

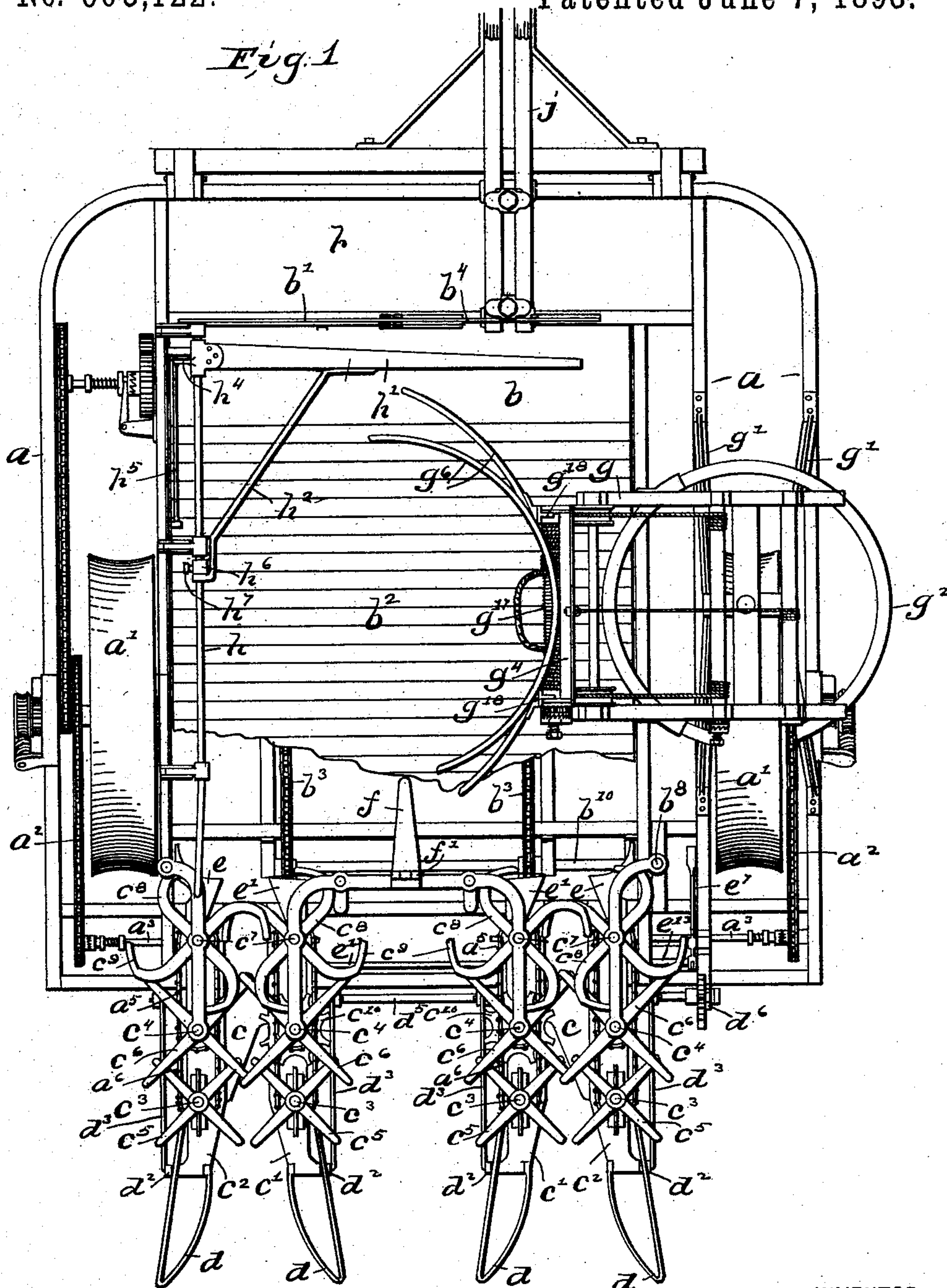
(No Model.)

4 Sheets—Sheet 1.

J. H. NEWELL.
CORN HARVESTER.

No. 605,122.


Patented June 7, 1898.



WITNESSES:

J. M. Gridley
Chas. J. Welch

INVENTOR

INVENTOR
John H. Newell
BY 

ATTORNEY

(No Model.)

4 Sheets—Sheet 2.

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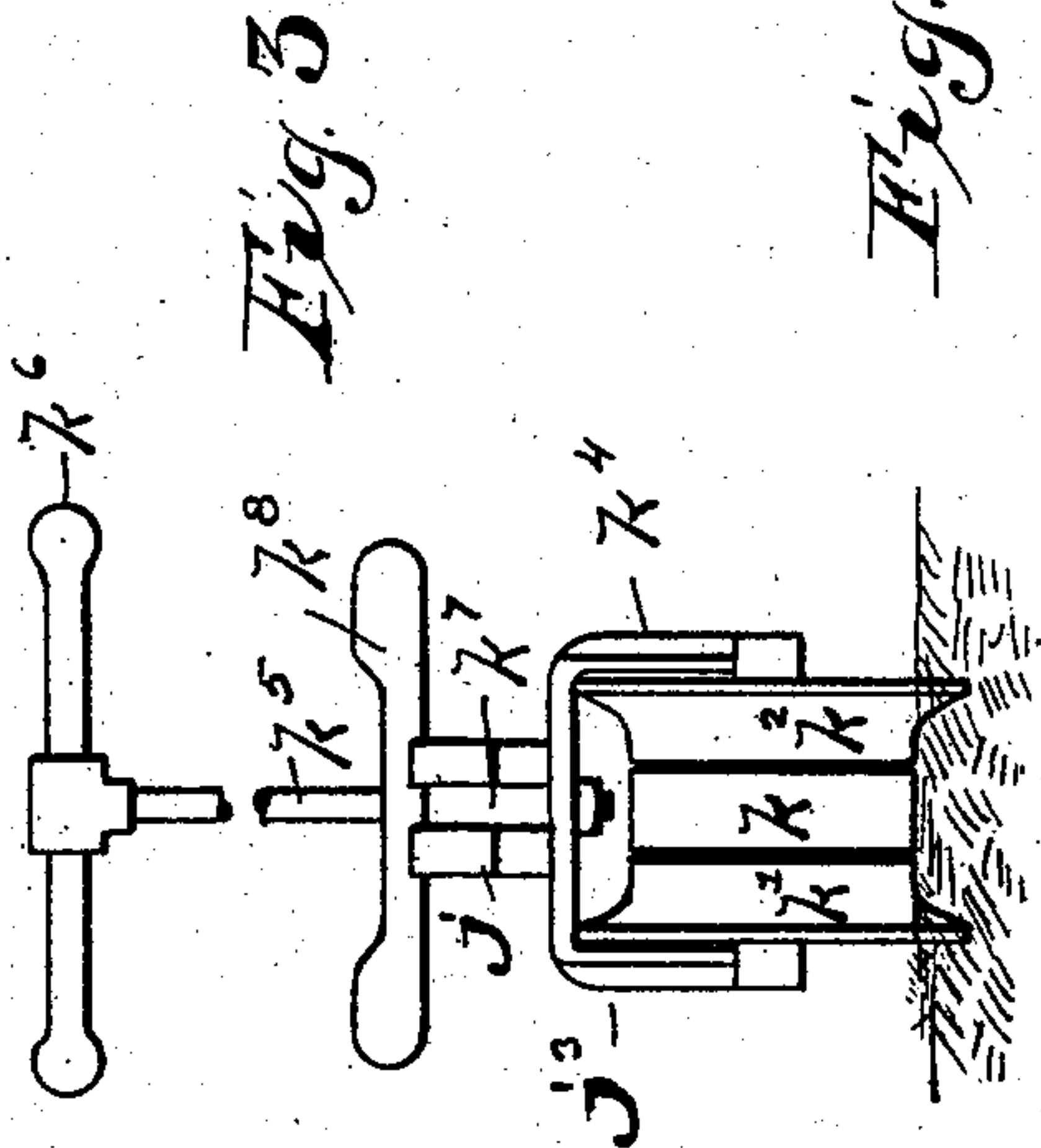
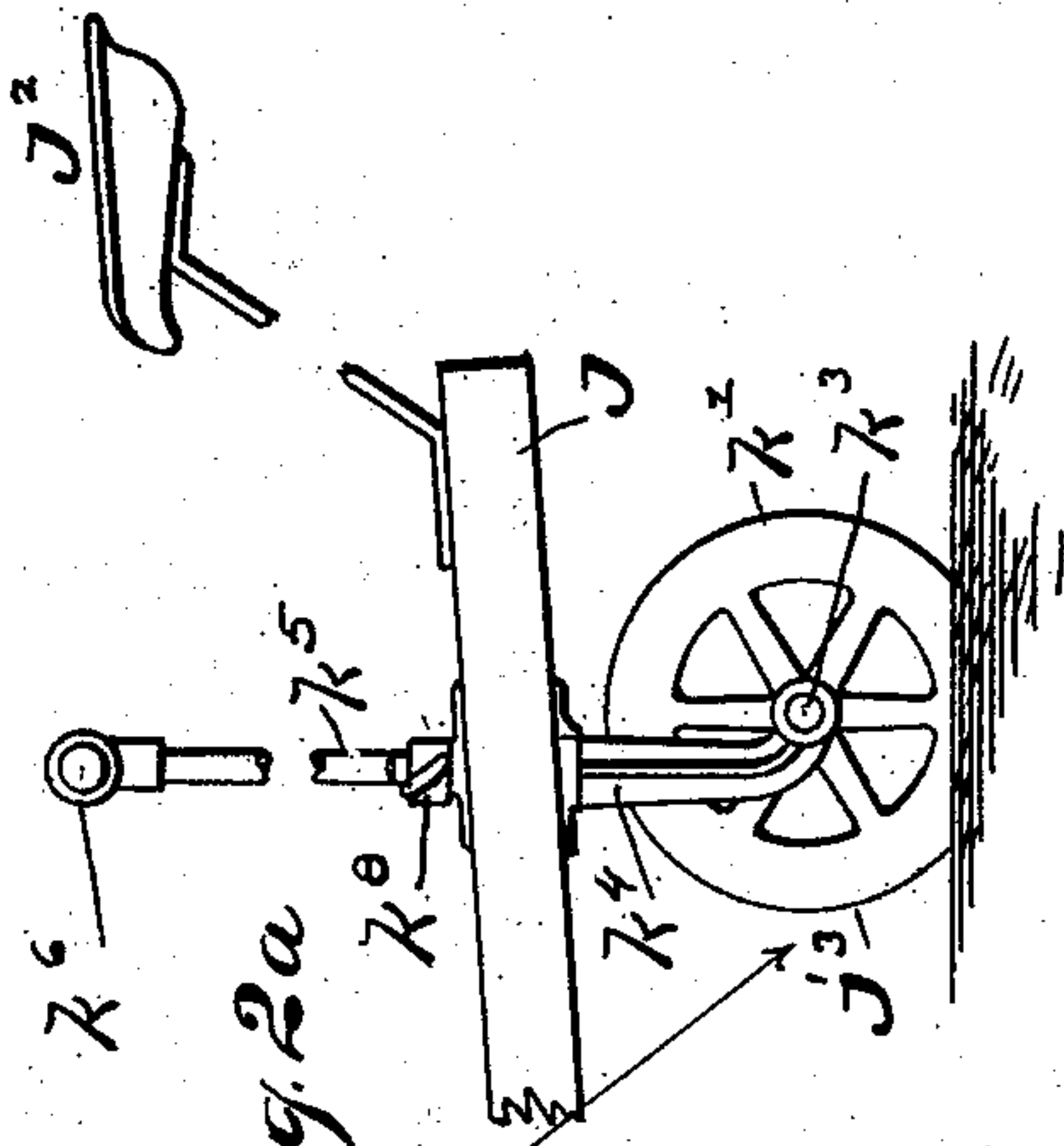
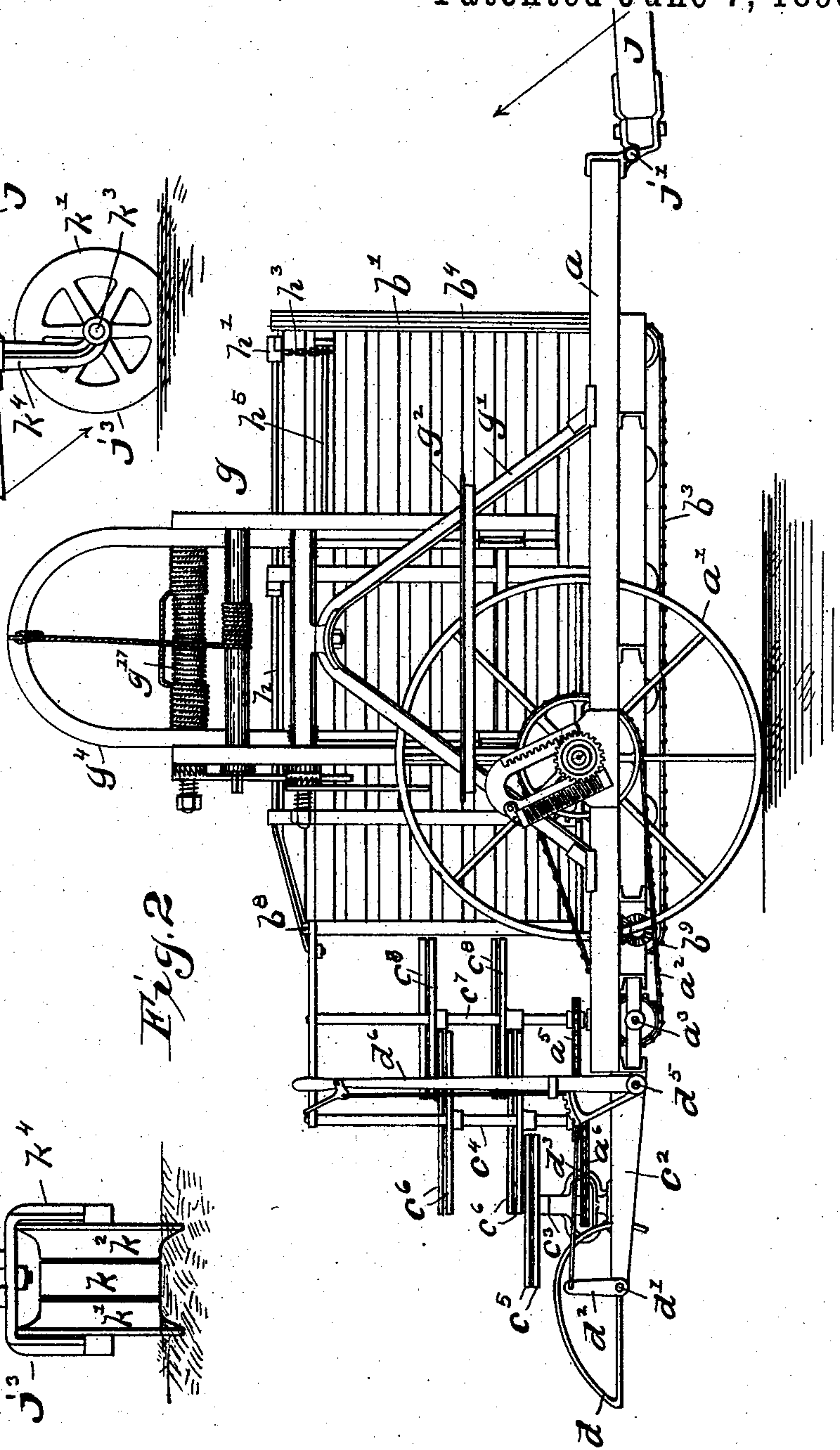


Fig. 2



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(No Model.)

4 Sheets—Sheet 3.

J. H. NEWELL.
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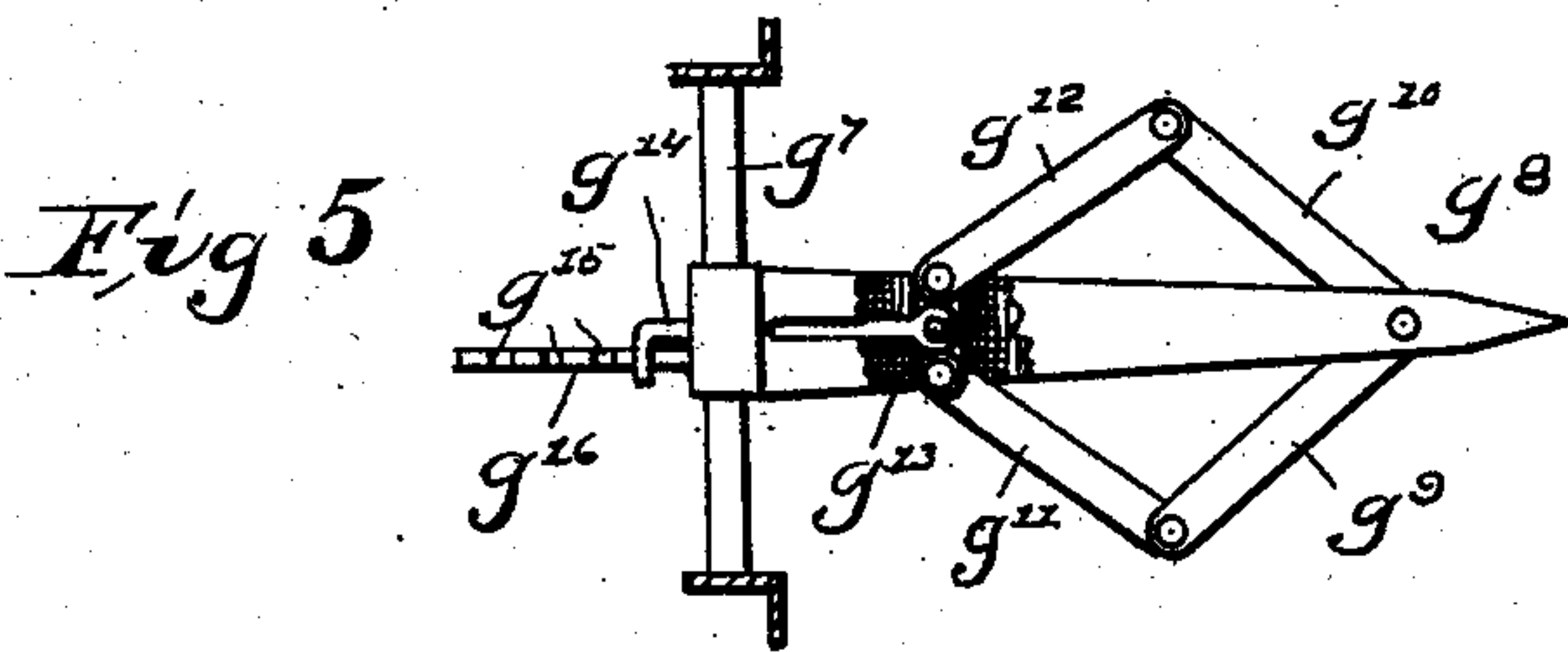
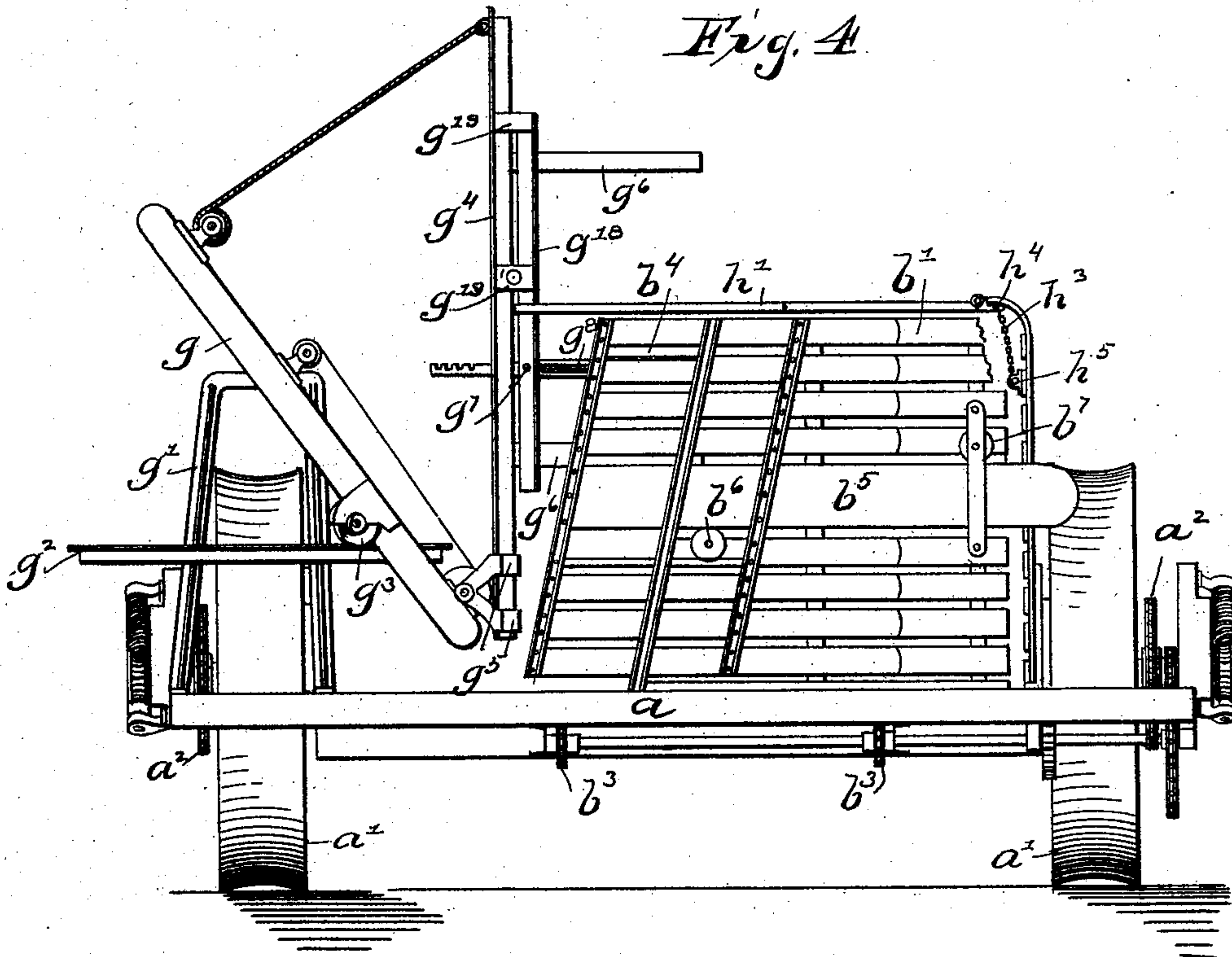


Fig. 6



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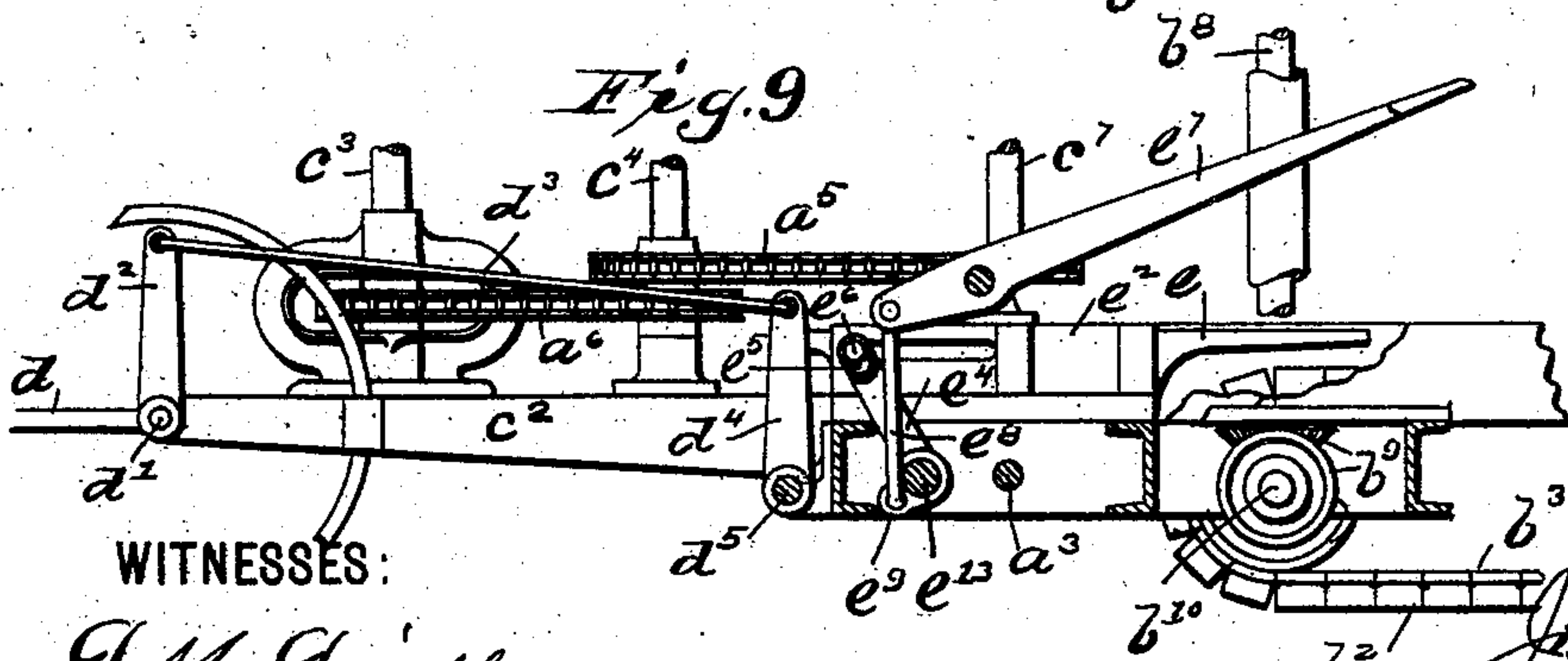
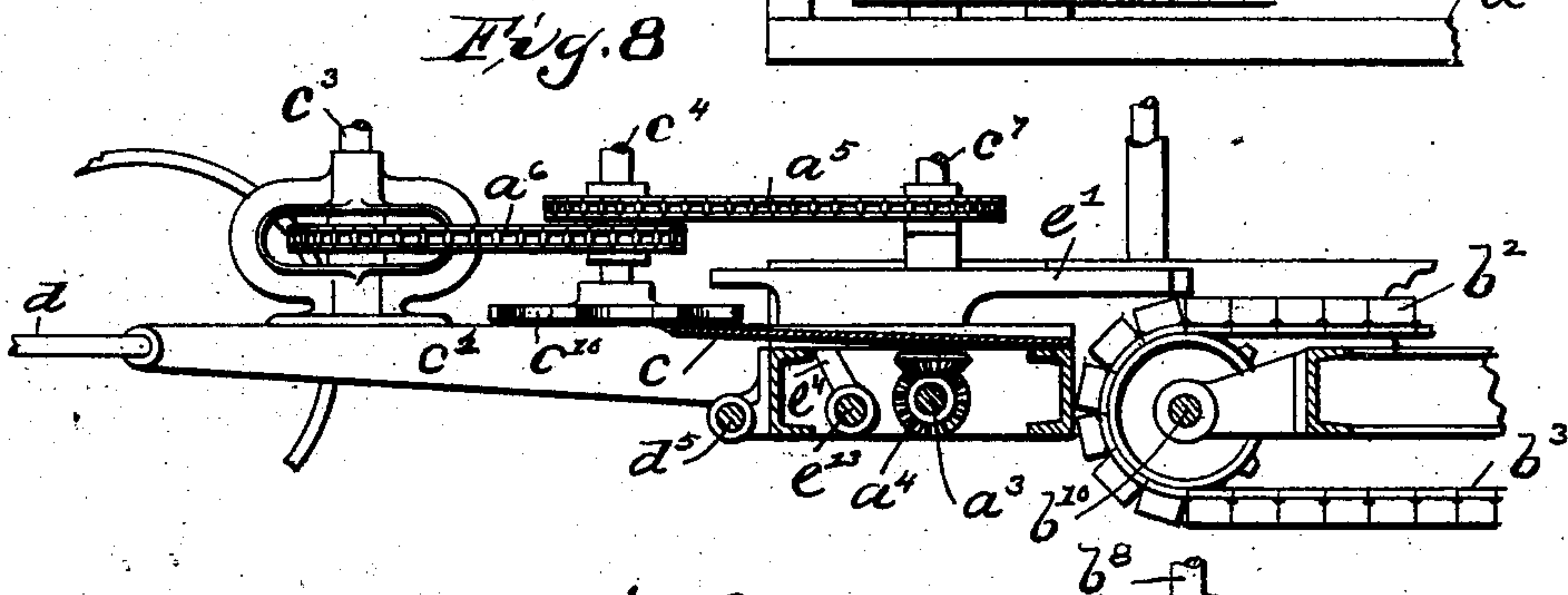
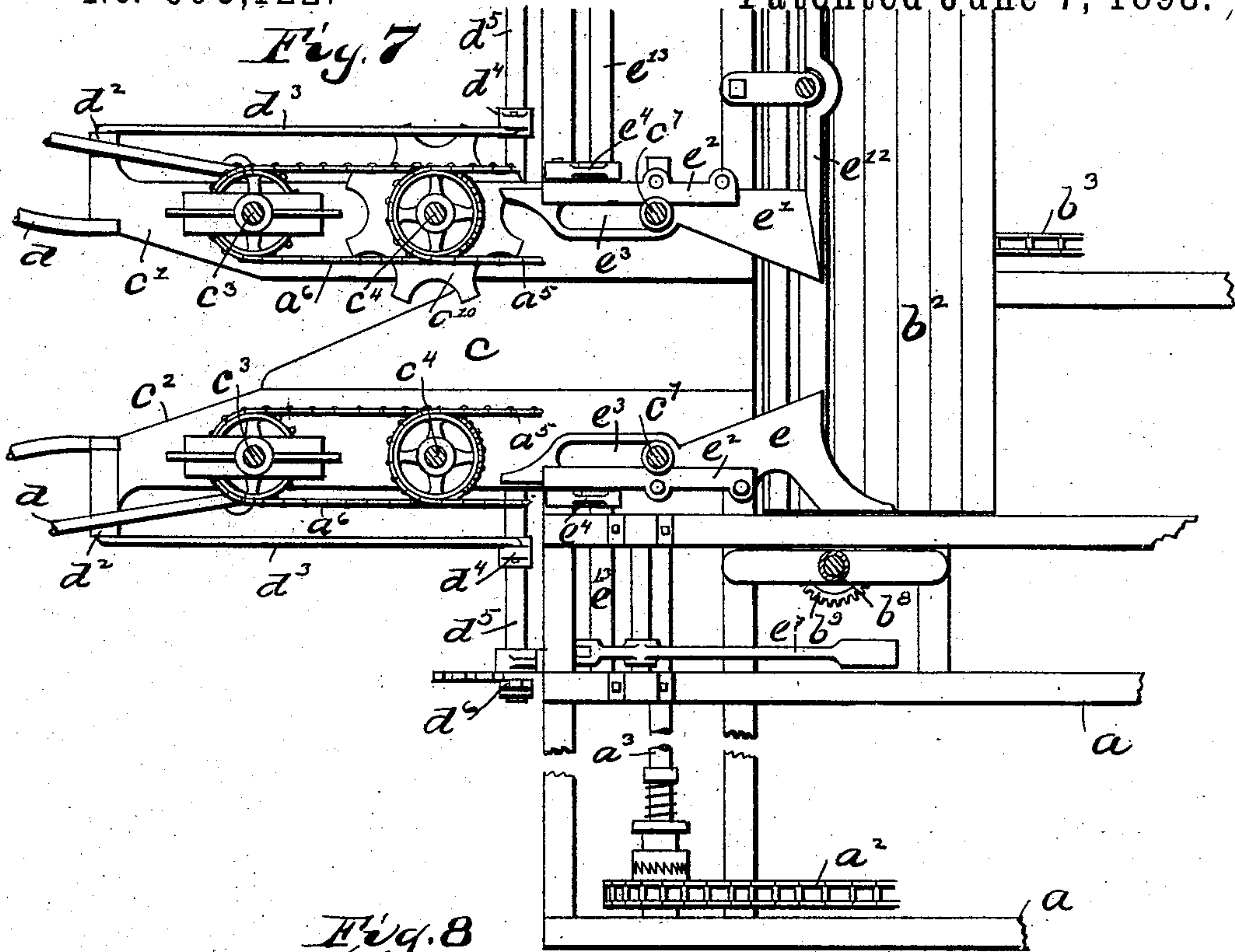
(No Model.)

4 Sheets—Sheet 4.

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CORN HARVESTER.

No. 605,122.

Patented June 7, 1898.



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UNITED STATES PATENT OFFICE.

JOHN H. NEWELL, OF URBANA, OHIO.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 605,122, dated June 7, 1898.

Application filed January 18, 1896. Serial No. 576,020. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. NEWELL, a citizen of the United States, residing at Urbana, in the county of Champaign and State of Ohio, have invented certain new and useful Improvements in Corn-Harvesters, of which the following is a specification.

My invention relates to improvements in corn-harvesters; and it particularly relates to improvements on the corn-harvester shown and described in my prior Letters Patent, No. 530,493, dated December 4, 1894.

The object of the improvements and in what they consist will appear from the following description and from the claims which are joined thereto.

In the accompanying drawings, which form a part of this specification, Figure 1 is a plan view of a device embodying my invention, a portion of the apron or platform being broken away. Fig. 2 is a side elevation of the same, Fig. 2^a being in effect a portion of Fig. 2, illustrated as broken off from the rear end and set up to a different position on the sheet, as indicated by the arrows. Fig. 3 is a rear elevation of the guiding-wheel shown in Fig. 2^a. Fig. 4 is a rear elevation of the machine, showing the two-part abutment in connection with the shocking-frame. Figs. 5 and 6 are respectively a plan and side elevation of a spreading device used in connection with the shock-forming mechanism. Fig. 7 is a partial plan view showing the arrangement of the cutting apparatus and the packers and portions of the mechanism for driving and operating the same. Figs. 8 and 9 are respectively sectional elevations showing portions of the same from different sides.

Like parts are represented by similar letters of reference in the several views.

In the said drawings, *a a* represent the main frame, which is supported on driving and carrying wheels *a'*. There is supported on the main frame a platform *b*, secured to one side of which there is an abutment *b'*, which rises vertically from the platform, the platform *b* being connected with and forming a continuation of an apron *b²*, which may be of any suitable construction and adapted to move over suitable sprocket-wheels by the aid of driving and supporting chains *b³*, sub-

stantially as set forth in my prior patent referred to.

The cutting-knives *c* are stationary and are the same as employed in my prior patent. The cutting-knives are arranged between horizontal guides *c' c²*, which extend outwardly in front of the knives and which support vertical shafts *c³ c⁴*, arranged in pairs, each pair being supported on opposite sides of the throat formed by the guides *c' c²*. These shafts *c³* and *c⁴* each carry a series of radial arms *c⁵ c⁶*, which are adapted as the shafts are revolved to cross each other, with the angle of their cross at the center of the throat leading to the stationary knives. The power to drive the respective shafts *c³* and *c⁴* and their arms is conveyed from the respective driving-wheels through the aid of driving-chains *a²*, which, through the agency of suitable sprocket-wheels, transmit motion to short shafts *a³*, arranged in the front portion of the machine. These short shafts are each provided with beveled gears *a⁴*, which mesh with similar gears on the vertical shafts *c⁷*. From the shafts *c⁷* the motion is transmitted to the shafts *c³ c⁴* through the agency of driving-chains *a⁵ a⁶*, which pass over suitable sprocket-wheels on the respective shafts, as shown in Figs. 8 and 9. The shafts are all driven at the same speed, so that the radial arms which gather in the stalks and carry them to the cutters always cross each other at the same angle at their meeting-point. The arms *c⁶* are made slightly longer than the arms *c⁵*, so that they cross each other and cross the arms *c⁵* just as the arms *c⁵* on the respective shafts begin to separate. On each of the shafts *c³* I have shown but one set of arms *c⁵*, which are placed low down and serve to support and gather in the stalks as the machine advances. The shafts *c⁴*, however, are each provided with two sets, which support the corn at different points in the heights of the stalks and carry them backwardly during the time and after the same has been severed. The result of this construction and arrangement of the gathering-arms is such that each stalk or set of stalks is supported constantly by a moving wall formed by the crossed arms, which move backwardly toward the knives at the same speed the machine

advances forwardly. Each of the shafts c^4 which stands opposite the heel of the knife c is also further provided immediately above said knife with a star-wheel c^{10} , having alternate series of teeth and recesses, which as the shaft rotates cross the edge of the knife at the heel in contact with any stalks which have not been completely severed before reaching this point and crowds said stalks directly in contact with said knife, so as to completely sever the same. The shafts c^7 are also provided with a series of arms c^8 , adapted to cross each other in a similar manner; but instead of being radial throughout their lengths these arms are formed with curved extensions c^9 . These extensions are formed at their outer ends substantially concentric to the shaft c^7 , and while the shafts are placed at such distance apart that the radial portions of the arms cross each other and serve to advance the severed stalks the concentric portions are adapted as they leave the stalks to press them backwardly onto the apron and against the abutment, which is moved forwardly to receive them in the manner set forth in my prior patent.

To provide for gathering down stalks, I employ on the forward ends of the projecting guides c^1 and c^2 pivoted elevating-fingers d . These each consist, preferably, of a single piece of round metal, which is secured to a short shaft or spindle d' , journaled in the end of the guiding projection c^1 and c^2 , the other portion of the said finger being bent upwardly and backwardly on the arc of a circle, so as to pass through the said guides substantially concentric to the pin or spindle d' . An arm d^2 is connected to said spindle, and to this arm is connected a link or rod d^3 , the other end of which is attached to an arm d^4 on a shaft d^5 , which carries at one end an operating-lever d^6 , having the usual spring-latch and segment to hold it in different positions of adjustment. The shaft d^5 projects through the guides c^1 and c^2 under the respective knives c , so that all the fingers are operating simultaneously as the shaft c^5 is rotated.

Arranged above each of the guides c^1 and c^2 at the rear and adapted to project backwardly slightly over the apron b^2 are butters e and e' . These butters are adapted to slide horizontally in guides e^2 on top of the guides c^1 and c^2 . They are each provided with slotted openings e^3 , through which the shafts c^7 are adapted to extend. The butters e' , which lie above the inner guide c^1 of each pair, are connected together by a bar e^{12} , so as to form substantially one butter, which extends from one throat to the other immediately over the apron b^2 . Extending under the forward portion of the platform is a transverse shaft e^{13} , which carries a series of arms e^4 , one for each butter e and e' . These arms are each provided in their upper ends with slotted openings e^5 , which engage over projections e^6 on said butters. A foot-lever e^7 , pivoted at one side of

the frame in convenient reach of the operator, is connected by a link connection e^8 to a small arm or lug e^9 on said shaft, so that a downward movement of said foot-lever produces a simultaneous inward movement of all of the butters, thus furnishing means by which the butts may be crowded backwardly against the abutment as the cornstalks are gathered onto the platform and apron by the packers.

As in my prior patent, the incoming stalks from the respective throats are separated by a divider f , arranged centrally between the same; but in the present case this divider f is hinged, as shown at f' , to an upwardly-extending portion of the frame a , which also extends outwardly and forwardly to form bearings for the shafts c^4 and c^7 of the respective reels.

The shock-forming device is substantially the same as in my former patent. A pivoted frame g turns on suitable supports g^1 , rising upwardly at an angle from the frame a . These supports also carry a track g^2 , on which the frame g is further supported through the medium of rollers g^3 , by means of which the frame g is permitted to turn around the master-wheel and deliver the shock. An auxiliary frame g^4 , which is adapted to slide through pivoted bearings g^5 , carries the shock-forming arms g^6 , substantially as set forth in my prior patent.

In addition to the shock-forming arms I provide means for distending or spreading the bottom of the shock, so as to form the same open to permit the circulation of air to assist in drying the same. It is constructed as follows: Pivoted on a rod g^7 , which forms a part of the auxiliary frame g^4 , is a projecting frame g^8 , which is slotted longitudinally and horizontally. At the forward end of this frame there are pivoted two arms g^9 and g^{10} , which are pivoted at their extremities to two other arms g^{11} and g^{12} , these arms g^{11} and g^{12} being in turn pivoted to a cross-bar g^{13} , which lies within the slotted opening of the frame. From the cross-bar there is extended backwardly a link or handle g^{14} , which is adapted to rest in notches g^{15} , formed in a finger g^{16} , which projects backwardly from said frame.

On the side of the machine opposite the shocker there is supported above the apron and also above the top of the abutment b' a rod h , and on this rod there is slidingly mounted a bar h' , having a brace h^2 , which projects outwardly and forwardly from said bar and is also journaled on said rod. This bar h' is also adjustable on the rod and is adapted as the platform is moved backwardly to retain the tops and assist in shaping the stalks on the platform, so that they may be more readily gathered into a shock, the bar or curved brace being adapted to hold back the tops while the butts or stalks of the corn are moved backwardly with the platform or apron.

In the present case the abutment b' is made

in two parts, one part being connected rigidly with the platform and the other part b^4 being formed in the nature of a gate and preferably having a central backwardly-projecting-bar b^5 , which is supported above and below by suitable rollers b^6 b^7 on the stationary portion, so that the movable portion of the abutment may be moved laterally as desired.

In the operation of the machine the platform is advanced to the front by turning the apron through the medium of the shaft b^8 and beveled gears b^9 , which engage the shaft b^{10} , carrying the sprocket-wheels which operate the chains b^3 b^3 on said apron in the manner set forth in my previous patent, the vertical shaft b^8 being adapted to receive a handle or crank for this purpose, as in my prior patent. While the corn is being cut and fed onto the platform, the shocking-frame will be turned to the rear of the machine, so as to be out of the way of the incoming stalks. After a sufficient quantity of corn is gathered it will be formed into a shock by passing a rope around the same and winding it up on the windlass g^{17} , substantially as set forth in my prior patent. This windlass g^{17} I preferably construct at each end with continuous grooves which run spirally around the windlass from the ends inwardly, so that the rope, as it is wound up, is also carried inwardly at a point behind the shock, causing the portions of the rope on either side of the shock to approach each other, and thus assist in getting the shock in proper shape. Before the shocking-frame is raised to a vertical position the spreader-frame is raised to a position at right angles to the shocking-frame and the handle g^{14} withdrawn, so as to close the arms g^9 g^{10} g^{11} g^{12} within the slotted opening in said frame. The spreader is held in this position while the shocking-frame is being raised to a vertical position, so that the spreader partially enters the corn about to be formed into a shock. The corn forming the shock is then drawn onto the shocking-frame so that the spreader-frame g^8 enters into the shock, after which the handle g^{14} is pushed inwardly, thus opening the arms g^9 g^{10} g^{11} g^{12} and spreading the stalks, so as to form an opening in the center of the shock. After the shock is formed it is elevated on the main frame and swung around the frame-supports until clear of the frame in the manner set forth in the former patent, the gate portion of the abutment being pushed back out of the way to permit the shock to be swung around.

I have heretofore referred to the fact that the arms g^6 and the spreader are supported on the auxiliary sliding frame g^4 of the shocker. They are not, however, directly connected to said frame, but are connected thereto through the medium of intermediate bars g^{18} , which are connected to the auxiliary frame slightly in front of the same by clips g^{19} , the intermediate bars g^{18} being adapted to extend downwardly parallel with the auxiliary frame

and support the arms g^6 and spreader, so that the auxiliary frame may slide through the bearings g^5 to a point which will carry the lower arms g^6 below said bearings. This construction permits the formation of a shock with short stalks and at the same time allows the shock to be lowered to the ground by the proper movement of the auxiliary frame.

It should also be stated that the bar h' is adapted to be turned on the rod h , so as to raise it out of the way during the formation and discharge of the shock. It is normally held in its horizontal position by a chain h^3 , which is connected to an extending lug h^4 on said bar and to a rod h^5 , secured to a vertical portion of the frame. This chain h^3 serves to hold the rod in either position—that is to say, either in the normal horizontal position or when turned upwardly and backwardly to permit the discharge of the shock. The bar h' is held in different positions on the rod h by a movable collar h^6 , having a set-screw h^7 , by means of which it may be secured to said rod in different positions, and thus permit the bar to be held in the proper position to retard the tops of the corn for either long or short stalks.

The tongue j , to which the horse or other motive power is applied, is hinged to the frame at j' and extends rearwardly, as in the former patent referred to, and is provided with a seat j^2 for the driver and a guiding caster-wheel j^3 . This guiding caster-wheel, however, is different in construction from that shown in my prior patent, the wheel proper being formed in sections k , k' , and k^2 . These sections are in effect separate wheels, each journaled loosely on the same axle k^3 , which extends through the yoke k^4 , having an upwardly-extending stem k^5 , to which the guiding-handle k^6 is connected in the usual manner. Of the three sections the middle section k is plain on its periphery. The side sections k' and k^2 each has on the side farthest removed from the middle section a peripheral flange, the three sections forming in effect a supporting and guiding wheel with a concave or channel-shaped periphery. The stem k^5 extends upwardly through a suitable head or sleeve k^7 in the tongue, and immediately above this sleeve, preferably forming a part thereof, is a foot-rest k^8 for the driver. The construction of the guiding-wheel is such that the position of said wheel may be moved more easily than if the wheel was cast integral with the flanges. At the same time the flanges prevent slipping of the wheel and secure more certainty in the guiding action. The wheel may be turned to any position while the machine is stationary, if so desired, as the different sections are free to move in either direction, and in describing a circle caused by the turning of the yoke one section will run in one direction and the other section in the other direction. At the same time a broad-tread flanged guiding-wheel is se-

cured, which is essential in operating over certain kinds of ground that the machine must meet in practice.

Having thus described my invention, I claim—

1. In a corn-harvester having projecting guides and cutting mechanism between said guides, hinged gathering-fingers pivoted at the front of said guiding projections, said fingers being each formed of a single piece, the rear end of which is bent in the arc of a circle, and a bearing in the guide through which the bent portion is adapted to slide, and means for raising and lowering said fingers on their pivoted connections, substantially as specified.

2. In a corn-harvester, a cutting apparatus and a gathering apparatus, said gathering apparatus consisting of vertical shafts having radial arms arranged on each side of and above said cutting apparatus, with the radial arms adapted to overlap and cross the throat of said cutting apparatus, in combination with packers, each consisting of a series of arms mounted on vertical shafts arranged in the rear of said cutting apparatus, each of said arms being radial for a portion of its length and curved concentric to the axis of its supporting-shaft for the remainder of its length, with the radial portion adapted to overlap the radial arms of the gathering device, substantially as and for the purpose specified.

3. The combination with the cutting mechanism, and the reciprocally-movable platform having an abutment, as described, of a hinged arm mounted adjustably above said platform and abutment and adapted normally to remain stationary to retard the tops of the corn while the butts move with the platform when the said platform moves in one direction, substantially as specified.

4. The combination with a cutting and delivering mechanism, of a movable platform and abutment as described, a shocking device adapted to be turned to different positions with relation to said platform, said abutment being formed in two parts, one of said parts being movable to permit the free movement of said shocking device, substantially as specified.

5. The combination with a movable platform, a movable shocker and an abutment, said abutment being formed in two parts, one of which is adjustable as described, and an adjustable arm or bar arranged above said platform and above said abutment, said arm being provided with a brace, substantially as and for the purpose specified.

6. In a corn-harvester, the combination with a movable platform and abutment, a movable shocking device having a hinged frame as described, of a spreader consisting essentially of a frame hinged to the frame of said shocking device, said spreader-frame having mounted therein pivoted arms, and means for moving said arms in said spreader-

frame independent of the hinged movement of said frame, substantially as specified.

7. In a corn-harvester, a shocking device consisting essentially of a main frame and a movable frame, a compressing device on said movable frame, and a spreader hinged to said movable frame, said spreader consisting essentially of a frame having pivoted arms therein, and means for retracting and extending said arms, substantially as specified.

8. The combination with a shocking device having a movable part on which the shock is formed, of a pivoted frame hinged to said movable part and having a slotted opening therein, a series of pivoted arms connected to a sliding bar arranged within said slotted opening, a backwardly-extending arm having holding devices for said bar, said pivoted arms being so constructed as to be drawn wholly within said slotted opening or extended therefrom by means of said bar, substantially as and for the purpose specified.

9. The combination with the main frame and a cutting device, of a tongue connected to the rear of said frame, a guiding-wheel supporting said tongue, said wheel being formed in sections, each section being journaled independently on the same axle, one or more of said sections having a plain periphery and the remaining section or sections being flanged on the periphery, substantially as specified.

10. A caster or guiding-wheel for corn-harvesters or similar devices consisting essentially of a yoke, and an axle extending through the same, three independent wheels or wheel-sections journaled loosely on said axle, the middle section having a plain periphery and the outer sections having peripheral flanges, substantially as specified.

11. A caster or guiding-wheel for corn-harvesters or similar machines consisting essentially of a pivoted yoke and an axle therein, independent wheel-sections journaled on said axle, one or more of said wheel-sections having a plain periphery and the remaining sections being flanged on the periphery, substantially as specified.

12. In a shocking device, the combination with a main traveling frame, an auxiliary frame sliding in bearings on said main frame, intermediate bars on said sliding auxiliary frame arranged slightly in advance and removed from said auxiliary frame and connected thereto at a point above said sliding bearings, and shock-supporting arms on said intermediate bars, one of said arms being connected to said intermediate bars below the point of connection to said sliding frame, substantially as specified.

13. The combination with a main traveling frame, and a sliding auxiliary frame hinged thereto, intermediate bars connected to said auxiliary frame and adapted to extend downwardly in front of and parallel with said auxiliary frame to a point below the bearings in which said frame slides, and a spreader and shocking-arms supported on said intermedi-

ate bars, said shocking-arms being secured to said intermediate bars below the point of attachment to said auxiliary frame, substantially as specified.

5 14. The combination with a cutting device, and a backwardly-moving platform having an abutment as described, a series of radial arms supported on vertical shafts arranged on each side of said cutting apparatus, with the
10 radial arms extending across and above said cutting apparatus, a series of packer-arms also mounted on vertical shafts in the rear of said radial arms and adapted to coact therewith, said packer-arms being formed radial
15 for a portion of their lengths and concentric with their axes on their outer peripheries, with the radial portions adapted to overlap the adjacent radial arms, the concentric portions being adapted to deliver and press the stalks
20 operated on onto said movable platform, substantially as specified.

15. The combination with a traveling platform and an abutment thereon, a cutting mechanism having vertical shafts arranged in series on each side thereof, a portion of 25 said shafts having radial arms adapted to move across and above said cutting apparatus, and the remaining shafts being provided with radial arms having curved concentric extremities as described, reciprocating butters 30 also arranged on each side of said cutting apparatus and arranged below said arms having the curved extremities, and means for simultaneously reciprocating said butters, substantially as specified.

35 In testimony whereof I have hereunto set my hand this 11th day of December, A. D. 1895.

JOHN H. NEWELL.

Witnesses:

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PAUL A. STALEY.