No. 711,647. Patented Oct. 21, 1902.

W. SCHÄFER.

FEED APPARATUS FOR THRESHING MACHINES.

(Application filed Nov. 30, 1900.)

(No Model.) 3 Sheets—Sheet 1.

Fig. 1.

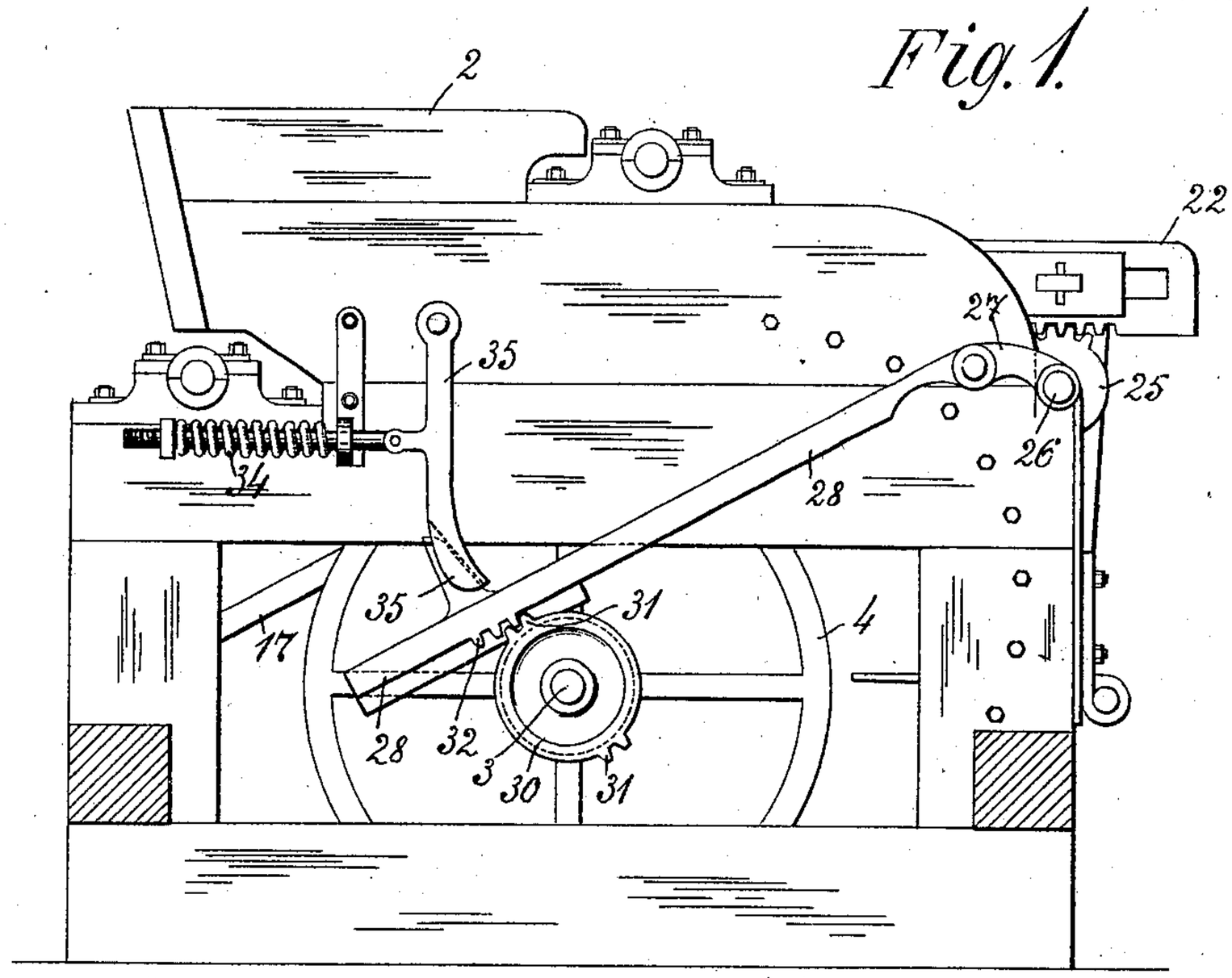

Fig. 2.

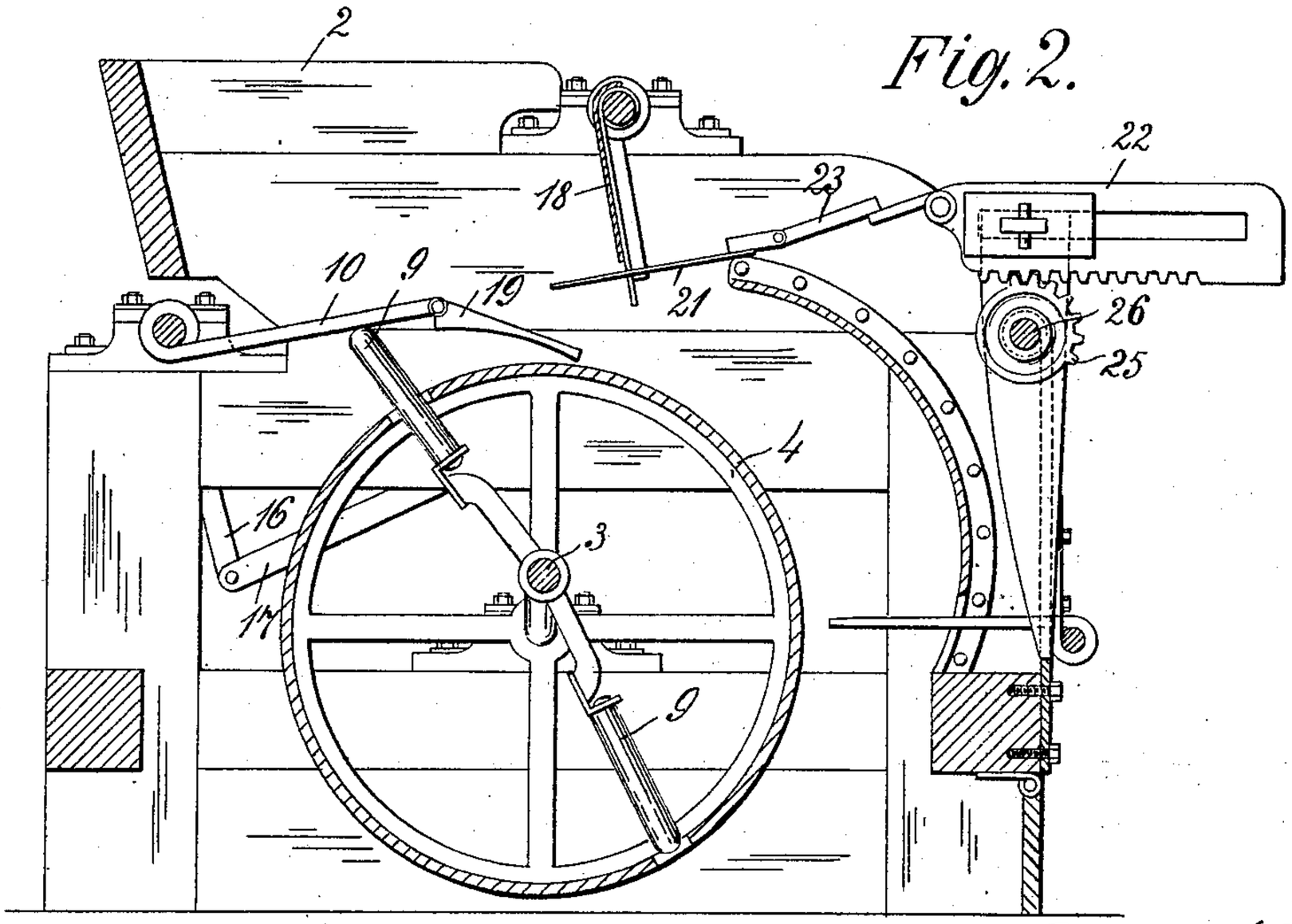

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Fig. 3.

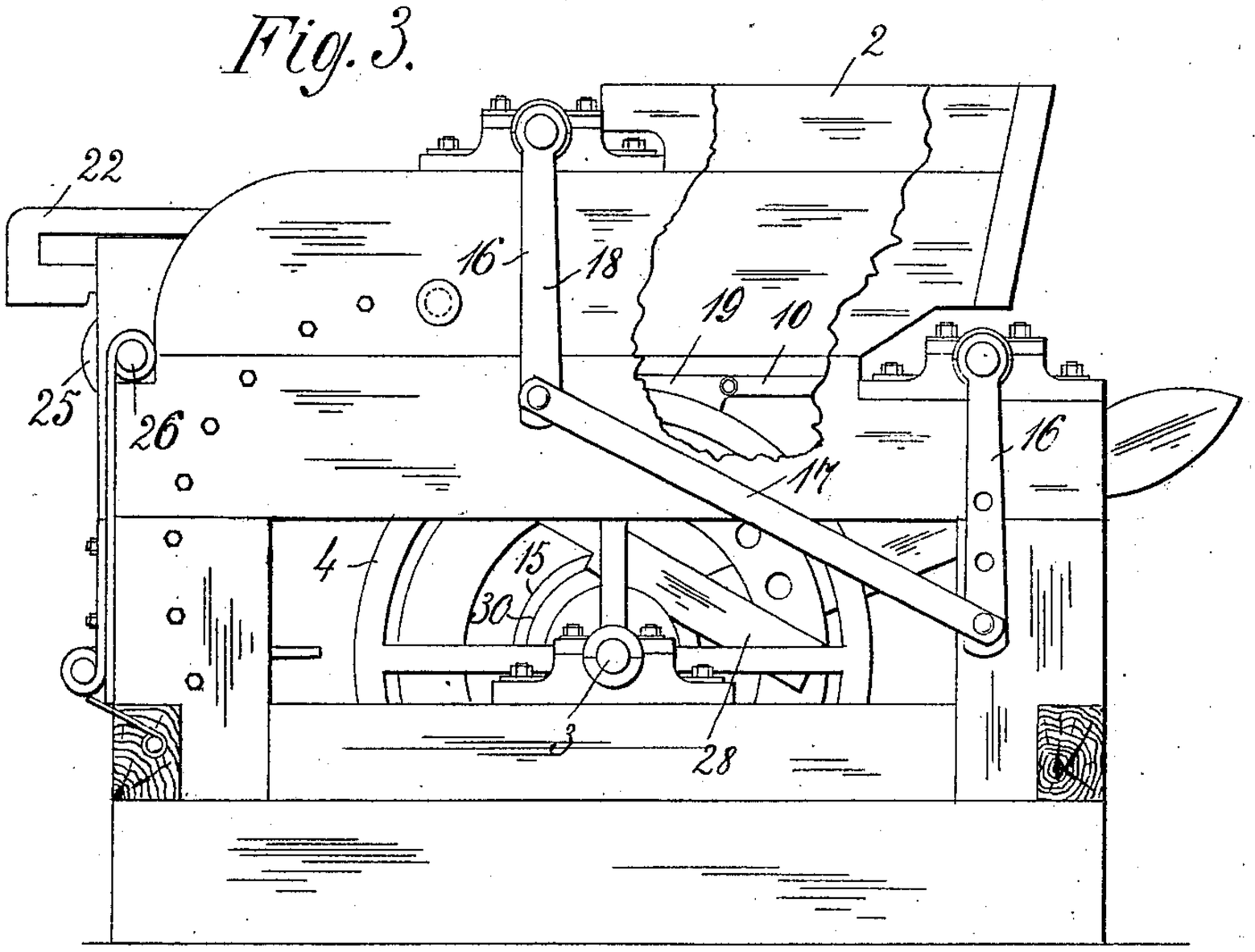
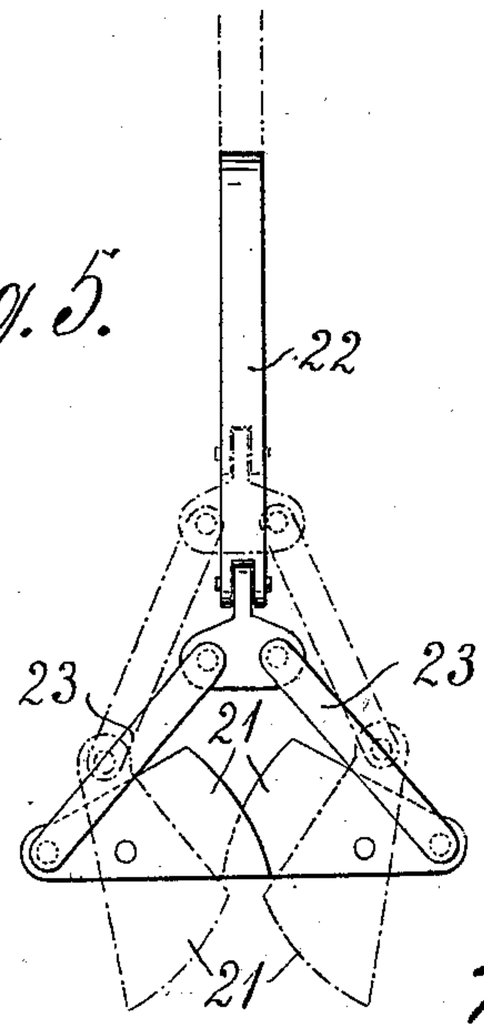


Fig. 5.



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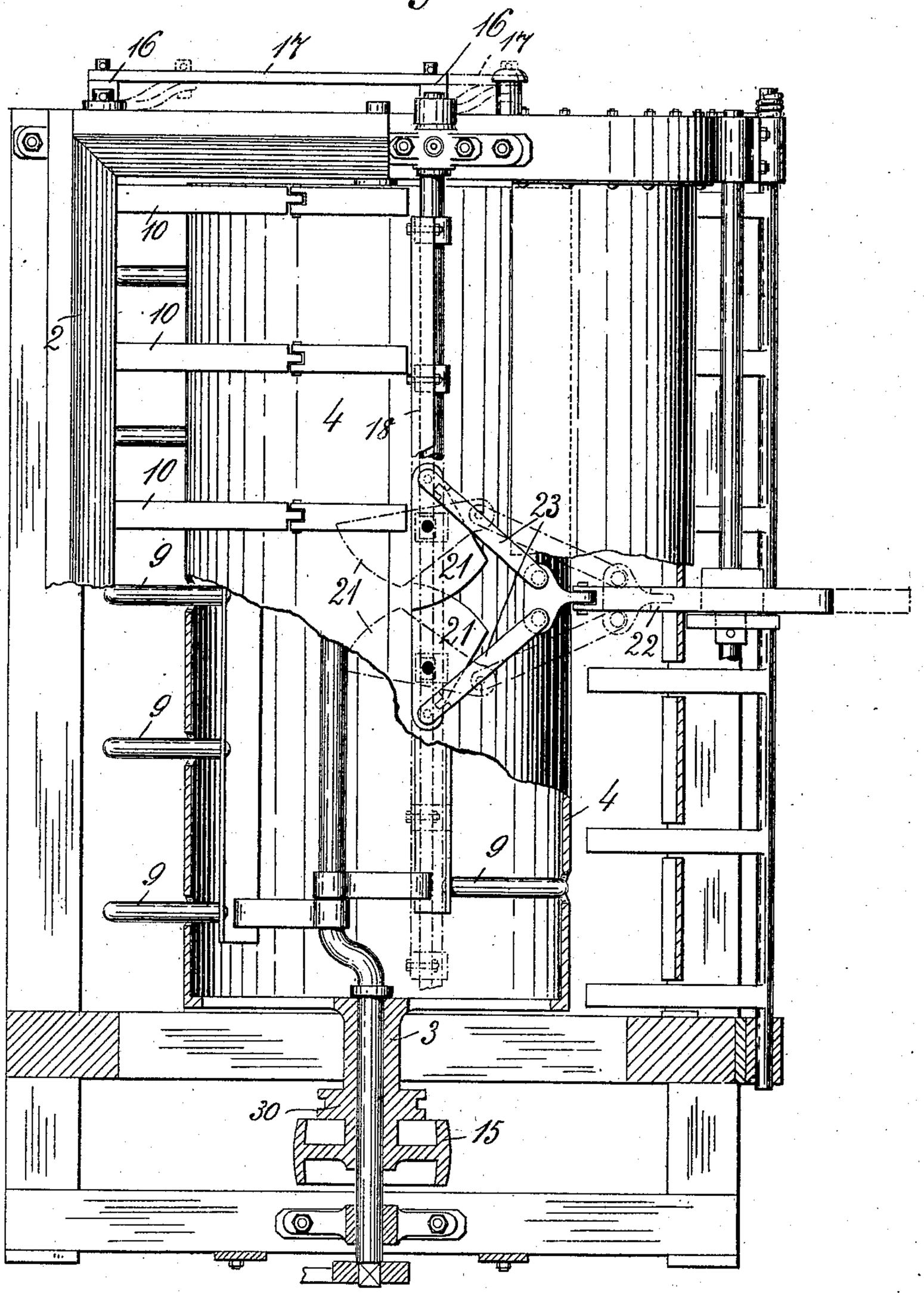
(No Model.) 3 Sheets—Sheet 3.

Fig. 4.



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UNITED STATES PATENT OFFICE.

WILHELM SCHÄFER, OF EFFELN, NEAR UELDE, GERMANY.

FEED APPARATUS FOR THRESHING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 711,647, dated October 21, 1902.

Application filed November 30, 1900. Serial No. 38,147. (No model.)

To all whom it may concern:

Be it known that I, WILHELM SCHÄFER, a subject of the King of Prussia, Emperor of Germany, residing at Effeln, near Uelde, in the Kingdom of Prussia, German Empire, have invented certain new and useful Improvements in Feed Apparatus for Threshing-Machines, (for which I have applied for a patent in Germany, dated November 9, 1900,) of which the following is a specification.

My present invention relates to an improved feed apparatus for threshing-machines, which is so designed that smooth, tied, and also loose corn (broken straw) can be uniformly fed thereby to the threshing-drum.

The invention consists of the constructions and details thereof hereinafter fully described and claimed.

The object of the invention is to effect an economy of labor and to uniformly feed the corn to the threshing-machine.

The apparatus can be applied to existing threshing-machines and driven from the same.

In the accompanying drawings an apparatus constructed according to my invention is represented.

Figure 1 is a side elevation. Fig. 2 is a longitudinal section. Fig. 3 is an elevation from the opposite side to Fig. 1. Fig. 4 is a top view, partially in section. Fig. 5 is a view in elevation of the cord-cutting devices.

The apparatus consists of a frame or casing 1, adapted to be placed on the threshing-machine and provided with a hopper. Underneath the hopper a shaft 3 is supported in bearings in the casing. On this shaft a drum 4 is provided. The shaft 3 is provided with a set-off or cranked portion 6, the direction of which can be altered by means of a lever 5, secured to the end of the shaft. On the cranked portion of the shaft a number of arms 7 are mounted, which carry the flat bars 8, to which the carrier-pins 9 are secured. These pins project through the wall of the drum into the hopper. The distance the pins project beyond the periphery of the drums can be adjusted by altering the direction of the cranked portion 6 of the shaft, which is done by turning the lever 5, and by this means the quantity of corn taken from the bottom bars of the hopper can be regulated. The lever 5 is secured in any desired position by a projection 13, which engages in holes 12 in a segment 11.

The drum 4 is driven by means of a pulley 15, secured on the hub 14 of the drum, from any suitable rotating shaft of the threshing-machine.

For the purpose of cutting the cords by which the sheaves are tied and to loosen the corn when the hopper is too full the following device is provided: The bottom bars 10 of the hopper are secured to a shaft which is connected to one of the pins on which the wall 18 of the hopper turns by means of the levers 16 and 17, so that not only the wall 18 but also the bottom bars 10 are turned when too much straw is taken from the said bars by the carrier-pins. The ends 19 of the bottom bars 10 are hinged, as shown, and rest on the drum 4. By means of the hinged portions of these bottom bars 10, which are restricted as regards the extent of their movement, the section of the passage from the hopper is narrowed, as shown in dotted lines in Fig. 4, and they therefore retain a certain amount of straw. On the wall 18 of the hopper 2 knives 21 are fitted, which can turn on the pins 20. These knives are actuated by a lever 23, to which a rod 22 is jointed. The rod 22 is guided and supported by a bearing 24 on the casing of the apparatus. The under side of this rod is provided with teeth, which engage in a toothed segment 25. The segment 25 is fixed on the spindle 26, to the one end of which a rod 28 is jointed. The free end of this rod 28 rests in the groove 29 of a disk 30, secured to the hub of the drum. At opposite points of this disk 30 several teeth 31 are provided, which engage in a toothed part 32 of the rod 28. On the upper side of the rod 28 a nose 33 is provided, which serves as a stop for a lever 30, which is acted upon by a spring 34 and causes the rod to always move back into the position shown in Fig. 1, and thus bring the teeth 31 32 into engagement and the knives 21, mounted on the wall 18, into their position of rest. The active position of the knives is shown in dotted lines in Fig. 4. The toothed rack and other mechanism connected therewith only enter into action when the apparatus is completely "choked."

A rake 36 is secured to the casing 1 at the

back of the feed-drum, which is adapted to give in the direction of the pressure exerted and is designed to further distribute the straw after leaving the carrier-pins of the drum. The prongs of this rake project through the wall 37 of the casing 1, and their points are situated some distance from the surface of the drum.

It will be seen that by means of the cranked portion 6 of the shaft 3 the carrier-pins 9 can be caused to project any desired distance beyond the surface of the drum and entirely withdrawn into the drum in the lower or inactive position, so that the winding of the straw on the pins or on the drum itself, which occurs at times when fixed pins are used, cannot take place. In consequence of the withdrawal of the pins into the drum the straw is caused to slip off the latter. The bottom bars 10, which are connected by the levers 16 17 to the wall 18 of the hopper, also prevent any straw from being advanced by the carrier-pins when the hopper is full or choked.

The straw caught by the carrier-pins in passing through the hopper falls freely onto the threshing-drum.

The operation of the apparatus is as follows: The bound sheaves are placed into the hopper 2 of the threshing-machine. One, two, three, or more sheaves can be placed into the hopper at the same time. The sheaves rest on the bottom bars 10 in the hopper. On putting the apparatus into motion the sheaves in the hopper are pressed against the wall 18 thereof by the carrier-pins. These pins are, however, unable to further advance the sheaves until the cords binding the same have been cut. The wall 18 is turned by the pressure of the sheaves, and the knives 21 take the position shown in dotted lines in Fig. 4. The knives are turned by the rack 22, which engages with the segment 25 on the spindle 26, and the rod 28, jointed to this spindle, is withdrawn. The lever 35, which rests on the stop 33 and is held by the spring 34, is likewise moved, and the teeth on the end of the rod 28 enter into engagement with the teeth 31 of the disk 30, by which means the knives are advanced. When the teeth on the rod 28 and the disk 30 have passed out of engagement, the knives spring back into their original position under the action of the spring 34. Only when the wall 18 is pressed back can the teeth 31 of the disk 30 engage in the teeth 32 of the rod 28 and rotate the knives. When a sheaf has been untied or cut, the corn-blades are advanced in varying quantities, depending on the distance the carrier-pins project out of the drum—that is, according to the direction of the cranked portion 6 of the shaft. The blades pass under the sheath 37 to the rake 36 and from thence to the threshing-drum. If for any reason too many blades are caught by the carrier-pins and removed from the hopper, it is regulated by the rake 36.

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

In a feed apparatus for threshing-machines, a hopper provided with a hinged wall carrying a cutting device, a reciprocating rod connected with the cutting device, a shaft geared to said rod to cause it to reciprocate, a crank on said rod, a spring-actuated rod 28 connected with the crank and having a toothed portion 32, a disk provided with corresponding teeth 31, and means whereby the pressure of the straw upon the hinged wall will cause the actuation of cutting devices through the mechanism described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

WILHELM SCHÄFER.

Witnesses:

SAMUEL GEORGE TRIPP,

LAURA HORNITZ.