

(No Model.)

5 Sheets—Sheet 1.

H. M. DOBBINS.
CORN HUSKING MACHINE.

No. 580,484.

Patented Apr. 13, 1897.

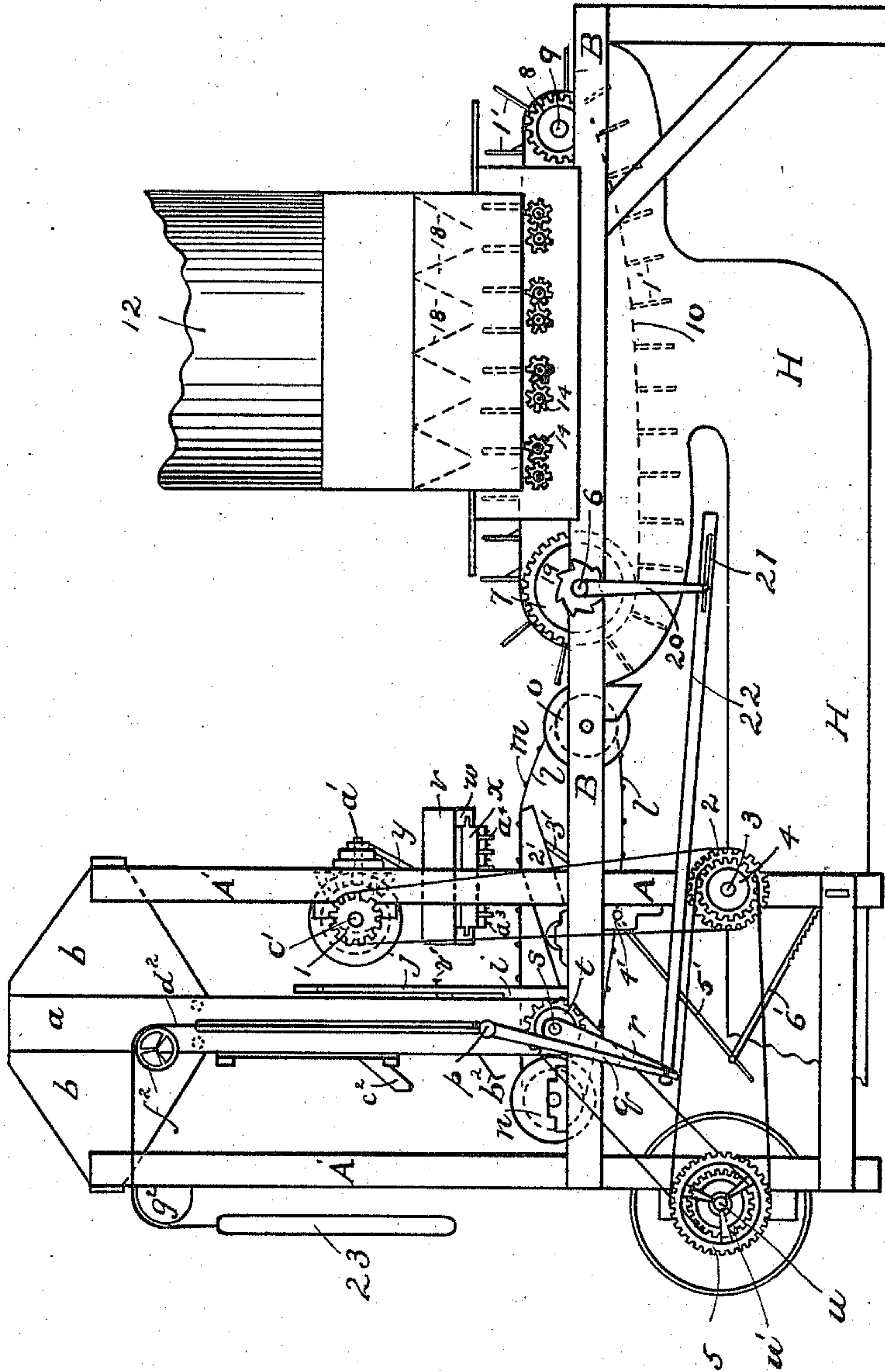


Fig. 1.

Witnesses
M. B. Bullard,
A. C. Perry.

Inventor.
H. M. Dobbins
by V. E. Bird
Attorney.

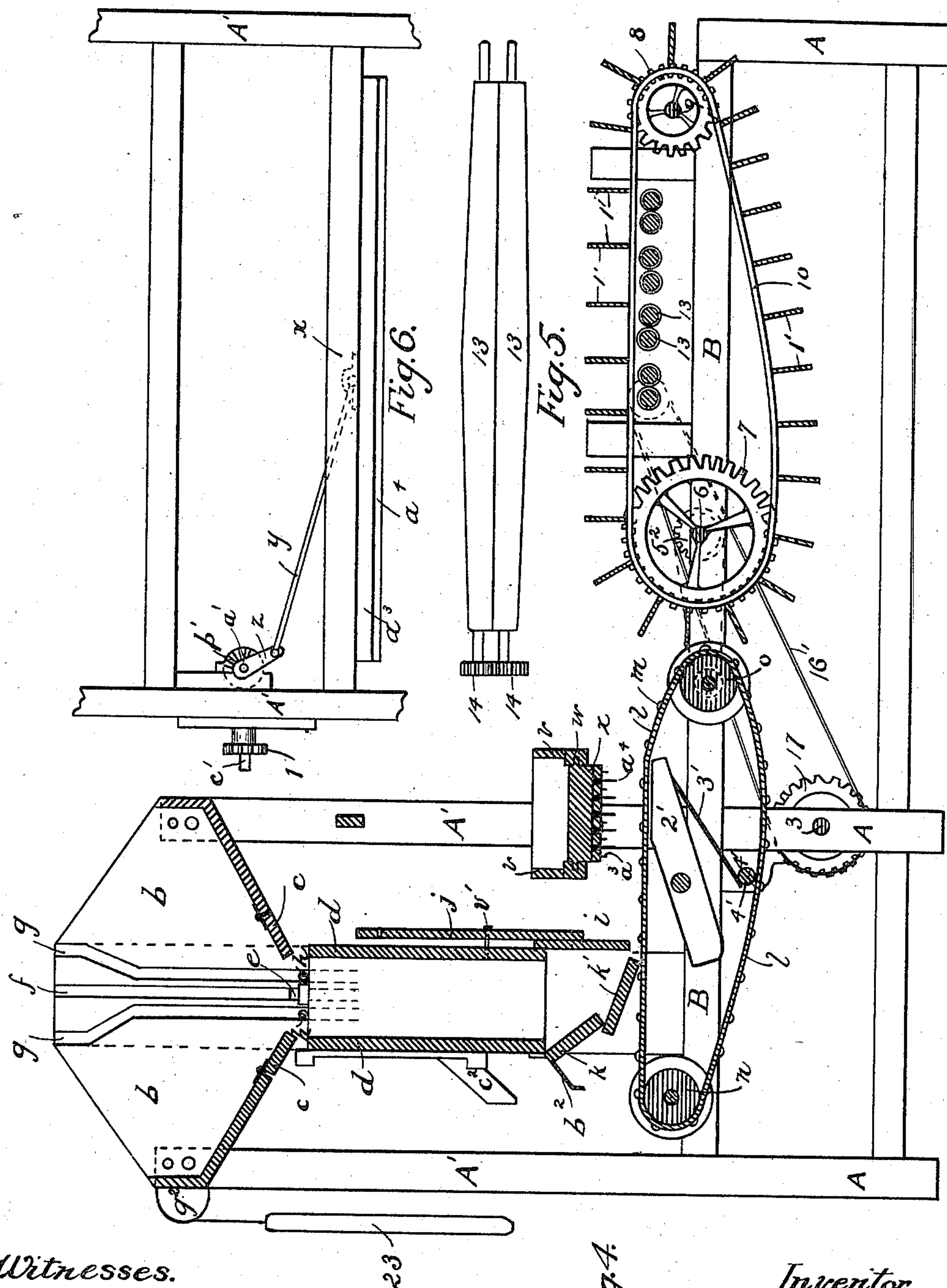
(No Model.)

H. M. DOBBINS.
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5 Sheets—Sheet 3.

No. 580,484.

Patented Apr. 13, 1897.



Witnesses.
M. B. Bullard.
A. C. Perry.

Fig. 4.
Inventor
H. M. Dobbins
by H. B. Bond.
Attorney

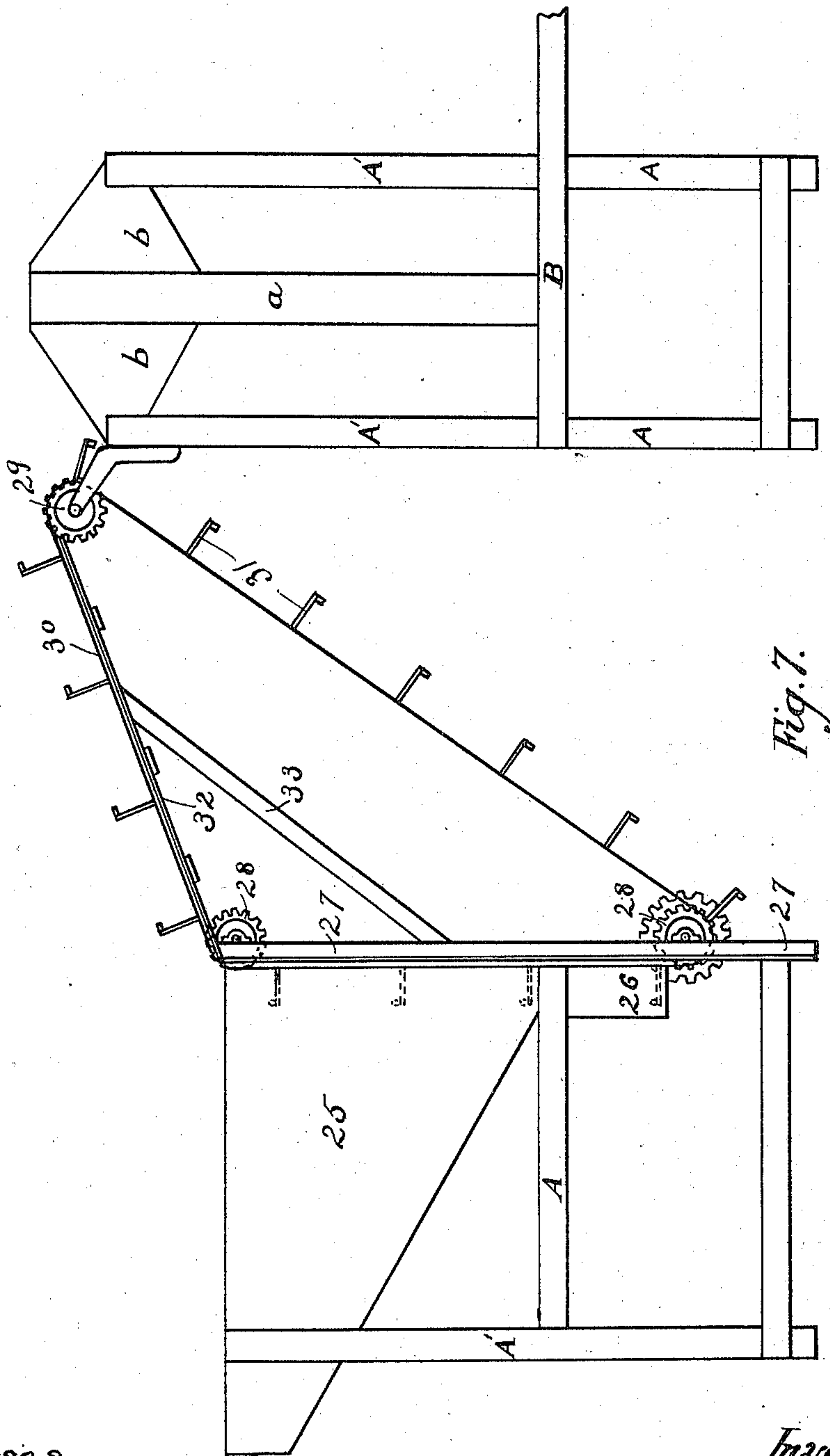
(No Model.)

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H. M. DOBBINS.
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Patented Apr. 13, 1897.



Witnesses.
M. B. Bullard.
A. C. Perry.

Inventor.
Norace M. Dobbins
by *Wm. B. Bird*
Attorney.

(No Model.)

5 Sheets—Sheet 5.

H. M. DOBBINS.
CORN HUSKING MACHINE.

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Patented Apr. 13, 1897.

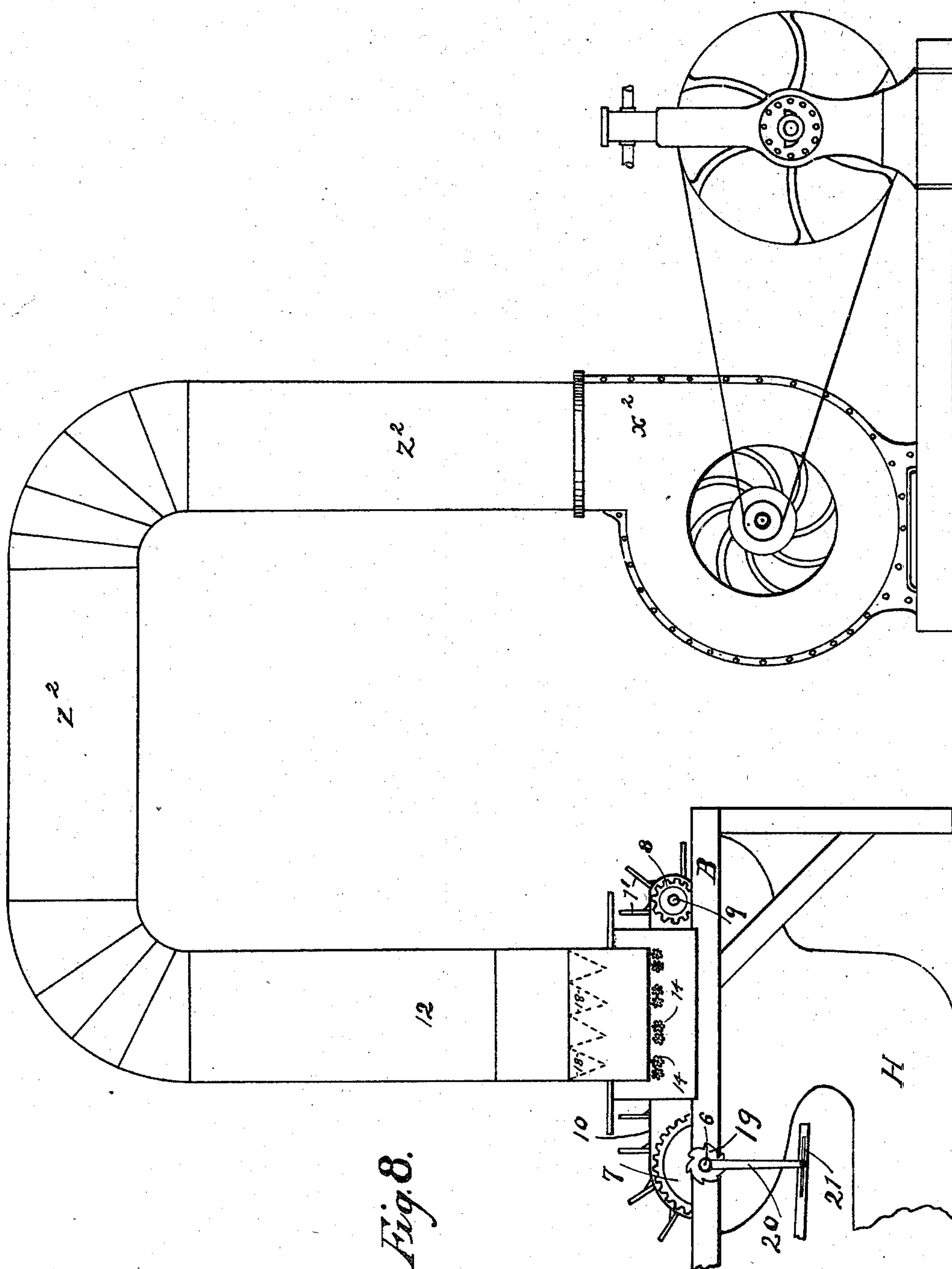


Fig. 8.

Witnesses.
A. C. Perry.
M. B. Bullard.

Inventor:
Horace M. Dobbin.
by Wm. B. Bird
Attorney.

UNITED STATES PATENT OFFICE.

HORACE M. DOBBINS, OF PORTLAND, MAINE.

CORN-HUSKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 580,484, dated April 13, 1897.

Application filed October 22, 1894. Serial No. 526,577. (No model.)

To all whom it may concern:

Be it known that I, HORACE M. DOBBINS, a citizen of the United States, residing at Portland, in the county of Cumberland and State of Maine, have invented certain new and useful Improvements in Corn - Husking Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to machines for husking corn, my purpose being to provide a device whereby the operation may be speedily and completely accomplished.

In the drawings, Figure 1 is a side elevation; Fig. 2, an elevation of the side opposite to that shown in Fig. 1. Fig. 3 is a detail showing in top plan the method of actuating the rollers. Fig. 4 is a longitudinal section of the machine. Fig. 5 is a plan of a pair of rollers. Fig. 6 is a side view of the device for actuating the knives, and Fig. 7 is a side elevation of the sorter and auxiliary feeding device. Fig. 8 is a side elevation illustrating the means for furnishing an air-blast.

A is the frame of the machine, whereon rests the bed B. Upheld by the standards A' A' and the end uprights *a a* is the hopper *b b*, the bottom of which is open. (See Fig. 4.) At the lower part of the bottom, on either side of the opening, are hinged gates *c c*, which are capable of swinging upward. (See Fig. 4.) Between the end uprights below the hopper is a rectangular box or plunger, (see Fig. 4,) upon either end of which is a guide *e*, arranged to slide in the groove *f* in the side of the hopper. Upon each side of the groove *f* are grooves *g g*, which through the lower and larger part of their lengths are parallel with the groove *f*, but which diverge toward the top, as shown in Fig. 4. Resting upon the top of the box *d* are two rods *h h*, the ends of which project into the grooves *g g*, respectively. Upon the rear side of the box *d* is a gate or slide *i*, extending from end to end of the box, and having one or more upwardly-extending vertically-slotted arms *j*, the arms being connected with the box *d* by means of a pin passing through a slot in the arm *j*. Hinged to the front side of the box is a gate

k, which is provided at the upper end with an arm *b²*, directly above which and fixed to the frame of the machine is a projection *c²*. Just above the apron *l* (hereinafter described) and between the uprights *a a* is an inclined plane *k'*. (See Fig. 4.)

On either side of the machine the end upright *a* is slotted, as shown in Fig. 1, and through this slot projects a pin *p*, which is secured to the end of the box *d*. Upon this pin is pivoted the arm *q*, the lower end of which is also pivoted to the arm *r*, which is fixed upon the shaft *s*, on the end of which is the sprocket-wheel *t*, which is connected by a chain with the sprocket-wheel *u'* upon the main shaft *u*.

Secured to the pin *p* upon either side of the machine is a cord *d²*, which passes upward over the pulley *f²*, journaled upon the side of the upright *a* and then forward over the pulley *g²*, below which it is connected with the weight or balance 23.

Beneath the box *d* is an endless apron *l*, which is provided at regular or substantially equal intervals with ridges *m*. This apron passes around the rollers *n o*, which are properly journaled in the frame of the machine. Beneath the apron *l*, from side to side of the machine, is a series of keys pivoted to the frame A and so arranged that their beveled upper surfaces may be pressed upward against the apron *l*. Beneath these keys 2' are the springs 3', the upper ends of which are in contact with the keys 2', while the lower ends are rigidly attached to the rod 4', which extends from one side to the other of the machine. (See Fig. 4.) Rigidly attached to this rod 4' is the arm 5', to the lower end of which is pivoted the arm 6', provided at its lower end with teeth which engage a plate fastened to the frame of the machine.

Between the rear uprights A' A' is a box *v*, (see Fig. 4,) in the transverse sides of which are grooves *w*.

x is a knife-plate tongued at its sides to fit the grooves *w* and having knives *a⁴* depending from its under side, the knives being in parallel lines and at right angles with the apron *l*. These knives project downward between slats which extend from side to side of the machine and are made fast at their ends to cleats supported by the standards A'.

These slats have at frequent intervals on their under surface the pins a^3 .

Pivoted to the upper side of the knife-plate x is a rod y , the other end of which is pivoted to the arm z , which is fixed upon the shaft a' . The other end of the shaft a' carries a beveled gear p' , which meshes with a beveled gear upon the shaft c' , which is attached to the upright A' . The shaft c' is rotated by means of a sprocket-wheel 1 and is connected with the sprocket-wheel 2 on the shaft 3. This shaft also carries the sprocket-wheel 4, which is connected with the sprocket-wheel 5 on the shaft u by means of a chain.

In the rear of the endless apron l is a shaft 6, having on its extremity a sprocket-wheel 7, which is connected by a chain with the sprocket-wheel 8 on the shaft 9 at the extreme end of the machine. (See Figs. 2 and 4.) The sprocket-chain 10 is provided at regular intervals with fingers 1', connected by plates which extend from side to side of the machine. (See Fig. 4.) Between the shafts 6 and 9, supported upon the bed of the machine, is a rectangular pipe 12, directly beneath the mouth of which and under the plates are a series of rollers 13 13, in pairs, as shown in Fig. 4. These rollers extend from side to side of the machine and are provided on one end with intermeshing gears 14 14, as shown in Fig. 1, and upon the other end, as shown in Fig. 2, the alternate rollers are provided with gears 15, which are connected, as shown in Fig. 3, by chains 16. The sprocket-wheel upon the end of the shaft carrying the forward roller 13 is connected by the chain 16' with the sprocket-wheel 17 on the shaft 3. The rollers are so constructed that the diameter of the centers of their lengths is slightly larger than the diameter of their ends, as shown in Fig. 5, where the construction is exaggerated in order to illustrate it clearly. The swell in the center is such that when the rollers are so journaled that the ends are in contact the rollers will be closely in contact from end to end. Within the rectangular pipe 12 and extending from side to side are the inclined wings 18 18. Between the lower ends of these wings are spaces or openings, the openings being so arranged that they will be directly above the line of contact of each pair of rollers 13 13. Any of the numerous means in use may be employed to supply the pipe 12 with a downward current of air. In the drawings is shown for this purpose an ordinary rotary blower x^2 , connecting with the pipe 12 by means of a pipe z^2 . Upon the end of the shaft 6 is fixed the ratchet 19 and also the arm 20, the lower end of which is pivoted to a pin which enters the slot 21 in the rod 22, the other end of which rod is pivoted to the arm r , already described. (See Fig. 1.) A pawl upon the inside of the arm 20 is so situated as to engage the ratchet 19.

The auxiliary feeding device, as shown in Fig. 7, consists of a hopper 25, having an opening at its lowest part which connects with the

conduit or passage 26, sufficiently wide to admit the entrance of the fingers hereinafter described. Secured to the upright 27, which forms the back of the hopper, are two sprocket-wheels 28 28. The hopper 25 is placed in front of the sorting-hopper $b b$, which is provided with a bracket carrying the sprocket-wheel 29. The two sprocket-wheels 28 28 and the sprocket-wheel 29 are connected by means of the sprocket-chain 30, which at regular intervals is provided with fingers 31, as shown in Fig. 7. The hopper 25 should of course be of the same width as the hopper $b b$, and the corresponding fingers 31 31 are connected by means of plates. Extending from the upper sprocket-wheel 28 to the sprocket-wheel 29 is a platform 32, supported by a brace 33. This platform is in the same plane as the sprocket-chains connecting the sprocket-wheel 28 and the sprocket-wheel 29.

Instead of an apron l extending the entire width of the machine several aprons may be used, arranged side by side, and thus, yielding more readily to the pressure of the keys, the apron will adapt itself more closely to inequalities in each ear and of the several ears.

The operation of the machine is as follows: If the auxiliary feeding device is not used, the corn is thrown into the hopper $b b$. If the auxiliary feeding device is used, the corn is thrown in large quantities into the hopper 25, wherein it is carried by gravity to the lower and forward portion of the hopper, whence a line of ears is carried upward upon the fingers 31, over the platform 32, into the hopper $b b$ of the sorter. Assuming the sorter to be in the position shown in Fig. 4, the plunger or box $d d$ is carried upward by means of the crank-arm q , the weight of the box being partially counterbalanced by the weight 23. As the box $d d$ is raised the gates $c c$ are carried upward until their lower edges rest against the side of the box $d d$. As the box passes upward between the gates a line of ears of corn is lodged between the rods $h h$, where they remain until the rods begin to diverge in the upper part of the grooves $g g$, when the rods will have opened sufficiently to permit the ears of corn to drop through the box $d d$ onto the gate k , which is raised to a horizontal position by its contact with the projection c^2 . The box now descends, and the gate k falls into the position shown in Fig. 4, whence the corn is delivered upon the inclined plane k' , resting against the gate or slide i . With the next elevation of the box $d d$ the same process is repeated. Other ears of corn fall in a row upon the gate k , and the gate or slide i being raised by a pin v' striking the upper extremity of the slot in the arm j , the row of ears previously deposited upon the inclined plane k' is permitted to roll out upon the apron l , whence they pass under the knives a^4 . The force of the spring 3' presses the levers or keys 2' upward against the apron, so that as the line of ears rolls along they are brought in contact with the

pins a^3 , which hold them momentarily while the oscillation of the knife-plate carries one of the knives through the husks from the butts to the points of the ears. The motion of the apron as it advances rolls the ears in contact with succeeding pins, when the slitting process is repeated in another portion of the husks, the knife-plate being actuated by means of the lever y , as shown in Fig. 6. When the ears of corn have passed beyond the knives, they are carried by the apron l onto the plates between the fingers upon the chain 10. By means of these plates they are carried over and allowed to rest upon the rollers 13 13, (the ratchet and pawl advancing the plates at regular intervals,) where the shredded portions of the husks are caught between the rollers and torn from the ear. The blast from between the plates 18 18 aids in the removal of the husks by separating the shredded portions and thus rendering them more easily caught by the rollers and by blowing the husks thus removed from the machine. The process is repeated as the ears of corn are carried over the subsequent pairs of rollers, whence they fall into a proper receptacle under the apron l . In order to insure the rotation of the ears as they pass over the rollers 13 13, smaller auxiliary rollers may be placed between the pairs of rollers 13 13 and rotated by any convenient means.

It will be readily perceived that the sorting devices herein described can be used for a variety of purposes and in conjunction with other machines.

An inverted hood H H (see Figs. 1 and 2) may be used beneath the machine, the hood having an opening beneath the pipe 12 to facilitate the removal of the husks.

As shown in the drawings and as hereinbefore described, the apron l is actuated by means of a sprocket-chain connecting the sprocket-wheels 4^2 5^2 , thereby giving to the apron l an intermittent motion. By varying the construction, however, as will readily be perceived, the apron l may, if desired, be so actuated as to give it a continuous motion.

In order to assure the more effective operation of the rollers 13 13, they may be covered with a coating of rubber or with rubber tubing, the latter construction being preferred, as simpler and more economical.

While I have described the stripping-rolls and the air-blast used in connection therewith as applied to a corn-husking machine, it is evident that they are equally applicable to other machines of similar character wherein stripping-rolls are used as the function of the air-blast in all such machines will be the same—namely, to hold the material in contact with the stripping-rolls until it is seized and carried through the rolls.

What I claim is—

1. The combination of a hopper having a horizontal back, an opening, contiguous and parallel to the back, connecting below with

a conduit or pipe of substantially the same width as the opening, endless bands or chains provided with plates passing upward through said chamber and hopper and over a platform attached to the back of said hopper, substantially as described.

2. The combination with a hopper of a box-like plunger beneath the hopper capable of sliding vertically between two walls provided with central and side grooves, the said plunger having projections engaging the central grooves, rods resting upon the top of said plunger and engaging the side grooves, said side grooves diverging outwardly toward the upper end of said hopper substantially as shown and described.

3. The combination with a hopper of a box-like plunger beneath said hopper capable of sliding vertically between two walls provided with side grooves diverging outwardly toward the upper end of said hopper, rods resting upon the top of said plunger and engaging said side grooves and a bottom hinged to said plunger and an arm rigidly attached at right angles to said bottom and a projection fixed to the frame of the machine directly above said arm to cooperate with said arm to close the bottom when the hopper is raised, substantially as described.

4. The combination with a hopper of a box-like plunger capable of sliding vertically between two walls and through the bottom of said hopper, an apron beneath said box and a gate having slotted arms and pins passing through said slots and fixed in the sides of said hopper, the portion of the slots above said pins being less than the distance said hopper is raised, substantially as described.

5. In a corn-husking machine, an endless apron having a series of transverse ribs, a series of stationary pins above said apron, a series of knives between said pins with means for actuating said knives transversely to the motion of said apron and a series of rollers with means for carrying the corn over and upon said rollers together with suitable means for actuating said apron and said rollers substantially as described.

6. In a corn-husking machine, the combination of an endless apron with means for actuating the same, a series of pins fixed in lines at right angles with said apron, knives between said lines of pins and means for actuating said knives, a device beneath said apron whereby said apron exerts an upward pressure and carriers whereby the ears of corn may be carried over and in contact with said rollers, substantially as described.

7. In a corn-husking machine, a device for shredding or cutting the husks, a series of pairs of contiguous rollers and means for actuating the same and a carrying device whereby the corn is taken from said shredding device upon and over said rollers, an air-conduit above said pairs of rollers whereby a current of air may be directed upon the ears of corn

while passing over said rollers, together with suitable means for furnishing an air-blast, substantially as described.

8. In a corn-husking machine a series of
5 pairs of contiguous rollers and means for actuating the same, a carrying device whereby the ears of corn are carried upon and over said rollers, an air-conduit above said pairs of rollers whereby a current of air may be directed upon the ears of corn while passing

over said rollers and suitable means for furnishing an air-blast to said conduit, substantially as described.

In testimony that I claim the foregoing as my invention I have hereunto set my hand 15 this 18th day of October, A. D. 1894.

HORACE M. DOBBINS.

In presence of—

GEO. E. BIRD,

A. C. BERRY.