

(No Model.)

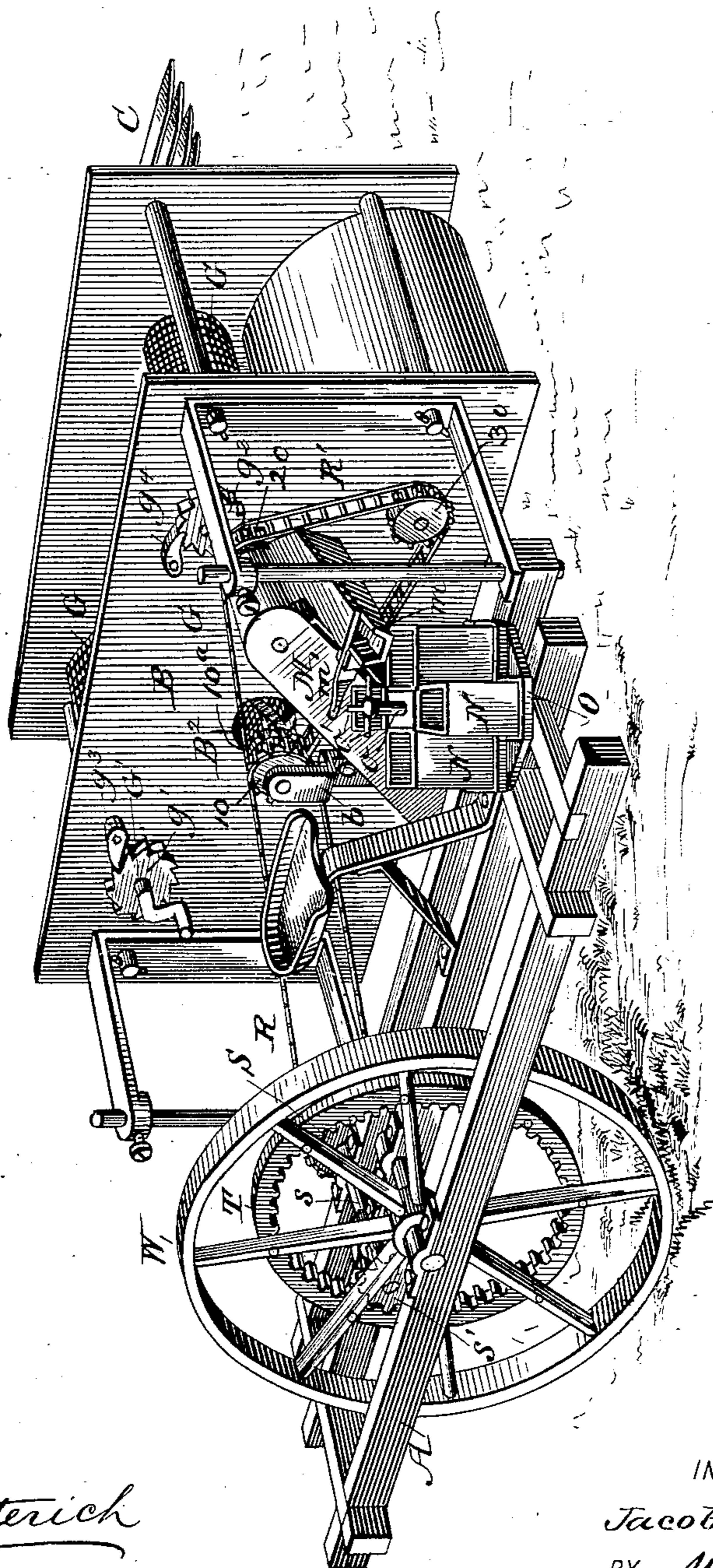
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J. T. MIDER.  
HARVESTER.

No. 481,410.

Patented Aug. 23, 1892.

Fig. 1.



WITNESSES:

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*Joe A. Ryan*

INVENTOR:

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BY

*Wm. L.*

ATTORNEYS

(No Model.)

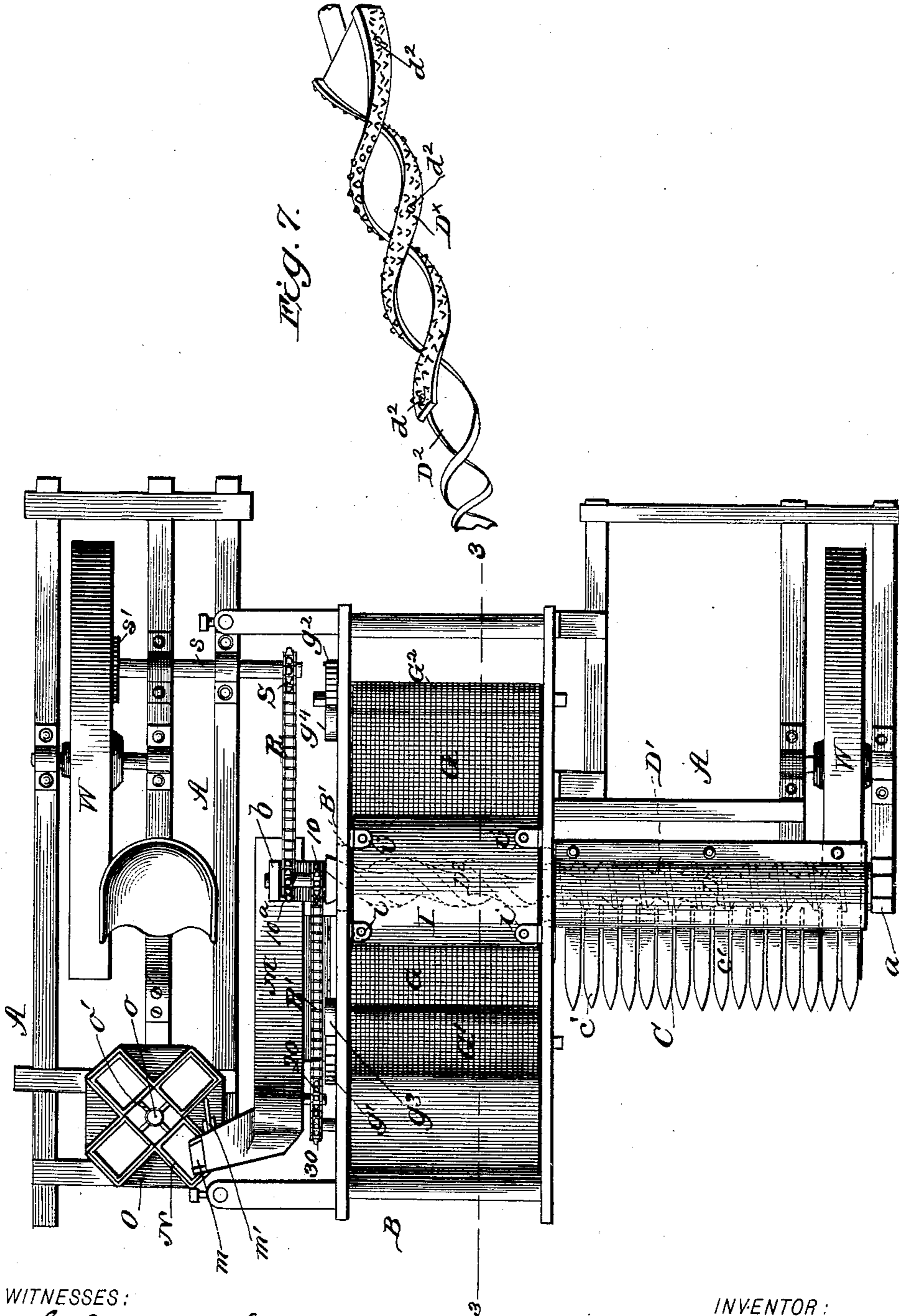
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Fig. 2.



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(No Model.)

3 Sheets—Sheet 3.

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Fig. 3.

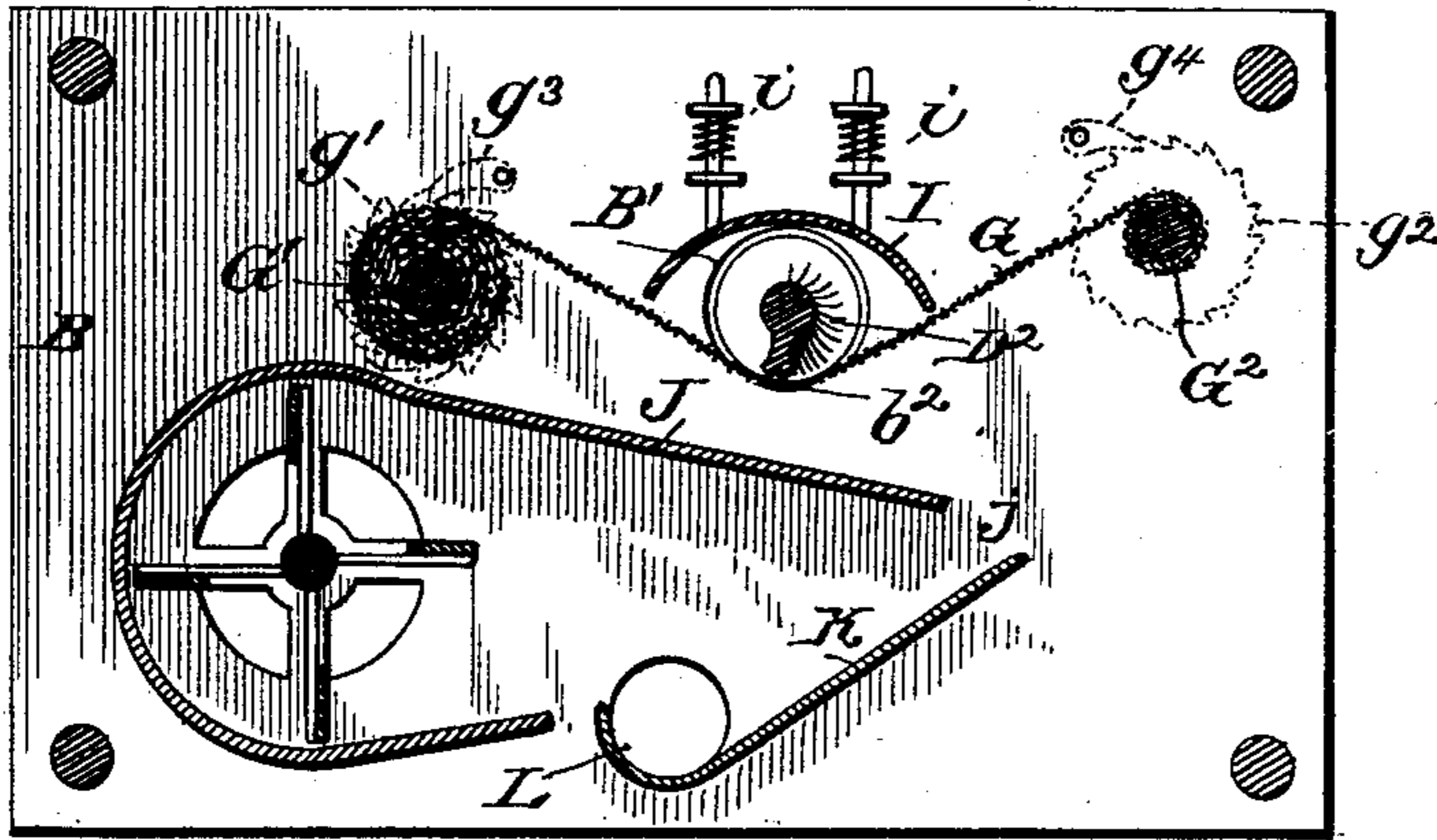
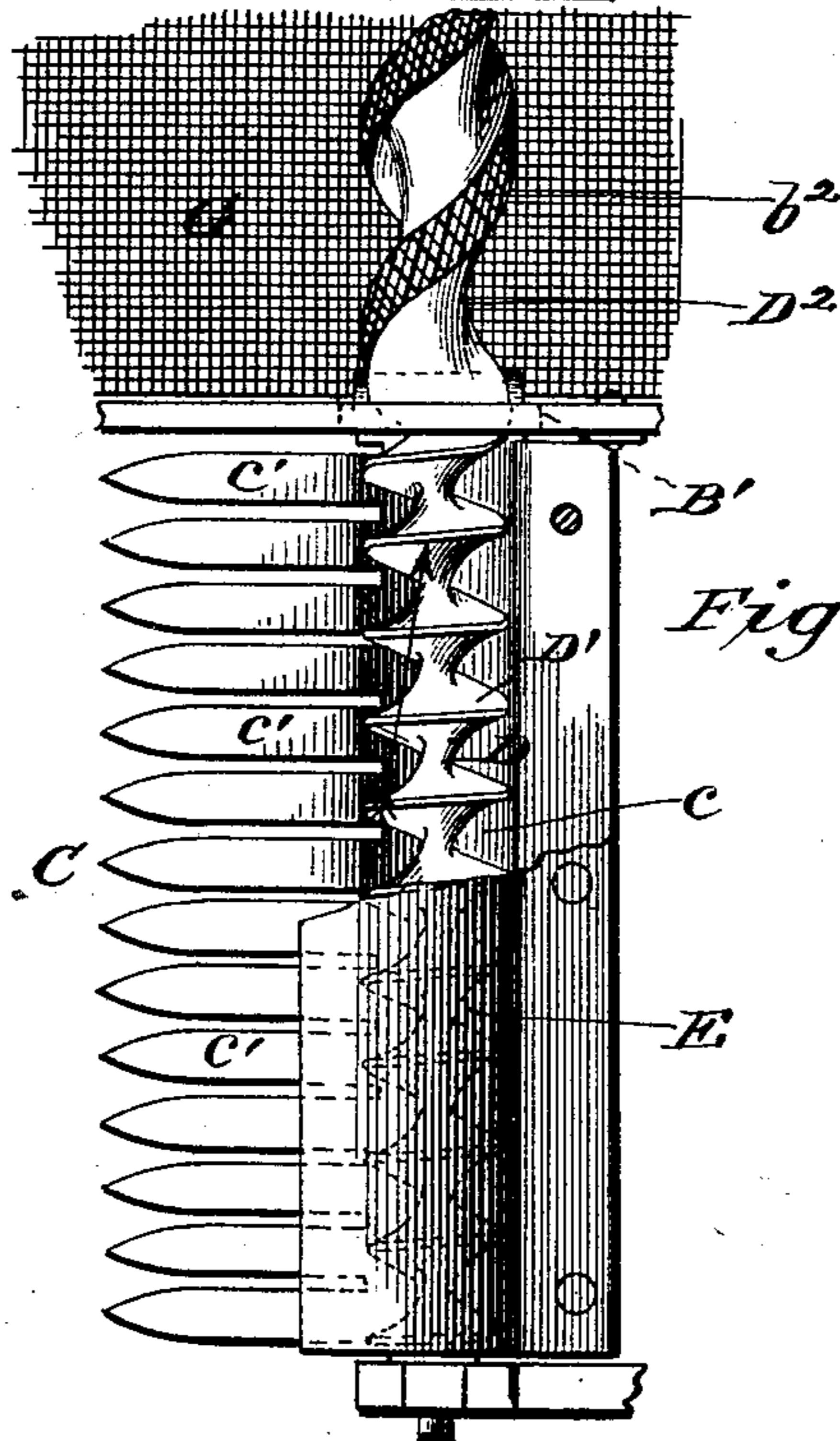
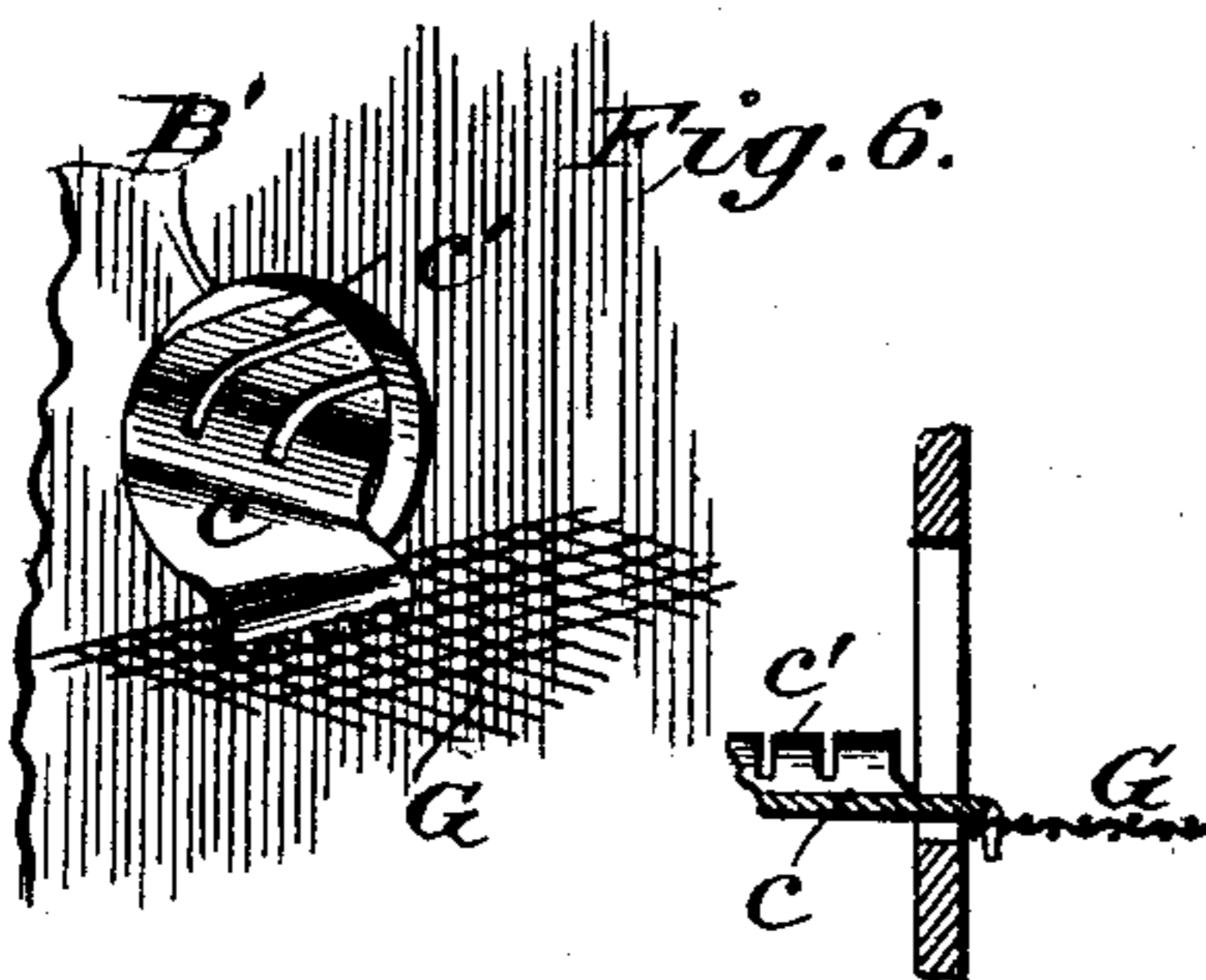
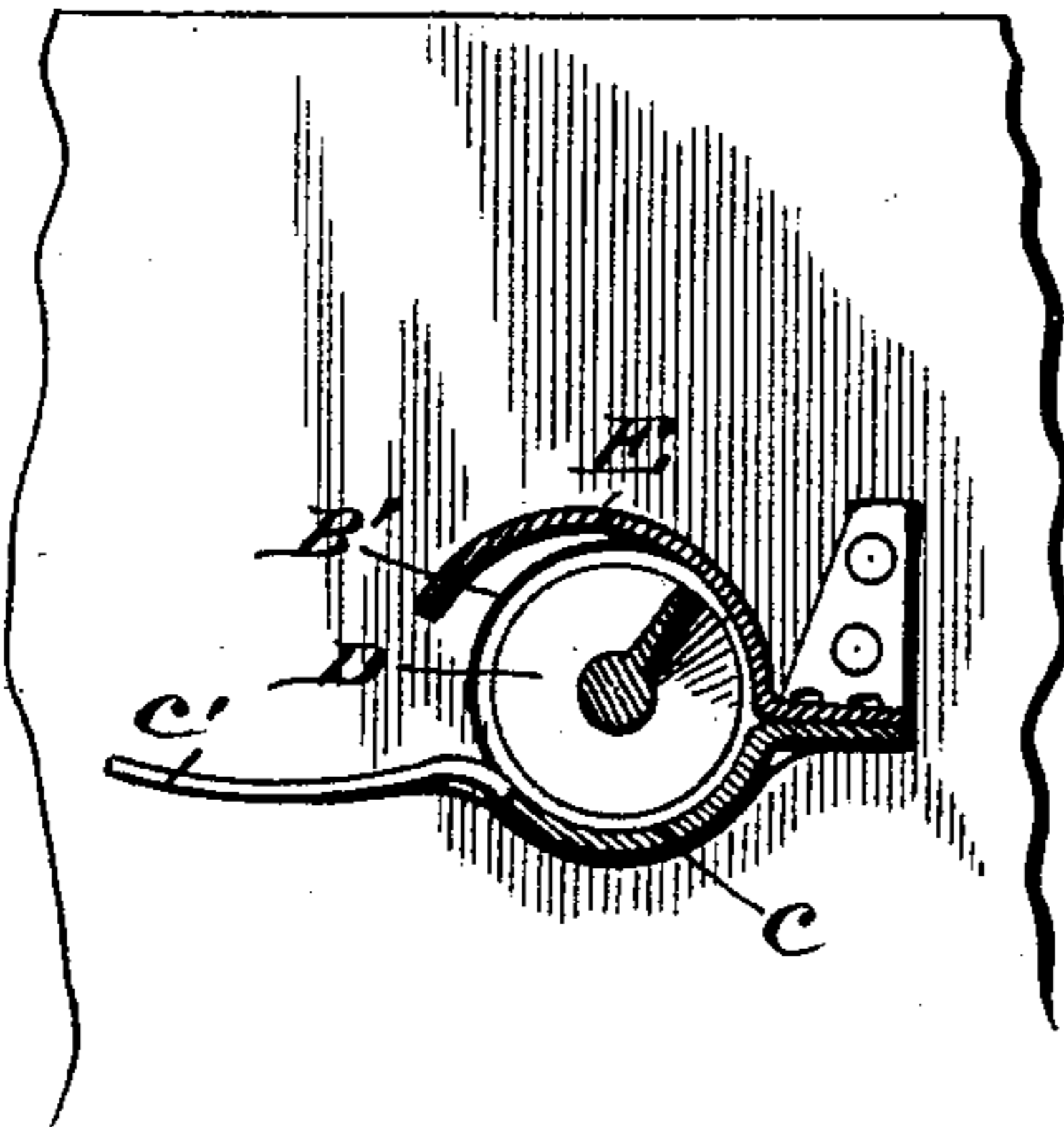


Fig. 4.



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# UNITED STATES PATENT OFFICE.

JACOB T. MIDER, OF WATHENA, KANSAS.

## HARVESTER.

SPECIFICATION forming part of Letters Patent No. 481,410, dated August 23, 1892.

Application filed March 15, 1892. Serial No. 425,001. (No model.)

*To all whom it may concern:*

Be it known that I, JACOB T. MIDER, residing at Wathena, in the county of Doniphan and State of Kansas, have invented certain new and useful Improvements in Harvesters, of which the following is a specification.

My invention relates more particularly to that class of harvesters in which the combined operation of heading and thrashing the grain is effected as the machine travels over the field; and it has for its object to provide a machine of this character which will serve to head, thrash, and separate the grain in a simple, rapid, and economical manner.

With other minor objects in view, all of which will hereinafter be fully set forth, my invention consists in the peculiar combination and arrangement of parts, as fully described in the specification and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 is a perspective view of my improved machine. Fig. 2 is a top plan view thereof. Fig. 3 is a longitudinal section of the thrashing and separating devices on the line 3 3, Fig. 2. Fig. 4 is a detail plan view, partly in section, of the comb and conveyer devices. Figs. 5 and 6 are detail views, hereinafter specifically referred to, and Fig. 7 is a detail view of a modification hereinafter referred to.

Referring to the accompanying drawings, A indicates the main supporting-frame, which in practice is preferably of substantially the construction shown, it being, however, understood that I do not limit myself to such construction, as it may be varied without departing from my invention.

B indicates a casing or frame, which is mounted upon the main supporting-frame A, and, while I have not so shown it, it is in practice so supported for vertical adjustment that it can be quickly raised or lowered by the driver. Upon this frame or casing B are mounted the combing, thrashing, and separating devices, the construction of which is most clearly shown in Figs. 2, 3, and 4 of the drawings, by reference to which it will be seen that the comb C, which is supported at one end upon one side of the casing B and at its outer end on a beam  $\alpha$  of the main frame, consists of a body portion formed with a concave portion  $c$  and the fingers  $c'$ , the rear portions of which

are curved downward and merge into such concave portion, as shown most clearly in Fig. 5.

D indicates the combined conveyer and thrashing screw or auger, which is mounted transversely in the casing B, its inner end being journaled in a bracket  $b$  on the casing-frame B, while its outer end is journaled in the adjustable bearing-beam  $\alpha$  before referred to. The outer end of the screw D is held to revolve in the concave portion C of the combing-plate, such end being formed with a number of spirals  $D'$ , of a very slight pitch, while its inner portion is formed with diagonally-arranged spirals  $D^2$ , as shown. It should be stated that by forming the conveyer-spirals in the manner stated and by arranging the conveyer-screw relatively to the combing-fingers, as shown in Fig. 4, they will project beyond the inner edges of the fingers and serve as the heads are separated to draw such heads forward, as indicated in Fig. 4, in such a manner as to prevent climbing or scattering or a choking condition of the conveyer. To further prevent the danger of choking or an irregular feed, a hood or cap portion E is placed over the conveyer, as most clearly shown in Fig. 5 of the drawings. That portion of the screw D which is located within the casing has its spirals extended and its peripheral edges widened, as at  $b^2$ . Such portion of the screw, in addition to its conveying the grain over the screen G, presently referred to, also serves as a thrashing-cylinder and operates in the following manner: As the grain is carried inward by the screw through the conveyer-opening  $B'$  in the casing B and discharged onto the screen G the serrated spiral will as it carries the grain over the screen engage such grain with its roughened peripheral edge, the force of percussion given by such serrated spiral as it presses it against the screen separating the grain from the husks, the grain as it separates passing through the screen, while the husks, &c., are carried by the screw  $D'$  over the screen and discharged through the opening  $B^2$ .

To provide means for applying a proper tension to the screen and also to quickly change the bearing or rubbing face of the screen should it become worn, such screen is formed of a roll mounted upon a shaft or

spool  $G'$ , its free end being passed under the screw member  $D^2$  and secured to a shaft or spool  $G^2$ , the shafts of such spools being provided with toothed disks  $g' g^2$ , with which the  
 5 pawls  $g^3 g^4$  engage, whereby the tension of the screen against the screw portion  $D^2$  can be readily adjusted. By this arrangement it will be seen that a sufficient length of the screening-wire is always in position on the  
 10 machine, which can be readily unwound and used, as the occasion may require.

To prevent a scattering of the grain as it is thrashed by the spiral  $D^2$ , a shield or guard plate  $I$  is located over the spiral  $D^2$ , which is  
 15 mounted on yielding bearings  $i i$ , as clearly shown, the yielding bearings allowing for an automatic adjustment of the shield in case the spiral  $D^2$  should in any manner become choked, &c.

While I prefer to form the serrated peripheral edges of the spiral  $D^2$  integral with the body, as shown, it may be formed of a separate spiral plate  $D^4$ , (see Fig. 7,) which can be secured to the body of the portion  $D^2$  in  
 20 any convenient manner, preferably by screws  $d^2$ , as shown.

The grain as it is separated from the hulls passes through the screen  $G$  onto a downwardly-inclined board  $J$ , from which it falls  
 30 onto a forwardly-inclined board  $K$ , at the lower end of which is located the discharge-chute  $L$ , which leads the grain to the outside of the casing onto an elevator  $M$ , presently referred to. As the grain falls from the board  $J$  onto the board  $K$  it is subjected to an air-blast, which serves to blow off the chaff, &c., out through the opening  $j$  to the rear of the machine, any suitably-arranged fan devices being provided for such purposes—as, for instance, the devices shown  
 40 in the drawings. The clean grain as it discharges to the outside of the casing  $B$  empties onto the lower end of the elevator  $M$ , which extends upward toward the front of the casing-frame  $B$  and is formed with a discharge-mouth  $m$ , which projects over one of a series of removable bins  $N$ , held on a rotatable horizontal support  $O$ , journaled on the main frame  $A$ , the shaft  $o$  of which is  
 50 extended vertically and formed with a suitable handle portion  $o'$ , disposed near the driver's seat  $P$ , the discharge-mouth of the elevator having a cut-off  $m'$ , also in convenient reach of the driver's seat. By this arrangement it will be seen that the driver as soon as one of the bins has become filled can quickly move the cut-off inward to stop the feed of the grain and turn the horizontal support to bring another bin in position under  
 60 the discharge-mouth  $m$ , after which the cut-off is again drawn out.

To obtain a direct gear connection with the spiral conveyer, the elevator, and the fan-shaft, I provide such conveyer, elevator, and fan-shaft with sprocket-wheels 10, 10<sup>a</sup>, 20, and 30, respectively, over which pass the endless chain belts  $R R'$ , one of which  $R$  is also in en-

gagement with a sprocket-wheel  $S$  on a short horizontal shaft  $s$ , mounted on the main frame  $A$ , the outer end of which has a cog-wheel  $s'$ , 70 which meshes with an internally-threaded rim  $T$ , secured to the inner face of one of the drive-wheels  $W$ , as shown.

By arranging the driving mechanism as shown I am not only enabled to impart a direct motion in the proper direction to the several parts referred to, but also allow for a vertical adjustment of the parts referred to, they being all connected to the casing or frame  $B$ , without the necessity of changing 80 the said gearing mechanism.

To assist in holding the screen  $G$  from longitudinal movement after the proper tension has been applied thereto, the inner end of the concave or trough portion of the comb-frame is extended through the opening  $B'$  and such end bent down and formed into finger or prong members  $c^x$ , which pass down through the meshes of the screen in the manner clearly shown in Figs. 5 and 6 of the drawings. 90

From the foregoing description, taken in connection with the drawings, the complete operation and advantages of my invention will readily appear. 95

It will be noticed that by arranging the combing, conveyer, thrasher, and separating devices as shown and described a continuous operation of heading, thrashing, and separating is obtained in a quick, effectual, and simple manner without wasting, and by providing a series of detachable bins the grain is at the same time gathered in vessels ready for shipment. 100

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is— 105

1. An improved harvester comprising a main supporting-frame, a casing or box frame held thereon, thrashing devices mounted in such casing, a conveyer mounted transversely therein over the thrashing devices, projected at its discharge end through one side of the casing, its receiving end extended through the opposite side of the said casing, a comb 110 secured to the casing under the conveyer, and means for operating the conveyer and thrashing devices, substantially as shown and described.

2. In a harvester of the class described, the combination, with the thrashing mechanism, of a comb having its rear end concaved, the rear ends of its fingers curved down and merged into such concave portion, a screw conveyer operating in such concaved portion, and a cap-plate mounted over the conveyer and extended above the front end thereof, all arranged substantially as shown and described. 125

3. In a harvester of the class described, in combination, the thrashing mechanism, a comb having its rear end concaved, a screw conveyer mounted in said concaved end, its spirals projected over the inner ends of the comb-fingers, and a cap-plate secured to the 130

rear edge of the comb-plate and projected over and beyond the front edges of the spirals of the conveyer, all substantially as and for the purpose described.

5 4. In a harvester of the class described, in combination with a box or casing, a separating-screen held therein, a comb, means for leading the headed grain from the comb to the screen, and a spiral beater mounted over the  
10 screen, adapted to lead the grain transversely over the screen and at the same time thrash it, as and for the purpose described.

5. In a harvester of the kind described, the combination, with the main frame, a box or casing held thereon, a separating-screen mounted  
15 longitudinally therein, a comb projected from one side, and means for leading the headed grain from the comb onto the screen in the casing, of a spiral conveyer having its peripheral edges roughened, arranged transversely  
20 over the screen, and adapted to convey the grain across the screen and thrash it as it is carried thereover, such conveyer projected over one side of the casing to discharge the  
25 husks, substantially as shown and described.

6. In a harvester of the kind described, the combination, with a casing, a separating-screen supported therein, and the combing-frame projected from one side of the casing,  
30 of a screw conveyer mounted transversely on the casing, its outer end held to rotate over the rear end of the combing-frame and adapted to lead the headed grain inward into the casing, its inner portion having the peripheral edges of its spirals widened and rough-  
35 ened and arranged to beat the grain against the screen, substantially as and for the purpose described.

7. In a harvester of the class described, the combination, with a thrashing-casing and a  
40 beater mounted transversely in such casing, of a screening-body mounted longitudinally in said casing under the beater, said body

formed with an operating portion and a surplus or extended portion, means for shifting  
45 such body, whereby to change its rubbing or beating portion, and the comb and conveyer devices for heading and leading the grain to the screen, substantially as and for the purpose described.

8. The combination, in a harvester of the class stated, with the casing, the comb, the conveyer, and the spiral beater, of a screen  
50 mounted longitudinally in the casing and extended under the beater and the tension devices for such screen, all arranged substantially as and for the purpose described.

9. The combination, with the thrashing-casing, the spiral beater, and the comb-frame held thereon, said frame having a portion  
60 extended into the casing and formed with prongs or fingers, of a separating-screen held for longitudinal movement in the casing under the beater, said screen arranged when adjusted to be engaged by the prongs on the comb-  
65 frame and held from movement, as and for the purpose described.

10. In a thrashing-machine essentially as described, the combination, with the main frame, the driver's seat, and the thrashing-  
70 box mounted thereon to one side of the seat, the thrashing devices carried by the box, and the elevating mechanism supported thereon and arranged to discharge the grain in advance of the driver's seat, of a rotatable stor-  
75 ing-bin support mounted thereon having a turning shaft projected up therefrom and cut-off devices in the elevator discharge-chute, all substantially as shown and described, where-  
80 by the bin-holder can be rotated and the cut-off operated by the driver from his seat, as and for the purposes described.

JACOB T. MIDER.

Witnesses:

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