

(No Model.)

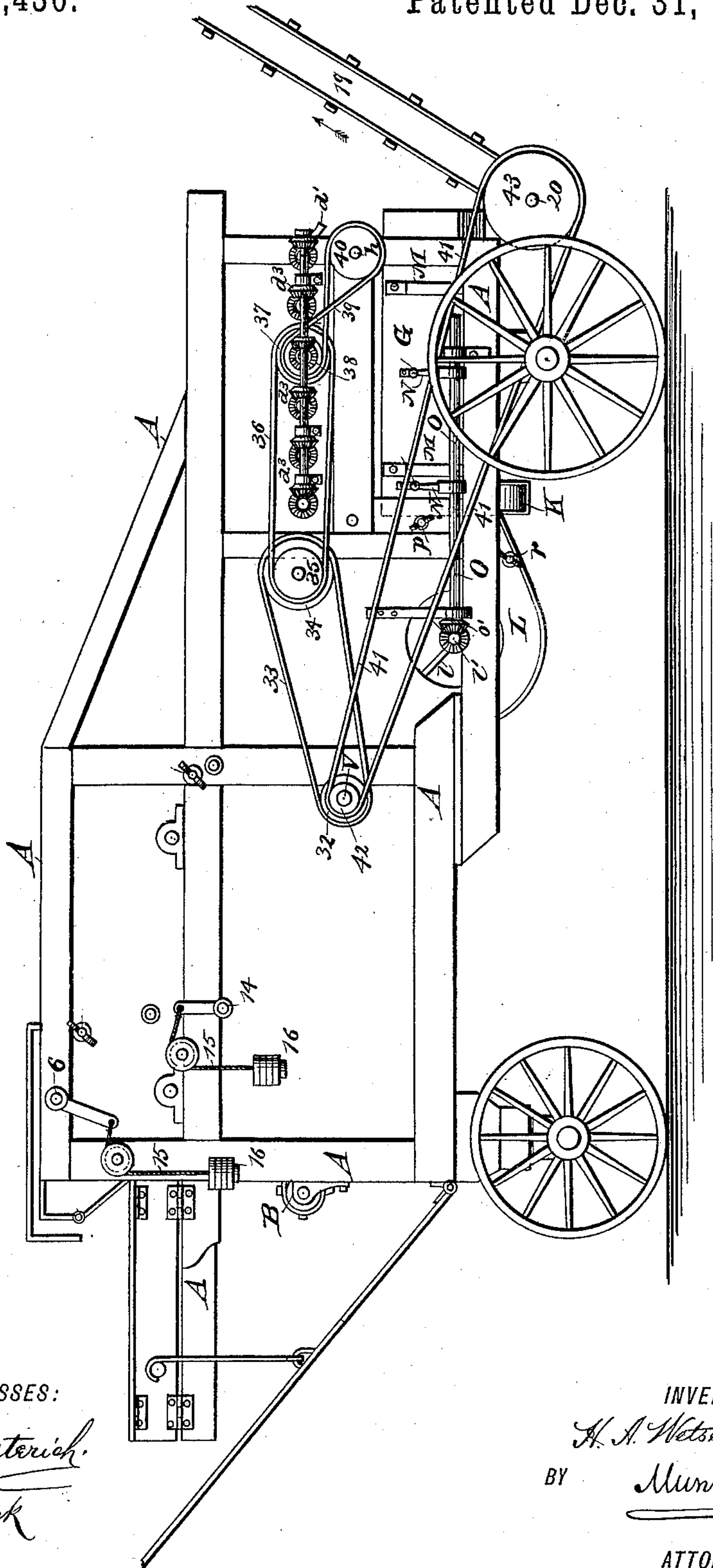
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H. A. WETSELL.
THRASHING MACHINE.

No. 418,430.

Patented Dec. 31, 1889.

Fig. 1.



WITNESSES:

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(No Model.)

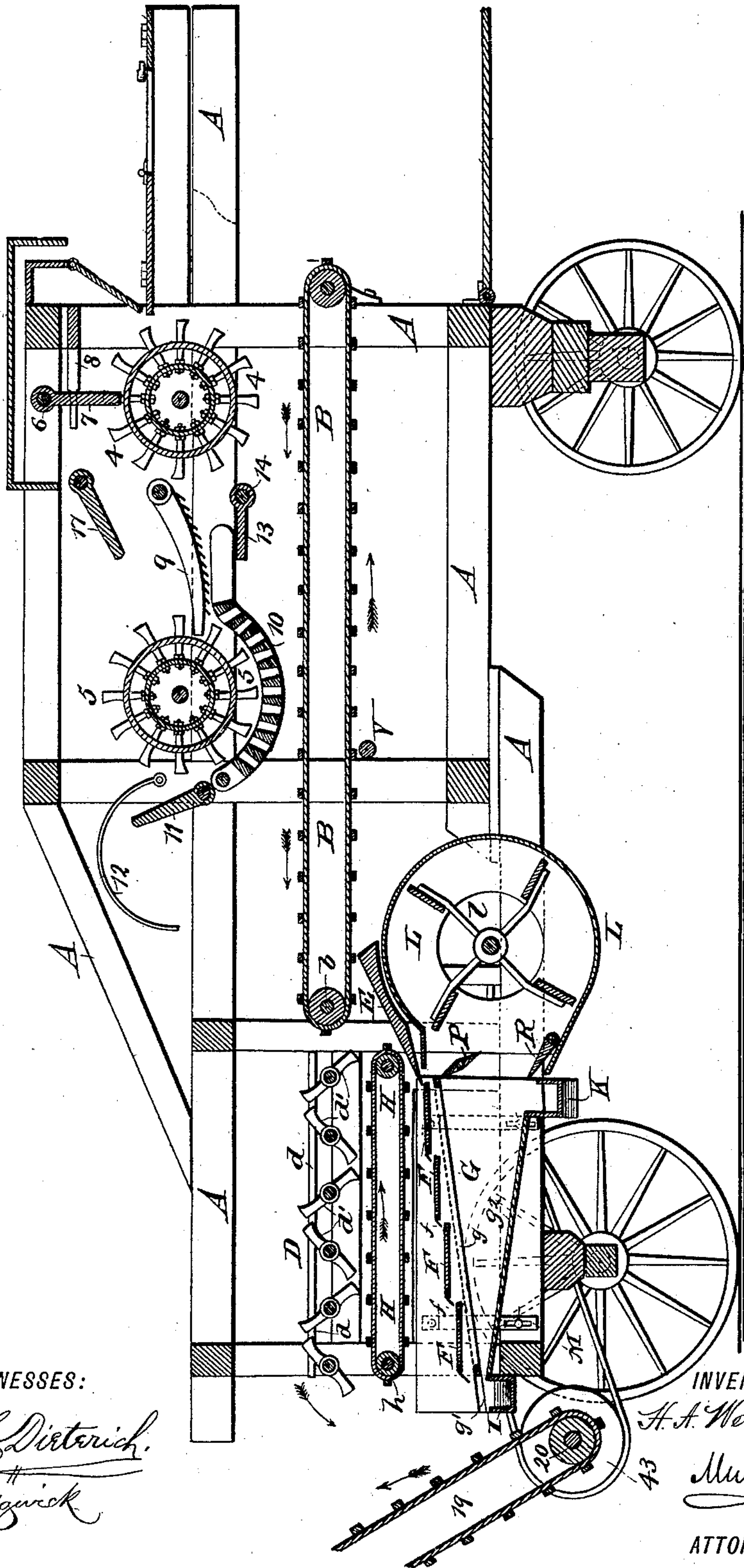
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Fig. 2.



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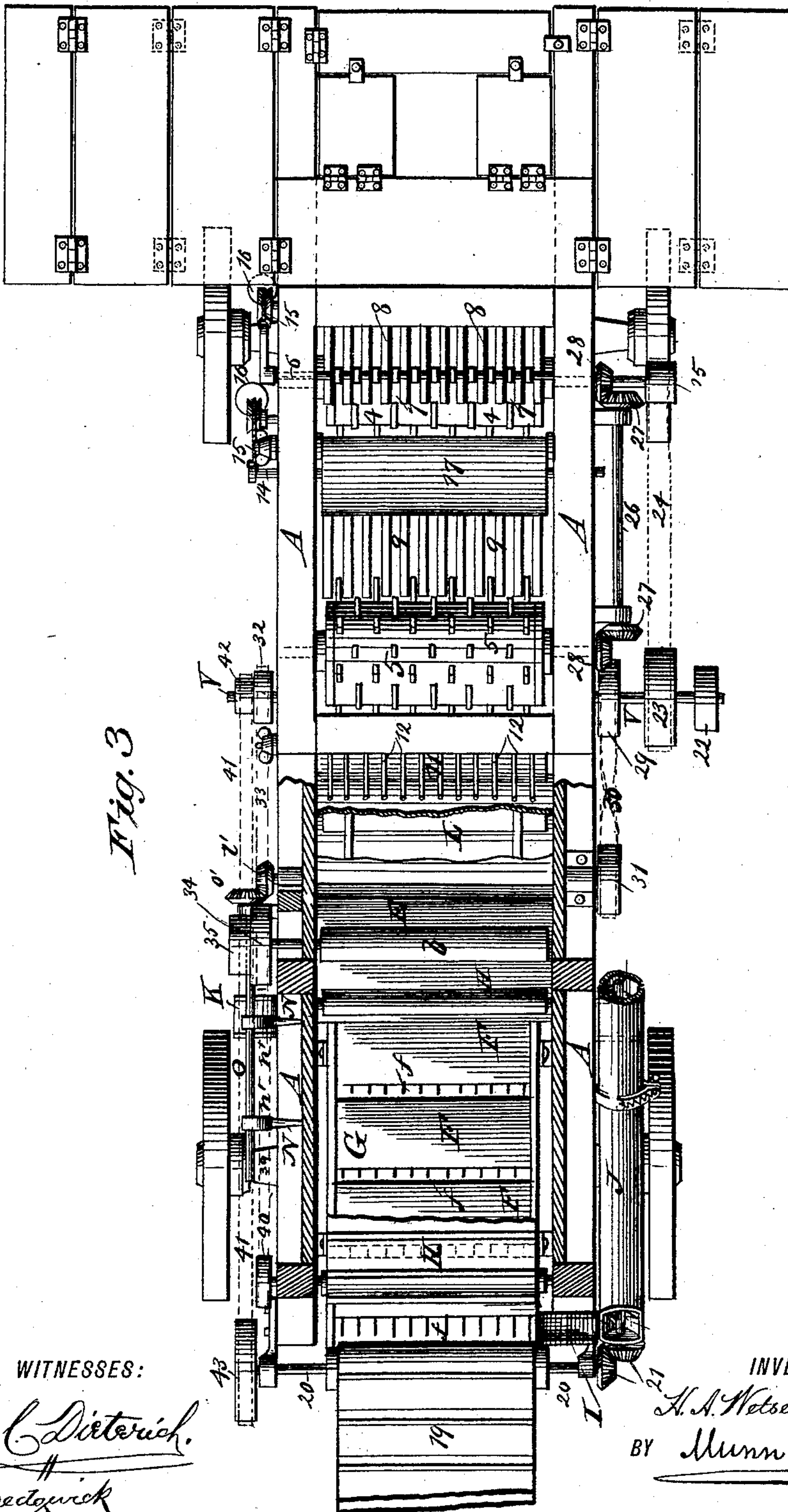
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Fig. 4.

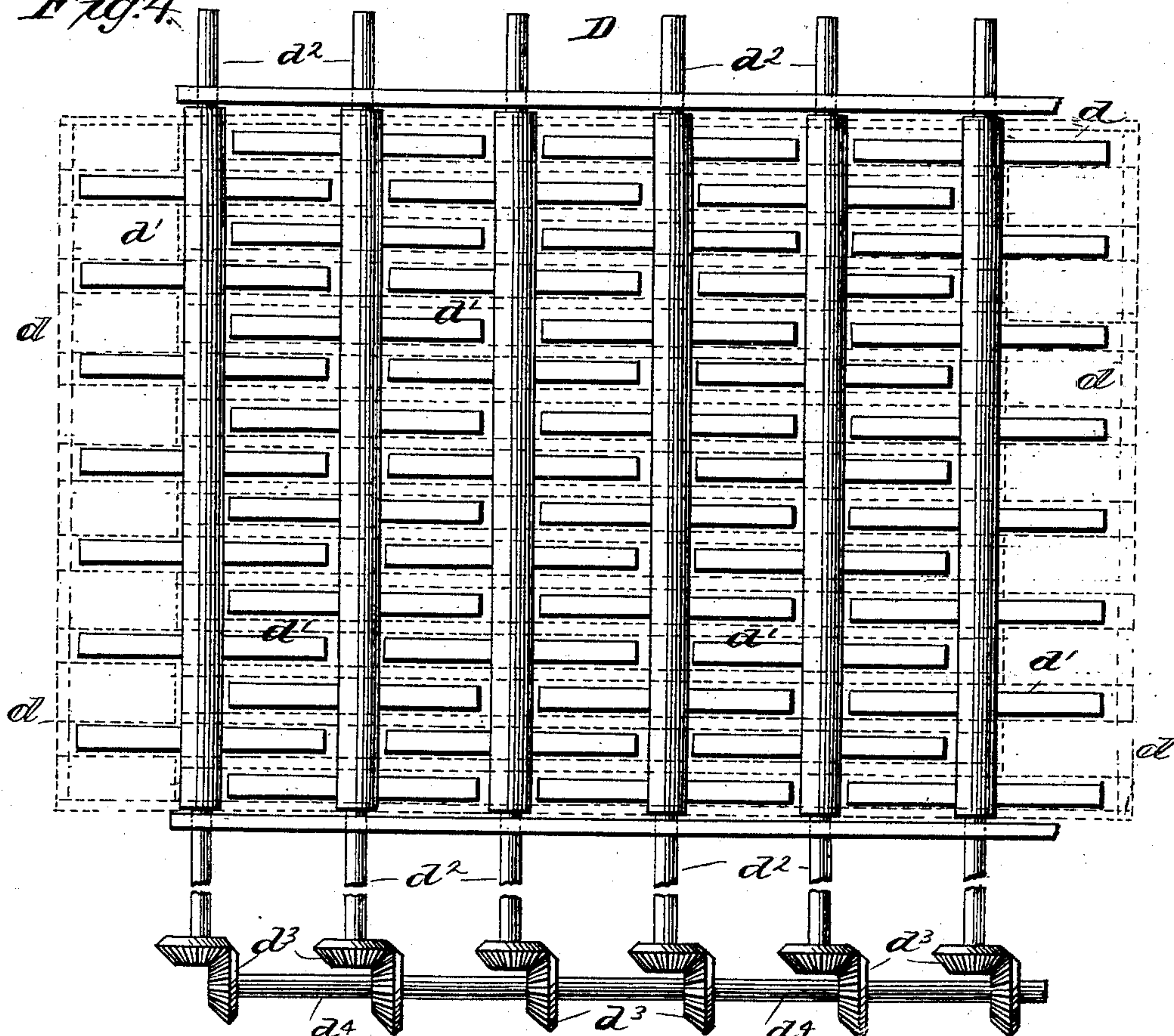
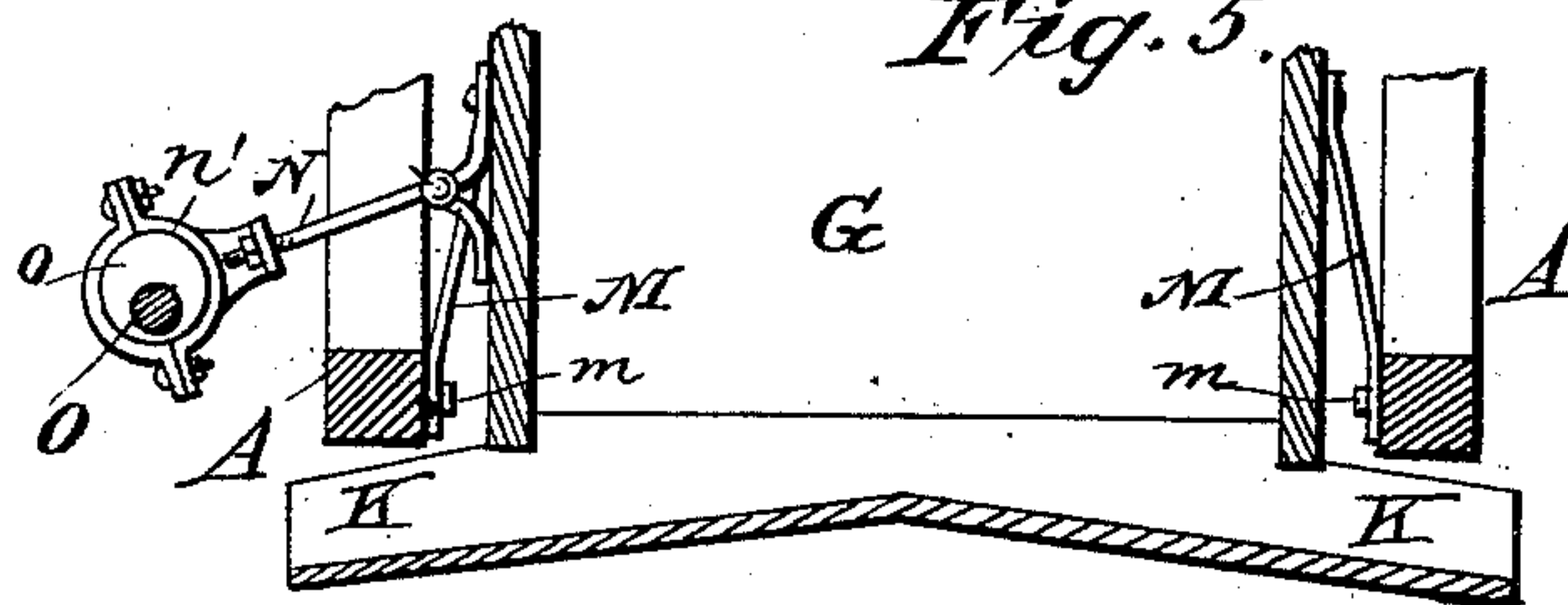


Fig. 5.



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UNITED STATES PATENT OFFICE.

HORACE A. WETSELL, OF TRACY, MINNESOTA; JOHN A. CRAIG EXECUTOR
OF SAID HORACE A. WETSELL, DECEASED.

THRASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 418,430, dated December 31, 1889.

Application filed May 15, 1888. Serial No. 273,946. (No model.)

To all whom it may concern:

Be it known that I, HORACE A. WETSELL, of Tracy, in the county of Lyon and State of Minnesota, have invented a new and improved Thrashing-Machine, of which the following is a full, clear, and exact description.

My invention relates to thrashing-machines, and has for its object to provide an efficient and durable machine of this class by which all kinds of grain may be quickly and thoroughly thrashed and with economy of time and labor of attendants.

The invention consists in certain novel features of construction and combinations of parts of the thrashing-machine, all as hereinafter described and claimed.

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

Figure 1 is a side elevation at the opposite side of the machine. Fig. 2 is a longitudinal sectional elevation of the same. Fig. 3 is a plan view thereof, with parts broken away and in horizontal section. Fig. 4 is a plan view of the straw-beater shafts, arms, and driving-gearing, and shows in dotted lines the slotted carrier plate or table through which the beater-arms work to beat the straw and urge it rearward to the straw-carrier; and Fig. 5 is a transverse section of the vibratory shoe at its end where the cleaned grain is discharged and the power connections for vibrating the shoe.

In the frame A two main thrashing-cylinders 4 5 are journaled in and across the frame A, one in front of the other, and these cylinders are arranged relatively with each other and with adjacent concaves or grids and straw-guiding boards or aprons, substantially as shown and described in a prior patent granted to me February 16, 1886, and numbered 336,366; hence a particular description of these parts is unnecessary, and they are briefly referred to as follows: Over the front cylinder 4 is hung on a rock-shaft 6 a concave or grid 7, the fingers or bars of which work between the teeth or fingers of a horizontally-ranging clearer 8, held to the frame. The teeth of the cylinder 4 work between the fingers of the concave 7 and pass the straw rearward

to an intermediate slatted concave 9, which delivers the straw to the rear cylinder 5, the teeth of which work between the slats or fingers of the concave 9. Below the rear cylinder 5 is hung at its rear end a separating-concave 10, between which and this cylinder the straw is carried rearward to a guide or apron 11 and under a concaved slat-guide 12, which directs the straw downward onto a carrier B. The forward end of the concave 10 rests on arms or a plate or board 13, which is fast on a rock-shaft 14, journaled in the frame. Each of the shafts 6 14 is provided at one side of the machine with an arm, to which is connected a cord 15, carrying a weight or series of weights 16, which by their gravity regulate the pressure of the concaves 7 10 toward the cylinders 4 5, as may be required for heavier or lighter thrashing. The intermediate concave 9 rests by its free end or edge onto the free edge or end of the concave 10, which in turn rests on the arms or plate 13, the weight 16 connected to which thus controls the action of both concaves 9 10. A guide plate or board 17, fixed to a shaft journaled in the frame, deflects the straw from the front cylinder 4 onto the concave 9 and the rear cylinder. The concave 9 may have downwardly and rearwardly inclined series of teeth fitted into its under side, as shown in Fig. 3 of the drawings. The shafts of the guides or aprons 17 and 11 are each provided at the side or sides of the machine with a set-nut 18, allowing them to be adjusted and held at any required angle to accommodate the grain being threshed. The straw, which is showered down from the guides 11 12 after most of the grain-kernels have been removed from it by the action of the thrashing-cylinders and concaves above referred to, is received onto the endless carrier B. The carrier B travels in direction indicated by its arrows in Fig. 2 of the drawings, and delivers the straw onto the slotted table or plate of a beater D, presently described, while the grain-kernels are delivered from the rear end of the carrier onto an inclined board or apron E, which delivers them onto the sieves F of a shoe G, which is supported by and is laterally shaken or vibrated in the frame A, as hereinafter particularly described. The straw fed onto the beater D is vertically shaken

and at the same time urged rearward by the rotating arms or fingers d' of the beater, and the straw is discharged from the beater onto a carrier or elevator 19, of ordinary construction, and supported by a shaft 20, journaled to the frame and rotated to give motion to the carrier in direction of its arrows to carry the straw away from the thrasher in the usual manner.

10 The beater D is made as follows: Its arms d' are fixed at their centers to series of transversely-ranging shafts d^2 , which are journaled on the frame A and are rotated by bevel-gears d^3 , fixed to the arm-shafts d^2 and
15 to a driving-shaft d^4 , which shaft thus rotates all the beater-shafts and arms simultaneously and in the same direction. The beater-arms are relatively arranged on their several shafts, so that the extremities of the arms of one shaft
20 rotate quite closely to the next adjacent shaft, and the arms fit quite closely to the slots of the beater-table d , through which all the arms rise and fall as they are rotated; consequently the arms will effectively urge the
25 straw rearward to the carrier 19 and will thoroughly agitate the straw while it travels over the beater.

The slotted beater-table d is shown in dotted lines in Fig. 4 of the drawings.

30 Below the beater D there is arranged an endless carrier H, which travels in the opposite direction to that of the carrier B or forward toward the inclined apron E, onto which the carrier H discharges the grain-kernels which fall onto it from the beater; hence both the carriers B H discharge the grain-kernels onto the apron E, which conveys them to the upper sieve or board F of the vibratory shoe G. The shoe G is provided with a finishing-screen g below the inclined sieve or board F, so that the tailings from this screen may slide down into a spout or chute I, ranging across the rear end of the shoe and which delivers the tailings to an
45 elevator J, to be thereby conveyed back to the thrashing mechanism. The bottom g^2 of the shoe G inclines downward and forward to an inclined or double-inclined chute K at the forward end of the shoe, and which delivers the separated grain after it has been cleaned of chaff by the fanning-mill L into bags or other receptacles, ready for market.

50 The shoe G is hung to the upper ends of straps M, the lower ends of which are secured to the frame A.

The shoe is vibrated bodily and laterally of the machine by means of rods or pitmen N, which are connected to the shoe at one end and at the other end are provided with
60 strap-heads n' , which engage eccentrics o , which are fast to a shaft O, which is journaled to the frame and is rotated by bevel-gears $o' l'$, fast, respectively, on the shaft O and the shaft of the fan l of the fanning-mill L.

65 The sections F of the shoe G are held to the opposite side walls of the shoe in successively lower planes, so that the sections incline

downward and rearward, and are separated at their adjacent edges both in horizontal and vertical planes, thus providing spaces between the sections through which the grain-kernels may fall from one section to the other, while the straws or other foreign matter or substances slip down series of guard pins or fingers f , which are fixed to the rear edges of each higher section.

In the open throat or mouth of the fanning-mill casing which faces the shoe G are arranged a couple of wind cut-off or deflecting plates P R.

Power is transmitted to the machine by a belt leading from any convenient motor to a pulley 22 on a main driving-shaft V, journaled on the frame A, and from a pulley 23 on this shaft a belt 24 passes to a pulley 25 on the shaft of the front thrashing-cylinder 4, from which power is transmitted to the rear cylinder 5 by means of a shaft 26, carrying bevel gear-wheels 27, one at each end, and which mesh with bevel gear-wheels 28 on the two cylinder-shafts. The shaft V also carries at the same side of the machine a pulley 29, from which a crossed belt 30 leads to a pulley 31 on the fan-shaft of the mill L for operating it, and this fan-shaft operates the vibratory shoe G through the medium of mechanism $l' o' O n' N$, as hereinbefore explained. At its other end the main driving-shaft V carries a pulley 32, from which a belt 33 leads to a pulley 34 on the rear shaft b of the endless carrier B to operate it, and this shaft b also carries a pulley 35, from which a belt 36 leads to a pulley 37 on one of the shafts d^2 of the beater D, thus driving all the beater-shafts simultaneously by means of the bevel-gearing d^3 and shaft d^4 , hereinbefore described. Another pulley 38 on the same shaft as the pulley 37 drives a crossed belt 39, which leads to a pulley 40 on the rear shaft h of the endless carrier H to operate said carrier, and a belt 41, leading from a pulley 42 on the shaft V, extends to a pulley 43 on the shaft 20 of the straw-carrier 19 to operate this carrier, and from the said shaft 20 the elevator is operated.

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

In a thrashing-machine, the combination of a slotted table in rear of the carrier and in the same plane therewith, a series of shafts journaled below the table and provided with beater-arms working in the slots of the table, an endless carrier below the beater and traveling in an opposite direction to that of the carrier under the thrashing-cylinder, a vibrating shoe below the last-named carrier, and a fan in front of the shoe, substantially as described.

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Witnesses:

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