvements to the precise devices and arrangement in all respects as herein described and shown, for details of construction may be changed considerably, especially in applying these improvements to machines of different types, and yet the main features of our invention retained and made fully available to secure the results which we have sought and have wrought out in one particular way, as we have herein set forth.

Having thus described our invention, what

we claim as new, and desire to secure by Letters Patent, is—

1. In a corn-sheller provided with an open throat, the picker-wheels, in combination with an inclined elevator running directly to the picker-wheels, bevel-runners arranged below the picker-wheels, and straight runners, also arranged below the picker-wheels, whereby the corn is delivered directly to the picker-wheels, and thence into a descending open throat divided into feed-holes by moving surfaces, substantially as and for the purposes set forth.

2. In a corn-sheller, the picker-wheel shaft, in combination with positive gearing for communicating motion thereto, the sprocket-wheels fastened on the picker-wheel shaft between the picker-wheels, and elevator-chains running over said sprocket-wheels, and provided with upright projections at intervals, whereby a positive motion is given to the picker-wheel shaft, and a similar motion from said shaft to the elevator-chains, substantially as and for the purposes set forth.

3. In a corn-sheller, the picker-wheels mounted at suitable intervals on a shaft, in combination with sprocket-wheels secured to the shaft between the picker-wheels, the elevator-chains running over the sprocket-wheels, the bevel and straight runners on shafts somewhat below the picker-wheel shaft, and the rag-irons, substantially as and for the purposes set forth.

4. In a corn-sheller, the picker-wheels *c c'*, of different sizes and arranged alternately on their shaft, in combination with the bevel-runners arranged almost directly below the picker-wheels, substantially as and for the purposes set forth.

5. The picker-wheels *c c'*, of different sizes, in combination with the bevel-runners arranged almost directly below the picker-wheels, and a guard arranged in the space between the bevel-runners and the picker-wheel shaft, substantially as and for the purposes set forth.

6. The picker-wheels, in combination with the bevel-runners, the guard *I*, curved and notched, substantially as described, the sprocket-wheels *D* on the picker-wheel shaft, and the elevator-chains *d*, provided with upright projections *d'*, substantially as and for the purposes set forth.

7. The smaller picker-wheels, *c*, and larger picker-wheels, *c'*, in combination with the nose-piece *H*, in a continuous piece from side to side of the machine, and provided with recesses *h h'*, adapted to receive and cover the said picker-wheels at the rear portions thereof, substantially as described.

8. The box-sleeve *n*, provided with annular grooves *n'*, and collars *n''*, in combination with the cob-chain *K*, constructed as described, substantially as and for the purposes set forth.

9. The sprocket-wheel on the main shaft,

in combination with a sprocket-wheel on the picker-wheel shaft, the drive-chain O, running over these sprocket-wheels, the chain-tightener P, sprocket-wheels arranged between the picker-wheels, and elevator-chains running over said sprocket-wheels, whereby a positive and certain motion is given to the picker-wheels and elevator-chains, substantially as and for the purposes set forth.

JOHN Q. ADAMS.

OLIVER R. ADAMS.

Witnesses:

E. T. SPENCER,
NEWTON WARD.