No. 688,913. Patented Dec. 17, 1901.

W. N. WHITELY.

GRAIN HARVESTER.

(Application filed Jan. 9, 1901.)

(No Model.) 3 Sheets—Sheet 1.

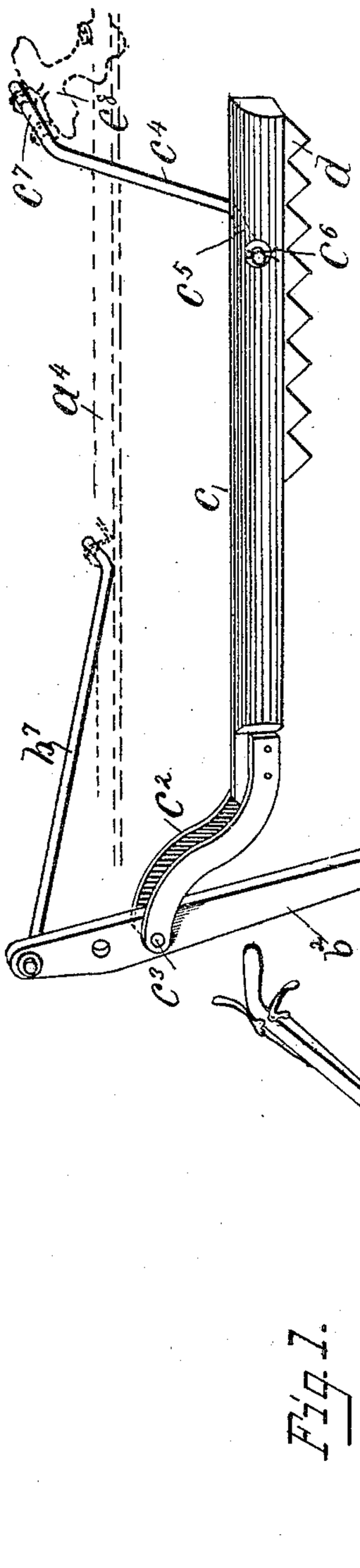

Fig. 2.

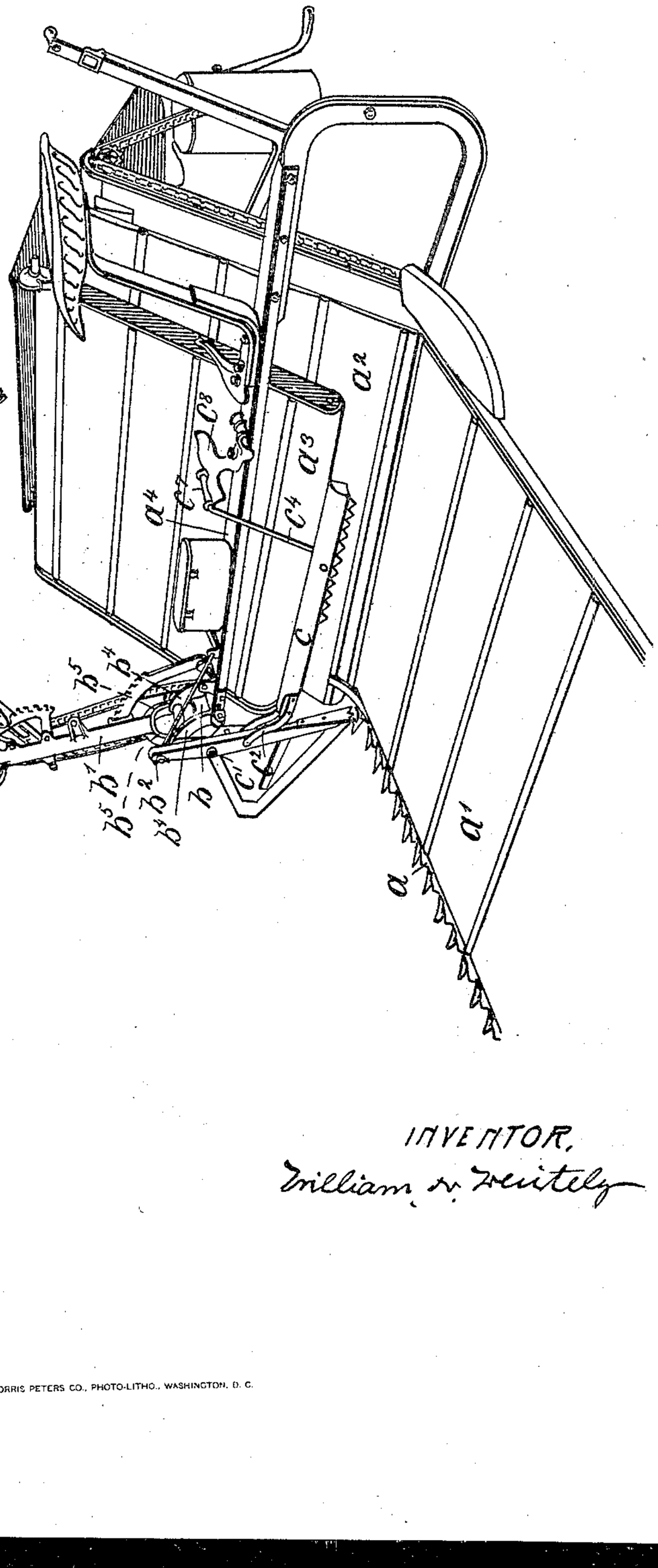

Fig. 1.

WITNESSES:
John L. Gilligan
Fred. State.

INVENTOR.
William N. Whitely

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3 Sheets—Sheet 2.

Fig. 3.

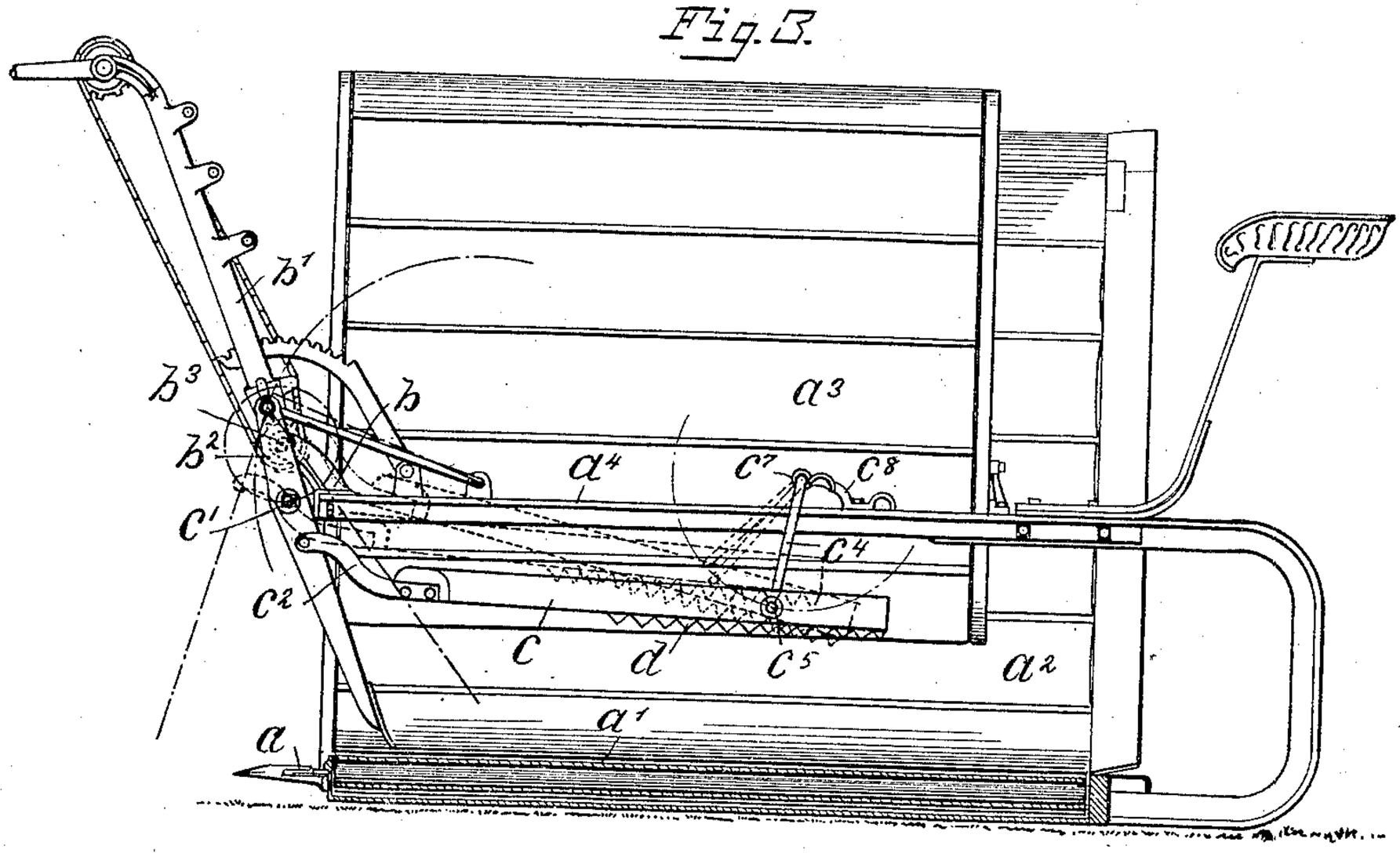

Fig. 4.

WITNESSES:
John L. Gilligan
Fred State

INVENTOR,
William N. Whitely

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Fig. 5

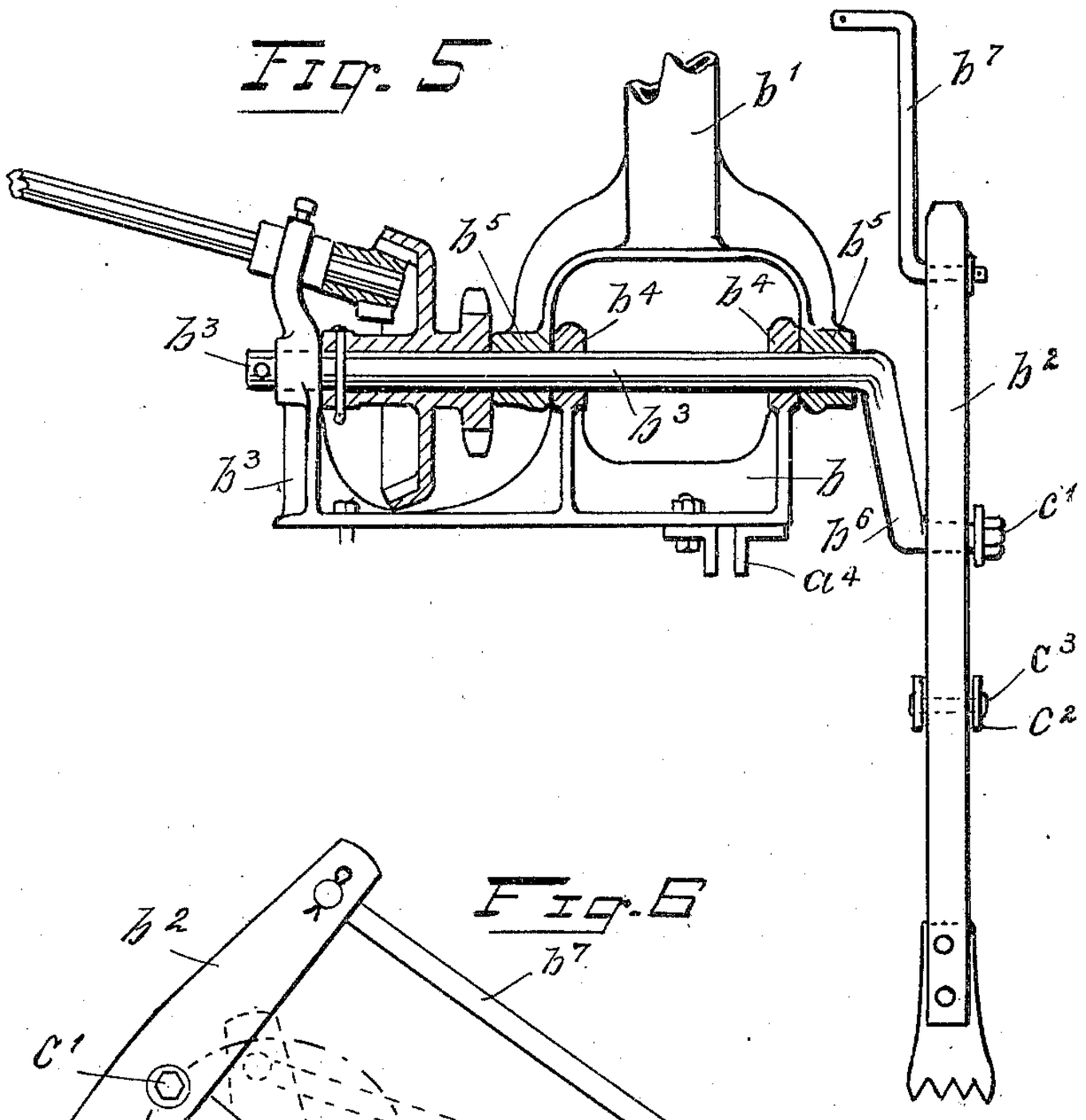
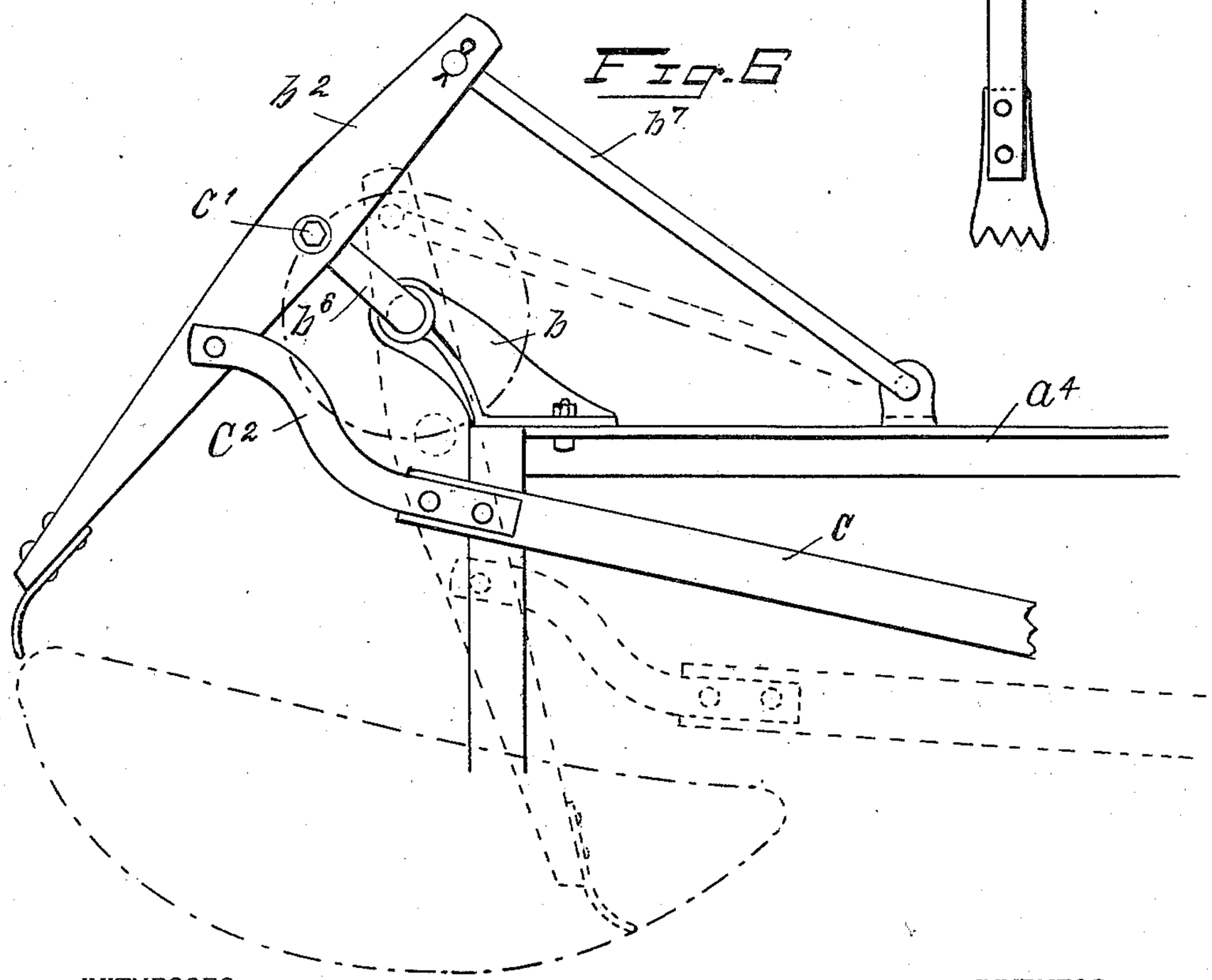


Fig. 6



WITNESSES:
Robt. Weiskotten
John L. Gilligan

INVENTOR.
William N. Whitely

UNITED STATES PATENT OFFICE.

WILLIAM N. WHITELY, OF SPRINGFIELD, OHIO.

GRAIN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 688,913, dated December 17, 1901.

Application filed January 9, 1901. Serial No. 42,688. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM N. WHITELY, a citizen of the United States, residing at No. 153 East High street, Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Grain-Harvesters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

My invention relates to grain-harvesting machines employing a horizontal grain-conveying belt immediately in rear of the cutting apparatus, a pair of grain-elevating belts in proximity to the inner end of the horizontal grain-conveying belt, the elevator-belts elevating the grain over the main driving-wheel and depositing it upon a grain-binder deck from which it is taken to the grain-binding mechanism. The usual reel for reeling the grain to the cutting apparatus is employed. In this class of machines light fluffy grain or heavy lodged and tangled grain accumulates at the inner end of the horizontal grain-conveying belt and piles up above the mouth of the elevator and cannot be grasped by the elevating-belts. Consequently the machine is clogged, and frequently an attendant is required to assist the machine in getting the grain into the mouth of the elevator by depressing it with a pole or fork.

The object of my improvement is to overcome this difficulty.

With this object in view I employ an automatic grain-depressing arm, located at the inner end of the horizontal grain-conveying belt and close to the mouth of the elevators. The forward end of the grain-depressor arm is pivotally connected to and partakes of the movement of the rake-stale, located near the inner front corner of the cutting apparatus and grain conveying and elevating belts. The rake-stale is supported and operated reciprocally by means of a rotating crank mounted upon the elevator-frame and is rotated by any suitable mechanism, thereby imparting an alternating down-and-up back-and-forth movement to the grain-depressor arm to depress the grain onto the horizontal grain-conveying belt and direct it into the mouth of the elevator. The rear end of the grain-depressor arm is pivotally connected to some convenient part of the elevator-frame by means of a swinging link located at a proper distance from the rotating crank-shaft. The rake-stale having its upper end pivoted to the harvester by a link and operated by a crank its lower end traces an orbital path, and the forward end of the grain-depressor being pivoted to the grain-rake stale partakes of the same movement, and the grain-rake acting upon the butts of the grain to push the same rearward into the mouth of the elevator and the depressor-arm coacting to depress the grain in the line of its length down upon the conveying-belt and into the mouth of the elevator. I attain this object by means of the mechanism shown in the accompanying drawings, in which—

Figure 1 is a perspective view looking from the rear and showing sufficient of a harvesting-machine to illustrate the application of my improvement. Fig. 2 is an enlarged perspective view of the grain-depressor arm. Fig. 3 is an elevation looking from the grain end of the machine and showing a portion of the cutting apparatus and horizontal conveyer-belt removed. Fig. 4 is a sectional rear elevation showing the position of the grain-compressor arm in its relation to the clogged grain and the mouth of the elevator. Fig. 5 is a front elevation of a portion of a grain-harvester elevator, showing the relative positions and proportions of the rake-stale and its crank and the driving mechanism therefor. Fig. 6 is a side elevation of the rake-stale and its connection to the elevator-framing, also showing sufficient of the grain-depressor arm and its connections to the rake-stale, the orbital path of the rake-stale and grain-depressor arm indicated by dotted lines.

Similar letters of reference indicate like parts in the several views.

a indicates the cutters or cutting apparatus; a', the horizontal grain-conveying belt; a^2, the lower elevator-belt; a^3, the upper elevator-belt, and a^4 a part of the harvester-frame.

Mounted upon the front end of the part a^4

of the harvester-frame is the bracket b, which supports the reel-post b' and grain-rake crank-shaft b^3. The grain-rake crank-shaft b^3, passing through the projections b^4 b^4 of the bracket b and the lugs b^5 b^5 of the reel-post b', forms the support for the reel-post b'. The bracket b forms a support for the reel-post b' and grain-rake crank-shaft b^3. One end of the crank-shaft b^3 is formed into a crank b^6, which is connected to the grain-rake stale b^2 by the crank-pin c', the other end adapted to connect with any suitable driving mechanism. The upper end of the grain-rake stale b^2 is pivotally connected to the harvester-frame by a link b^7, as shown. By the rotation of the crank b^6 the grain-rake is given an orbital reciprocating movement, while the lower end of the rake-stale b^2 traverses an orbital path.

To the rake-stale b^2 is pivoted the forward end of the grain-depressor c at a point below the crank-pin c' and is made about as long as the upper elevator is wide. The forward end of the depressor c is provided with a fork c^2, adapted to fit over the rake-stale b^2 and held in place by a bolt or pin c^3, (better shown in Fig. 2,) which completes the pivotal connection of the forward end of the grain-depressor to the rake-stale. The rear end of the grain-depressor c is pivotally connected to the harvester-frame by a crank-shaped link c^4, the lower projecting part c^5 passing through the grain-depressor c near its rear end and secured by a pin or cotter c^6. The upper projecting part c^7 is pivoted to a convenient place on the harvester-frame a^4. In this instance it is pivoted to the foot-rest c^8.

To the lower face of the grain-depressor c is secured a serrated angle-plate d, which as the depressor c is making its forward movement, as shown in dotted lines in Fig. 3, rises out of and above the grain and in its return moves downward and rearward into the grain, and the lower face of the depressor being wide acts over a large area of grain and by its natural movement compresses the grain and moves it rearward into the mouth of the elevator and into the grasp of the elevator-belts, thereby insuring its proper elevation to the binder-deck.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In a grain-harvesting machine, in combination, a cutting apparatus, a horizontal grain-conveying belt in rear thereof, two separate coacting grain-elevating belts, their mouth in close proximity to the inner end of said horizontal grain-conveying belt, a grain-feeding mechanism to said grain-elevating belts, one member thereof consisting of a grain-depressor arm, having teeth on its under side, automatically operated alternately up and down, back and forth to agitate and depress the grain on said horizontal grain-conveying belt and direct it into the mouth of the elevator; a swinging link pivotally supported by the elevator-framing, the grain-depressor arm being pivotally connected near its rear end to the lower end of said link, a reciprocating grain-rake stale suspended from the elevator-frame over the inner front corner of the cutting apparatus, the forward end of the grain-depressor arm being pivotally connected to the rake-stale, a rotary crank by means of which the rake-stale is horizontally and vertically reciprocated, the crank-shaft being horizontally disposed and journaled upon the elevator-framing.

2. In a grain-harvesting machine, in combination, a cutting apparatus, a horizontal grain-conveying belt, a coöperative pair of grain-elevating belts in near proximity to its inner end to grasp and elevate the grain from said horizontal conveying-belt, a grain-feeding mechanism to said elevating-belts operating in conjunction therewith, one member thereof consisting of an automatically-operating grain-depressor arm extending crosswise to the movement of said belts and located near the inner end of said horizontal grain-conveying belt and the lower ends of said grain-elevating belts, a swinging link pivotally supported by the elevator-framing, the grain-depressor arm being pivotally connected near its rear end to the lower end of said link, a reciprocating grain-rake stale suspended from the elevator-frame over the inner front corner of said cutting apparatus at the juncture of the meeting ends of said horizontal grain-conveying belt and elevator-belts, the forward end of the grain-depressor arm being pivotally connected to the rake-stale, a rotary crank by means of which the rake-stale is horizontally and vertically reciprocated, the crank-shaft of said rotary crank being horizontally disposed and journaled upon the elevator-framing, the lower end of said rake-stale acting upon the butts of the grain to push the same rearward from the cutting apparatus into the mouth of the elevator; said depressor-arm member coacting therewith to deliver the flowing grain from the horizontal grain-conveying belt into the grasp of the elevating-belts.

3. In a grain-harvesting machine, in combination, a cutting apparatus, a horizontal grain-conveying belt in rear thereof, a pair of grain-elevating belts, their lower ends in near proximity to the inner end of said horizontal conveying-belt to receive the grain therefrom, a grain-feeding mechanism to said elevating-belts, one member thereof consisting of an automatically-operating grain-depressor arm extending crosswise of the movement of the belts near the mouth of the elevator, a swinging link pivotally supported by the elevator-framing, the grain-depressor arm being pivotally connected near its rear end to the lower end of said link, a reciprocating grain-rake stale suspended from the elevator-frame over the inner front corner of the cutting apparatus, the forward end of the grain-depressor arm being pivotally connect-

ed to the rake-stale, a rotary crank by means of which the rake-stale is horizontally and vertically reciprocated, the crank-shaft of said crank being horizontally disposed and journaled upon the elevator-framing giving an alternate motion to the depressor-arm, causing it to rise above the grain on said conveying-belt and grasp the grain in its descent and feed it into the mouth of the elevator, its rear end descending as said crank driving it ascends for the purpose of depressing the grain downward within reach of the elevating-belts.

4. In a grain-harvesting machine, in combination, a cutting apparatus, a horizontal grain-conveying belt in rear thereof, a pair of grain-elevating belts their mouth at the inner end of said grain-conveying belt, a grain-feeding mechanism to said grain-elevating belts, one member thereof consisting of a reciprocating grain-depressor arm located above the horizontal grain-conveying belt and in near proximity to the lower end of said elevating-belts, its length extending crosswise the movement of said belts, a swinging link pivotally supported by the elevator-framing, the grain-depressor arm being pivotally connected near its rear end to the lower end of said link, a reciprocating grain-rake stale suspended from the elevator-frame over the inner front corner of the cutting apparatus, the forward end of the grain-depressor arm being pivotally connected to the rake-stale below its driving-crank connection, a swinging link pivotally connected at its front end to the upper end of said grain-rake stale, the rear end of said link pivotally connected to the harvester-framing.

5. In a grain-harvesting machine, in combination, a horizontal grain-conveying belt, a pair of grain-elevating belts operating in conjunction with each other to take the grain from the grain-conveying belt to the grain-binder deck, grain-feeding mechanism to said grain-elevating belts, one member thereof consisting of an orbitally-moving many-toothed reciprocating grain-depressor arm located over said horizontal grain-conveying belt near the mouth of said grain-elevating belts, a swinging link pivotally supported by a portion of the machine located above the seat-support, the grain-depressor arm being pivotally connected near its rear end to the lower end of said link, an orbitally-reciprocating vertically-disposed grain-rake stale suspended from the elevator-frame over the inner front end of the cutting apparatus, the forward end of the grain-depressor arm being pivotally connected to the reciprocating grain-rake stale, a swinging link extending rearward and pivotally connected at its front end to the upper end of the vertically-disposed grain-rake stale, its rear end pivotally connected to the harvester-framing, a rotary driving-crank connected to said grain-rake stale midway its length to give greater movement to the rake contact with the grain at its lower end and imparting a greater movement to the grain-depressor arm than the crank rotary movement, the crank-shaft of said rotary crank being horizontally disposed and journaled upon the elevator-framing.

6. In a grain-harvesting machine, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-condensing mechanism feeding to the elevator, consisting essentially of a grain-depressor member extending across the grain-path of the machine above said horizontal grain-conveying belt and in near proximity to the lowermost ends of said elevator-belts; said grain-depressor member supported, guided and controlled near its rearward end from the elevator part of the machine, a rake mechanism operating in conjunction with said grain-depressor by suitable driving mechanism combined therewith and supported on the forward part of the machine to move the butts of the grain rearward by the action of said rake and in conjunction therewith, the forward end of the grain-depressor being connected with the rake and said grain-depressor member operating to condense the grain on the horizontal grain-conveying belt and feed it into the mouth of the elevator.

7. In a grain-harvesting machine, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-condensing mechanism feeding to the elevator, consisting essentially of three members, one a grain-depressor member extending across the grain-path of the machine above said horizontal grain-conveying belt and in near proximity to the lowermost ends of said elevator-belts, its rearward end supported and controlled by a connecting member with the elevator part of the machine; a driving, supporting and controlling member mechanism between said depressor and the elevator part of the machine, the forward end of the grain-depressor being connected with said driving and supporting mechanism to impart up-and-down motion, at intervals, to said grain-depressor to condense the grain and bear it down upon said horizontal grain-conveying belt and feed it into the mouth of the elevator.

8. In a grain-harvesting machine, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-condensing mechanism feeding to the elevator, one member thereof consisting of a grain-depressor member extending across the grain-path of the machine above said horizontal grain-conveying belt and in near proximity to the lowermost ends of said elevator-belts; suitable mechanism for supporting, guiding and controlling said grain-depressor to give an up-and-down motion to said depressor from front to rear to depress the grain on said conveying-belt at intervals, and thereby feed the grain into the mouth of the elevator.

9. In a grain-harvesting machine, in com-

bination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-condensing mechanism feeding to the elevator, one member thereof consisting of a grain-depressor member lengthwise disposed transversely over and above said horizontal grain-conveying belt, in near proximity to the lower ends of the elevator-belts, and means for mechanically operating said depressor up and down at fixed intervals to feed the grain into the mouth of the elevator.

In testimony whereof I affix my signature in presence of two witnesses.

WILLIAM N. WHITELY.

Witnesses:
JOHN L. GILLIGAN,
FRED STATE.