

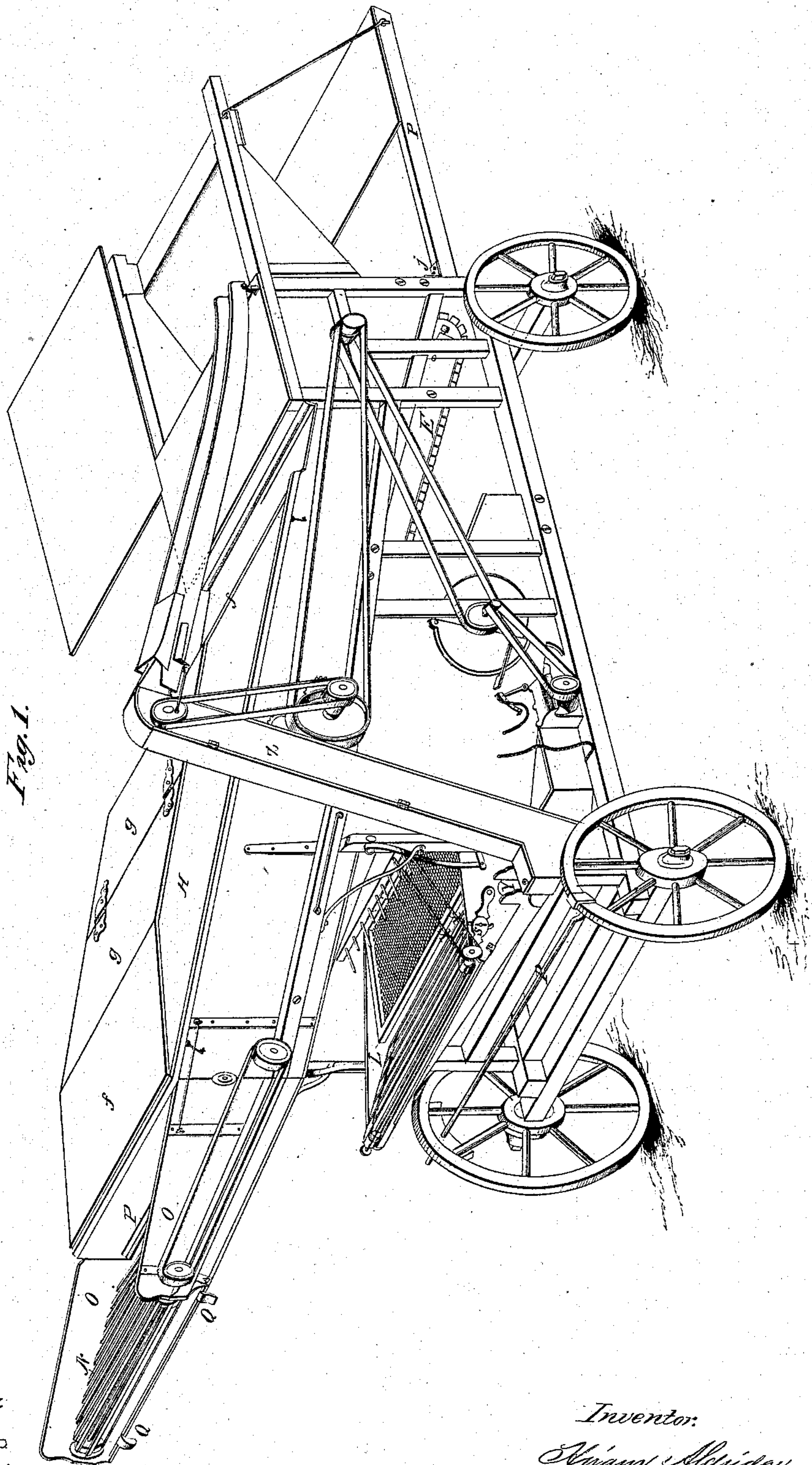
H. ALDRIDGE.

3 Sheets—Sheet 1.

Combined Thrasher and Separator.

No. 32,502.

Patented June 11, 1861.



Witnesses:

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Samuel Dutcher

Inventor:

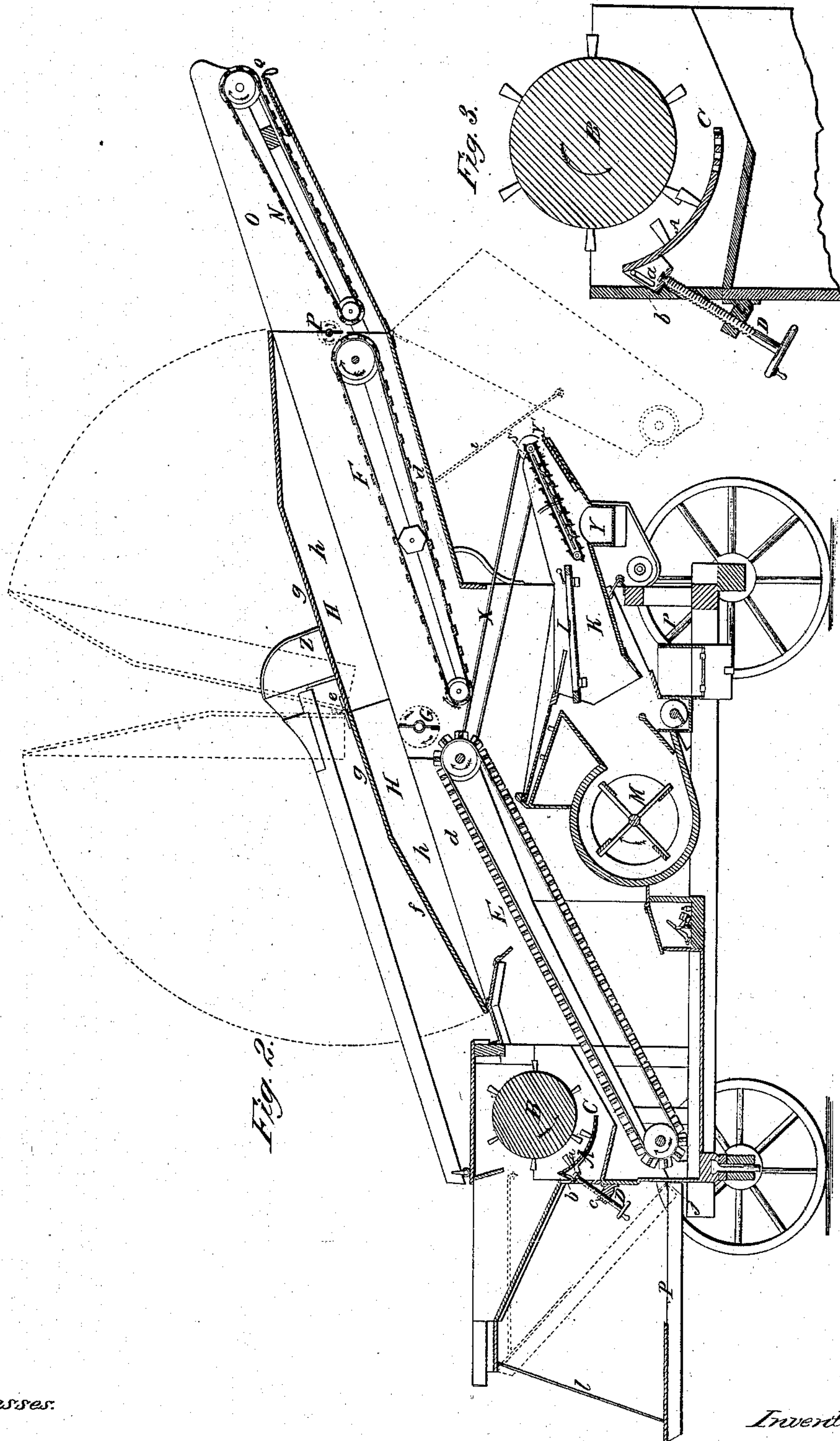
William Aldridge

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Combined Thrasher and Separator.

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Witnesses:

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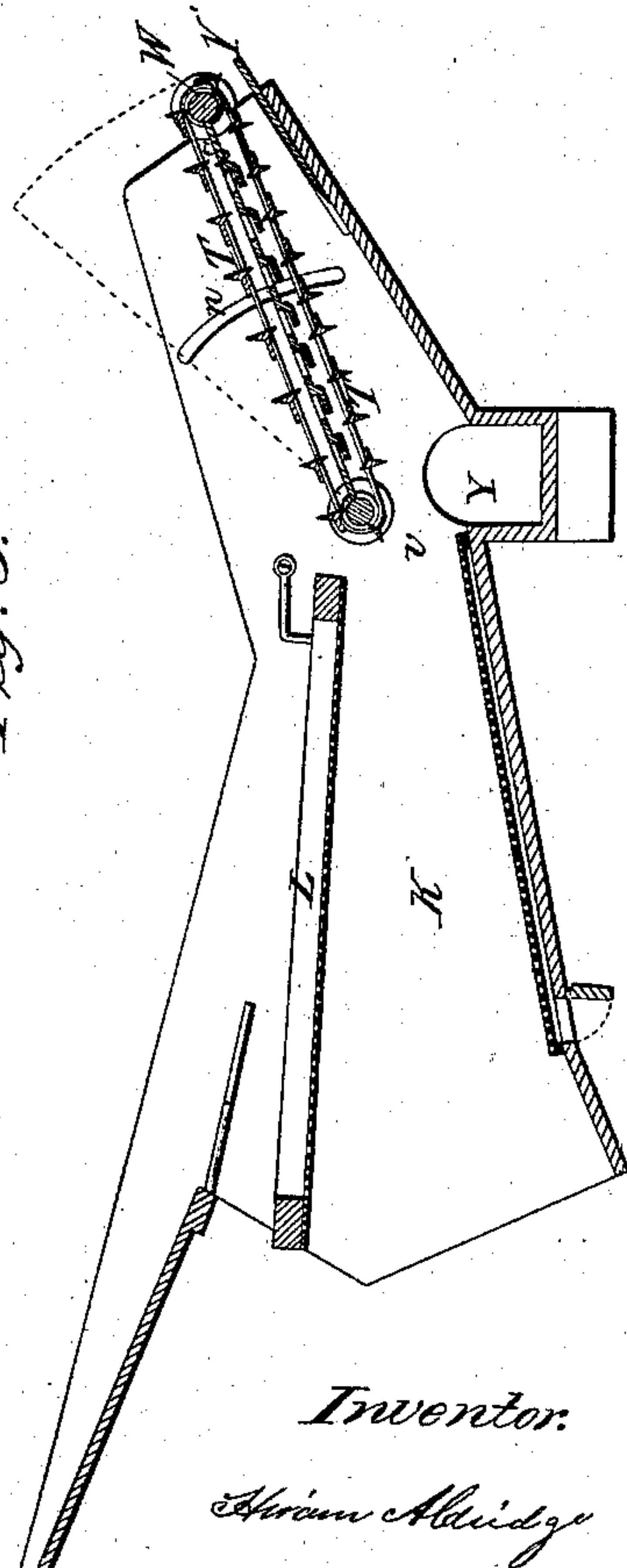
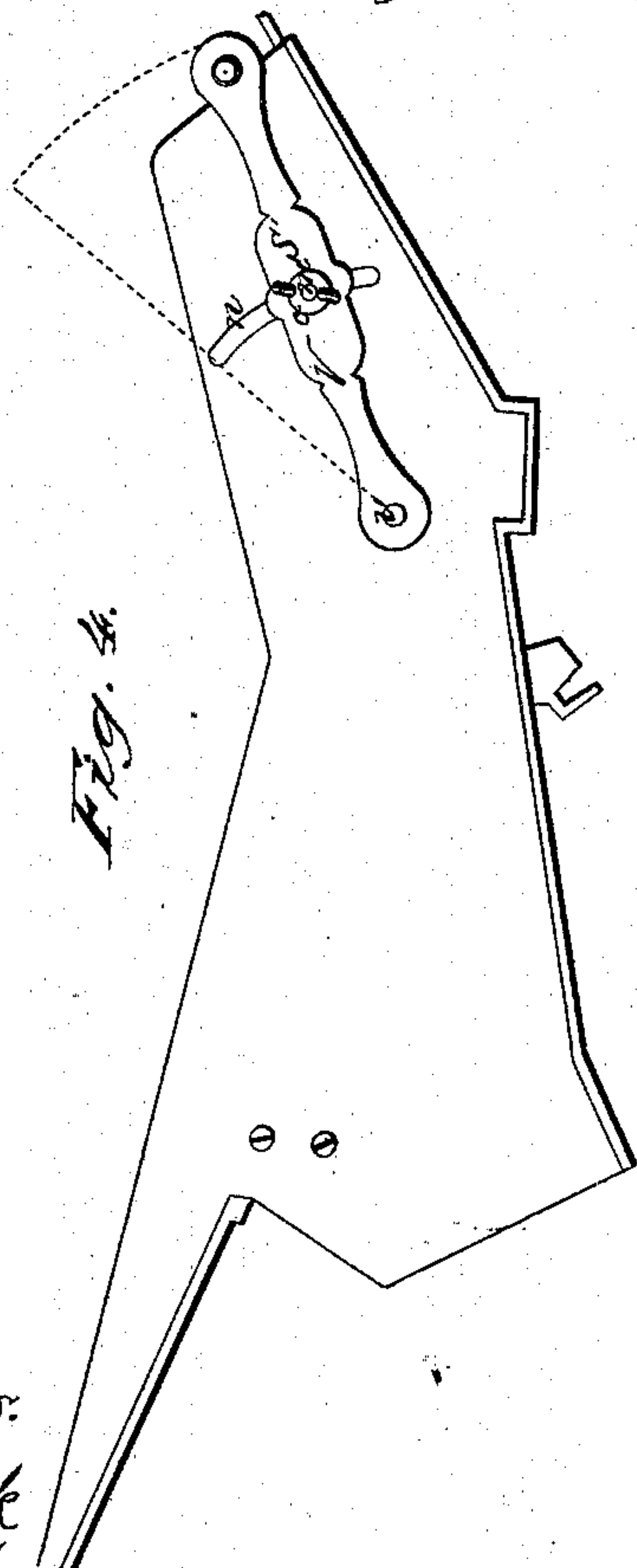
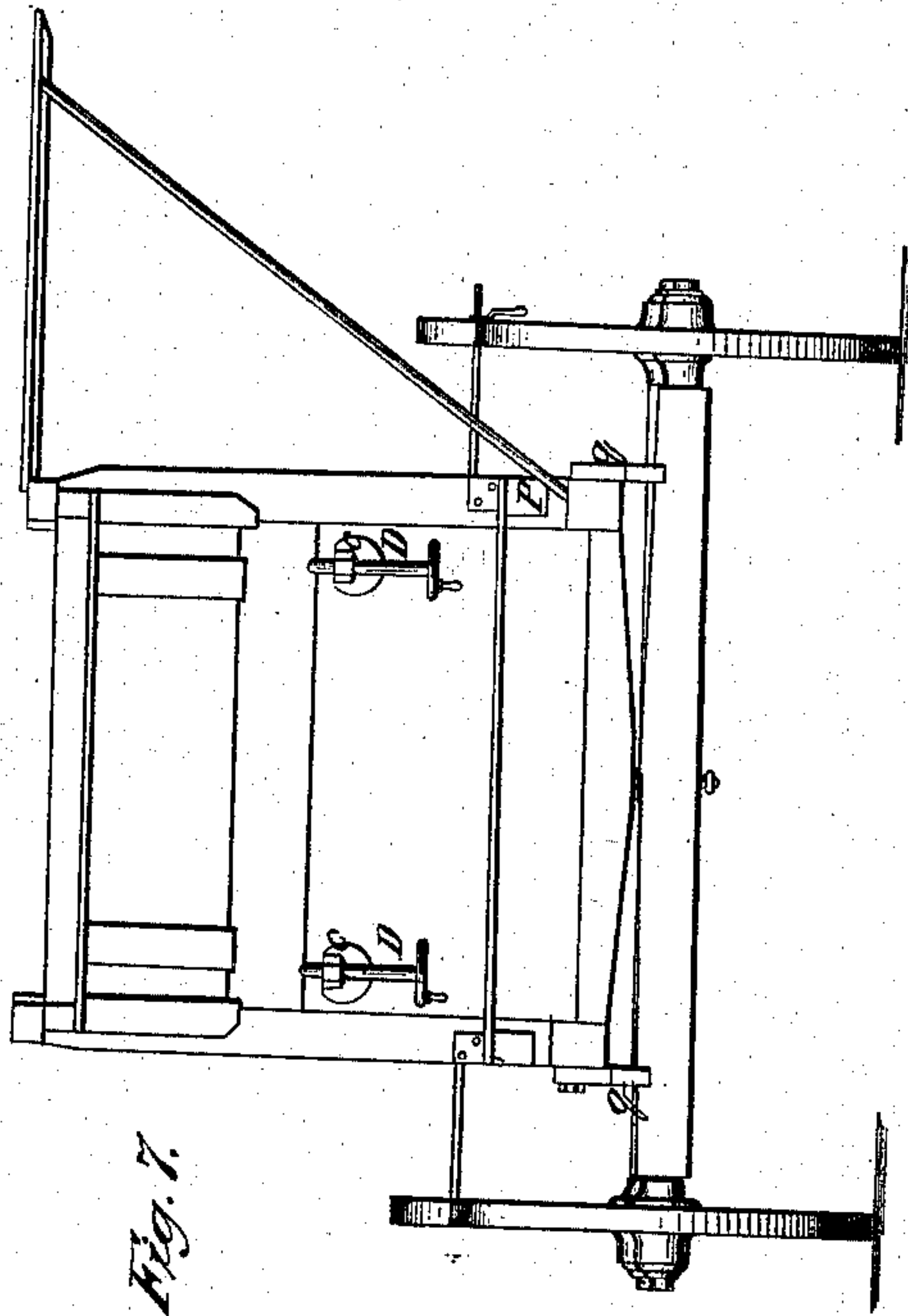
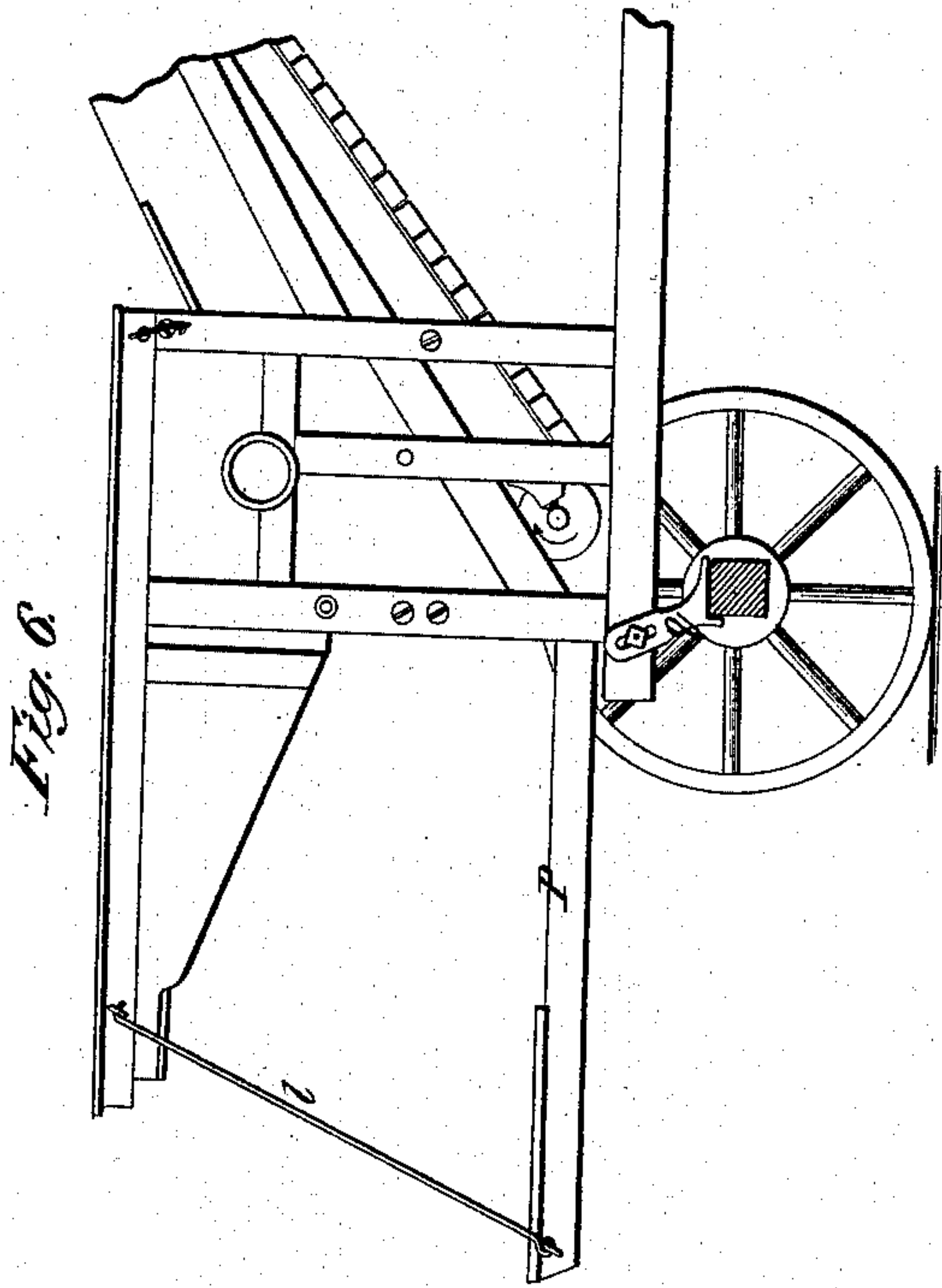


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Witnesses:  
*Robert W. Gammick*  
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Inventor:  
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# UNITED STATES PATENT OFFICE.

HIRAM ALDRIDGE, OF MICHIGAN CITY, INDIANA.

## COMBINED THRESHER AND SEPARATOR.

Specification of Letters Patent No. 32,502, dated June 11, 1861.

*To all whom it may concern:*

Be it known that I, HIRAM ALDRIDGE, of Michigan City, in the county of Laporte and State of Indiana, have invented a new and useful Improvement in Combined Threshers and Separators; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1, is a perspective view of a combined thresher and separator, as improved by me. Fig. 2, is a vertical longitudinal section of the same. Fig. 3, is a section of the threshing portion of the machine on an enlarged scale. Fig. 4, is a side view of the shoe on an enlarged scale. Fig. 5, is a longitudinal section of the same. Fig. 6, is a partial side view and longitudinal section of the front part of the machine. Fig. 7, is a front elevation of the machine.

Similar letters of reference in each of the several figures indicate corresponding parts.

The first part of my invention relates to a new mode of adjusting the concave of the threshing cylinder.

The second part relates to the construction of the cover of the cellular elevating canvas, and the first straw carrier.

The third part relates to the construction and arrangement of an open beater with the cellular canvas belt and the open straw carrier.

The fourth part of my invention relates to the construction and arrangement of an adjustable extension straw carrier belt with the cellular canvas elevator, and the first open straw carrier belt.

The fifth part of my invention relates to the arrangement and combination of an extra closed beater with the first and open straw carrier belts.

The sixth part of my invention relates to the arrangement and combination of an extension tail board with the inclined bottom of the straw carrier guide way.

The seventh part of my invention relates to a new combination of a chaff carrier, separator shoe, inclined transverse return spout and elevator which returns the headings to the cylinder.

The eighth part of my invention relates to the combination of an inclined sieve or deflecting board with a separator shoe.

The ninth part of my invention relates to

a mode of adjusting the sieve and chaff carrier to different inclinations by means of a pivoted swinging frame, slots and set screws.

The tenth part of my invention relates to a sliding tail board in combination with the inclined bottom of the shoe.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

The concave A, of the threshing cylinder B, of threshing machines as usually arranged can not be adjusted without stopping the machine, removing certain parts, and then using a lever to raise it to the desired position. To obviate this inconvenience, labor and delay, I arrange the rear end of the concave to turn on an axis C, and provide slotted ears *a, a*, at its front end so that it may move up and down in the path of a circle over guide pins *b, b*, which pass through the slots. And to adjust the concave from the outside and at the front of the machine, I have one or more adjusting hand screws D, D, pass up in an inclined position through stationary nuts *c, c*, of the frame, and attach loosely to the ears *a, a*, of the concave as represented. With this arrangement it will be evident that the concave can be adjusted from the outside, and without stopping the machine by simply turning the hand screws. It is very essential to have the concave properly adjusted relatively to the cylinder in order to thoroughly thresh grain without cutting or injuring it, and as the concave is quite heavy and cumbersome it is almost as essential that it be capable of being adjusted in a convenient and expeditious manner, and also that means which are powerful and at the same time capable of bearing the great strain which is brought to bear upon them be provided for the purpose. My arrangement answers fully these requirements.

The covers to the cellular elevating belt E, and open straw carrier belt F, of the threshing machines are usually made flat and in one piece, and therefore the side boarding *d, d*, of the guide way of straw carrier and elevating belt has to be extended up a considerable distance above the surface of the belt and straw carrier in order to give room to the beater G, and the whole cover has to be removed when it is necessary to inspect the belt and carrier. Now to obviate the necessity of raising the side boards, and thus preserve the neat appear-



ance of the machine and also obviate the necessity of removing the whole cover at the times mentioned I construct the cover H, in two parts and hinge said parts together at *e, e*, and doweled or mortised and tenoned together at *e', e'*. I also construct the cover with two end inclined portions F, F, and a central flat portion *g*, and then fill in the sides with boards *h, h*, said boards forming, as it were, a continuation of the side boarding of the straw carrier guide way when the cover is on the machine. Thus constructing the cover, gives a finished appearance to the top of the machine, affords plenty of room for the beater to throw up the straw far enough to effect a perfect separation of the grain therefrom as the straw passes over it, and the hinged joint admits of the lower canvas belt being closed in when the first straw carrier F, is being inspected and vice versa, as illustrated in red lines in Fig. 2. My raised cover also renders practicable the running of the machine with the cover on, and thus much waste of grain prevented, as the flight of grain from the action of the cylinder and beater is arrested.

The cellular canvas belt E, and first open straw carrier belt F, are so arranged relatively to one another, that the upper end of the frame stands higher than the lower end of the latter, and in the space and between the said ends of the canvas elevating belt and the open straw carrier belt, I arrange a beater G, said beater being revolved in the direction of the arrow so as to beat the straw upward instead of downward and composed of a central rod, two transverse arms, and two narrow blades, so that the grain shall have a free passage between its blades, and the axial shaft during the revolution. I will here state that the grain and small chaff and unthreshed heads from this point pass down through the space and fall upon the main cleaning sieve L, of the shoe K, as usual, in order to be cleaned by the blast of the fan M.

The extension or second open straw carrier N, is arranged so that its lower end stands below the upper end of the first open straw carrier F, and the guide way O, is hinged to the rear end of the guide way of the first open straw carrier F, so as to be lowered to the position shown in red, as occasion may require. Just in the space between the upper end of the first straw carrier, and the lower end of the second or extension straw carrier a solid extra beater P, is arranged so as to revolve in the direction of the arrow, and in its revolution beat the straw upward instead of downward. Hook rods *h, h*, and *i, i*, are provided on the machine for the purpose of holding the extension permanent in either the position shown in red or in the position shown in black. In the rear end of the extension guide way

of the second straw carrier, and parallel with the bottom of the same, a sliding tail board Q, is inserted so as to be shoved in or drawn out as occasion may demand. This sliding tail board and the extension or second straw carrier insure a perfect saving of the grain for the extra straw carrier subjects the straw to an additional action and the tail board prevents the grain falling over "to waste" at the end of the extension guide way. The extension tail board applied to the end of the guide way of the first straw carrier would serve an important office even if the extension or second straw carrier was not employed, and the arrangement of the second straw carrier so that it can be turned down as illustrated in red or in a manner to take up less room in transportation and to shield the shoe from damage is very important in this character of machines, and it is here proper to remark in relation to the stand P, which supports the man who feeds the machine that said stand is hung on hinges *j, j*, and suspended by rods *l, l*, and that it can be adjusted out of the way from the position shown in black to the position shown in red and retained permanently in said position during the transportation of the machine.

The separator shoe K, is arranged in the machine so as to be moved bodily and not as commonly on a pivot at one end. Its motion may be on springs or over friction rollers, and its vibration regulated by a counterbalance on the pitman shaft. Within the separator shoe, the main cleaning sieve L, and a secondary sieve or board S, are arranged. The sieve or board S, being set incliningly in an adjustable frame S', and serving to deflect or arrest the flying kernels of grain and unthreshed heads as they are blown by the fan blast from the main sieve. Around the inclined sieve or board S, an endless slatted closed canvas or open slatted chaff carrier T, (Fig. 5) is arranged to revolve in such a manner as to clear the sieve and deposit the headings and good grain upon the bottom of the after end of the shoe. The adjustable frame S', of the sieve S, and carrier T, is composed of two side hangers and two revolving shafts, and is supported at its lower end by means of the shaft U, passing through the shoe and at or near the center of its length by means of adjustable screw threaded bearings *m, m*, which extend out from the sides of the sieve and pass through curved slots *n, n*, in the sides of the shoe and through holes in the hangers V, V, and are retained in position by means of thumb or clamp nuts *o, o*. The shaft W, W, at the upper end of the adjustable frame has a pulley on one of its ends and over this pulley is placed a belt X, (Fig. 2) which is arranged inside of the machine and leads from the upper shaft of the can-



vas elevator as shown, to said pulley. The after end of the shoe is made of greater length than usual, and is also set to a greater inclination so as to insure the return of headings &c., to the transverse return spout Y, and to prevent as far as practicable the waste of grain and unthreshed headings. The shoe is provided with an extension tail board Y', which slides in and out on the same plane with the bottom of the after end of the shoe, in side grooves, and is retained in position by a set screw. The transverse inclined return spout Y, leads into the elevator spout Z, and therefore as the unthreshed headings are prevented from being blown to waste over the rear end of the shoe they are returned down the inclined rear portion of the bottom of the shoe into the transverse spout Y, and from thence they pass to the elevator, and by it are carried up and discharged into the threshing cylinder to be rethreshed. The saving of the unthreshed heads and such grains as are usually blown over at the after end of the shoe, is a very important thing in threshing machines, and this result I effectually accomplish by the combination of the inclined sieve, inclined slatted carrier, extended after end of the shoe transverse return spout and elevator.

The machine although resting on its wheels is kept permanent or steady during the operation of threshing by means of a screw clamp rod *p*, passing through between the spokes of the hind wheels in the manner shown, so as to prevent a rotation of the same, and two slotted pivoted anchors *q*, *q*, being brought down upon the front axle in the manner shown at Figs. 6 and 7, so as to prevent it from turning horizontally on its king pin or bolt.

What I claim as my invention and desire to secure by Letters Patent, is—

1. The arrangement on the front of the concave A, of a threshing machine of two slotted and perforated ears *a*, *a*, said ears serving as guide ways for pins *b*, *b*, and as bearings for the upper ends of the adjusting hand screws D, which are located in front of the concave and within the frame of the threshing machine, all in the manner and for the purpose described.

2. The arched or raised cover H, made in two parts which are hinged and doweled to-

gether, and form when on the machine a continuation of its side boarding, all in the manner and for the purpose herein described.

3. The arrangement of a beater G, which has a space existing between its blades and its axis and operates in the manner described, between the ends of the canvas belt F, and open straw carrier belt E, for the purpose set forth.

4. The adjustable open extension straw carrier belt N, and extension guide way O, in combination with the canvas belt E, and first straw carrier belt F, substantially in the manner and for the purpose described.

5. The arrangement and combination of the extra closed beater P, with the first and second open straw carrier belts F, N, substantially in the manner and for the purpose described.

6. The combination of the extension tail board Q, with the inclined bottom of a straw carrier guide way *d*, *d*, or O, substantially as and for the purpose described.

7. The combination of a chaff carrier T, which is adjustable on a fixed axis U, in the path of a vertical circle, separator shoe K, inclined transverse return spout Y, and elevator Z, substantially in the manner and for the purpose described.

8. The arrangement of the lower end of the adjustable inclined sieve or deflecting board S, on a permanently located shaft U, so that it may be adjusted from its upper end in the path of a vertical circle substantially as and for the purpose set forth.

9. The arrangement of the outside hangers S', of the adjusting frame which carries the sieve and chaff carrier, in combination with the shafts U, W, curved slots *n*, *n*, and screw threaded bearings *m*, *m*, with clamp nuts, substantially in the manner and for the purpose described.

10. The extension tail board Y', in combination with an inclined sieve which is adjustable on a fixed axis U, in the path of a vertical circle, inclined bottom of the separator shoe K, incline transverse spout Y, and elevator Z, substantially as and for the purpose described.

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Witnesses:

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