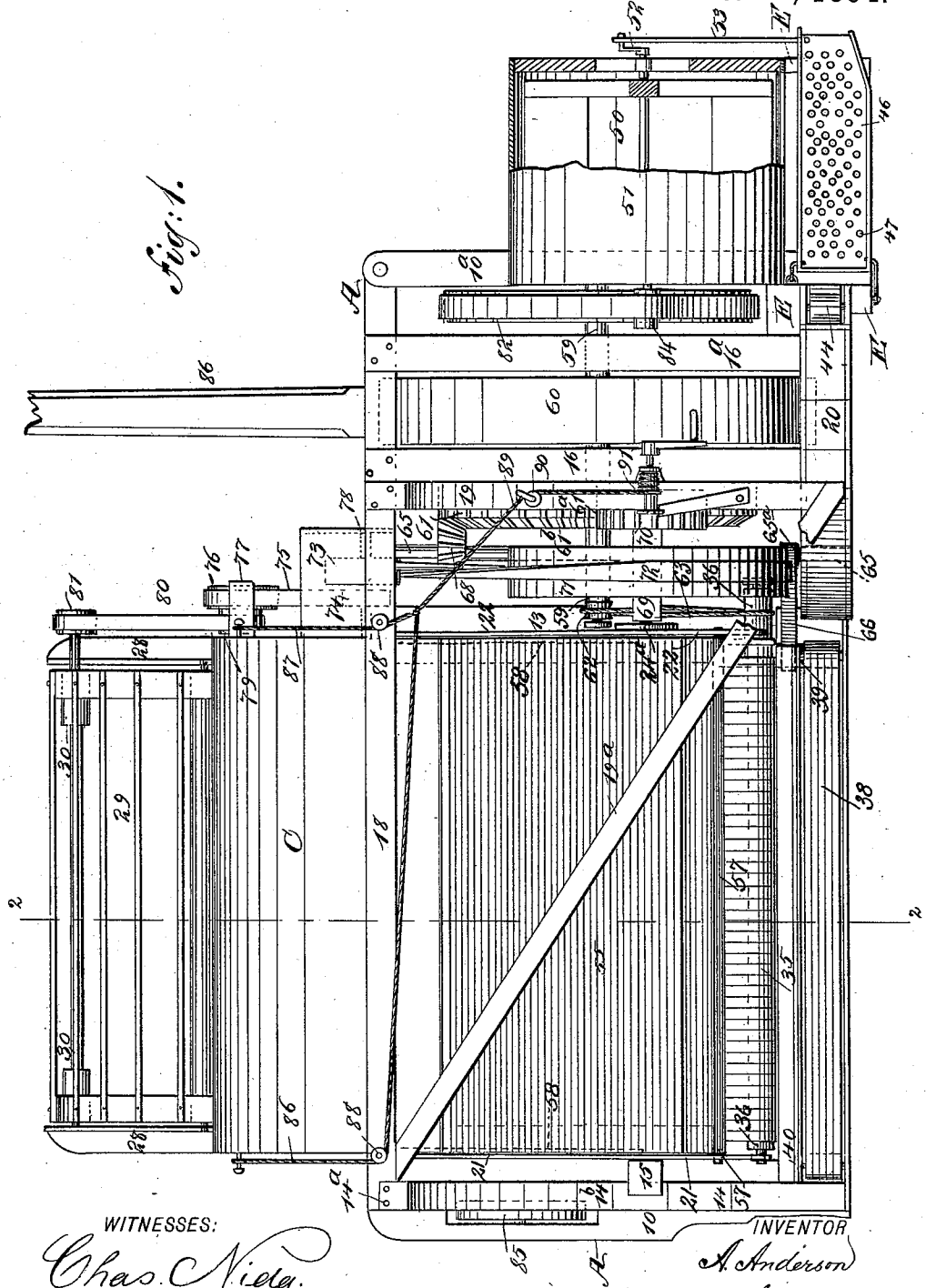
(No Model.) 4 Sheets—Sheet 1.

A. ANDERSON.

FIELD THRASHING MACHINE.

No. 531,085. Patented Dec. 18, 1894.

Fig. 1.



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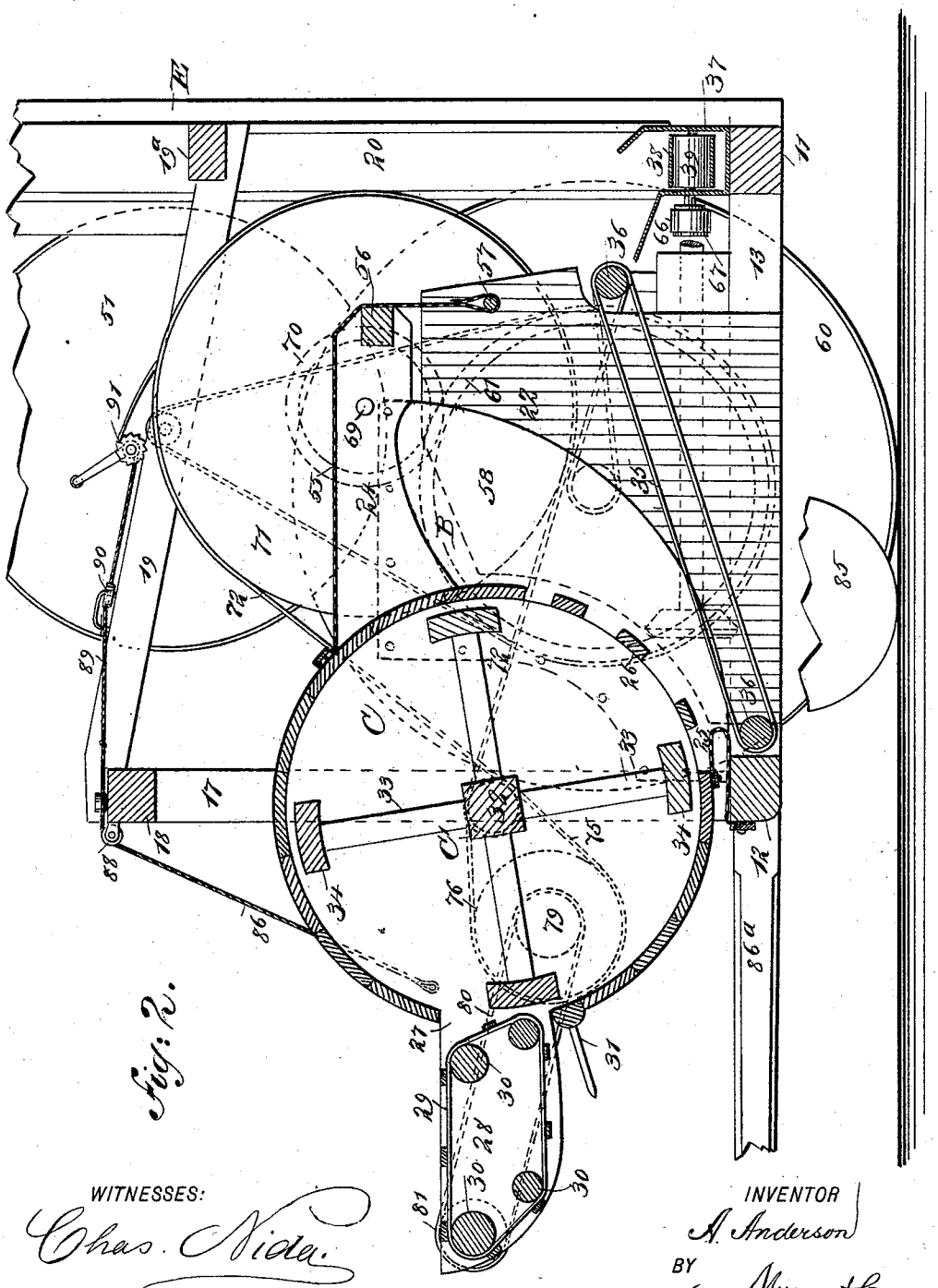

Fig. 2.

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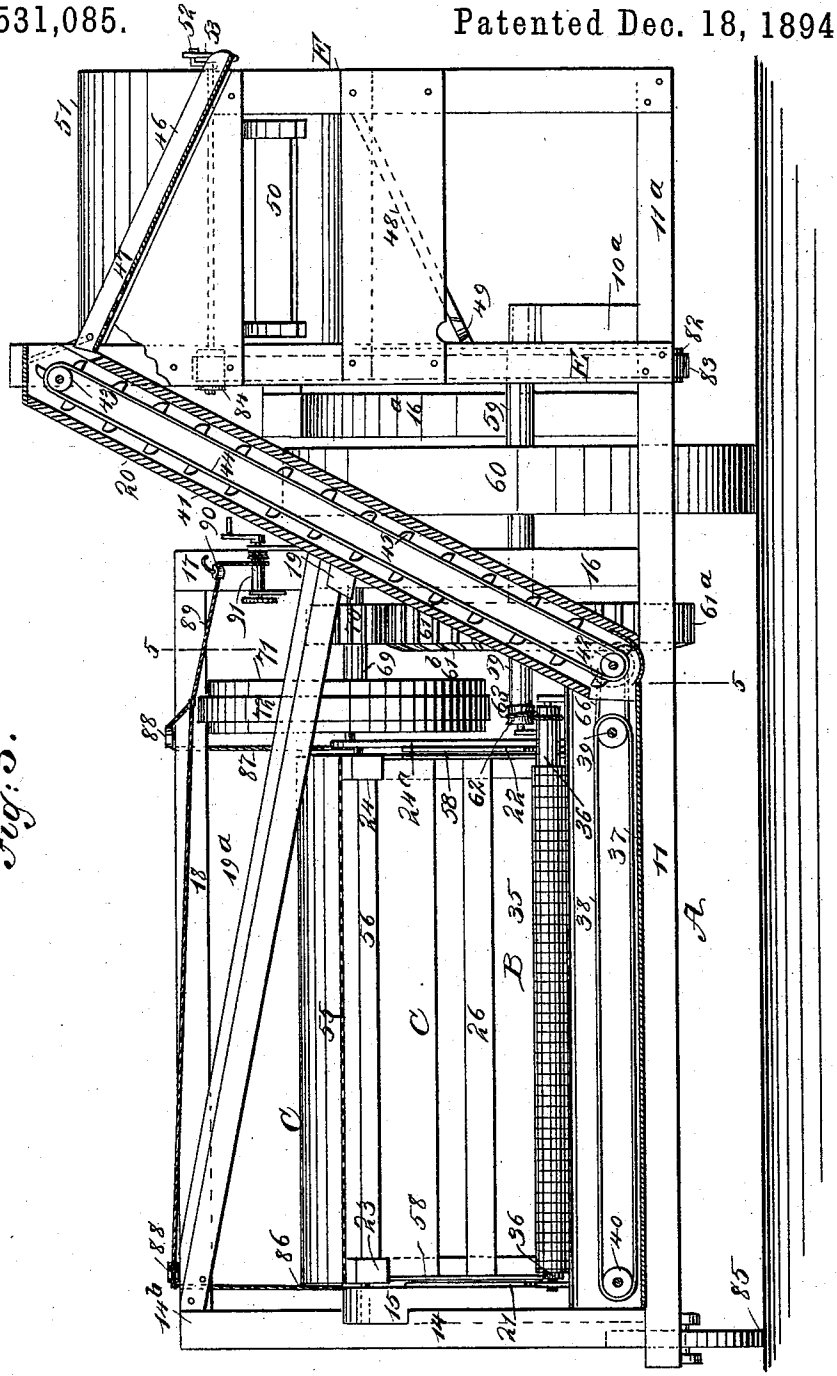

Fig. 3.

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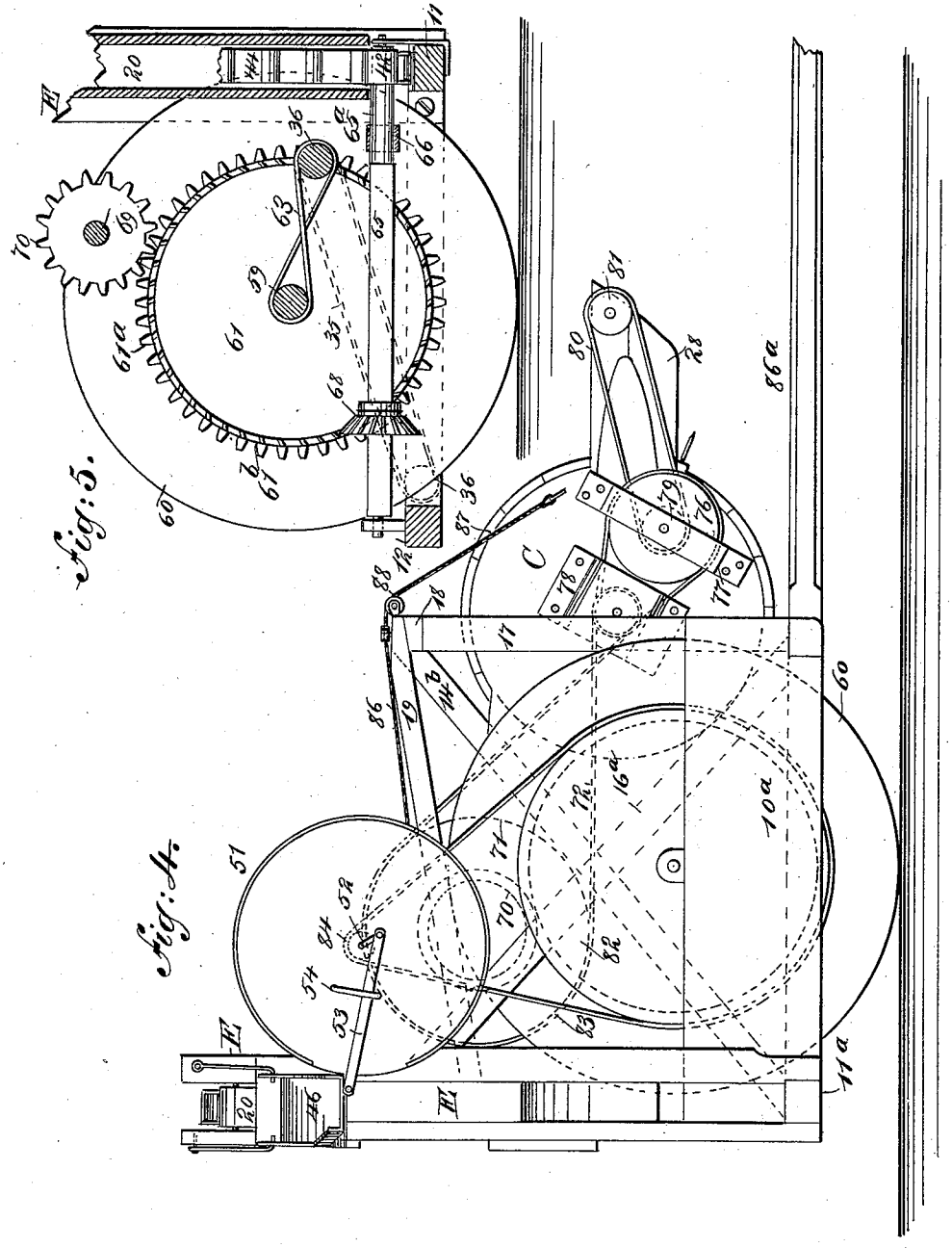

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

AXEL ANDERSON, OF RONDA, TEXAS.

FIELD THRASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 531,085, dated December 18, 1894.

Application filed November 1, 1893. Serial No. 489,686. (No model.)

To all whom it may concern:

Be it known that I, AXEL ANDERSON, of Ronda, in the county of Wilbarger and State of Texas, have invented a new and Improved Field Thrashing-Machine, of which the following is a full, clear, and exact description.

My invention relates to an improvement in thrashing machines, and has for its object to provide a machine which may be carried into a field, and which, as it is drawn forward, will harvest the tops of the standing grain, leaving the stalks in the ground, and which, as the machine is advanced, will also thrash the grain from the heads, separate the chaff from the grain, and deliver the grain in a suitable receptacle placed to receive it.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a plan view of the machine. Fig. 2 is a vertical section taken through the thrashing machine cylinder and chamber, the said section being taken practically on the line 2—2 of Fig. 1. Fig. 3 is a rear elevation of the main portion of the machine, the elevator, the riddle, and the cover of the thrashing chamber being shown in section, and likewise the conveyer which carries the grain from the thrashing chamber to the elevator. Fig. 4 is an end view of the machine, and Fig. 5 is a section taken practically on the line 5—5 of Fig. 3.

The main frame A of the machine consists of an end bar 10, an opposing end bar 10^a, a rear bar 11 and a front bar 12, the said frame being more or less rectangular in general contour. An intermediate cross bar 13, is made to connect the front and rear bars of the main frame, while at the left-hand end a standard 14 is erected, the said standard being practically of triangular shape, comprising a vertical front member 14^a, and an inclined member 14^b, the latter member extending downward to an engagement with the rear beam, and the angular end standard 14, is braced by means of an upright post 15, as shown in Fig. 1. A triangular standard 16, is mounted upon the main frame near its right-hand end, and adjacent to the triangular standard an upright 17, is secured upon the front bar of the main frame, said upright 17, being connected with the upright 14^a at the opposite end of the frame by a top beam or bar 18, and an upper cross bar 19, is connected with the top beam 18, over the upright 17, said cross bar 19, being adapted for engagement with and as a support for an elevator 20, located at the rear of the machine, the elevator being likewise supported by a diagonal beam 19^a, connecting with the elevator at the point where the cross bar 19 is secured to it, the diagonal beam being also secured to the front upper beam 18 at or near its junction with the front upright member 14^a of the triangular standard 14.

A thrashing chamber B, is produced at the left-hand side of the machine, by securing to the inner face of the post 15 a wall 21, which may be of metal; and the said wall extends transversely across the main frame to a point near the front, and an opposite wall 22, is secured to the intermediate cross bar 13 of the main frame.

The upper portion and front of the thrashing chamber are constructed as follows: Two arms 23 and 24, are pivoted at or near their rear ends, the arm 23 to the upper portion of the post 15, and the arm 24 to the upper portion of an opposing post 24^a, located adjacent to, or projected upwardly from the cross bar 13 of the frame. The arms 23 and 24, are made to connect with a thrashing cylinder C, and the said cylinder is connected at its lower end with the front cross bar 12 of the main frame by a strip of canvas, or woven wire, or other flexible material 25, as shown in Fig. 2, whereby the cylinder may be raised or lowered and the front lower portion of the thrashing chamber remain closed.

The thrashing cylinder C, is compactly constructed for the greater portion of its circumference, and is closed at its ends. The lower rear portion of the thrashing cylinder, however, is open to a certain extent, and the opening is crossed by a series of slats 26, arranged at predetermined intervals apart, which slats extend from head to head of the cylinder.

At or near the front central portion of the thrashing cylinder C an opening 27, is provided, extending substantially from end to end, and the said opening may be denominated a mouth, since at this point the heads of the grain are made to enter the cylinder. At each end of the mouth 27 of the cylinder, horizontal arms 28, are constructed, and between said arms and in front of the mouth 27 of the cylinder an endless belt 29, is located, being held to turn around rollers 30, grouped two immediately in front of the mouth of the cylinder and two near the outer extremity of the arms. The lower roller of each pair is arranged nearer the mouth of the cylinder than the upper one, and the lower of the inner pair of rollers is higher than the corresponding roller of the outer pair. In this manner the front portion of the endless belt or apron 29 is inclined downward and inward in direction of the mouth, and the lower stretch of the belt or apron is inclined upward and inward in direction of the mouth, a suitable distance being allowed between the lower inner portion of the apron and the under edge of the mouth 27, as is best shown in Fig 2. The apron 29, is usually made up of a series of belts, and slats connecting the belts, the belts being arranged transversely with respect to the cylinder and the slats longitudinally. A series of pins 31 is arranged along the lower wall of the cylinder mouth 27, the pins being placed at predetermined intervals apart, and they extend forwardly at a right angle to the cylinder. These pins are adapted to support the stalks of grain and present them in proper order to the thrashing cylinder.

A beater C', is located in the thrashing cylinder. The beater consists of a shaft 32, which within the thrashing cylinder is rectangular in cross section, and the shaft is journaled in the central portion of the heads of the cylinder. Arms 33, are projected from the side surfaces of the shaft, said arms being arranged in longitudinal series; and the arms of each series are connected at their outer ends with horizontal blades 34, said blades being somewhat segmental in cross section, as shown in Fig. 2, and the arms of the beater are of such length that the beating blades 34, will approach the inner wall of the thrashing cylinder quite closely. As the machine advances, the apron 29, which is constantly revolved, will carry the heads of the standing grain in direction of the mouth of the thrashing cylinder, the stalks of the grain being prevented from bunching by the pins 31; and as the stalks are brought close to the thrashing cylinder the apron 29 will bear down the heads and cause them to bend down into the cylinder, whereupon the beater blades 34, will strike the drooping heads and break them entirely from their stalks, and in carrying the heads around the cylinder the grain contained therein will be thrashed out, and the heads, together with the grain, will pass out from the thrashing cylinder through the space between the slats 26, and will fall upon a conveyer apron 35, located at the rear of the cylinder within the thrashing chamber B. The belt 35, is inclined upwardly and rearwardly and extends from wall to wall of the thrashing chamber, as shown in Fig. 2, and from the front of the frame practically to the rear, the said conveyer apron 35 being made to pass over rollers 36. The front roller 36 is journaled in suitable bearings formed in the left-hand bar 10 of the main frame and the intermediate cross bar 13, the front roller 36 being immediately back of the front cross bar 12 of the said main frame, while the rear roller 36, is journaled in bearings elevated some distance from the left-hand bar and the cross bar 13, as is likewise shown in Fig. 2.

The conveyer belt 35, delivers the material delivered to it into a trough 37, located upon the rear beam 11 of the main frame A, and upon a conveyer belt 38, located in said trough, as shown in Fig. 2, the conveyer belt being carried by two pulleys 39 and 40, one located at the inner end of the trough and the other at its outer end, as illustrated in Fig. 3, the pulley 39 being the driving pulley; and the conveyer 38, delivers its load to the elevator 20. The elevator is located at its lower end adjacent to the inner end of the rear conveyer 38, as shown in Fig. 3, and the elevator is inclined upwardly and outwardly in direction of the right-hand side of the main frame, and is made to rest at its upper end upon the inner end surface of an auxiliary frame E, which frame is erected upon an extension 11^a of the rear beam 11 of the main frame A, the extension of this beam being carried beyond the outer surface of the right-hand end beam 10^a of the said main frame.

The elevator comprises a casing 41, the said casing being open at its lower end facing the conveyer apron 38, and open at its upper end facing the outer side of the auxiliary frame E. Within the casing at bottom and top drums are journaled, respectively designated in the drawings as 42 and 43; and over these drums an endless belt 44 is provided, which belt is provided with a series of buckets 45 of any approved description, the said buckets being adapted to receive the material from the rear conveyer 38 and deliver said material upon a riddle or sieve 46, located upon the upper portion of the auxiliary frame E, and the said riddle or sieve has a downward and outward inclination, and at its upper end is provided with apertures or openings 47, the lower portion of the riddle being practically without openings; and the grain which passes through the openings 47 of the riddle falls upon a downwardly inclined partition 48 located in the extension E of the main frame; and at the lower end of this partition an opening 49, is provided, through which the grain may escape into any receptacle placed to receive it, while the heads from which the grain has been extracted will fall from the lower end of the riddle to the ground. In order

that the chaff may be separated from the grain before it reaches the partition 48, a fan 50, is provided, which fan is journaled in a cylinder 51, supported upon the forward portion of the extension E of the main frame, the cylinder being open at its rear in order that the fan, when operated, may direct a current of air upon the grain while falling from the riddle to the partition 48. The riddle at its upper end is pivotally connected with the inner upper portion of the extension frame E, and the riddle is adapted to be constantly laterally reciprocated to a greater or less degree, and this movement is accomplished by forming upon the outer end of the shaft of the fan a crank arm 52, which crank arm is connected by a pitman 53, passing through a suitable guide 54, with the lower end of the riddle 46, as shown best in Fig. 4.

The thrashing chamber B is closed through the medium of a cover 55, which cover may be made of canvas, or any equivalent or suitable material, and the said cover is secured to the upper rear portion of the thrashing cylinder, and passes over the rear ends of the cylinder arms 23 and 24, and over a cross bar 56 connecting said arms, the lower end of the cover 55, as illustrated in Figs. 1 and 2, being connected with a rod 57, which is held in the side walls 21 and 22 of the said chamber. In order that the said chamber may be thoroughly closed at its sides, especially the outer side, both of the arms 23 and 24, especially the outer arm 23, are provided with a downwardly-extending guard plate 58, as shown in Fig. 3, which plate, or plates when two are employed, moves upward and downward with the arms, closing the spaces between the upper ends of the walls 21 and 22 and the under surfaces of the arms 23 and 24.

The driving and supporting mechanism of the machine is as follows: An axle 59, is journaled about centrally upon the intermediate cross bar 13 and upon the right-hand bar 10^a. This axle carries a supporting wheel 60, the periphery of which may be, and preferably is, roughened; and upon this axle, at the left-hand side of the triangular standard 16, a large gear wheel 61, is secured, the gear wheel being provided with peripheral teeth, and with beveled teeth upon its inner side face, the peripheral teeth being designated as 61^a and the beveled teeth as 61^b, as shown in Fig. 1. The axle at its inner end likewise carries a small pulley 62, which is firmly secured to it, and the pulley 62, is connected by a belt 63, preferably a cross belt, with the inner end of the conveyer drum 36 located within the thrashing chamber. The rear conveyer 38, is rotated through the medium of a shaft 65, which shaft is journaled upon the front and rear beams 11 and 12 of the machine, the shaft 65, being provided with a pulley section 65^a at its rear end. Otherwise the shaft may be rectangular in cross section, and the pulley section 65^a, is connected by a belt 66 with a pulley 67, located upon one end of the shaft of the driving pulley or drum 39 of the conveyer, as illustrated in Fig. 3. The transverse shaft 65 receives motion from the main driving gear 61 through the medium of a beveled pinion 68, which pinion meshes with the beveled teeth 61^b upon the said main driving gear, as illustrated in Fig. 1. An upper longitudinal shaft 69, is journaled in the upper end of the triangular standard 16, and likewise in the post or upright 24^a, as shown in Fig. 1. This upper shaft carries a pinion 70, the said pinion being made to mesh with the peripheral teeth 61^a of the main driving gear 61; and the shaft further carries a large pulley 71, and this pulley is connected by a belt 72 with a pulley 73, located upon the beater shaft 32. Upon this same shaft, adjacent to the pulley 73, a smaller pulley 74, is secured, which is connected by a belt 75 with a pulley 76, journaled upon a spud axle held to turn at one end in the inner end of the thrashing cylinder, and at the opposite end in a bracket 77, a like bracket 78, being provided to support the inner end of the beater shaft 32, as is also shown in Fig. 1. The spud axle carrying the pulley 76, likewise carries a smaller pulley 79, and the said pulley is connected by a belt 80 with a pulley 81, located upon the shaft of the upper and forward drum or pulley 30, supporting the front endless apron or belt 29, the said belt or apron being driven in this manner from the pulley 71.

The fan 50, is driven by locating upon the axle 59 a large pulley 82, and connecting the said pulley by a belt 83 with a smaller pulley 84, located upon the fan shaft. In addition to the main supporting wheel 60 a smaller wheel 85, is likewise employed, being held to revolve in the left-hand bar 10 of the frame, and the pole 86, is located between the right-hand end of the main frame A at the front, and the intermediate cross bar 13 of the frame.

It is evident that a machine of the character described may be carried into a field, and while being drawn along through the standing grain will force the heads of the grain into the thrashing cylinder, thrash the grain from the heads, and deliver the grain and chaff to an elevator, which in turn will deliver both the grain and chaff to a riddle, and the grain, with the small chaff, will pass through the riddle, and the small chaff, as the grain is falling, will be winnowed out by the fan 50, the grain falling clean upon the receiving partition 48, from whence it may be delivered to any receptacle, while the heads, destitute of grain, will fall from the riddle to the ground.

The grain to be thrashed is not always of the same height. Therefore it is necessary that the thrashing cylinder should be capable of being raised or lowered as occasion may demand, and this may be readily effected by attaching to the ends of the thrashing cylinder cords or chains 86^a and 87, as shown in Fig. 1, which cords or chains, after passing over suitable friction rollers 88, are connected

back of the upper beam 18 of the main frame; and a single cord or chain 89, is then carried over one or more friction pulleys 90, to an engagement with a windlass 91, and through the medium of this windlass the thrashing cylinder may be raised or lowered and held in adjusted position whenever occasion may demand.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a field thrasher, a wheel supported frame, a thrashing cylinder adjustably located upon the frame and provided with a mouth at its front to receive the heads of standing grain, a mechanism for directing the heads of grain into the mouth, a flexible connection between the cylinder and the supporting frame, and means for raising and lowering said cylinder, as and for the purpose set forth.

2. In a field thrasher, a wheel supported frame, a thrashing cylinder mounted to swing vertically in said frame, and provided with a mouth at its front adapted to receive the heads of standing grain, a chamber located at the rear of the cylinder and into which the grain is delivered from said cylinder, and an adjustable connection between the lower part of the thrashing cylinder and the frame of the machine whereby the cylinder may be raised or lowered and the front lower portion of the chamber remain closed, substantially as shown and described.

3. In a field thrashing machine, the combination with a wheeled frame, of a thrashing cylinder mounted to swing vertically in the frame, and provided with a mouth at its front and an opening in its rear face, a chamber located at the rear of the cylinder, a flexible connection between the lower part of the cylinder and the supporting frame, and guard plates arranged at the sides of the chamber and adapted to move upward and downward with the said cylinder, substantially as shown and described.

4. In a field thrasher, a wheel supported frame, a thrashing cylinder provided with a mouth at its front and mounted to swing vertically upon the frame, a beater mounted to rotate in the said cylinder, a chamber located at the rear of the cylinder and into which the grain is delivered from said cylinder, a flexible connection between the lower part of the thrashing cylinder and the frame of the machine, a conveyer located in said chamber and leading from the thrashing cylinder, an elevator, and a winnowing device into which the elevator empties its contents, substantially as described.

5. In a field thrasher, a wheel supported frame, a thrashing cylinder provided with rearwardly extending arms by which said cylinder is pivoted to the frame, the said cylinder having a mouth at its front to receive the grain, a feed mechanism for directing the heads of grain to the mouth, a chamber at the rear of the thrashing cylinder into which the cylinder discharges, a cover for said chamber secured to the rear of the cylinder and passing over the rearwardly extending arms, means for raising and lowering the said cylinder, and guard plates extending downward from the said rearwardly extending arms and adapted to move upward and downward as the cylinder is raised and lowered, the said guard plates closing the spaces between the upper ends of the side walls of the chamber and the under surface of the said arms, as and for the purpose set forth.

6. In a field thrashing machine, the combination with a wheeled frame, of a thrashing cylinder provided with rearwardly extending arms by which said cylinder is pivoted to the frame, the said cylinder being provided with a mouth at its front and an opening in its rear-face, means for directing the grain into the said mouth, a beater mounted to rotate in the said cylinder, a chamber located at the rear of the cylinder, a conveyer belt located within said chamber, a flexible connection between the lower part of the cylinder and the supporting frame forming the front wall of the chamber when the cylinder is raised, a cover for said chamber, downwardly extending guard plates arranged to move with the said cylinder for the purpose specified, and means for raising and lowering said cylinder substantially as shown and described.

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Witnesses:
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