

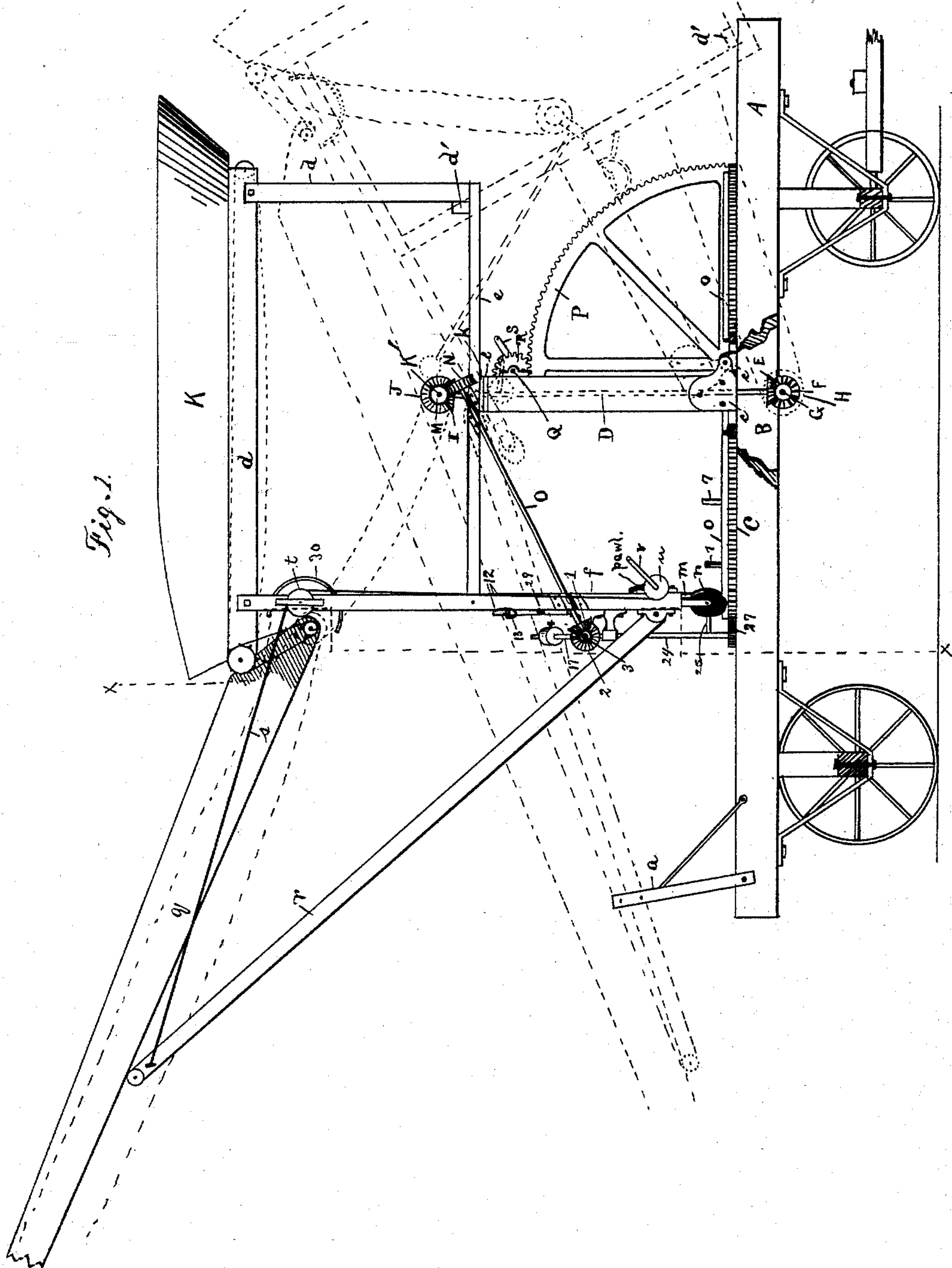
(No Model.)

3 Sheets—Sheet 1.

C. E. GAUMER.
STRAW STACKER.

No. 483,213.

Patented Sept. 27, 1892.



Witnesses
A. Keithley
J. W. Mubertin.

Inventor
Charles E. Gaumer
By L. M. Shurlow
Atty.

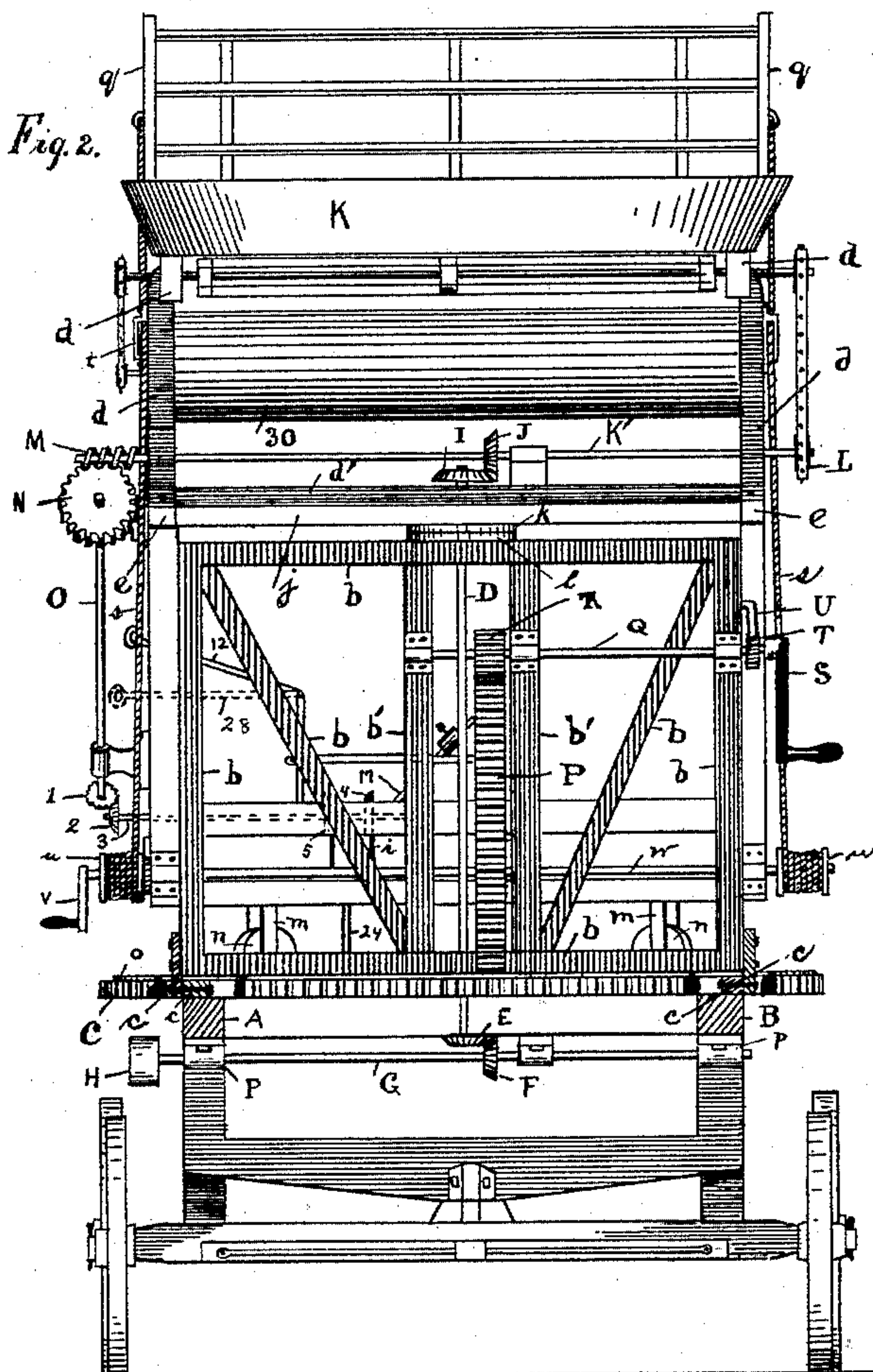
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3 Sheets—Sheet 2.

C. E. GAUMER.
STRAW STACKER.

No. 483,213.

Patented Sept. 27, 1892.



Witnesses
A. Keithley
J. W. Mulstein

Inventor
Charles E. Gaumer
By L. M. Thurston
Atty.

(No Model.)

3 Sheets—Sheet 3.

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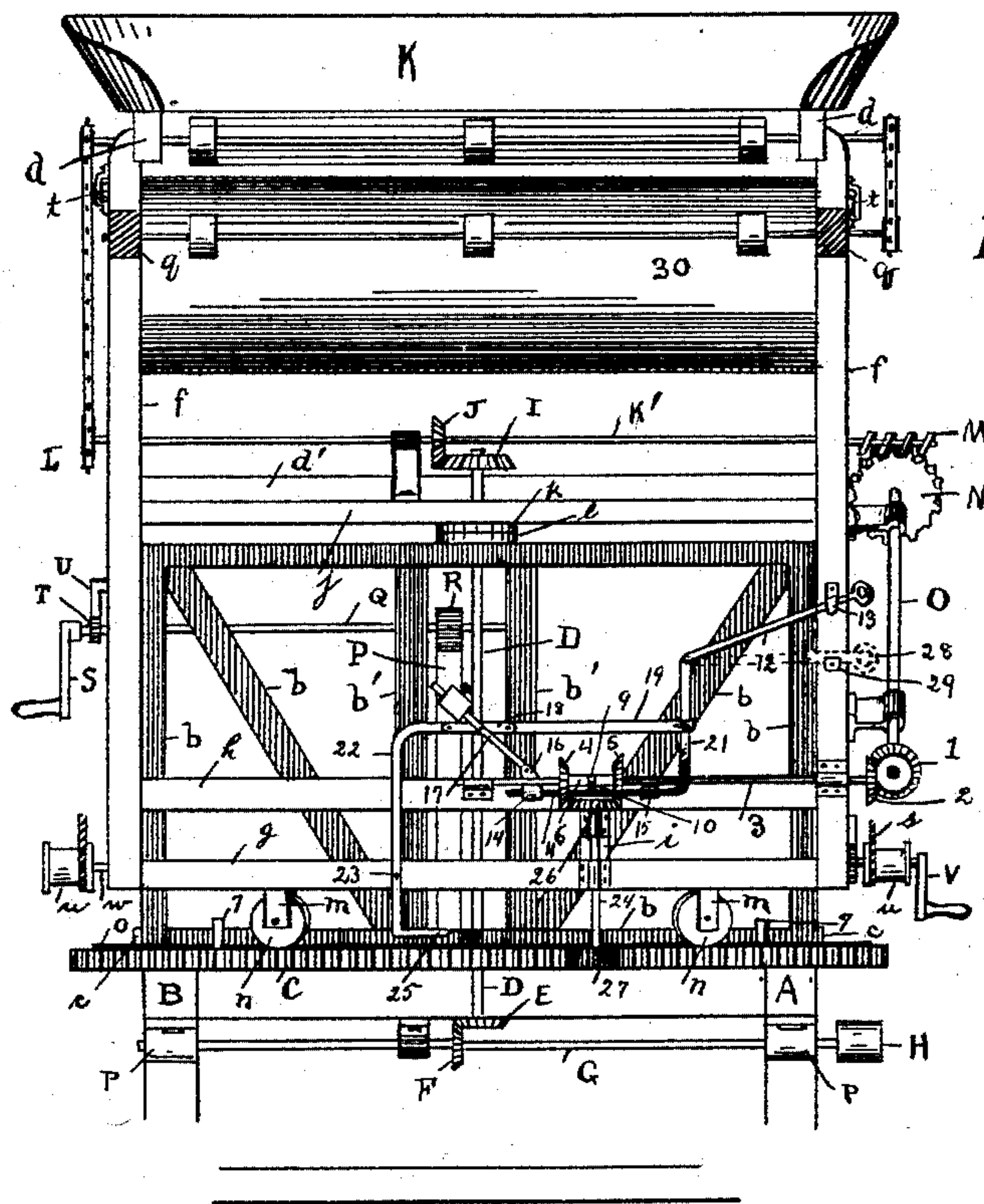


Fig. 3.

Fig. 4.

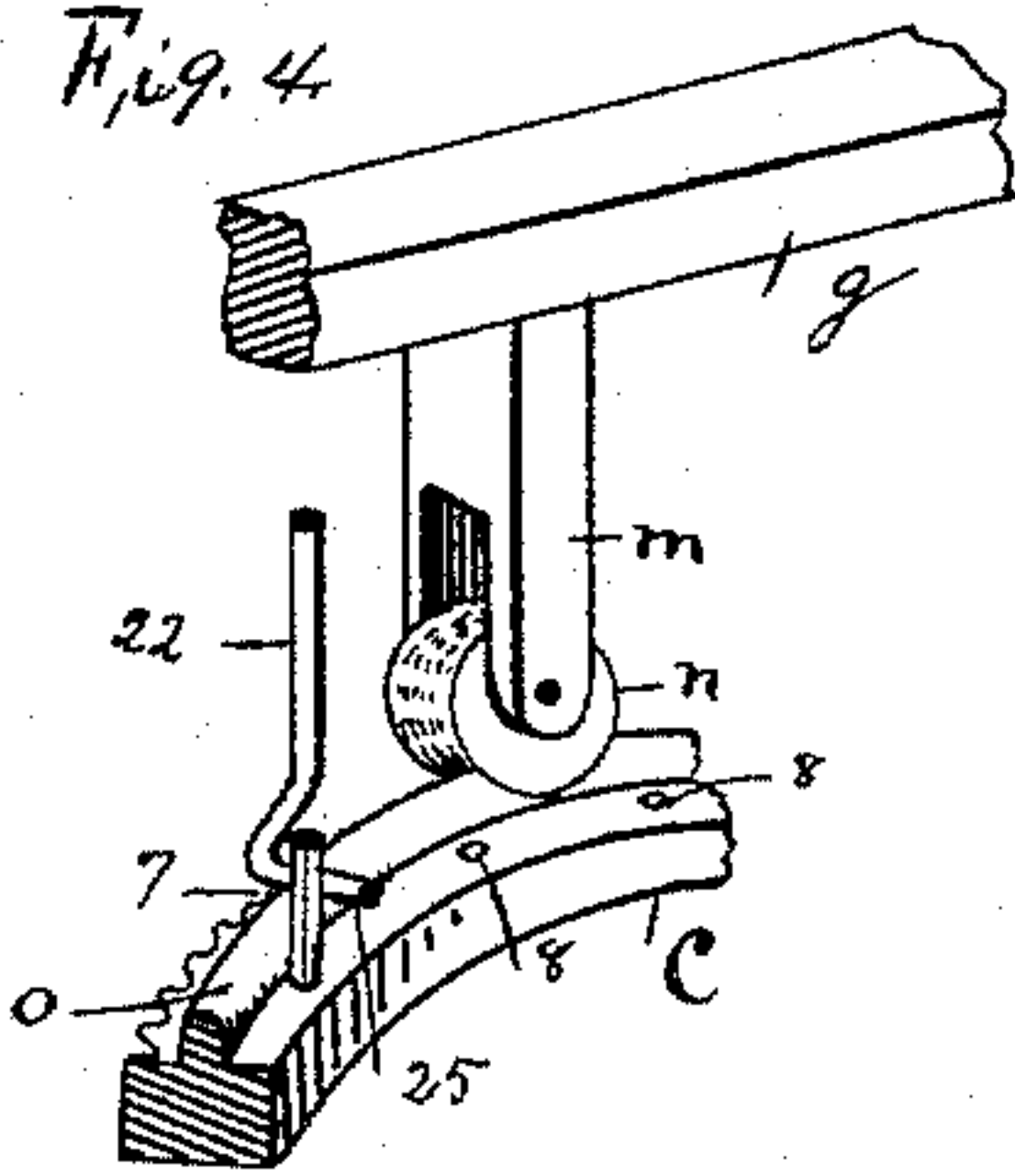


Fig. 5.

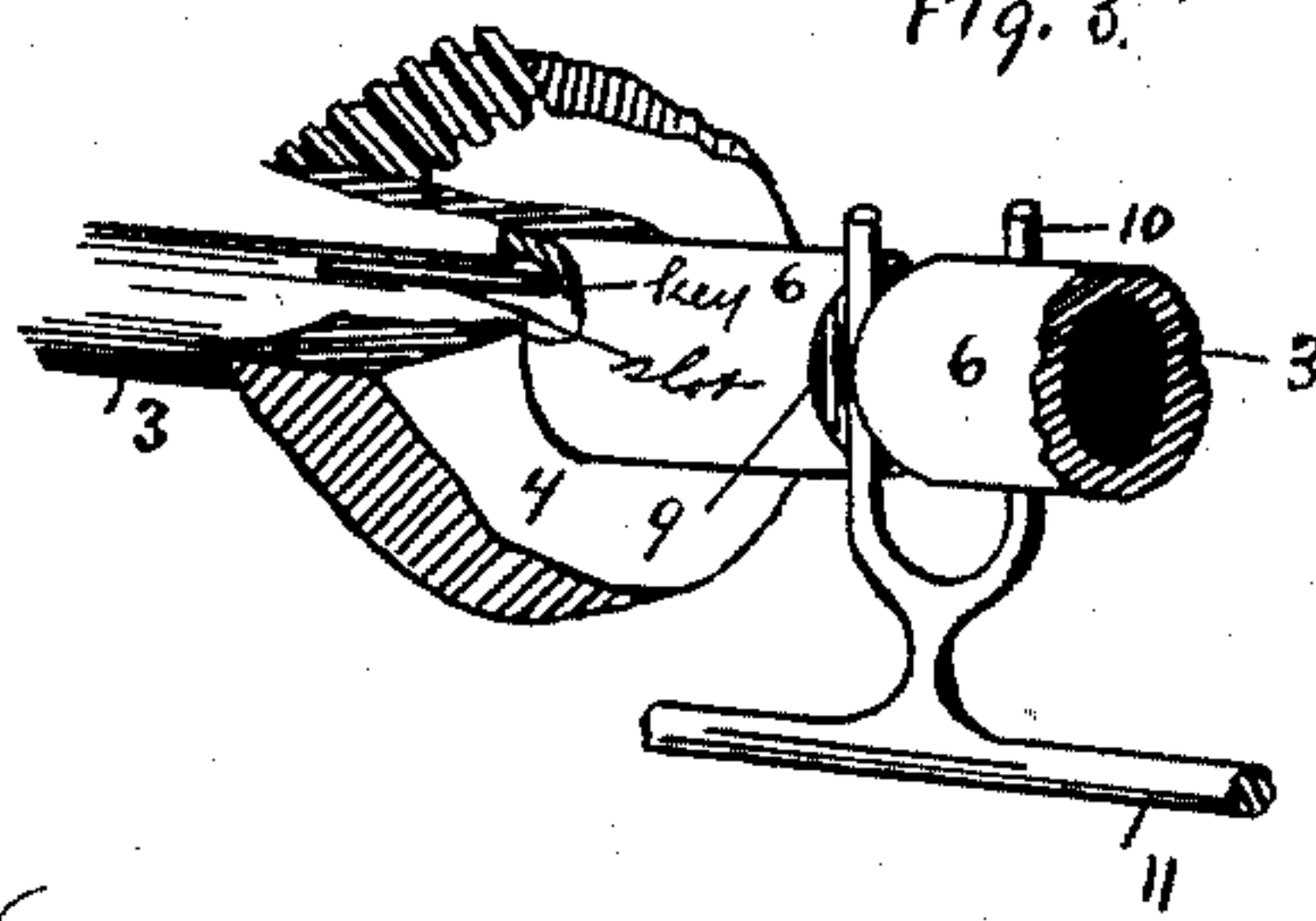
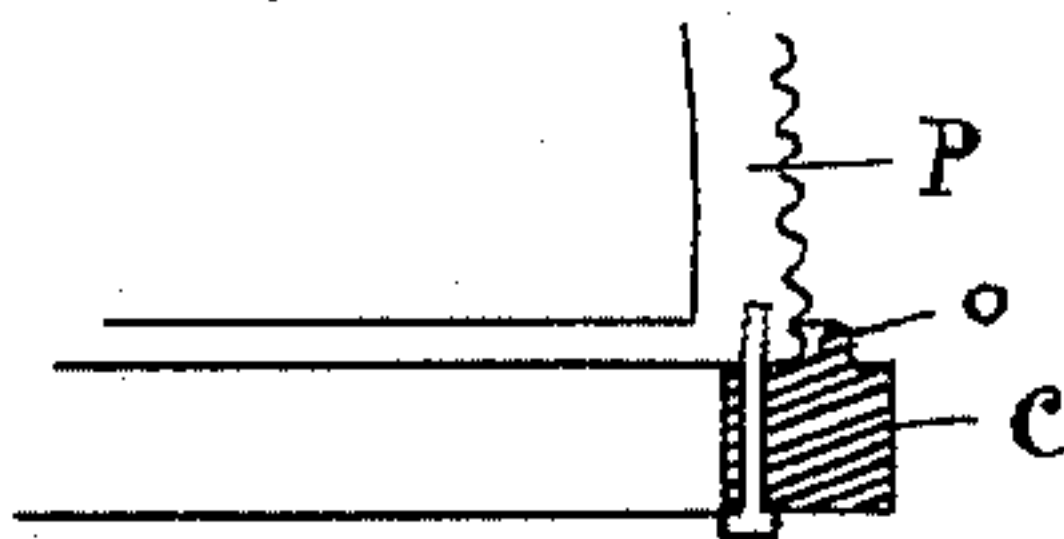


Fig. 6.



Witnesses.

A. Keithley

J. W. Mulstein

Inventor.

Charles E. Gaumer

By L. M. Shurlock
Att'y.

UNITED STATES PATENT OFFICE.

CHARLES EDWARD GAUMER, OF LAWN RIDGE, ILLINOIS.

STRAW-STACKER.

SPECIFICATION forming part of Letters Patent No. 483,213, dated September 27, 1892.

Application filed September 25, 1891. Serial No. 406,773. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EDWARD GAUMER, a citizen of the United States, residing at Lawn Ridge, in the county of Marshall and State of Illinois, have invented certain new and useful Improvements in Straw-Stackers; and I do declare the following to be a full, clear, and exact description of the invention, such as it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in straw-stackers adapted to be used in connection with thrashing-machines; and it consists in the peculiar construction and combinations of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of the straw-stacker embodying my improvements and showing the same arranged in position for operation. Fig. 2 is a front elevation of the stacker, showing some of the working parts. Fig. 3 is a sectional elevation of the rear of stacker through dotted line *x x*, Fig. 1. Fig. 4 is a detail view of a section of the master-wheel, on which bears a caster-wheel for supporting a portion of the frame. Fig. 5 is a detail view of part of the gearing of stacker and showing a fork for giving it the proper movement. Fig. 6 is a section of the master-wheel, showing a portion of a toothed quadrant bolted thereto.

The main frame of stacker is composed of two horizontal beams A and B, which run the entire length of machine and which are united at several points with transverse beams running the width of machine to form a rectangular frame. Under the frame referred to are secured the bolsters, &c., used ordinarily for the carrying-wheels.

Placed on the top of the beams A B and secured thereto is a master-wheel C, which, as illustrated, is provided on its periphery with cogs or teeth.

As shown in Fig. 2, a framework composed of the beams *b b* is hinged to the main frame A B by hinges *c c*, and on the top of this frame

rests part of a second frame composed of the beams *d, d', e*, and *f*, Fig. 1, *j d d' e*, Fig. 2, and *d', f, g, h, i*, and *j*, Fig. 3. To the under side of the beam *j*, in the center of its length, is bolted an upper plate *k* of a fifth-wheel, which bears on a second plate *l*, bolted to the top of frame *b b*. To the forward beam *g* of the frame *d', f, g, h, i*, and *j*, Fig. 3, are secured at the places shown depending arms *m m*, which carry casters *n n*, and these casters run on a flange or rail *o*, made on the upper surface of the master-wheel C. (Better shown in Fig. 4.) A shaft D runs down through the beam *j* and through the plates *k* and *l* of fifth-wheel and through the lower beam *b* of the frame *b b* and carries on its lower end a beveled gear-wheel E, which meshes with a similar wheel F on a horizontal shaft G, which is hung from the main frame A and B by boxings *p p*, as shown, and to which the driving-pulley H is attached.

Secured to the upper end of the shaft D is a beveled gear-wheel I, which meshes with the wheel J on horizontal shaft K', and one end of the shaft K', being provided with a sprocket-wheel L, drives the elevator-gearing by means of a chain, while the opposite end of the shaft is provided with a worm M, which meshes with a worm-wheel N on a slanting shaft O, which drives a forward operating mechanism, to be described.

The casters *n n* before described are designed to run upon the rail *o* on master-wheel, and for this purpose the center of the fifth-wheel *k l* must necessarily be exactly above the center of the master-wheel C, and the vertical shaft D answers to what might be termed a "king-bolt" for the fifth-wheel in turning. By this means the entire upper moving frame could swing the entire circumference of the said master-wheel.

Mounted on the top of the movable frame is an iron hopper K, with flaring sides, for receiving the straw from the threshing machine. The hopper is, as a matter of course, open at its forward end, and also at the bottom. Underneath said hopper is the ordinary apron for carrying the straw to the elevating-frame, which is pivoted to the front of the movable frame and is composed of a bottom (not shown) and the side boards *q*, and

the conveying-apron is placed on the said elevating-frame in the usual manner and is driven by the usual sprocket-wheels, &c. The elevating-frame is raised or lowered by means of the arms *r*, Fig. 1 which are pivoted or hinged at one end to the movable frame, as shown, and the free ends of said arms are provided with pulleys which bear up under the elevating-frame. Near the said free ends of the arms *r* is attached a rope *s*, which runs over a pulley *t* on the movable frame, thence downward to a reel *u*, Fig. 2, journaled at the back of said frame on the shaft *w* and operated by the crank *v*. A similar reel is also secured at the other end of the shaft *w* for taking up the rope on the opposite side of the machine. The arms *r* may be united together by suitable cross-pieces, if desired, to make a rigid frame.

The machine is designed to be folded up in compact shape for the road, and in order to accomplish this the quarter of a cog-wheel or quadrant *P* is set between the central upright beams *b' b'* of the frame *b b*, Fig. 2, and is held in place by the lower rearward portion being bolted to the rim of the master-wheel, as shown in Fig. 6, while the forward portion may be secured to a beam (not shown) running across the frame.

Secured by means of boxings to the front sides of the beams *b' b'* before mentioned is a shaft *Q*, on which is keyed a pinion *R*, which meshes with the cogs of the quadrant, as shown, and on one end of the said shaft *Q* are placed a crank, ratchet-wheel, and pawl *S*, *T*, and *U*, respectively. This machine is also designed when in operation to have an oscillating movement—i. e., the movable frame and the elevating-frame are given a movement from side to side, so that the straw is not delivered in a heap, but is spread back and forth by this movement. The manner in which this movement is acquired may be understood from the following: The before-mentioned driving-shaft *O*, having its bearings in journals on one side of the movable frame, is provided at its forward end with a beveled gear-wheel 1, which meshes with a second wheel 2 on a horizontal shaft 3, having its bearings in boxings on the front of the movable frame, and on this shaft is placed a motion-reversing gear composed of two beveled gear-wheels 4 and 5, secured to a sleeve 6, as shown, and this sleeve is allowed to slip on the shaft laterally, but is keyed thereon, so that it revolves with the revolution of said shaft.

The shifting of the position of the reversing-gear will be described in "the operation." The sleeve 6 is provided with a slot 9, running around its entire circumference, and into which is set a fork 10, Fig. 5. This fork 10 is a continuation of the shifting horizontal rod 11, having its bearings in boxings 14 and 15 on the beam *h*. One end of the rod 11 is bent at right angles upwardly at 21 and is pivotally attached to the end of a handle-bar 12,

which rests in a hook 13. The opposite end of the bar 11 has its bearings in the boxing 14, and this boxing is made with an extension 16, to which is pivoted one end of a throw-bar 17, which bar is pivoted near the center of its length to a short bar 18, while one end of the said bar 18 is pivoted to a longer rod 19, which is provided with a slot at the other end, and this slot engages with a stationary pin in the bar or rod 21. The opposite end of the short bar 18 is pivoted to one end of a lever 22, which is pivoted at 23 to the beam *g*. The lower extremity of the lever 22 is bent to form a hook 25, which contacts with a pin or pins 7, which are set in different positions on the master-wheel *C* in holes 8 for the purpose. A beveled gear 26 is designed to mesh with the reversing-gear and is placed on the upper end of a vertical shaft 24, which shaft has its bearings in boxings on the beams *i* and *g*, and to the lower end of said shaft is secured a pinion-gear 27, which meshes with the teeth on master-wheel.

The operation of the machine is as follows: I will first proceed to describe the manner in which the machine is "doubled" for road-work. In order to lower the framework, as shown in dotted lines, Fig. 1, the reel-crank *v* is turned in a direction to unreel the rope *s*, (after releasing the pawl from the ratchet-wheel shown in drawings.) This lets the arms *r* down, as also the elevating-frame, and these are lowered until the said arms *r* rest upon a supporter *a'*, which is simply a frame secured to the main frame, as shown. After this has been accomplished the crank *S* on the shaft *Q* is turned (after releasing the pawl *U* shown) in a direction opposite to the motion of the hands of a clock until the cross-beam *d'* rests on the main frame, as shown in dotted lines, Fig. 1. By lowering this portion of the machine the casters *n* are raised from the master-wheel. So, also, is the gear-wheel *E* disengaged from the wheel *F* and is raised, as shown in dotted lines, Fig. 1.

The reversing mechanism now requires attention. The power being applied to the driving-pulley *H* transmits motion to the vertical shaft *D* through the gear-wheels *F* and *E*, and this gives movement to the horizontal shaft *K'* through wheels *I* and *J*, and the shaft *K'* gives power to the apron-gearing *L*, and also the worm *M* and worm-wheel *N*, shaft *O*, gear-wheels 1 and 2, and shaft 3, and the sliding sleeve 6, with the gears 4 and 5, being keyed to the said shaft 3, also imparts motion to them, and supposing that one of said gear-wheels 5 is meshing with the gear-wheel 26 on the upper end of vertical shaft 24 and supposing the shaft 3 to be revolving in a direction toward the front of machine the gear-wheel 26 and shaft 24, with its pinion 27, will revolve toward the left, and thereby the swinging frame will be carried to the left (as viewed in the drawings in Fig. 3) until the hook 25 on the lever 22 strikes one of the

pins 7 in the master-wheel, and in striking the said pin the lever will be thrown to the right, thus throwing the bar 17 over to the opposite position shown in drawings, and by this movement the bar 11, with its fork 10 is, forced to the right, thus slipping the sleeve 6, with its gear-wheels, in the same direction, and thus the wheel 5 is thrown out of gear and at the same time the wheel 4 is thrown into gear with the wheel 26, and as this takes place the motion is at once reversed and the frame or carriage is carried to the right until the said hook again strikes upon one of the pins 7, when the bar 17 is thrown back to its first position, when the gearings are at once reversed. When the bar 17 is thrown into position, the weight attached thereto holds the said bar in position until again thrown, and thus the gear-wheels mesh with each other without danger of slipping. The pins 7 referred to may be set at any point on the master-wheel C in holes 8, so that, if necessary, the frame may describe almost an entire circle from side to side or may have a play of only a foot or two, as will be readily understood.

In Fig. 3 the handle-bar 12 referred to is lowered, as shown in dotted lines at 28. A notch is cut in the lower edge of said bar, as shown, and this notch engages with a block 29, bolted to the upright beam *f*. The purpose of this is that when it is desired to have the carriage remain stationary, while yet delivering straw, the said bar may be brought into engagement with the block 29, and this movement throws both of the gear-wheels 4 and 5 out of engagement with the wheel 26. Thus the said wheel 26 rests midway between the wheels 4 and 5 while said wheels are yet revolving. In the first position at 12 the handle-bar slips back and forth in the hook 13. A drum 30 is made of sheet metal and of a semicircular form, as shown in end view, Fig. 1, rear view in Fig. 2, and front view in Fig. 3, and this drum is supported between the upright beams *f f* of swinging frame and serves to prevent any straw dropping into the gearing of the machine.

I claim—

1. In a straw-stacker, the combination of a bed-frame A B, a supporting-frame *b b*, placed transversely across the machine, a swinging frame composed of the lower horizontal beams *j e d'*, vertical beams *d f*, the upper horizontal beams *d*, and hopper K, said vertical beams *f* extending downward, beams *g* and *h*, located between the extremities of said beams *f* and having mounted thereon the casters *n*, the flange *o*, engaged by said casters, and a master-wheel C, mounted on said frame A B, substantially as herein set forth, and for the purposes described.

2. In a straw-stacker, the combination of a bed-frame A B, a supporting-frame *b b*, placed transversely across the machine, a swinging frame composed of the lower horizontal beams

j e d', vertical beams *d f*, the upper horizontal beams *d*, and hopper K, the vertical shaft D, journaled in the center of the frame *b b* and provided with a gear-wheel on either end, the horizontal shaft G, journaled on the bed-frame, and the horizontal shaft K', journaled on the swinging frame and provided at one end with a sprocket-wheel and at the other with a beveled gear-wheel, substantially as and for the purposes herein set forth and described.

3. In a straw-stacker, a bed-frame A B, a master-wheel mounted thereon and provided with a flange *o* on its upper surface, and the adjustable pins 7, in combination with the operating mechanism composed of the vertical shaft 24, having bearings on the beams *g* and *h*, said shaft provided with the beveled gear-wheel 26, the gear-wheel 27, meshing with the teeth of the said master-wheel, the sleeve 6, mounted on the shaft 3 and provided with the beveled gear-wheels 4 and 5, said shaft having bearings on the beam *h* of swinging frame, the horizontal shifting rod 11, having sliding bearings in boxings 14 and 15 on beam *h*, a vertical lever 22, pivoted on beam *g*, said lever having a hook 25 formed on its lower extremity, the bar 18, pivoted to the upper extremity of said lever, the rod 19, pivoted to said bar 18, said rod 19 also being pivoted at its opposite end to the vertical extension of shifting rod 11, and the weighted throw-bar 17, pivoted at its lower end to the bearing 14 and pivoted near its upper extremity to the bar 18, and all working together in the manner and for the purposes herein set forth and described.

4. In a straw-stacker, the combination of a swinging frame composed of the lower horizontal beams *j e d'*, vertical beams *d f*, the upper horizontal beams *d*, and hopper K, said vertical beams *f* extending downward, beams *g* and *h*, located between the extremities of said beams *f* and having mounted thereon the casters *n*, the flange *o*, engaged by said casters, and a master-wheel C, mounted on said main frame A B, the horizontal shaft K', journaled on the said swinging frame, with the sprocket-wheel L and gear-wheel J, and the slanting shaft O, with the gear-wheels N and 1, substantially as described.

5. In a straw-stacker, the operating mechanism composed of the vertical shaft 24, having bearings on the beams *g* and *h*, said shaft being provided with the beveled gear-wheel 26, the gear-wheel 27, the sleeve 6, mounted on the shaft 3 and provided with the beveled gear-wheels 4 and 5, said shaft having bearings on the beam *h* of swinging frame, the horizontal shifting rod 11, having sliding bearings in boxings 14 and 15 on beam *h*, a vertical lever 22, pivoted on beam *g*, said lever having a hook 25 formed on its lower extremity, the bar 18, pivoted to the upper extremity of said lever, the rod 19, pivoted to said bar 18, said rod 19 being also pivoted at

its opposite end to the vertical extension of
shifting rod 11, and the weighted throw-bar 17,
pivoted at its lower end to the bearing 14 and
pivoted near its upper extremity to the bar
5 18, and all working together in the manner
and for the purposes herein set forth and de-
scribed.

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

CHARLES EDWARD GAUMER.

Witnesses:

WM. E. SMITH,
STEPHEN CORNELL.