

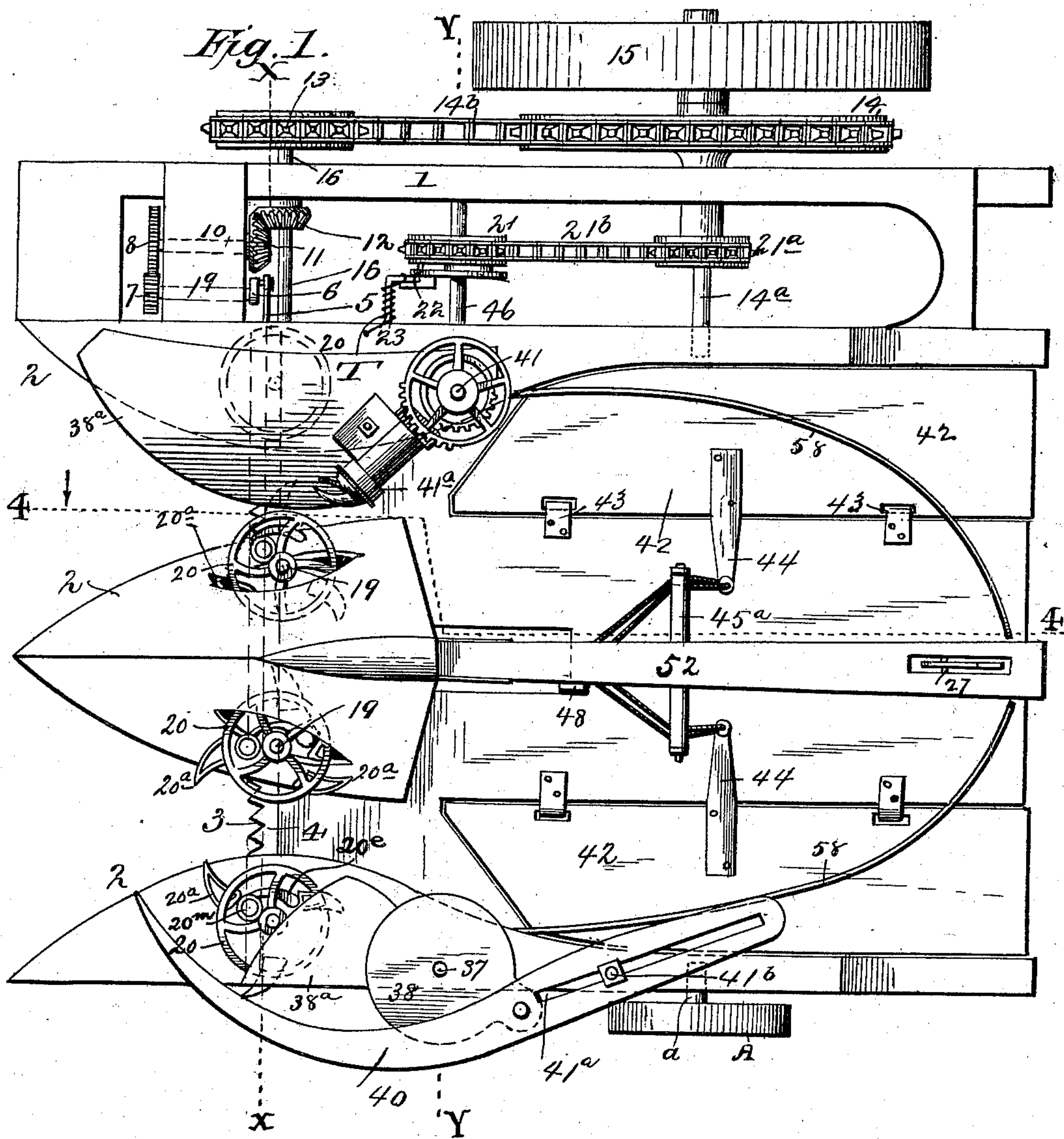
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3 Sheets—Sheet 1.

W. M. PIATT.
CORN HARVESTER.

No. 474,761.

Patented May 10, 1892.



WITNESSES

F. L. Ourand.
Van Buren Hillyard.

INVENTOR

William M. Piatt.
By R. A. Sauer
HIS ATTORNEYS

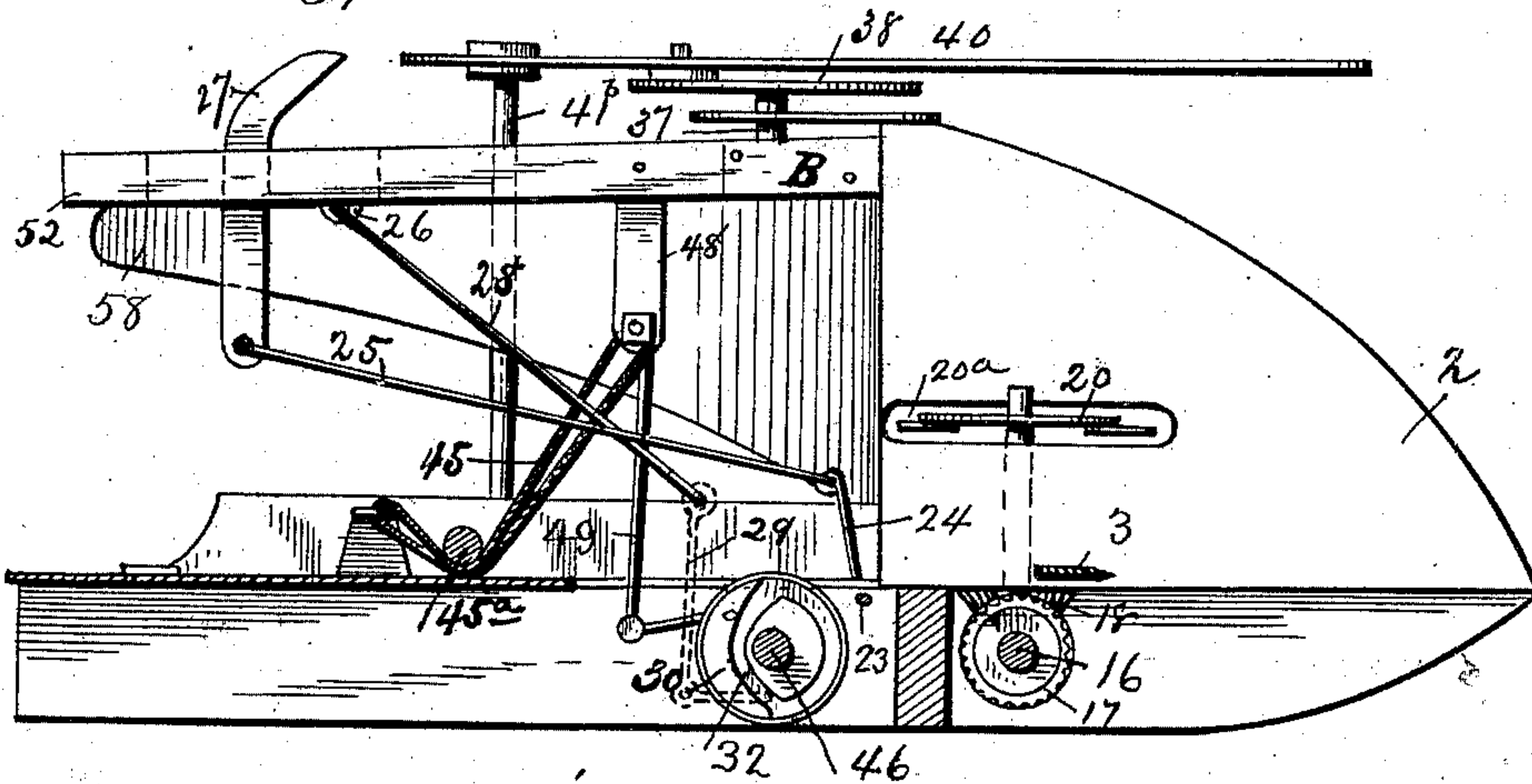
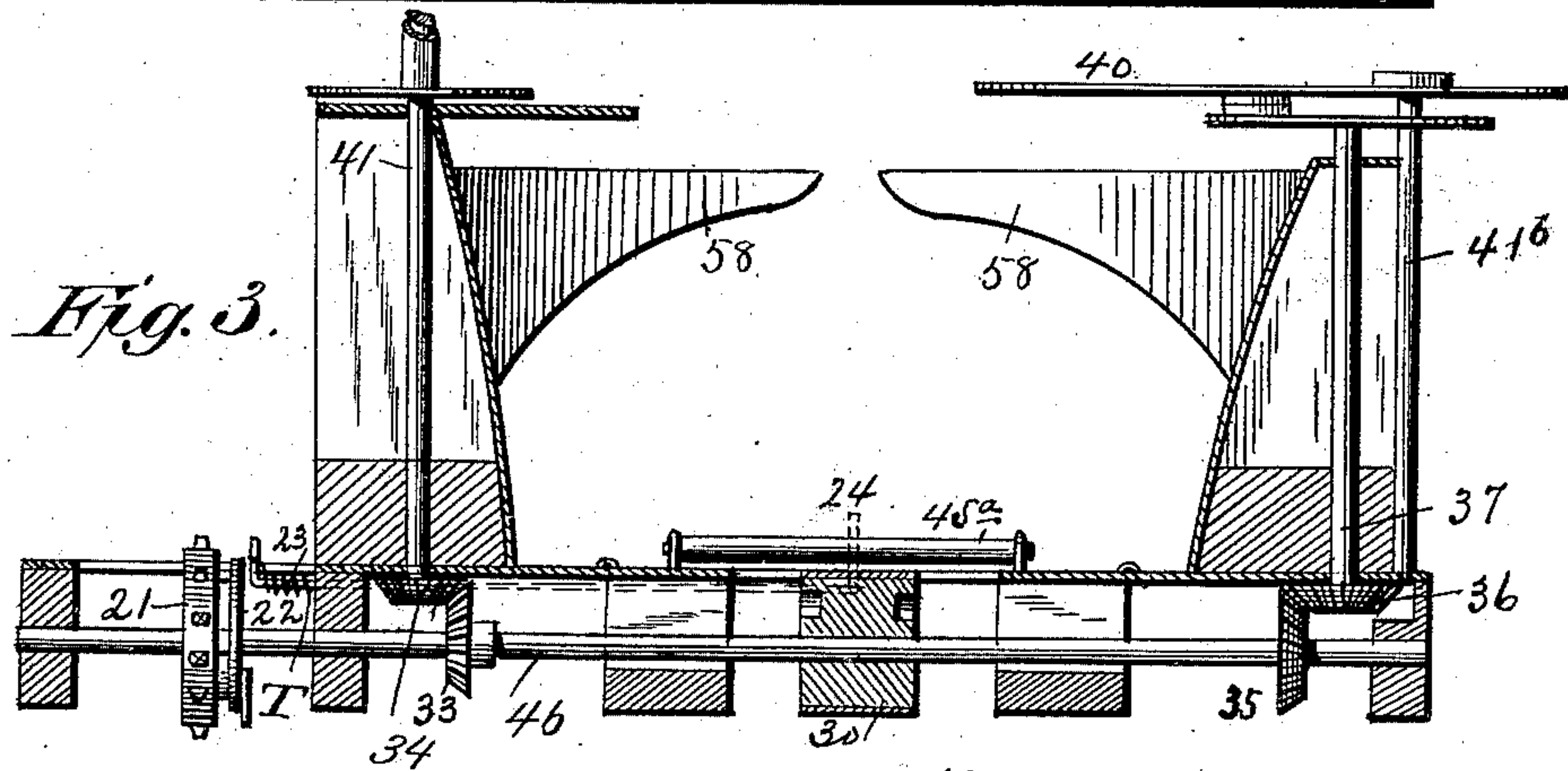
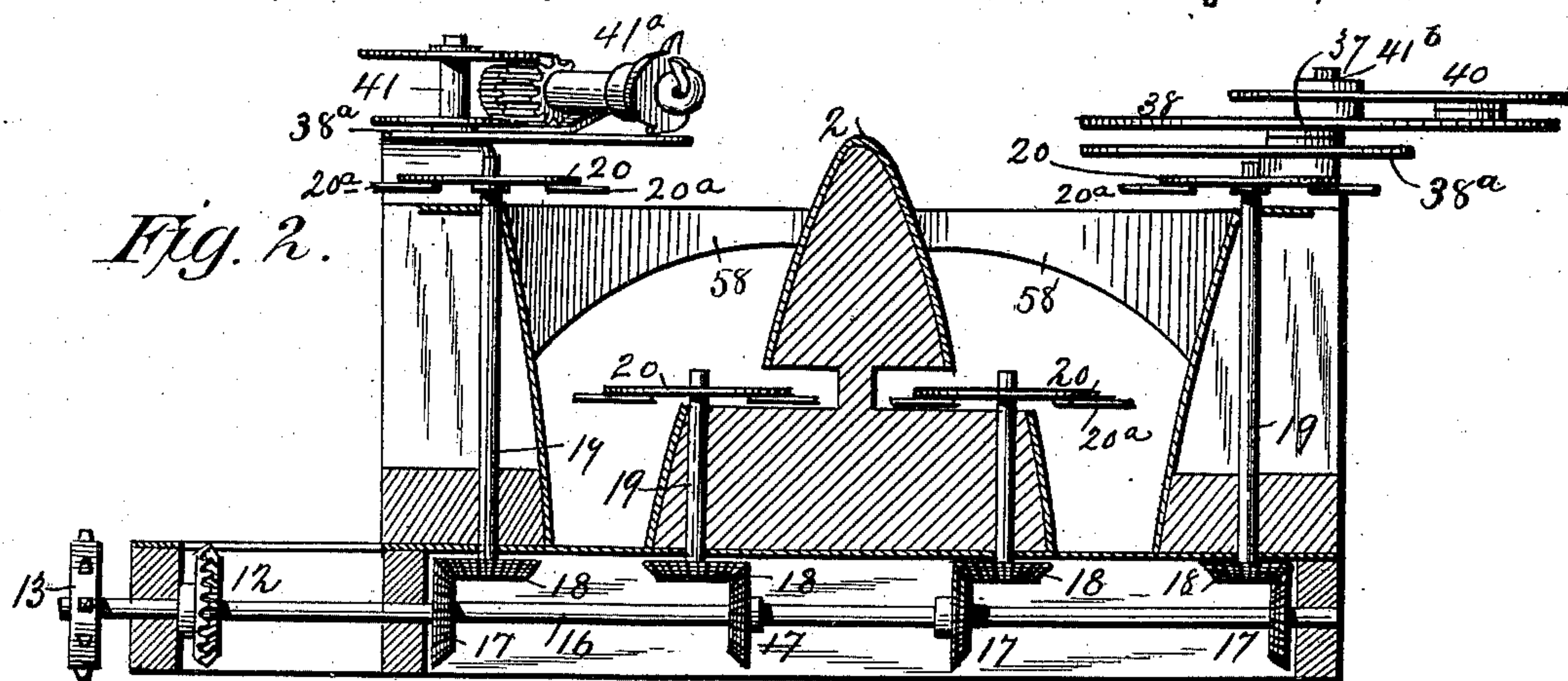
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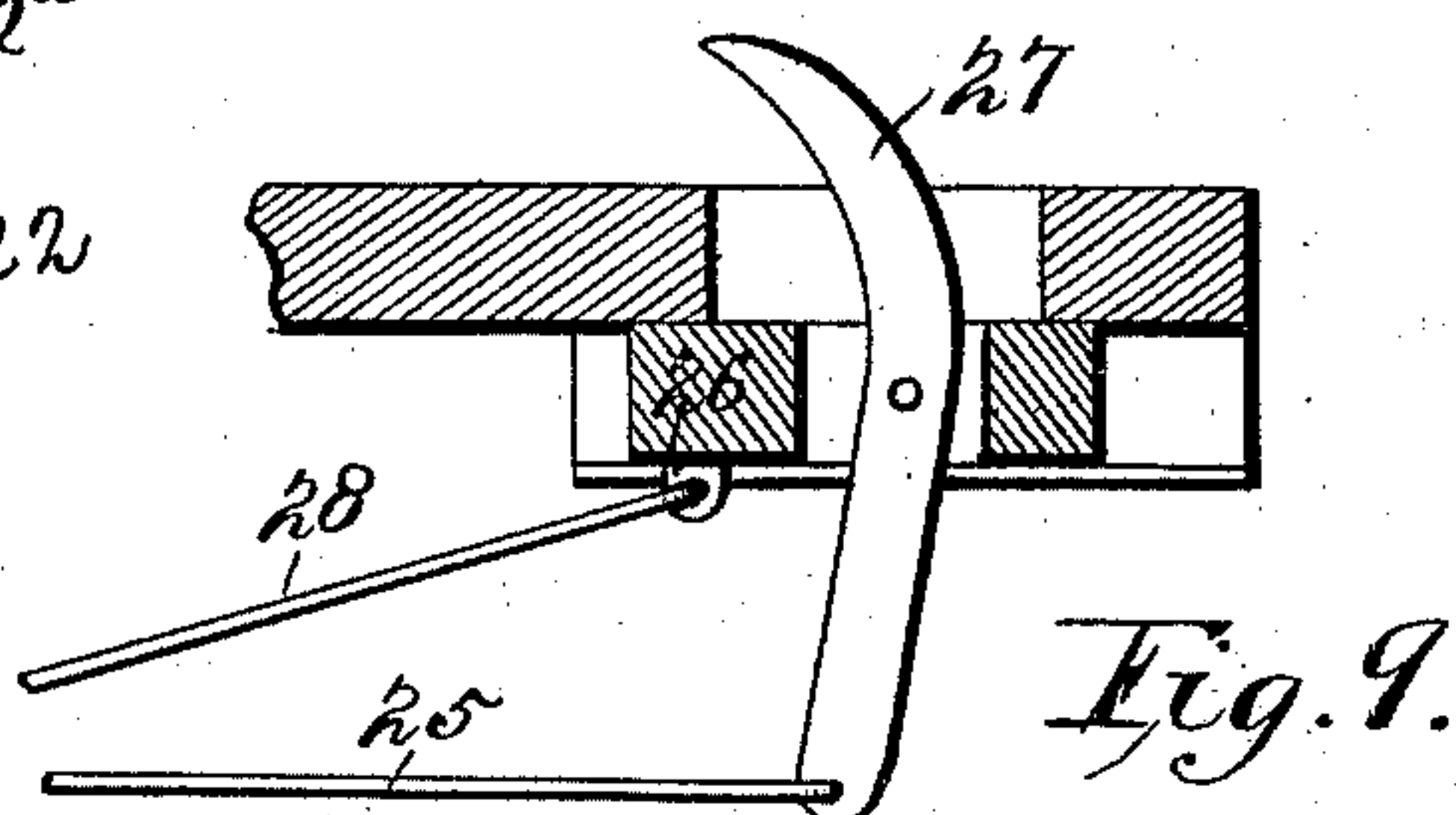
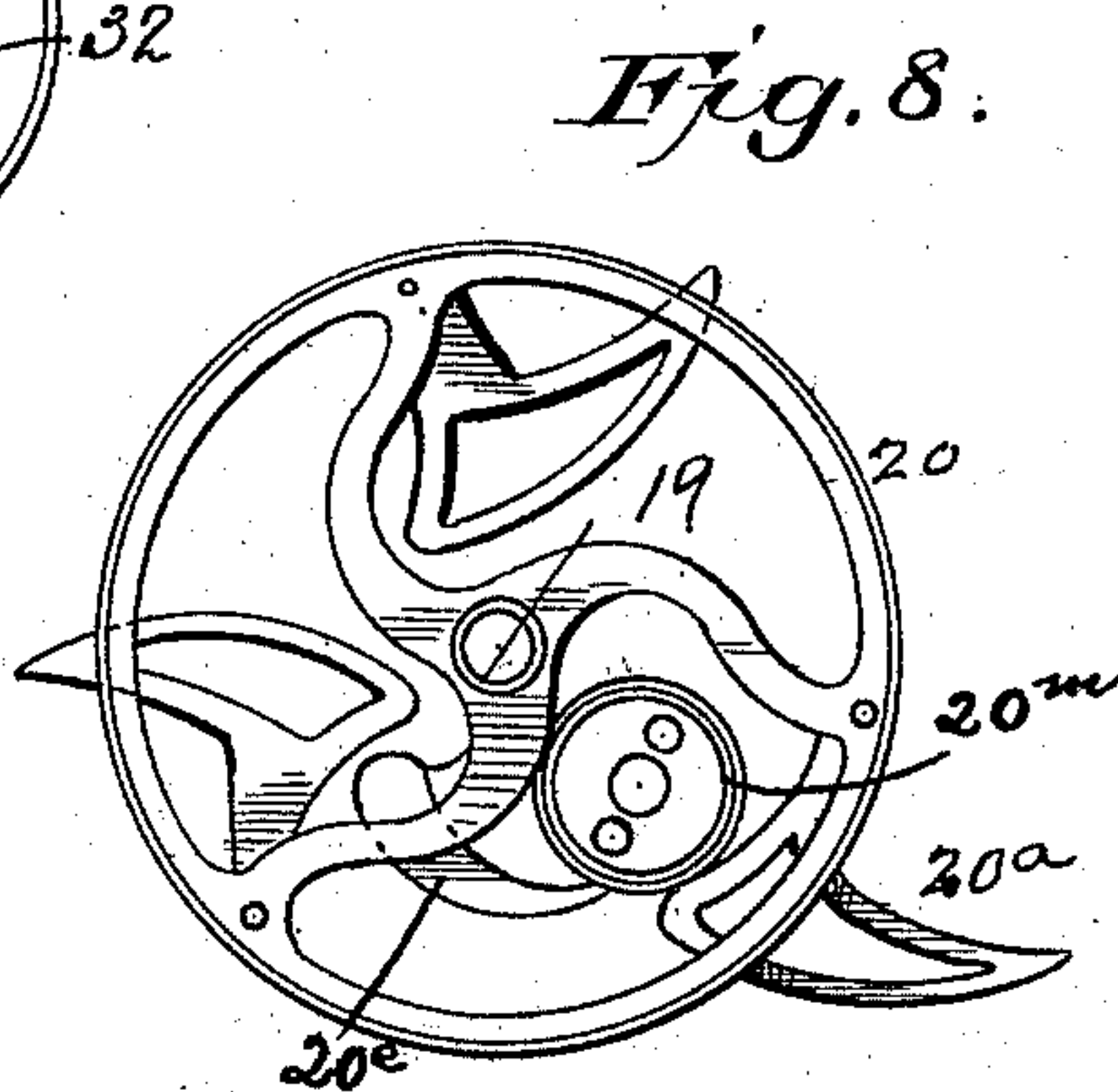
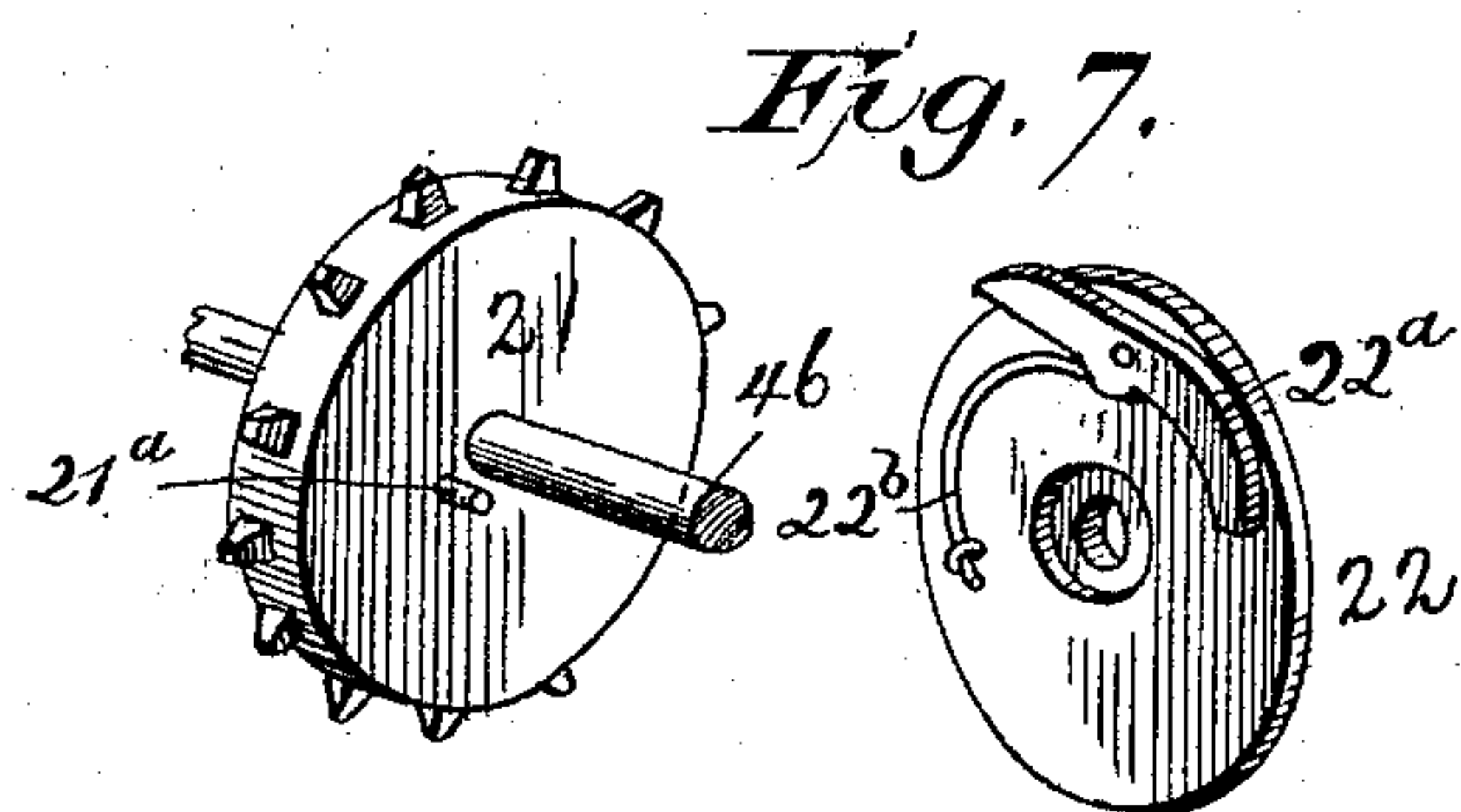
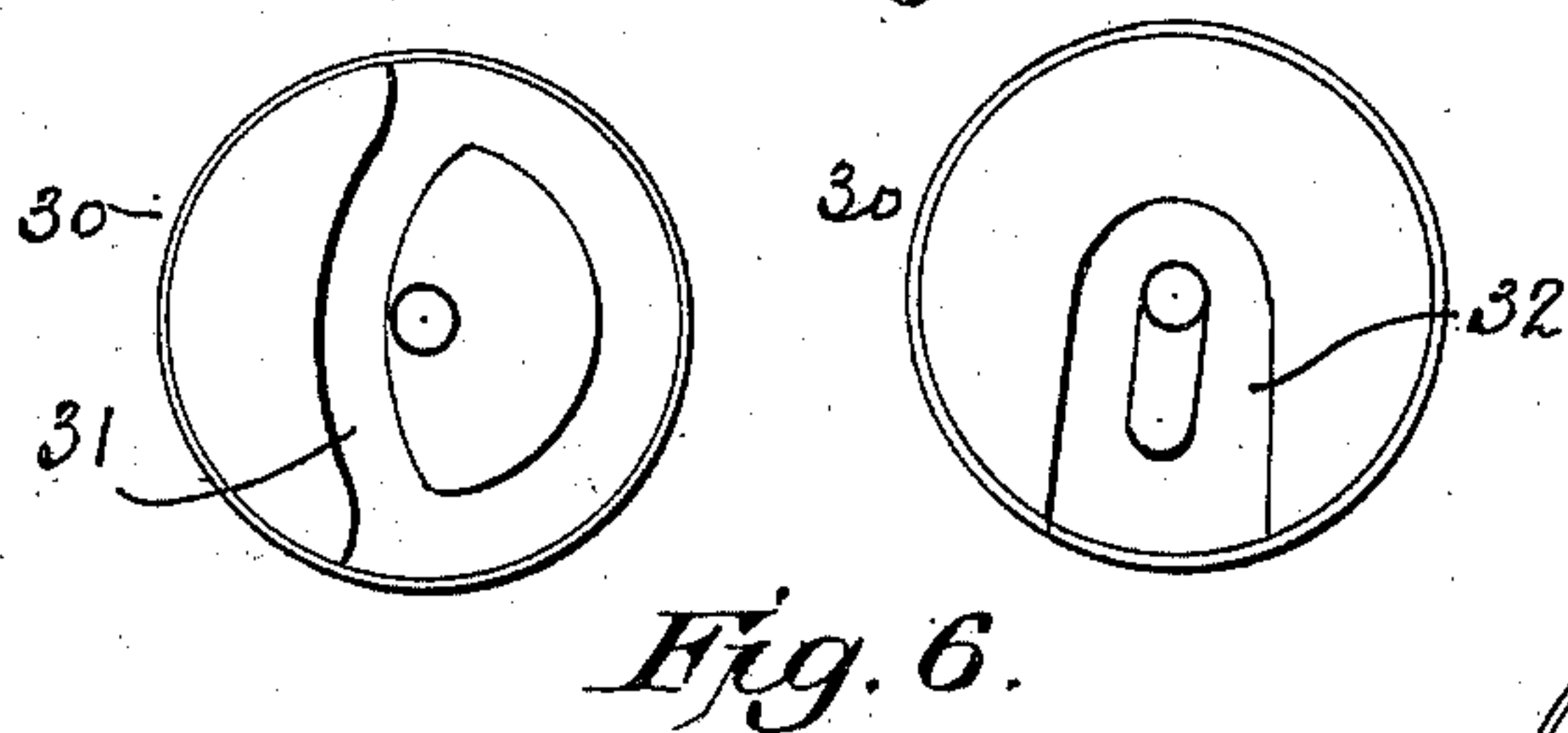
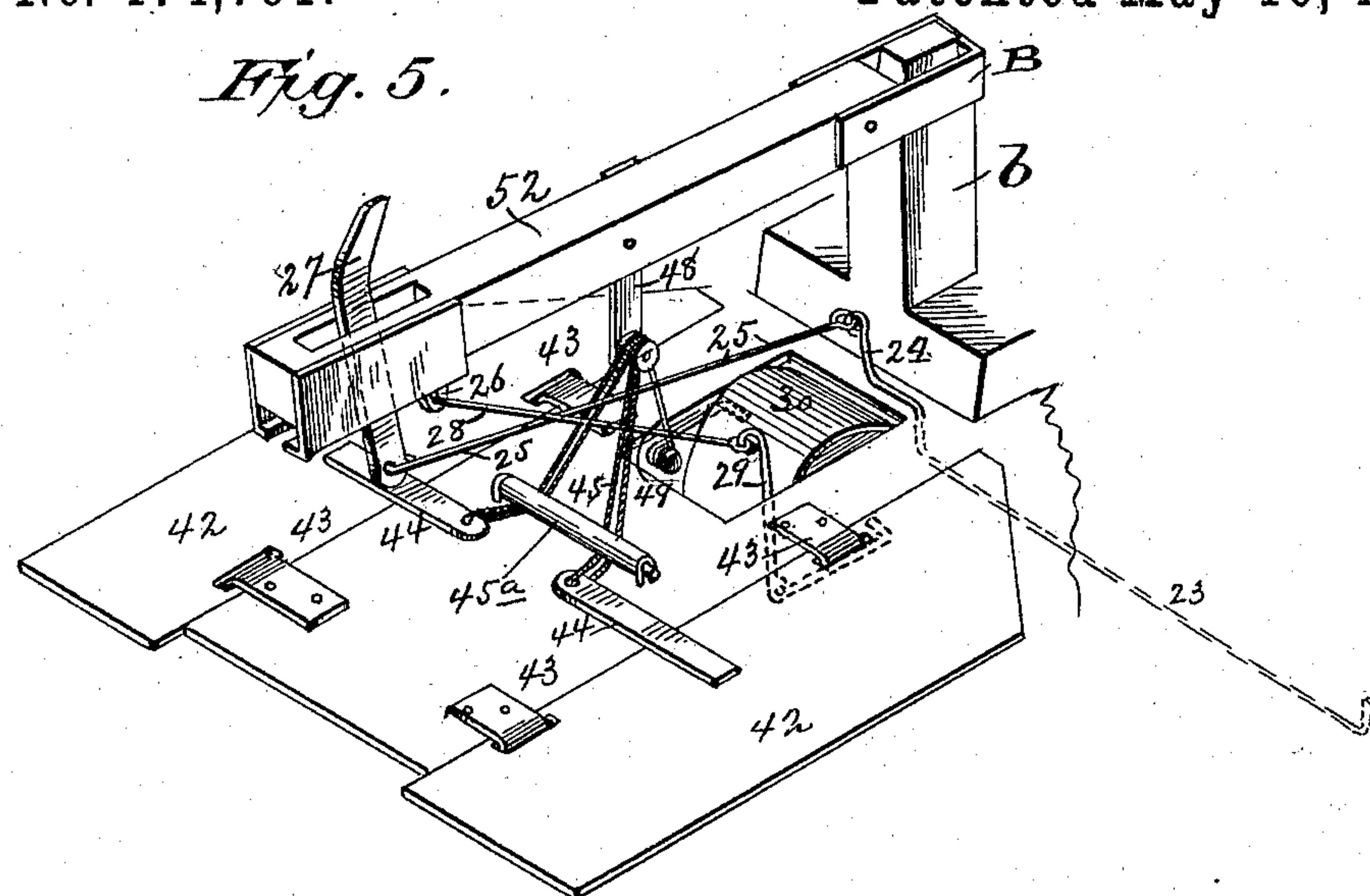
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CORN HARVESTER.

No. 474,761.

Patented May 10, 1892.



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UNITED STATES PATENT OFFICE.

WILLIAM M. PIATT, OF WEST LIBERTY, OHIO, ASSIGNOR OF ONE-THIRD TO
BEN S. LEONARD, OF SAME PLACE.

CORN-HARVESTER.

SPECIFICATION forming part of Letters Patent No. 474,761, dated May 10, 1892.

Application filed April 17, 1891. Serial No. 389,388. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM M. PIATT, a citizen of the United States, residing at West Liberty, in the county of Logan and State of Ohio, have invented certain new and useful Improvements in Corn-Harvesters; and I do hereby 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.

This invention relates to corn-harvesters, and has for its object to improve the general construction and operation of this class of machines as heretofore generally constructed.

The improvement consists of the novel features and the peculiar construction and combination of the parts, which will be hereinafter more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a top plan view of a machine embodying my invention. Fig. 2 is a cross-section about on the line X X of Fig. 1, showing the packers and the actuating mechanism in full. Fig. 3 is a cross-section on the line Y Y of Fig. 1, looking to the rear of the machine, showing the mechanism for operating the knotter and the needle. Fig. 4 is a longitudinal section on the line 4 4 of Fig. 1, looking in the direction of the arrow, showing the jib which supports the shock, the compressor, the cam-wheel, and the drop-door in the platform. Fig. 5 is a detail view of the instrumentalities for operating the drop-doors in the platform. Fig. 6 shows views of the obverse and the reverse sides of the cam-wheel for operating the compressor in compressing the top of the shock while binding and for operating the drop-wings for dumping the grain. Fig. 7 is a detail view of the clutch between the cam-wheel shaft and the loose sprocket-wheel thereon. Fig. 8 is a detail view of the packer-wheel. Fig. 9 is a detail view of the compressor, the sliding block, and the support for the said sliding block.

1 is the main frame; 2, advanced guards, the middle guard being shaped like the pilot of an engine and the end guard like a half of an engine-pilot, taken on a central longitudi-

nal line, to penetrate the rows of corn and properly guide the same to the cutter and packers.

3 are the cutters, which are attached to bar 4.

5 is a pitman connecting the cutter with the crank 6 on the shaft 9.

7 is a pinion on shaft 9.

8 is a gear-wheel meshing with pinion 7.

10 is a counter-shaft, on which is mounted gear-wheel 8 and having bevel-pinion 11 at its inner end, which meshes with bevel gear-wheel 12 on the shaft 16.

13 is a sprocket-wheel on shaft 16.

14 is a sprocket-wheel on axle 14^a.

14^b is a sprocket-chain connecting the sprocket-wheels 14 and 13.

15 is the main drive-wheel.

17 are bevel-wheels on the shaft 16 for operating the packer-shafts 19.

18 are bevel-wheels on the lower ends of the packer-shafts.

19 are packer-shafts of different relative heights, the inner shafts being shorter than the outer shafts.

20 are packer-wheels, having packers 20^a.

21 is a sprocket-wheel on shaft 46, which extends parallel with the shaft 16.

21^a is a sprocket-wheel on the axle 14^a and connected with the sprocket-wheel 21 by the sprocket-chain 21^b.

22 is a clutch-wheel on shaft 46.

23 is a rock-shaft.

24 is an arm projected vertically from the inner end of the rock-shaft 23.

25 is a rod connecting arm 24 with the compressor-finger 27, which is pivoted on the sliding block 26.

28 is a rod connecting the sliding block 26 with the bell-crank lever 29.

30 is a cam-wheel on the shaft 46 and having a cam-groove in each face. The cam-groove 31 extends about half-way around the wheel 30 and approximately diametrically across the same in a curved line and receives the bent end of the bell-crank 49. The cam-groove 32 is double and its parallel portions extend tangentially from the circle of the shaft-opening.

41 is a vertical shaft for actuating the knot-

ter mechanism 41^a, of ordinary construction, and it is operated from shaft 46 by means of the bevel gear-wheels 33 and 34.

37 is a vertical shaft for actuating the needle 40, and it receives its motion from the shaft 46 by means of the bevel gear-wheels 33 and 36.

38 is a crank-disk at the upper end of the vertical shaft 37 and connected with the needle 40, which is slotted at 41^a and mounted on the shaft 41^b.

38^a are guard-plates immediately above the upper packer-wheels 20.

42 are supporting wings or tables.

43 are hinges.

44 are arms for holding and dumping the wings 42.

45 are cables connecting arm 44 to the depending standard connected with bell-crank lever 49, which has its bent end extended into the cam-groove 31.

45^a is a guide-roller for the cables 45 to pass under.

48 is a swinging support connecting jib 52 with the vertical member of the bell-crank 49.

58 are spring-fingers extending over the wings 42 from the guards 22 to the rear end of the jib 52.

The operation of the invention is as follows: Motion is communicated to the cutting and packing mechanisms by the instrumentalities hereinbefore specified from the axle 14^a on drawing the machine forward. The advanced guards 2 pass along, straddling the rows of corn, two rows being cut at a time. The stalks guided to the cutters and packers being cut off by the knife-bar are seized by the packer-wheels and packed back into the spaces between the jib and the spring-arms 58 onto the wings 42. The spring-fingers 58 hold the corn close against the sides of the jib. The packers on the right-hand side of the machine are geared so that they operate on the stalks of corn a little in advance of the packers on the left-hand side of the machine, thereby causing the stalks on opposite sides to be thrown back on the platform alternately, so that the tops of the stalks on opposite sides of the jib will interlock, as will be readily comprehended. Having built a shock long and slanting, it is desirable to tie and discharge the same. I accomplish these two objects by bringing into play the binding mechanism by clutch 22 of shaft 46. The clutch 22 and sprocket 21 become locked by pressure of the shock on the compressor 27, and through connecting-rod 25, arm 24, and rock-shaft 23 the heel of the latch or dog 22^a on the clutch-disk 22 is released. The spring 22^b, acting on the latch 22^a, causes one end thereof to be projected within the path of the pin 21^a on the sprocket-wheel 21. One revolution of shaft 46 causes through miter-gears 33 34 and 35 and 36 the presentation by the needle of the cord to the cord-tying mechanism, by means of which the cord is tied in the usual manner.

During the operation of the said knotter through cam 32, bell-crank 29, rod 28, sliding head 26, and compressor 27 the tops of the stalks are compressed while the shock is being tied. It will be understood that the parts are so constructed that an appreciable pressure must be exerted on the compressor 27 to actuate the same sufficiently to throw the binding mechanism into gear. No particular tension device is claimed, as a spring suitably and properly located will effect the desired result. The spring T, mounted on the outer end of the shaft 23, has one end constructed to engage with a portion of the frame of the machine and the other end in engagement with the bent end of the said shaft, thereby serving to hold the compressor against the pressure of the shock until said pressure overcomes the resistance of said spring T. The heads of the stalks crossing over the beam 52 project across the path of the compressor 27. When a sufficient quantity of grain has accumulated on the wings 42 and the same has been packed to the required degree of compression, the resistance offered by the compressor 27 will be overcome and the compressor will be actuated and throw the binding mechanism into gear in the manner hereinbefore set forth. The beam 52 is pivotally supported at its forward end to an iron B, which is attached to standard 6 and is adapted to drop at its rear end at the proper time to facilitate the discharge of the grain. The rear end of the beam is supported by the vertical member of the bell-crank lever 49 and the depending standard 48, which are pivotally connected together and normally occupy a vertical position, Fig. 4. When lever 49 is actuated to deflect the vertical member from the vertical position, the beam 52 will be lower at its rear end. The drop-wings 42 (two being provided, one on each side of the beam 52, and hinged at their inner edges to the platform of the machine at 43) are provided with arms 44, which are secured at their outer ends to the said wings and have their inner ends extended over the said platform a proper distance and connected with the standard 48 by the cables 45, that pass under the guide-roller 45^a on the said platform. The parts are so disposed that under normal conditions the wings 42 will be supported in a horizontal position when the beam 52 is at its highest point. The standard 48 is pivoted to the beam 52. Hence it will be readily understood that as the said beam drops the cables 45 will pay out to permit the wings 42 to turn on their hinges and drop the grain. The beam and the wings dropping together, the corn will be readily discharged with the butts on the ground. After the corn has been deposited on the ground, the shaft 46 continuing to revolve, the bell-crank lever 49 will be actuated so as to return the beam and the wings to a normal position. The cast-wheel A for supporting that side of the machine opposite the wheel 15 is attached to

the frame of the machine by standard *a* in the usual manner. The packer-wheels 20 and the packers 20^a are of usual construction, the packers being projected by cam 20^e and cam-roller 20^m of well-known construction and arrangement. As the packer-wheels 20 revolve, the inner ends of the packers 20^a engage with and ride upon the cam 20^e and cam-roller 20^m and are projected thereby and held in an operative position while performing efficient work.

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

15 1. In a corn-harvester, the combination of the jib constructed to have a vertical movement, means for actuating the said jib and the drop-doors, one on each side of the said jib, the arms 44, projected from the said drop-doors, the guide 45^a, and the cables 45, 20 connected with the said arms at one end and with the said jib at the other end and deflected between their ends by the said guide 45^a, substantially as and for the purpose described.

25 2. In a corn-harvester, the combination of the binding mechanism, the jib 25, the shaft 46, the cam 30 on the shaft 46, connections between the jib and the said cam for actuating the jib, the sprocket-wheel 21, the clutch-wheel 22, the rock-shaft 23, having arm 24, 30 and the compressor 27, connected with the

arm 24, substantially as and for the purpose set forth.

3. In a corn-harvester, the combination of the binding mechanism, the drop-door, the 35 shaft 46, sprocket-wheel 21, clutch-wheel 22, rock-shaft 23, having arm 24, the compressor-finger connected with the arm 24, the sliding block 26, the bell-crank lever 29, connected with the sliding block, and the cam-wheel 30, 40 having a cam-groove in its side to receive the bent end of the bell-crank lever 29, substantially as described, for the purpose specified.

4. The combination of the binding mechanism, the shaft 46 for actuating the binding 45 mechanism, the wheel 21, clutch-wheel 22, rock-shaft 23, having arm 24, jib 52, compressor 27, connected with the arm 24, sliding block 26, bell-crank lever 29, having connection with the said sliding block, the drop-doors, the 50 bell-crank lever 49, having connection with the drop-doors, and a cam-wheel on shaft 46, having cam-groove in its sides to actuate the said bell-crank levers, substantially as described. 55

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

WILLIAM M. PIATT.

Witnesses:

DON C. BAILEY,
GEO. F. BAILEY.