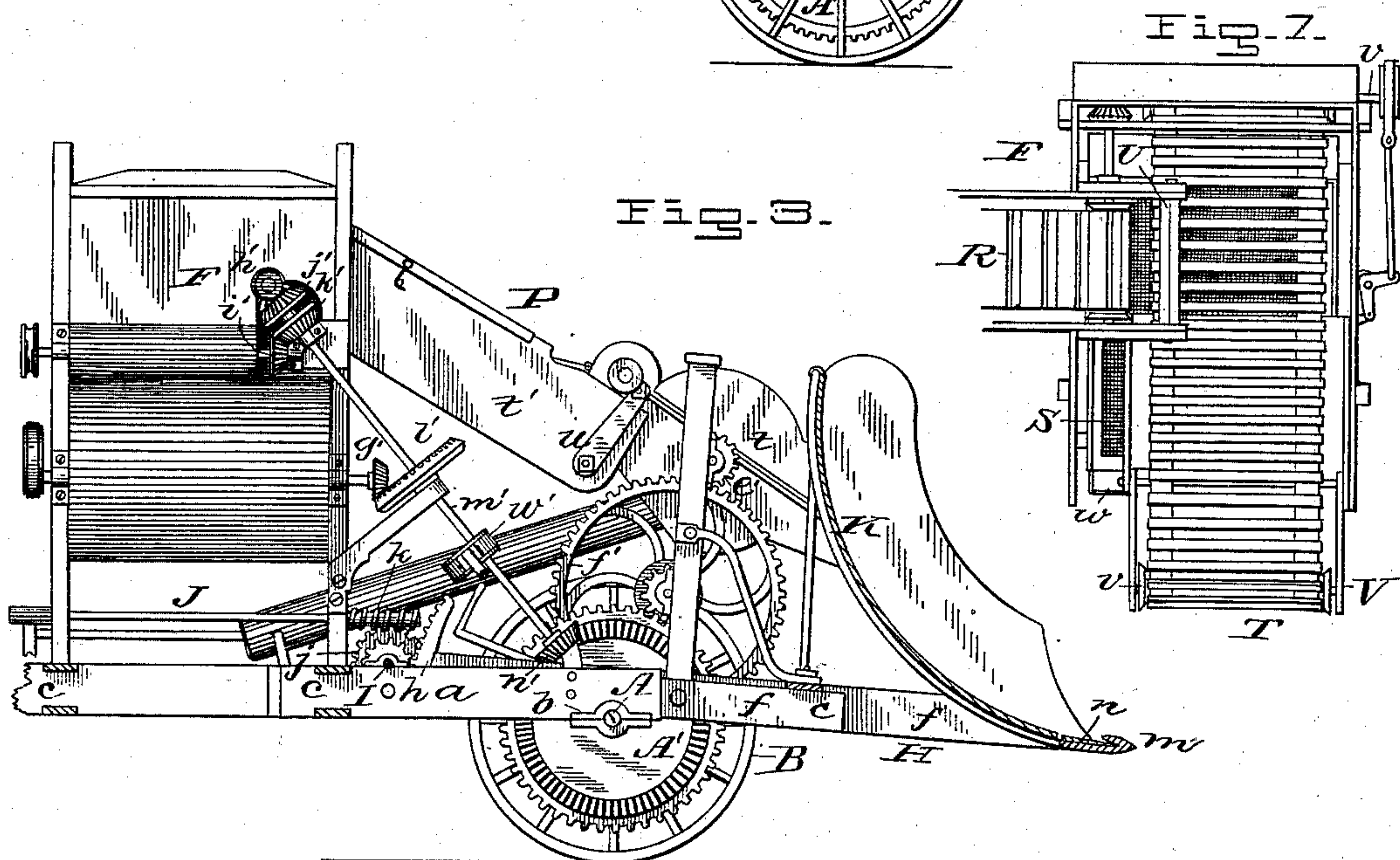
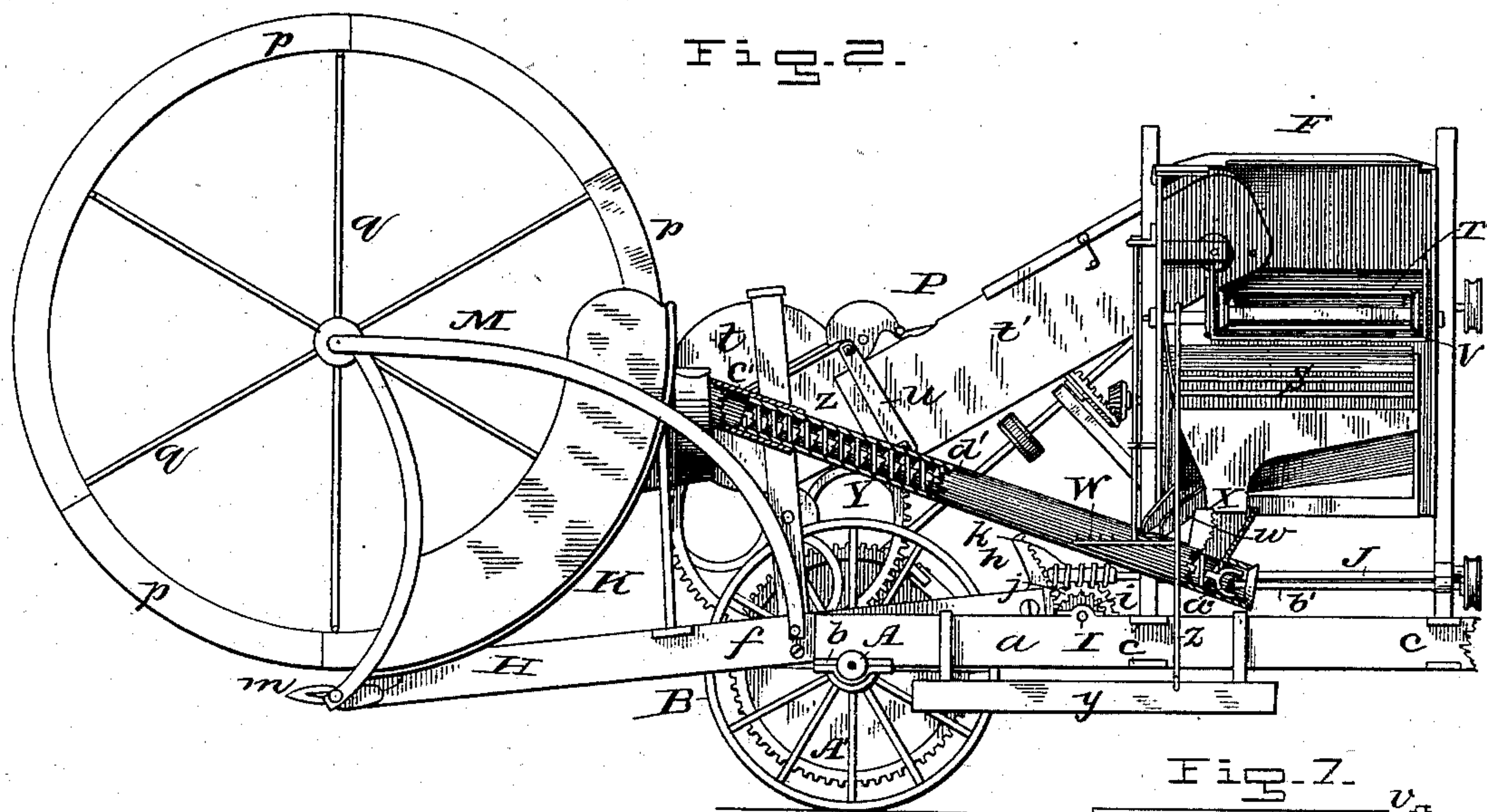


(No Model.)

3 Sheets—Sheet 2.

W. H. PARRISH.
COMBINED HEADER, THRASHER, AND SEPARATOR.
No. 282,217. Patented July 31, 1883.



WITNESSES:

Jas. L. Duhamel
Walter S. Dodge.

INVENTOR:

William H. Parrish,
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(No Model.)

3 Sheets—Sheet 3.

W. H. PARRISH.

COMBINED HEADER, THRASHER, AND SEPARATOR.

No. 282,217.

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Fig. 4.

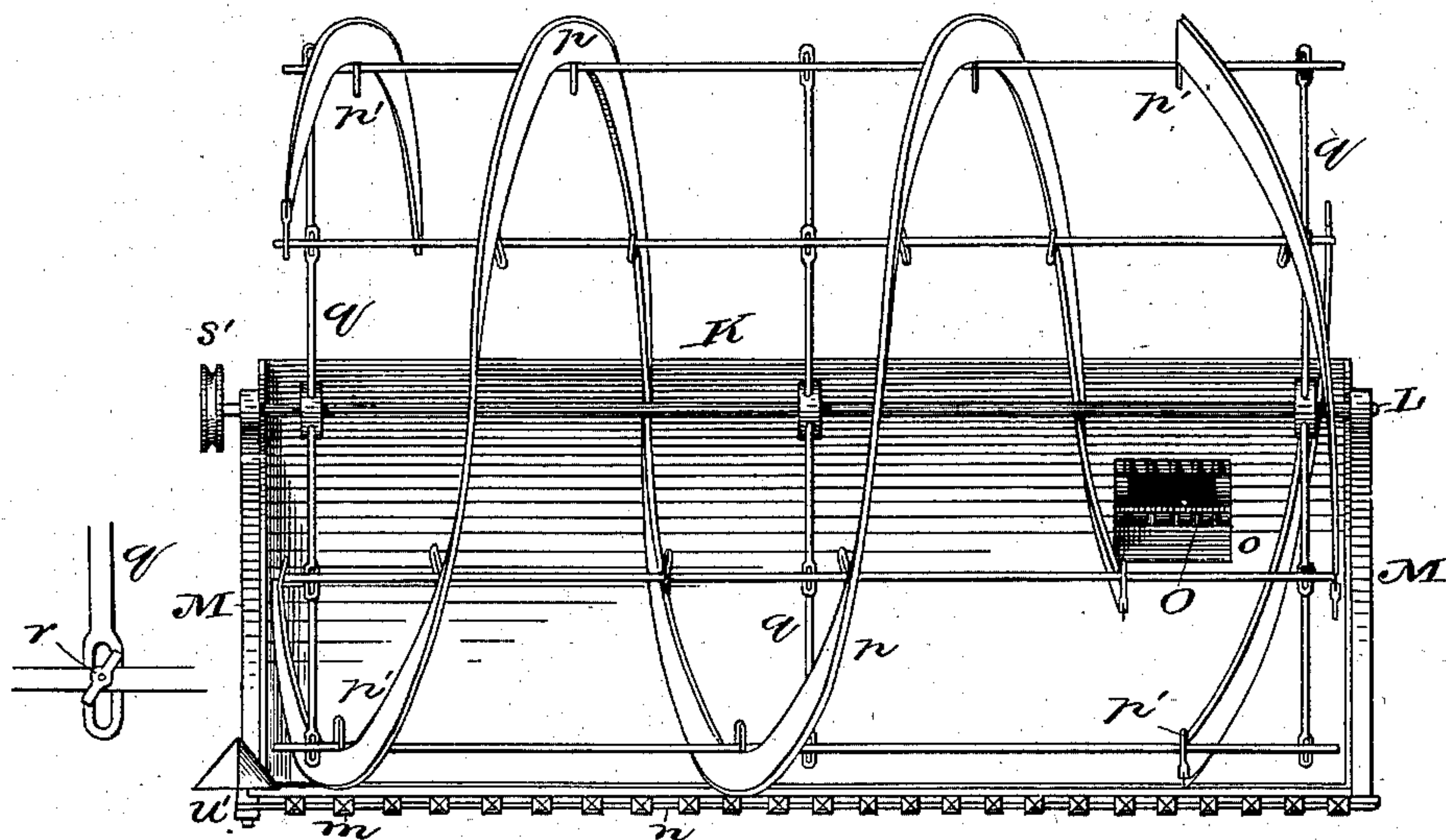


Fig. 5.

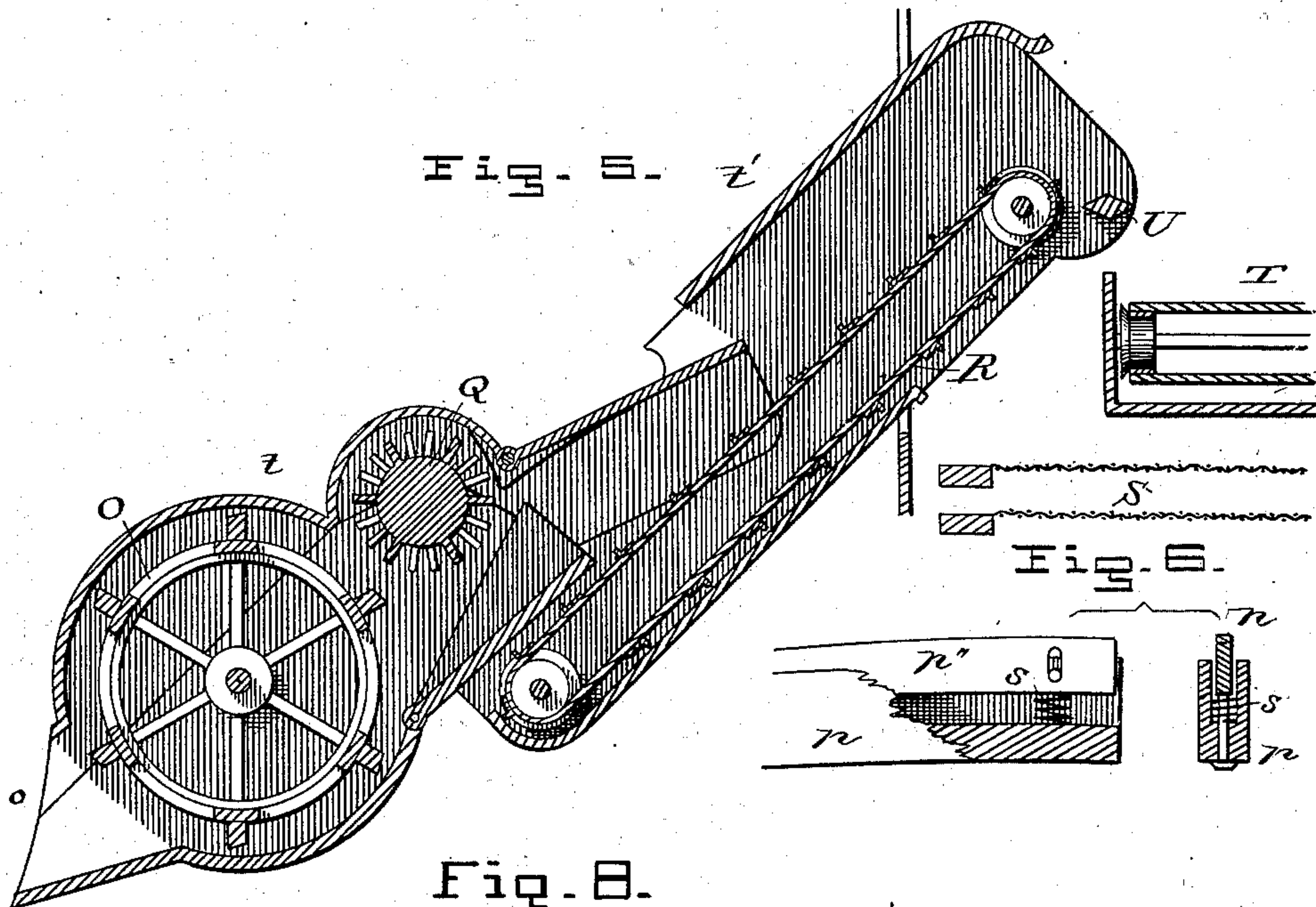


Fig. 6.

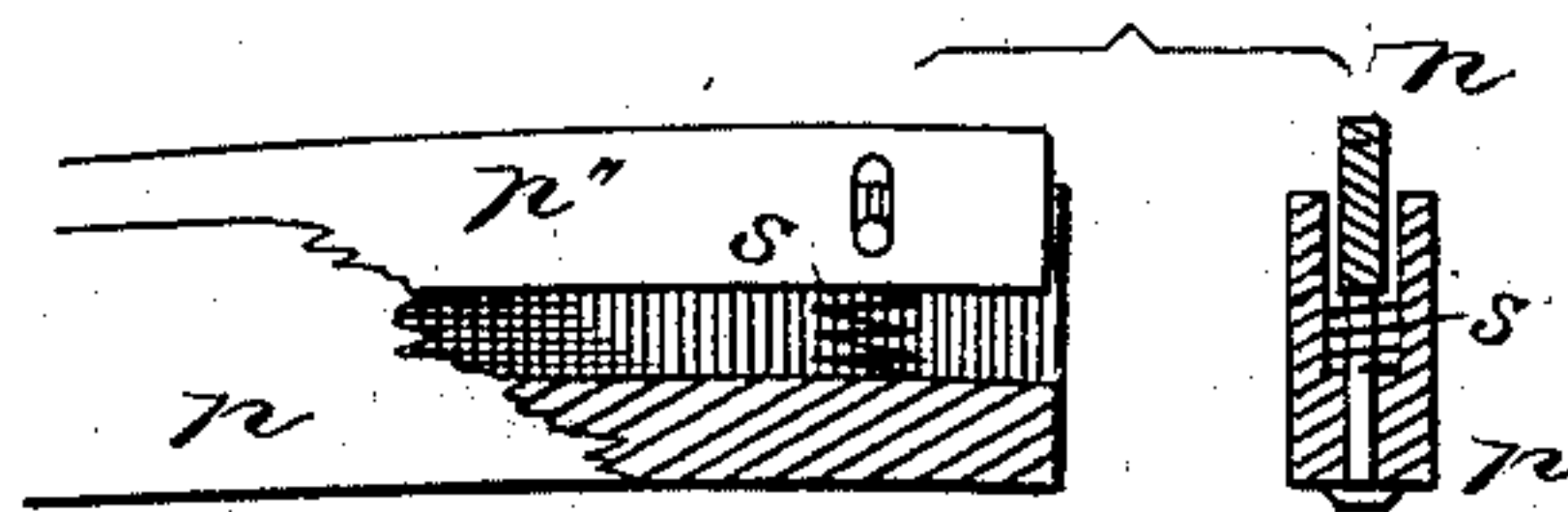
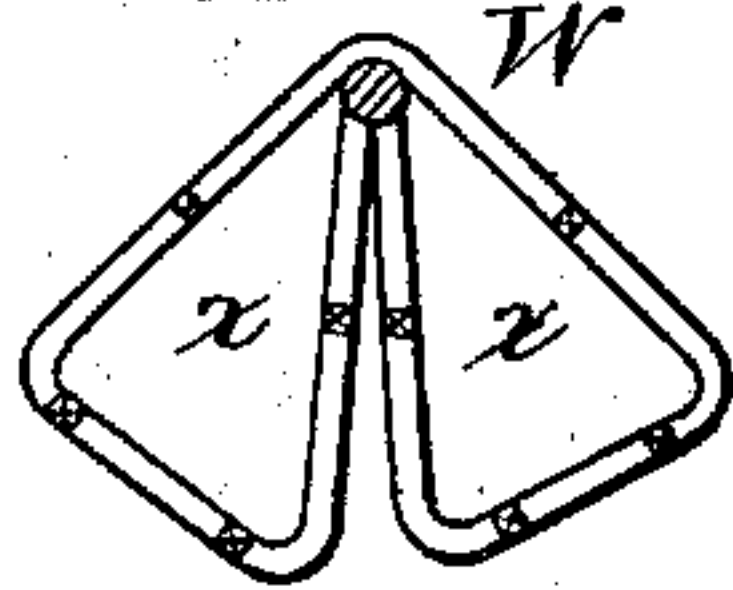


Fig. 8.



WITNESSES:

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Walter S. Hodge.

INVENTOR
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UNITED STATES PATENT OFFICE.

WILLIAM H. PARRISH, OF SALEM, OREGON, ASSIGNOR OF ONE-HALF TO
GEORGE E. AIKEN, OF SAME PLACE.

COMBINED HEADER, THRASHER, AND SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 282,217, dated July 31, 1883.

Application filed August 31, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PARRISH, of Salem, Marion county, Oregon, have invented certain Improvements in a Combined Header, Thrasher, and Separator, of which the following is a specification.

My invention relates to a combined grain header, thrasher, cleaner, and separator, and is more particularly designed as an improvement upon the machine for which Letters Patent were issued to me bearing date the 6th day of June, 1882, and numbered 259,201.

The present invention contemplates a change from a draft to a push or thrust-cut machine, and embraces among its leading features a concave extending backward and upward from the cutter-bar, and communicating by a spout or trough with the thrasher and cleaner; a reel provided with spiral conveyer blades or flights which move the cut grain over the concave and into the mouth of the thrasher; yielding bars set into the edges of the conveyer-blades to maintain a contact with the concave; a jointed main frame and straw or grain carrier to permit the cutter to be raised and lowered, and to allow the straw-carrier to adapt itself to the adjustments of the cutter; a telescopic conveyer-spout for returning the tailings from the cleaner or fanning-mill to the thrashing machine or cylinder; a discharging straw-carrier, adapted to fold inward to reduce the width of the machine when not at work; a novel construction of the framing; means by which the attendant can control the height of the cutter and direction of the machine; and other features and details hereinafter fully set forth.

In the accompanying drawings, Figure 1 represents a perspective view of my improved machine, taken from the rear and from the grain side of the machine. Fig. 2 is a side elevation, partly in section, taken from the stubble side. Fig. 3 is a vertical longitudinal section, looking toward the stubble side of the machine. Fig. 4 is a front elevation. Figs. 5, 6, 7, and 8, views illustrating details of construction.

In constructing my improved machine I first provide a strong shaft or axle, A, upon which I mount the main carrying-wheel B and the grain-wheel C, said wheels being either fast or loose thereon, as may be deemed prefer-

able. Across this shaft or axle are laid a series of timbers, *a*, each extending backward in the direction of the travel of the machine, and each furnished with boxes *b*, in which the shaft or axle freely rotates. The rear ends of the beams or timbers *a* are connected one with another, braced and supported by beams or timbers *c*, running at right angles with them, as shown in Fig. 1.

D represents the pole by which the machine is pushed forward, the horses being hitched thereto in the ordinary way of hitching them to machines of this class. The pole or beam D is at the stubble side of the machine, or nearly so, and is principally braced and supported against side play by a brace, E, extending from its side to a point close to the hub of the grain-wheel C, where it is firmly joined to one of the beams *a*. By thus carrying the brace diagonally across from the pole or tongue to the point stated I not only brace the pole to the best advantage, but I also secure a good support for the framing of the mill or grain-cleaner F, which is mounted upon the frame above described.

The rear end of the pole or beam D is carried by a caster-wheel, G, the upright carrying stem of which is carried above and journaled in said beam, and is furnished at its upper end with a tiller or lever, *d*, by which the attendant, standing upon the platform *e*, may guide the machine as required.

The foregoing describes the main frame of the machine, which in operation maintains a substantially horizontal position, varying therefrom only as the lay of the ground traveled over changes.

H represents the cutter-frame, which is adjustable independently of the main frame of the machine, and is raised or lowered to regulate the height of cut.

The frame H consists of timbers *f*, lying across the axle A, parallel with the timbers *a*, and furnished with boxes *g*, by which they are held in position and permitted to rock or tip upon the axle, as required, the timbers *f* extending a considerable distance both in front and in rear of the axle, as shown in Figs. 1, 2, and 3.

In order to accomplish the tipping of the frame H with ease, regularity, and certainty, and also to hold it at any desired adjustment,

I, provide the beams or timbers *f*—some or all of them—with segmental toothed racks *h*, concentric with the axle *A*; and I also provide a shaft, *I*, carrying pinions *i*, to mesh with said racks, and by their rotation move the racks up or down, as desired. The shaft *I* is further provided with a pinion or worm wheel, *j*, with which a worm, *k*, engages, as shown in Figs. 1, 2, and 3, the worm being carried by a rod or shaft, *J*, which extends back to the platform *e*, where it is properly supported and furnished with a hand wheel or crank, *l*, by which it may be conveniently rotated. The worm *k* prevents the rotation of the shaft *I*, except when the rod or shaft *J* is rotated, which cannot occur accidentally. Hence it serves to hold the frame *H* at any required adjustment.

In order to permit the rod or shaft *J* to pass under the fanning or cleaning machine *F* and then to rise to a convenient height at the rear end, I provide a loose joint or coupling at the forward end of the tongue or pole, though this is not essential, and a continuous rod can be used.

The cutter-frame *H* carries the finger-bar *m* and sickle-bar or cutter-blade *n* at its lower forward edge, and there being no mechanism below these parts they may be dropped low down to cut the straw close to the ground, if desired. From the cutter or sickle bar *n* a concave, *K*, extends upward and backward, as shown in Figs. 1, 2, and 3, said concave being curved concentrically with the reel-shaft *L*, which is carried above and in front of the concave in arms or brackets *M*.

The reel *N* constitutes both the reel and a conveyer, serving both to reel the grain to the cutting mechanism and to convey or carry the cut grain over the surface of the concave and into the mouth *o* of the thrasher. To thus adapt the reel to the two offices mentioned, its blades or flights *p* are made of spiral form, and concentric with the shaft *L* throughout their length.

In order to preserve at all times the proper position of the blades relatively to the concave, as well as to facilitate their first setting, the blades are furnished with short slotted ears *p'*, and the radial arms *q* of the reel are also slotted, as shown in Fig. 4, to permit the blades to be adjusted to or from the shaft, they being made fast as adjusted by set-screws or clamping-bolts *r*, as indicated in detail in Fig. 4.

It is obvious that either the slotted ears or the slotted arms may be omitted, provided the other be retained.

As it is difficult to make or maintain the blades and the conveyer so true and uniform throughout as to insure the traveling of one sufficiently close to the other at all points, I prefer to insert in the periphery of the blades a loose or movable section, *p''*, which is pressed outward by springs *s*, the loose section being either slotted and held by pins passing through the slots, or by headed guide-pins, as shown in Fig. 6.

The blades or flights of the conveyer to the

grain side of the thrasher-mouth *o* are set in proper direction to move the cut grain toward the stubble side of the machine, while those to the stubble side of said mouth are set in the reverse direction, to insure the delivery of the grain into said mouth from that end and to prevent the others from working it past said mouth.

In order to more readily start the grain from the ends of the concave, I provide at each end of the reel or conveyer a second short flight, as shown.

The grain delivered by the conveyer or reel *N* into the mouth *o* is acted upon by a thrashing-cylinder, *O*, of usual construction, located at the foot of an inclined elevator-trunk, *P*, one end of which is attached to and opens through the concave *K*, while the opposite end is attached to the fanning-mill or grain-cleaner, as shown in Figs. 1, 2, and 3. As, however, the concave is adjustable, as above explained, while the fanning-mill or cleaner remains fixed, it becomes necessary to adapt the trunk to compensate for the movements of the concave; and this I do by jointing or hinging its upper end to the fanning-mill frame and making it in two sections, *t* and *t'*, one extending into the other, as shown in Fig. 5, the other section being suspended by links *u* from the top of the inner section, as shown in Figs. 2 and 3.

Within the trunk, slightly above and in rear of the thrashing-cylinder *O*, is arranged a smaller cylinder, *Q*, which is toothed in a manner similar to the larger cylinder *O*, and serves to remove the straw and other matters from the teeth thereof and to prevent their being carried upward over said cylinder. The grain and straw, after passing the cylinder *O*, are delivered upon an endless apron or carrier, *R*, which delivers them into the fanning or cleaning machine *F*. The head of the apron or carrier *R* extends through the casing of the fanning-mill and overhangs the sieves or screens *S*, but falls outside of the delivery straw-carrier *T*, as shown in Fig. 5, thus causing the grain to fall directly upon the sieves. A beater, *U*, close to the head of the carrier, causes the straw and trash to be thrown beyond the head of the carrier *R* and to fall onto the delivering carrier or apron *T*, by which it is delivered from the machine. The apron or carrier *T* is carried by shafts *v*, the outer one of which is journaled in a hinged or folding spout, *V*, which may be swung upward and brought within the line of the side of the machine, to permit said machine to pass readily through gateways and other openings.

The fanning-mill or grain-cleaner *F* may be of ordinary construction, embracing a fan and a shaking shoe carrying sieves or screens.

The cleaned grain is delivered by a spout, *w*, into a bag carried by a horizontally-swinging bag-holder, *W*, which consists of two horizontal frames or stretchers, *x*, provided with pins or studs, and carried by a vertical rod or pivot, which permits either frame or stretcher to be swung at will under the mouth of the

spout, so that while one bag is being filled the previously-filled one may be removed and an empty one substituted, thus enabling the fanning-mill to discharge the cleaned grain continuously without waste.

A platform, *y*, is hung upon the framing of the machine by hooks *z*, to support the bags and to carry an attendant when necessary, said platform being readily removable to decrease the width of the machine.

The tailings are delivered into the tailings-trough *X*, whence they are carried by a spiral conveyer, *Y*, to the thrasher-cylinder, to be re-thrashed and again delivered to the fanning-mill or cleaner. In order that the conveyer or elevator *Y* may adapt itself to the adjustment of the cutter-frame *H*, I provide a knuckle or universal joint, *a'*, at the point of connection between the conveyer-shaft and the driving-shaft *b'*; and the spout *Z* is made in two parts, *c'* and *d'*, arranged to telescope, or to slide one within the other, as shown in Fig. 2.

For the purpose of imparting the requisite motion to the various parts of the machine, I mount upon the axle *A* a large driving-gear, *A'*, having teeth on its periphery, and also having a bevel-gear ring on its side face, as shown in Fig. 1, and from the periphery I drive the thrashing-cylinder pinion *e'* through an intermediate gear, *f'*, while the pinion *g'* of the fan-shaft and the pinions *h'*, *i'*, by which motion is given to the straw-carriers, are all driven by bevel-pinions *j'*, *k'*, *l'* on a line-shaft, *m'*, driven by a pinion, *n'*, meshing with the bevel-gear ring of wheel *A'*.

The tailings-elevator is driven by a belt, *o'*, passing about pulleys *p'*, *q'*, the latter mounted upon the end of the straw-carrier shaft *v*, as shown in Fig. 1. The shoe of the fanning-mill is shaken by a pitman and elbow-lever mechanism operated by an eccentric on the fan-shaft. The reel is driven by a belt, *r'*, passing around a pulley, *s'*, on its shaft, and around a similar pulley, *t'*, on the main axle *A*.

The cutter-blade or sickle-bar is operated by a pivoted lever, *u'*, one end of which is jointed to said sickle-bar, and the other end connected by a pitman, *v'*, with an eccentric, *w'*, on the line-shaft *m'*. By the use of the line-shaft *m'* the driving mechanism is rendered very simple, and the operation of the machine is made smooth and without jar or noise.

I do not in this application claim specifically the secondary cylinder above the thrashing-cylinder, nor the bag-holder.

I do not broadly claim a line-shaft carrying pinions to operate the fan and straw-carriers, such combination being old; but the peculiar arrangement and combination of driving-wheel, shaft, pinions, and eccentric for operating the cutter-bar are believed to be new.

Having thus described my invention, what I claim is—

1. In combination with a concave platform, a reel provided with spiral flights or blades arranged to move in close proximity to the

face of said platform, substantially as set forth, whereby the reel is caused to act also as a conveyer to deliver the cut grain from the concave platform.

2. In combination with a concave platform having a delivery-opening in its face and a cutting mechanism at its forward edge, a reel provided with spiral blades or flights, and arranged to sweep the face of the concave platform, substantially as set forth, whereby it is adapted both to reel the grain to the cutting mechanism and to deliver the cut grain to the discharge-opening.

3. In a harvesting-machine, the combination of a concave platform having an elevated outlet or discharge-opening at a point intermediate between its ends, and a reel provided with spiral blades inclined in reverse directions on opposite sides of said opening, whereby they are caused to elevate and deliver all the cut grain from the concave platform into said opening.

4. In combination with a concave platform, a reel provided with yielding spring-sustained peripheries or edges, whereby they are adapted to adjust themselves to the contour of the concave platform.

5. In combination with a concave platform having a discharge-opening, a reel provided with spiral blades or flights having yielding spring-sustained peripheries, as and for the purpose set forth.

6. In combination with the main spiral blades of reel *N*, a short spiral section at each end, independent of the main blades, as and for the purpose set forth.

7. In a machine substantially such as shown, the combination of a fanning-mill carried upon a stationary frame, a concave carried by a tipping or adjustable frame, and a jointed trunk or spout connected at its ends with the fanning-mill and concave, respectively, whereby the adjustments of the concave are permitted without interfering with the trunk or spout.

8. In combination with the fanning-mill *F*, carried upon the main frame, and the concave *K*, carried by the tipping frame *H*, the trunk *P*, consisting of sections *t*, *t'*, connected with the concave and the fanning-mill, respectively, and connected one with the other by links *u*, as and for the purpose explained.

9. In combination with the fanning-mill carried by the main frame, and the thrasher attached to the tipping concave, a tailings spout or trunk extending from the fanning-mill to the thrasher and made in two parts, one arranged to slide within the other, as and for the purpose set forth.

10. In combination with the telescopic trunk or spout *Z*, the conveyer *Y*, connected with its driving-shaft by a universal joint, as set forth, whereby it is caused to adapt itself to the movements of the spout.

11. In a combined header, thrasher, and separator, such as shown and described, the combination of the gear-wheel *A'*, secured upon

the main axle, and the line-shaft m' , provided with pinions j' , k' , l' , and n' , and eccentric w' , said pinions gearing with and giving motion to the pinions of the fan and straw-carrier shafts, and the eccentric giving motion to the cutter-blade, all substantially as shown.

12. A combined reel and conveyer having spiral blades adjustable to and from the central shaft, substantially as and for the purpose set forth.

13. A combined reel and conveyer consisting of slotted radial arms and spiral blades or flights attached to said arms, substantially as shown and described.

WILLIAM HENRY PARRISH. [L. S.]

Witnesses:

ORLANDO ALDERMAN,
SAML. L. GAINES.