

No. 702,279.

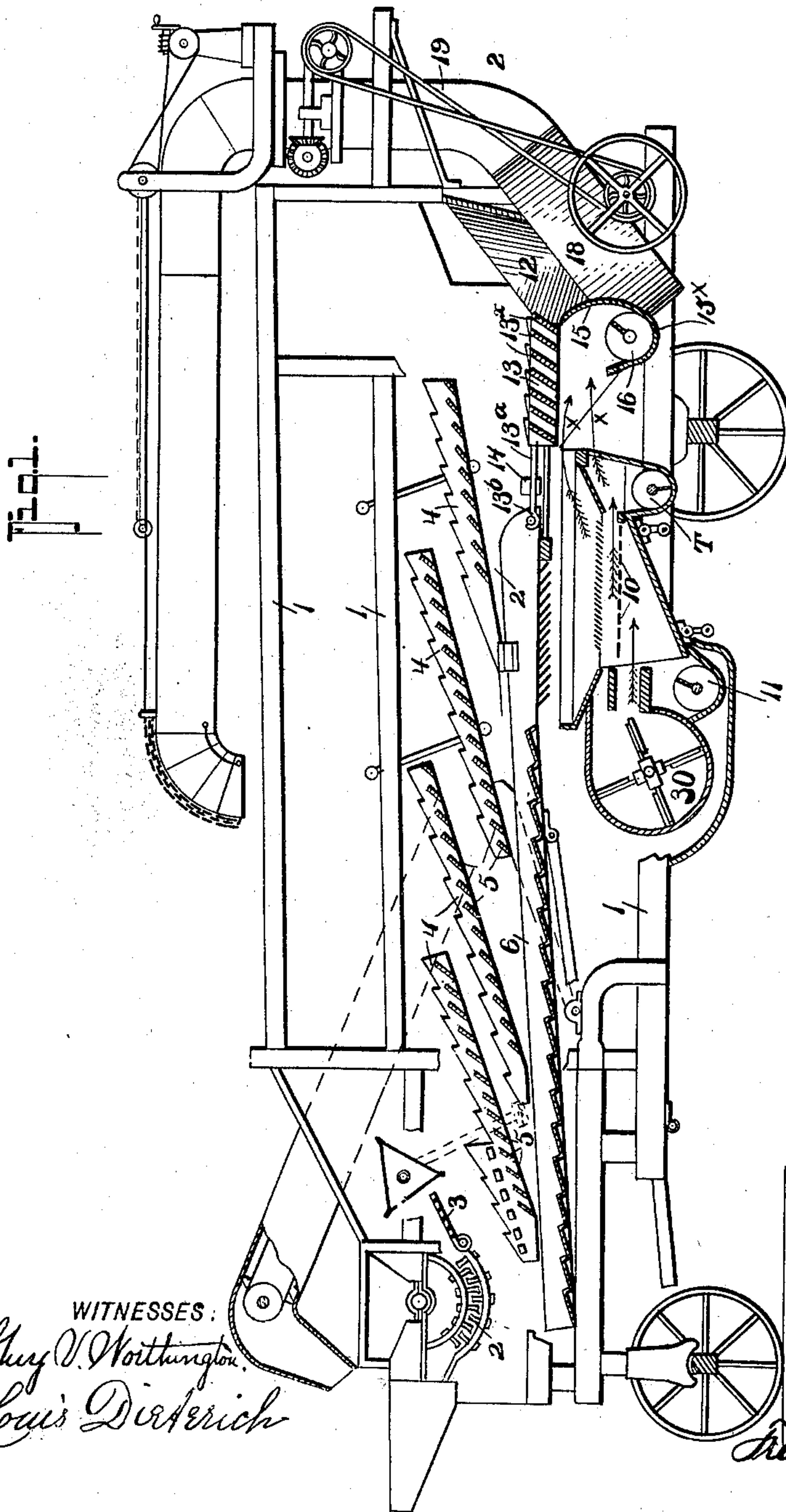
Patented June 10, 1902.

W. L. BELT.
GRAIN SEPARATING MACHINE.

(Application filed May 28, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
Guy V. Worthington.
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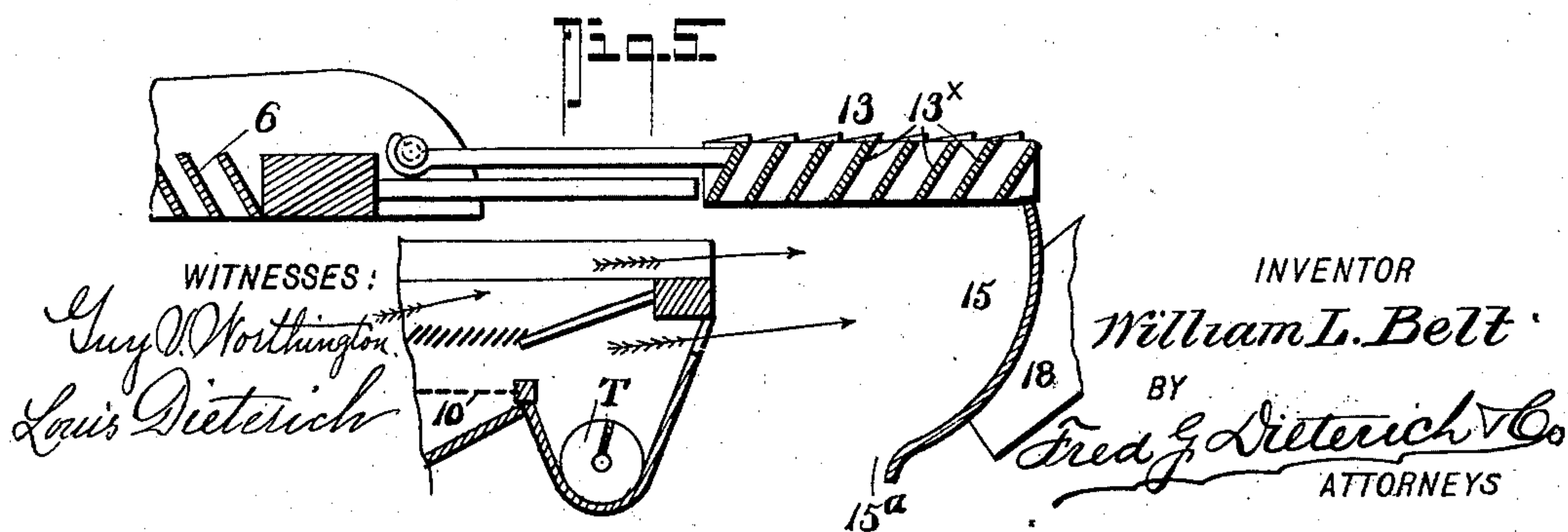
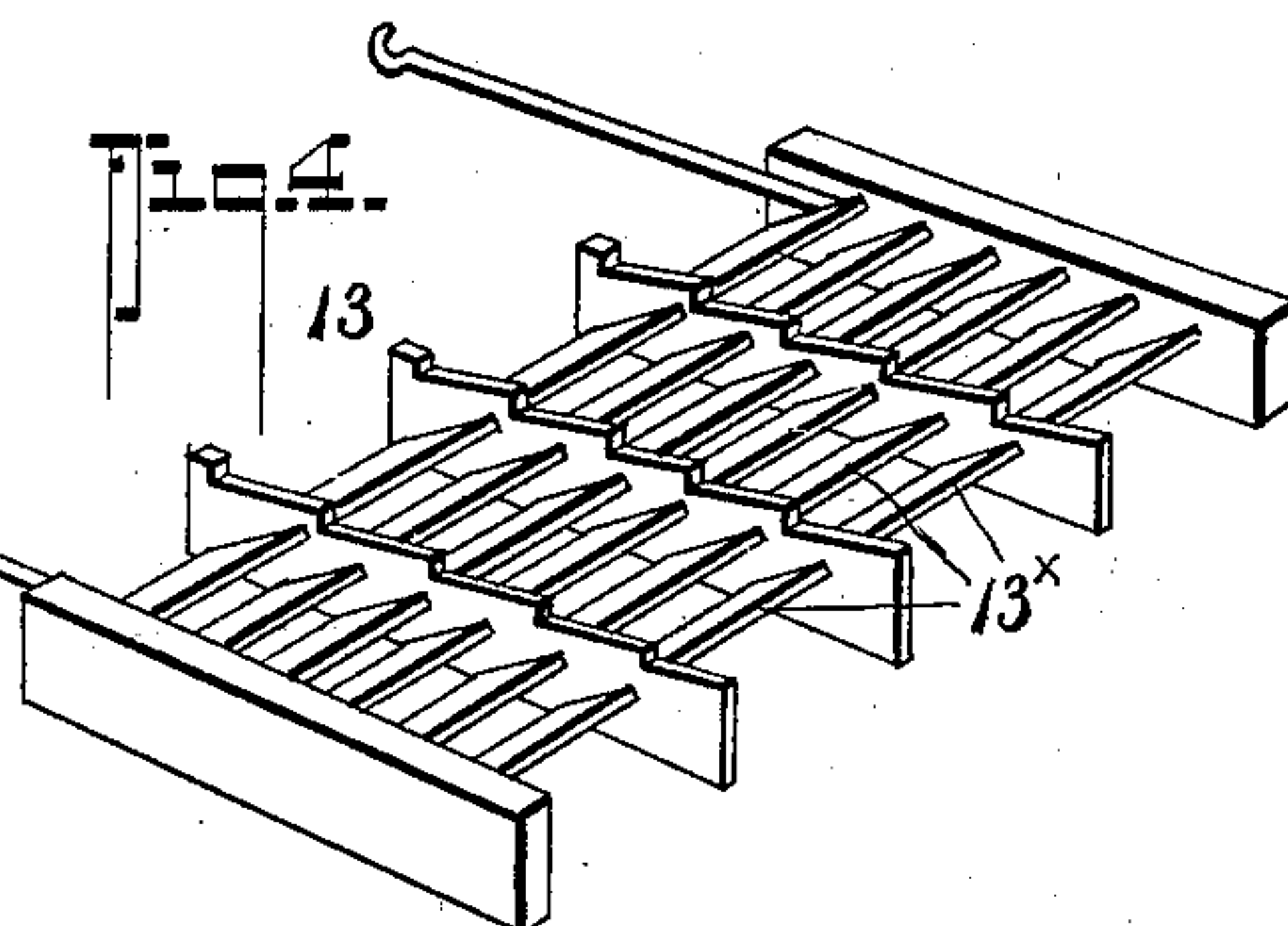
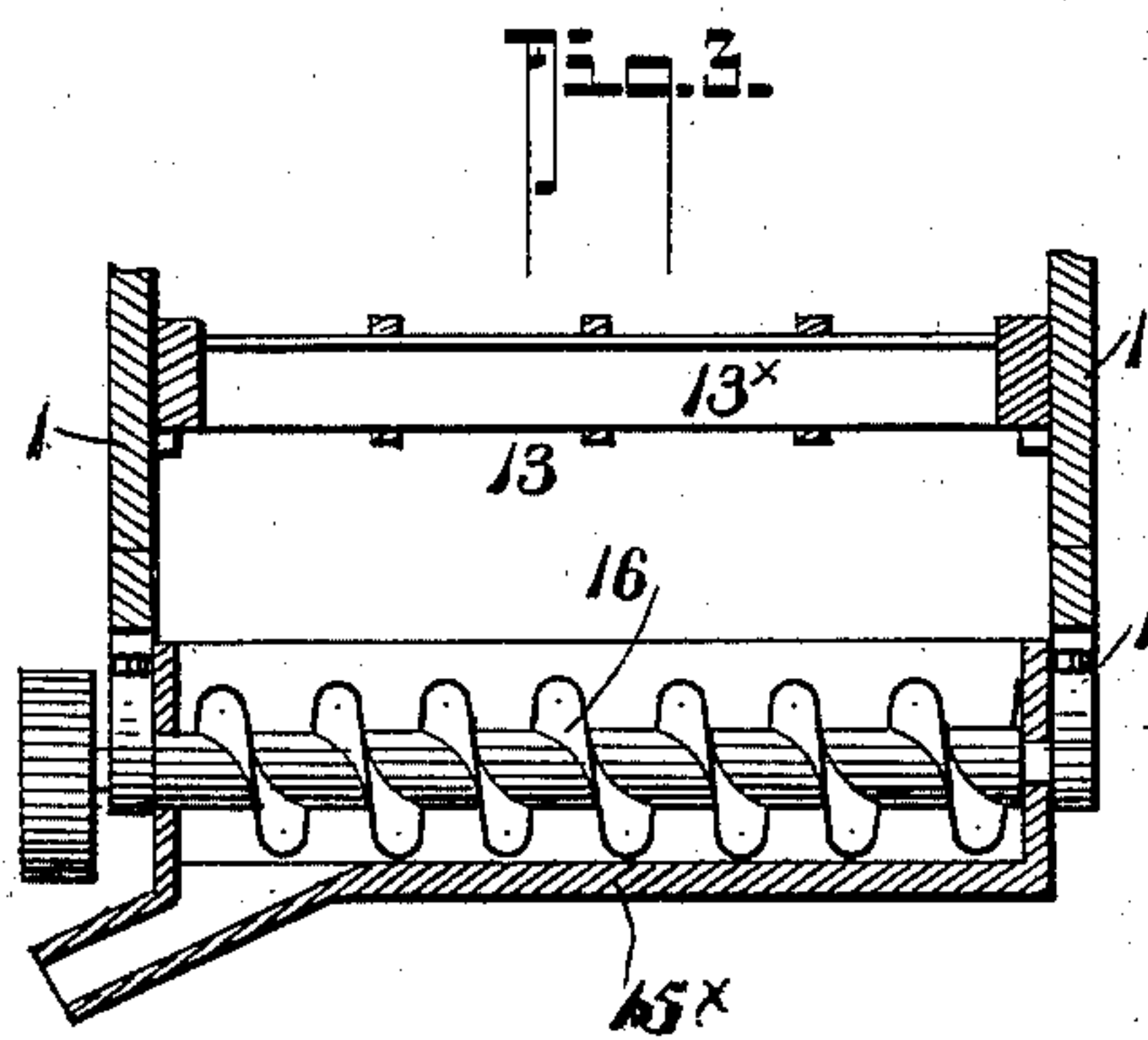
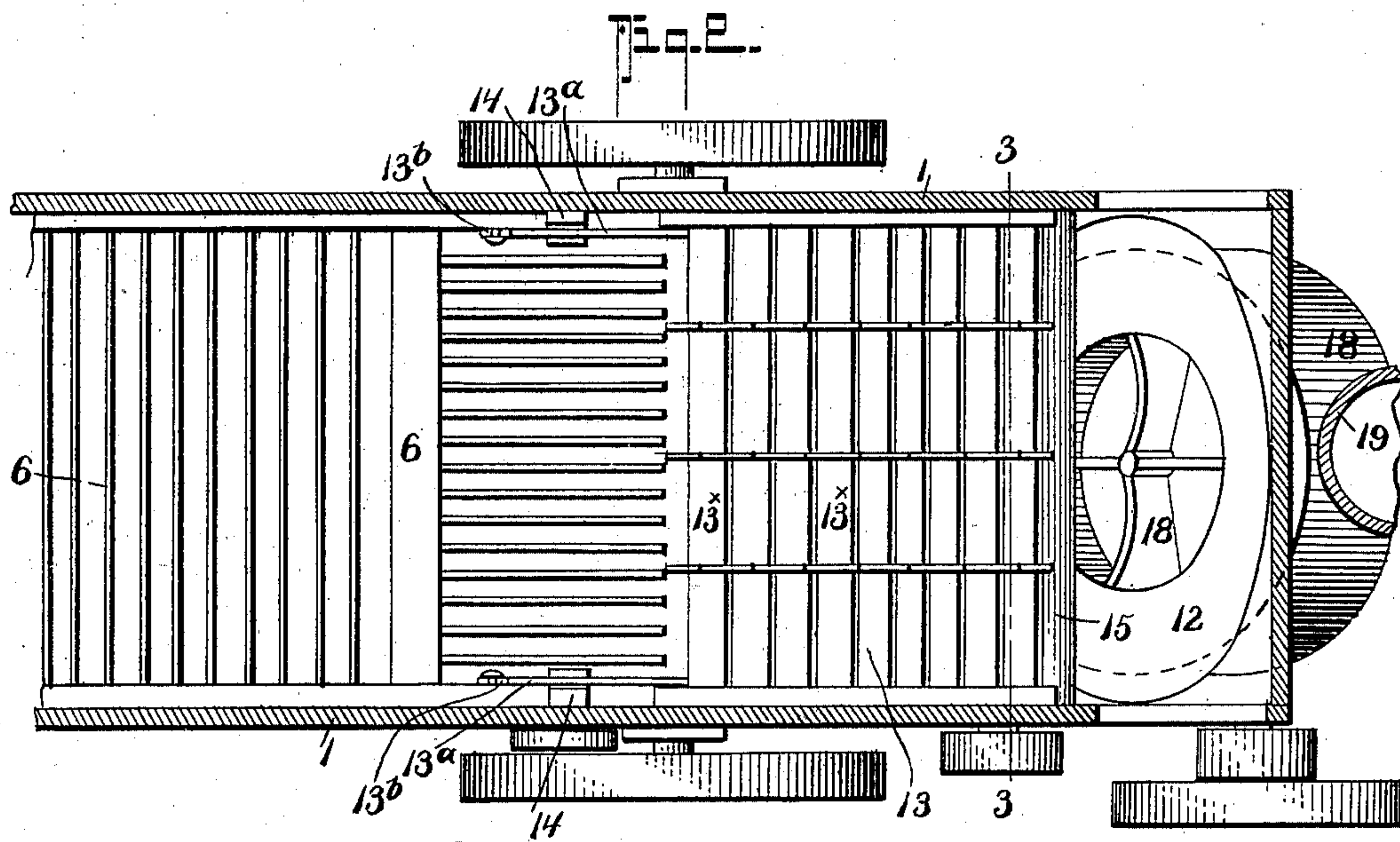
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2 Sheets—Sheet 2.



UNITED STATES PATENT OFFICE.

WILLIAM L. BELT, OF WASHINGTON, DISTRICT OF COLUMBIA.

GRAIN-SEPARATING MACHINE.

SPECIFICATION forming part of Letters Patent No. 702,279, dated June 10, 1902.

Application filed May 28, 1901. Serial No. 62,258. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM L. BELT, residing at Washington, District of Columbia, have invented certain new and useful Improvements in Grain-Separating Machines, of which the following is a specification.

My invention relates to improvements in that type of threshing-machines having wind-stacker attachments, and particularly to that type of machines in which the straw is delivered directly into the fan-holding trough as it passes from the shakers.

In the modern type of stacker or grain-separating machines special means have been provided for the separation of the chaff from the straw before the straw passes from the shakers and is subjected to the action of the pneumatic-stacking means.

Especially-constructed chaffer devices connected directly to the shaker or grain-pan or arranged below the discharge end of said pan have heretofore been provided for separating the chaff from the straw.

So far as I know no special means has heretofore been provided for separating the chaff that still adheres to the straw when it (the straw) passes out from the discharge ends of the shakers. My invention primarily seeks to provide certain improvements in the standard type of machines having pneumatic-stacker attachments of the character specified, by means of which the chaff that passes out with the straw will be separated from the straw before the straw is acted upon by the pneumatic-stacker devices and the chaff separations therefrom carried off to one side of the machine, and thereby positively serve to leave the straw practically freed of chaff that passes out with the straw from the shakers.

In its generic nature my invention comprehends a supplemental shaker or grid arranged to receive the straw as it falls off the main shakers toward the fan-box and subject it to a final agitation before it falls within the plane or suction-line of the stacker-fan, whereby to shake out the loose or adhering chaff and leave the straw practically freed of all the chaff as it passes to the stacker devices.

In its more complete nature my invention includes a supplemental receiver or shaker

adapted to intercept the straw as it passes from the shakers to the stacker devices, a supporting means therefor and for joining it with the shaker-pan or other longitudinally-movable shoe or frame portion, an auger for collecting the said chaff, the latter being co-operatively arranged with the blast-fan, whereby the chaff separated from the straw in its engagement with the supplemental shaker will be blown into the said auger and discharged by it to one side of the machine, all of said parts having a special arrangement and so combined to permit of their being attached to the standard type of combined separator and stacker machines of the character noted without materially changing any of the operative parts of the machine.

In its subordinate features my invention also consists in certain details of construction and combination of parts, that will be hereinafter fully explained, and particularly pointed out in the appended claims, reference being had to the accompanying drawings, in which—

Figure 1 is a vertical section of so much of the separator and wind-stacker as is necessary to illustrate the general arrangement of my improvements. Fig. 2 is a horizontal section taken on the line 2 2 of Fig. 1 with my improvements shown in plan view. Fig. 3 is a cross-section taken on the line 3 3 of Fig. 2. Fig. 4 is a detail view of the parts constituting my improved attachment separated from the threshing-machine. Fig. 5 is a diagrammatic section illustrating a slightly-modified construction of my invention.

In the accompanying drawings, 1 designates the main frame or casing of an approved type of separator having wind-stacker attachments; 2, the cylinder; 3, the grate; 4, the shakers, which are of the ordinary notched fish-back type, having transversely-extending slatwork 5, and 6 designates the lower shaker or grain-pan, which in the construction shown is equipped with a lipped chaffer having a rearwardly-extending set of fingers, so as to let the grain pass down to the sieve, and said fingers may, if desired, be sufficiently extended to carry such of the tailings as may fall thereon toward the tailing-auger,

(indicated by T in the drawings.) 10 designates the riddle or sieve that discharges the grain into the auger 11. All of the said parts being of the well-known construction *per se* form no part of my invention.

12 designates the fan-trough, that forms a part of the pneumatic-stacker devices, which, as shown in the drawings, are of the well-known wind-stacker type. As will be clearly seen from Fig. 1, the trough 12 is disposed at an angle of about forty-five degrees and is supported relatively to the shakers, so as to receive the straw that passes out at the rear end of the separator. In the practical arrangement of the present type of combined separator and wind-stacker of the kind above stated the space between the front end of the fan-trough and the rear end of the riddle or sieve 10 is covered by a flexible connection to prevent the escape of any of the material that passes out through the discharge end of the separator through the said intervening space. It is in this intervening space that I arrange my improvements and which consists, essentially, of a supplemental grated receiver or shaker formed of side arms 13^a of sufficient length to extend forward to join with the shaker-pan 6, the extremities of said arms 13^a preferably having hook members 13^b for detachably connecting with the part 6 or any other part of the separator devices that have longitudinal movement, and to facilitate and provide for the longitudinal shaking movement of the member 13 the side arms 13^a are supported in suitable guides 14 upon the sides of the machine, as shown.

The chaffer or shaker-frame 13 has open slatwork 13^x, disposed at an angle to discharge toward the riddle, the rear portion of said slatwork being disposed over a cut-off or deflector board 15, the lower edge of which terminates with a trough 15^x, that extends transversely of the machine and in which is held an auger 16, that discharges to one side of the machine, this latter construction being a preferred one, as the chaff is thereby conveyed to one side of the machine; but I desire it understood that in the generic application of my invention the auger may be omitted and the chaff discharged through the bottom of the machine, as illustrated by the modified form in Fig. 5, without departing from the scope of the appended claims. The member 15 serves a double function. First, it acts as a deflector for precipitating the chaff into the trough, and, secondly, it cuts off communication between the riddle, the space below the supplemental shaker, and the blast from the blower 30 and the suction-fan 18 of the stacker devices, and the said board also acts as a means for checking the backflow of the chaff that falls through the grid 13 and which is blown toward the auger 16 by the blast from the blower. (See arrows α in Fig. 1.) Furthermore, the said deflector

removes all danger of any of the chaff separated from the straw by the grid 13 from coming in the suction of fan 18 and forced with the straw.

The auger 16 is mounted upon suitable brackets 17, hung on the sides of the machine, and the chaffer or shaker-frame 13 is also supported at its rear end in any approved manner, but held from longitudinal reciprocation.

The stacker-fan 18 as also the stacker-tube 19 and the means for operating the fan and for shifting the tube are of the well-known construction, and a detail description of the same is therefore deemed unnecessary.

From the foregoing description, taken in connection with the accompanying drawings, it is thought the operation of my improvements and the advantages thereof will be readily apparent to those skilled in the art to which it appertains.

It will be noticed that by intercepting the straw at a point between its discharge from the shakers and its point of entrance to the pneumatic devices and shaking it and collecting the chaff therefrom and deflecting it to a point outside of the machine, and, furthermore, by subjecting the straw to such shaking operation in a plane outside of the drive of suction of the fan, the straw is thereby delivered to the fan substantially in a perfectly clean condition, and thereby stacked as clean straw and not mixed up with the chaff, as is the case where the straw is dumped directly into the fan-trough, as is ordinarily done.

My improvements can be readily attached to the ordinary style of combined threshing and wind-stacker machines without disorganizing any of the mechanical parts thereof, and may be readily removed without requiring any changes of the said machine further than to close in the space between the front end of the trough and the tail of the sieve or riddle by a flexible cloth, such as is commonly used.

My attachments are capable of being economically manufactured and are of such character as to permit of their being attached to the combined separator and stacker now in use without the use of skilled labor.

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

1. In a threshing machine and separator; a pneumatic stacker having its receiving-opening below the discharge end of the separator; a blast-fan, a shaker interposed between the discharge end of the separator and the receiving-opening of the stacker, adapted to separate the chaff from the grain, and means for deflecting the separated chaff to the outside of the machine, substantially as shown and described.

2. In a threshing and separating machine; 130

5 a pneumatic stacker held to cooperate there-
with; of a shaker held to receive from the dis-
charge end of the separating devices and lo-
cated between the discharge end of the sepa-
rating devices and the entrant-opening of the
pneumatic stacker, and devices for deflecting
the chaff separated from the straw by the

shaker, substantially as shown and for the
purposes described.

WILLIAM L. BELT.

Witnesses:

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