

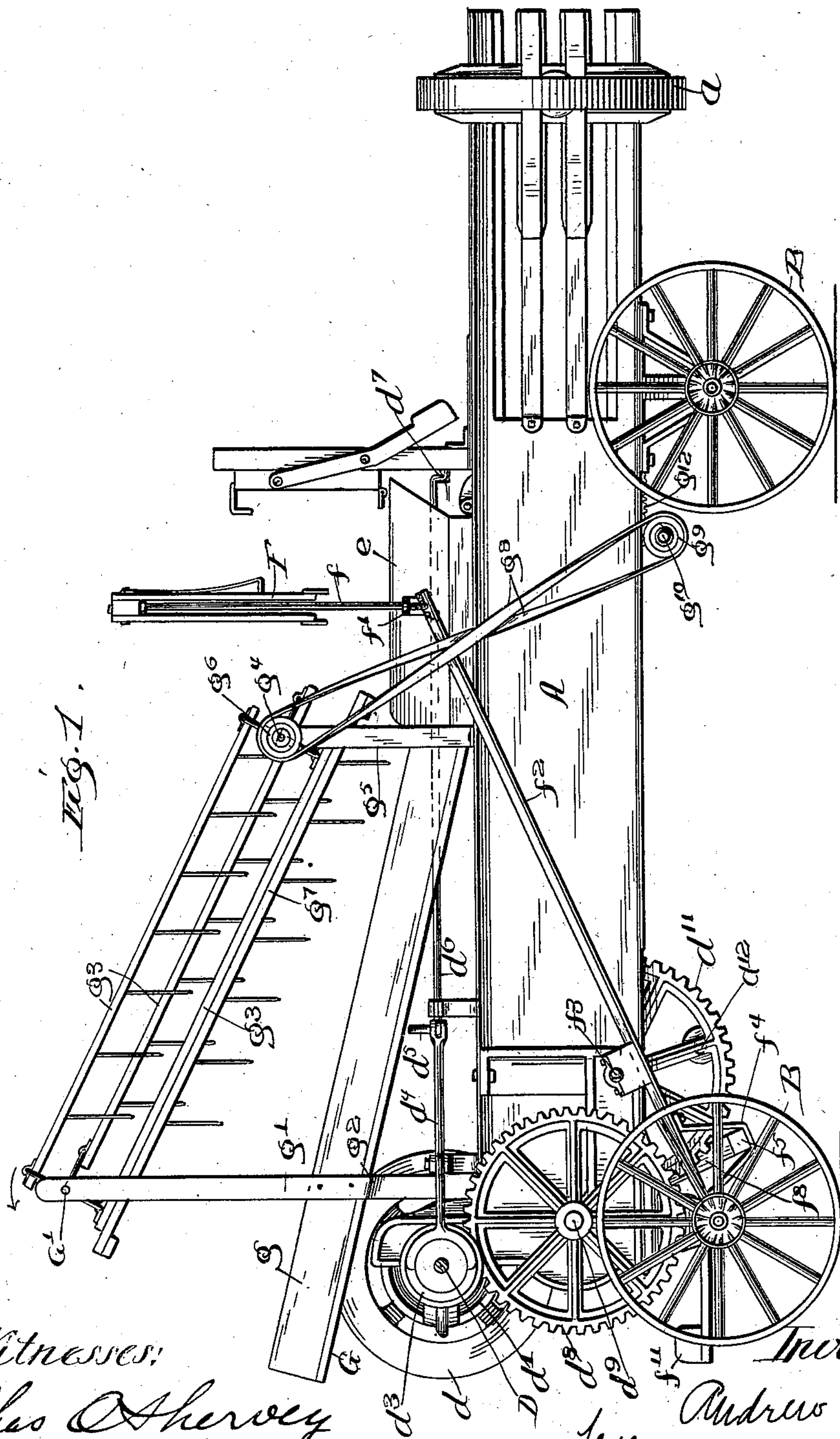
(No Model.)

3 Sheets—Sheet 1.

A. WICKEY.  
BALING PRESS.

No. 556,233.

Patented Mar. 10, 1896.



Witnesses:

Chas Shervey  
A. H. E. Hansen

Inventor:

Andrew Micky  
by Nicholas & Birtie  
His Atty.

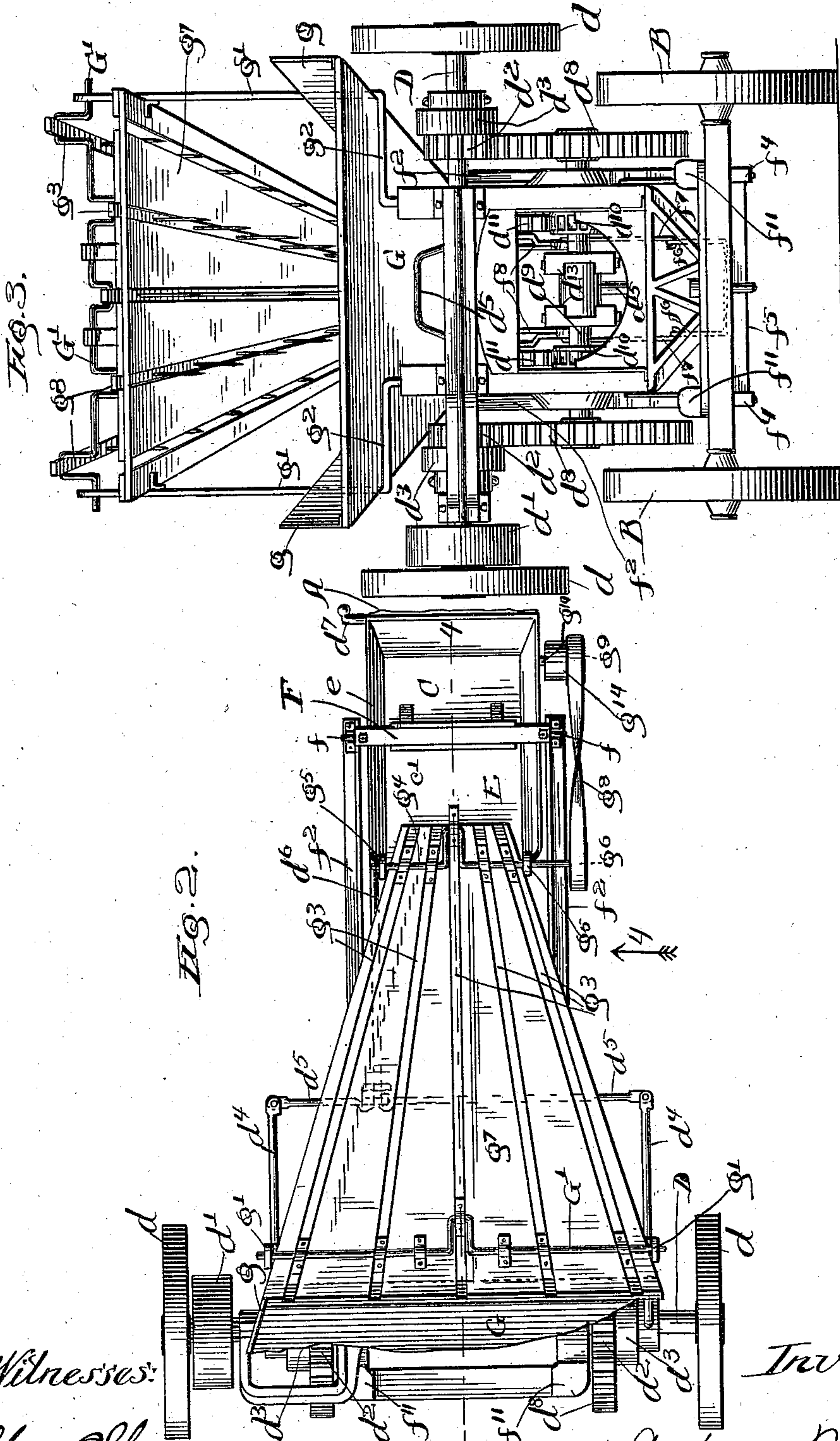
(No Model.)

3 Sheets—Sheet 2.

A. WICKEY.  
BALING PRESS.

No. 556,233.

Patented Mar. 10, 1896.



Witnesses:

Chas. E. Hervey  
A. H. Ebbesen

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Attorney



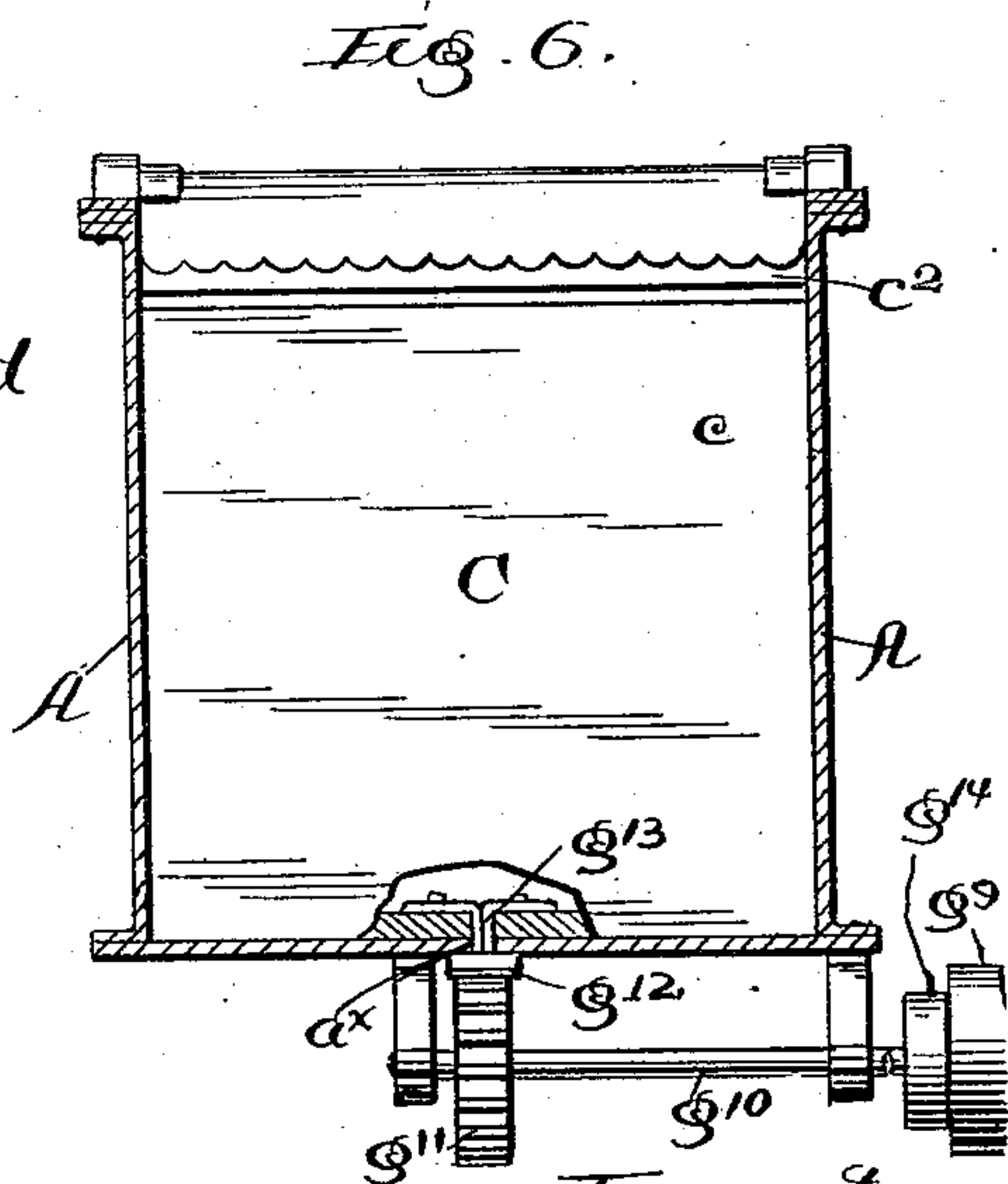
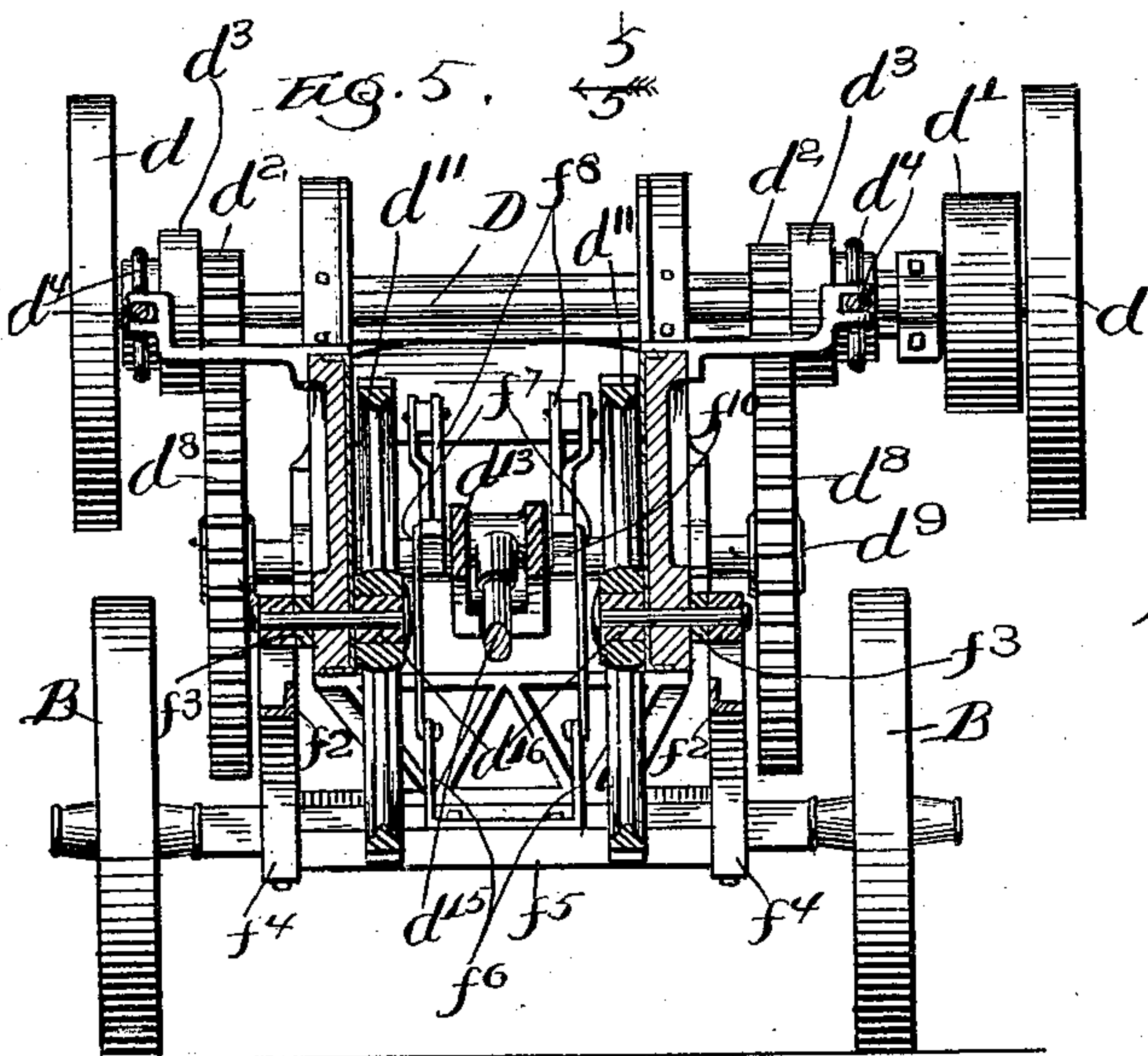
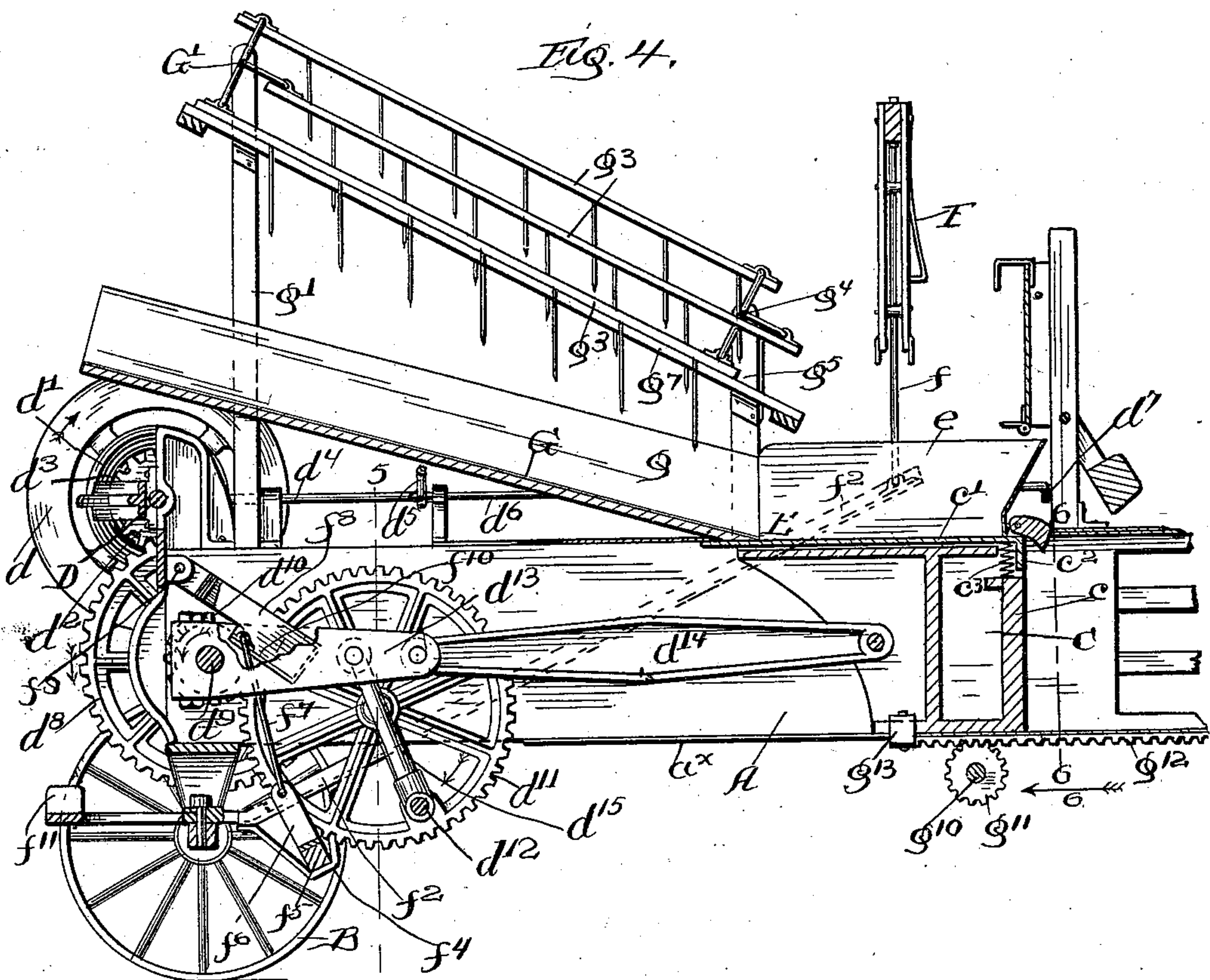
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3 Sheets—Sheet 3.

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Witnesses:

Chas. A. Shervey  
A. J. Ebbesen

Inventor:  
Andrew Wickey  
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# UNITED STATES PATENT OFFICE.

ANDREW WICKEY, OF CHICAGO, ILLINOIS.

## BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 556,233, dated March 10, 1896.

Application filed March 16, 1895. Serial No. 541,980. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW WICKEY, a citizen of the United States of America, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Baling-Presses, of which the following is a specification.

My invention relates to certain improvements in baling-presses, which will be fully described in the following specification, and definitely pointed out in the claims appended thereto.

My preferred construction is illustrated by means of three sheets of drawings, containing six figures, of which—

Figure 1 is a side elevation. Fig. 2 is a plan. Fig. 3 is a front elevation, the end of the machine at which the material to be compressed is received being considered the "front end" and the end from which it is discharged being considered the "rear end." Fig. 4 is a vertical longitudinal section of the front end of the machine, taken in plane 4 4 of Fig. 2, looking in the direction of the arrow 4. Fig. 5 is a vertical cross-section in plane 5 5 of Fig. 4, looking in the direction of the arrow 5; and Fig. 6 is a vertical cross-section in plane 6 6 of Fig. 4, looking in the direction of the arrow 6 in said figure.

Referring to Fig. 1, a long rectangular box A is seen mounted upon wheels B, for convenience in moving it. The construction of this box is immaterial to my invention, and the one here shown is of the class used in what are called "perpetual" or "continuous" baling-presses, such boxes being open from end to end and the rear or discharge end being contracted to resist the passage of the compressed material and thereby furnish an abutment against which the compression may take place. This rear end is turned toward the right in the figure and is stoutly reinforced by means of an encircling band *a*. Within the box and fitted to the middle portion thereof is a longitudinally-reciprocating plunger, which is best shown in the section seen in Fig. 4, where the plunger is lettered C. The construction of said plunger is immaterial, but the one here shown consists of a hollow metal casting having a solid face *c*, an end view of which is shown in Fig. 6.

Upon the top of this casting is a plate *c'*, one end of which is turned down upon the face of the plunger, as seen at *c''*, said end being free to rise as far as the top of the box will permit under the tension of a coiled spring *c'''*.

The press here shown is provided with running-gear adapted to be belted to any source of power. Although a great portion of said gear is immaterial to my invention, I shall describe the same fully, in order that all parts of the press may be clearly understood. Said running-gear is best shown in Figs. 1, 4, and 5.

Upon the upper portion of the front end of the machine is journaled a shaft D, carrying balance-wheels *d* at its outer ends, and also having a pulley *d'* to receive the driving-belt. Loosely carried upon the shaft D are two pinions *d''*, adjacent to which are clutches *d'''* for engaging the pinions *d''* at will with the shaft D. These clutches are operated by means of a system of levers and links *d''''* *d'''''* *d''''''*, (see Fig. 1, 2, and 4,) the lever *d'''''* being provided with a handle *d''''''*. (See Fig. 2.) The pinions *d''* are constantly in gear with two gears *d''''* (see Fig. 5) fast upon a shaft *d''''''* journaled in the framework of the box A, which shaft has fast upon it within the walls of the box a pair of pinions *d''''''''*. (Shown only in front elevation in Fig. 3 and in dotted lines in Fig. 4.) These pinions *d''''''''* are in mesh with a pair of larger gears *d'''''''''*, journaled upon gudgeons *d''''''''''* upon the inner surfaces of the sides of the box. The gears *d'''''''''* are connected by a cross-rod *d''''''''''*. (Shown in section in Fig. 4.) The shaft *d''''''''* also has pivoted upon its central portion a swinging arm *d'''''''''*, which is pivoted at one end upon the shaft *d''''''''* and at the other end to one end of a pitman-rod *d''''''''''*, the other end of which is pivoted to the plunger C. The arm *d'''''''''* has pivoted to it between its ends a link *d''''''''''*, which connects said arm with the cross-rod *d''''''''''*, to which said link is also pivoted.

In operation the power is transmitted through the gearing just described to the gears *d'''''''''*, rotating the same on the gudgeons *d''''''''''*. This causes the link *d''''''''''* to oscillate the arm *d'''''''''* upon its pivot, reciprocating the plunger C through the pitman-rod *d''''''''''*. It should be noticed that in the position shown in Fig. 4 the pitman-rod and the arm *d'''''''''* are substantially in line, forming a toggle, and that the



link  $d^{15}$  between the arm  $d^{13}$  and the cross-rod  $d^{12}$ , connecting the gears  $d^{11}$ , lies substantially in the axis upon which said gears rotate, both of which facts combine to give the plunger at this point an exceedingly slow but immensely powerful thrust.

Upon the top of the machine at E (see Fig. 4) is the opening through which the material is fed into the compression-chamber, and said opening is shown as being surrounded upon three sides by a flaring hopper  $e$ . Above this opening is a feeder F, consisting of a framework adapted to enter the compression-chamber and crowd hay or other material into the same. This feeder is carried upon two vertical rods  $f$ , guided in eyes  $f'$  (see Fig. 1) upon the sides of the hopper and pivoted to a pair of long levers  $f^2$ , substantially in a vertical line with said guide. Said levers extend downward and forward and are pivoted upon gudgeons  $f^3$  upon the box A, substantially concentric with the gudgeons  $d^{16}$  upon the inside of the box. The levers  $f^2$  extend beyond said gudgeons and carry upon such extensions depending brackets or loops  $f^4$ , carrying a cross-bar  $f^5$ , (see Fig. 5,) upon which are a pair of upwardly-projecting arms  $f^6$ , pivoted at their upper ends to a pair of links  $f^7$ , extending upward, and pivoted at their other ends to an arm  $f^8$ , pivoted at one end to the frame at  $f^9$ , and having an enlargement  $f^{10}$  at the other end and arranged in the path of the cross-rod  $d^{12}$ , so that when the latter reaches the proper position, as the wheels  $d^{11}$  revolve, it engages the enlarged end, raising it, and through its connections tilting the long levers  $f^2$  and forcing the feeder F down upon the hay. These long levers and the feeder carried thereby are balanced by weights  $f^{11}$  upon the opposite ends of the levers from the feeder. The advantage of this construction is its extreme simplicity and cheapness, together with the fact that the devices which operate the feeder take up no room whatever upon the top of the press-box, which in the ordinary construction is given up entirely at its forward end to such operating devices. In the present construction said forward end of the box is covered by an inclined platform G, leading downwardly to the feed-opening E, and having side pieces  $g$  converging toward said opening. This furnishes a broad receiving-table at the front of the machine, and yet is sufficiently reduced at the feed-opening to discharge entirely into said opening. The table is shown as supported at its front end upon uprights  $g'$ , offset outwardly at  $g^2$  and extending up along the sides of the feed-table and above the same, and having journaled in their tops a shaft  $G'$ , bent to form double crank-arms radiating at different angles from the shaft and carrying bars  $g^3$ , provided with teeth to act upon the hay or straw. Said bars are carried at their opposite ends upon a similar shaft  $g^4$ , carried by uprights  $g^5$  and

rotated by means of a pulley  $g^6$  by suitable connections with the driving-gear, which will be described farther on. Beneath the bar  $g^3$  is a slotted cover  $g^7$ , supported upon the uprights  $g' g^5$ , the slots in which are adapted to receive the teeth upon the bars  $g^3$  when the same are thrust down into the hay, the cover itself serving to withdraw the hay from the teeth when the bars are raised. As the pulley  $g^6$  is rotated these teeth are drawn toward the feed-opening while thrust through the slots, and returned while withdrawn therefrom, the constant tendency being therefore to crowd whatever is placed upon the table G over the feed-opening. As it is only desirable to move this material when the feeder is out of the way, I have provided driving-gear for the pulley  $g^6$  which rotates said pulley as the plunger moves toward the bale, but allows it to remain stationary as the plunger travels in the opposite direction. This driving-gear consists of a belt  $g^8$ , (see Fig. 1,) running to a pulley  $g^9$  upon a transverse shaft  $g^{10}$ , (see Fig. 4,) journaled beneath the box A, and carrying upon its middle portion a pinion  $g^{11}$ , in mesh with a sliding rack  $g^{12}$ , secured at one end to a plate  $g^{13}$ , extending upward through a slot  $a^x$  (see Fig. 6) in the bottom of the box A and secured to the lower portion of the plunger C. The pulley  $g^9$  is itself loose upon the shaft  $g^{10}$  and is intermittently engaged therewith by means of a ratchet device  $g^{14}$ , adapted to engage the pulley with the shaft when the plunger is pushed toward the right in Fig. 4, but to allow the shaft to rotate loosely in the pulley when the plunger is drawn toward the left.

The operation of the entire machine is as follows: Starting with the plunger in the position seen in Fig. 4, in which it is crowded to the limit of its motion toward the right, its withdrawal carries the rack  $g^{12}$  over the pinion  $g^{11}$  and rotates the shaft  $g^{10}$  in the wrong direction to engage the ratchet  $g^{14}$  with the pulley  $g^9$ , so that as long as the plunger moves in this direction the packer-rakes  $g^3$  remain stationary and the accumulation of the material upon the top plate of the plunger drops down in front of the same into the compression-chamber. The still further withdrawal of the plunger actuates the feeder F, through the connections hereinbefore described, and carries the material well down in front of the plunger, said connections, however, raising the feeder out of the way before the plunger reaches it on the return stroke. The commencement of said return stroke reverses the motion of the rack  $g^{12}$ , pinion  $g^{11}$ , and shaft  $g^{10}$ , engaging the ratchet device  $g^{14}$  with the pulley  $g^9$  and operating the feed-rakes in the proper direction to pack the material upon the platform over the top plate of the plunger again. The feeding of the press is therefore rendered completely automatic, and the receiving-table may be arranged to take straw directly from the carrier of a thrashing-ma-



chine, or to take other material from any sort of a conveyer without any intermediate handling.

I claim as new and desire to secure by Letters Patent—

1. The combination in a baling-press and with the box, plunger and driving-gear, of the feeder, F, supported by the side rods,  $f$ , the guides,  $f'$ , therefor, the balanced arms,  $f^2$ , pivoted to the rods,  $f$ , and also to the press and suitable connections for oscillating said arms; substantially as described.

2. The combination in a baling-press and with the box, plunger, and driving-gear, of

the driven wheels,  $d^{11}$ , having the cross-rod,  $d^{12}$ , the feeder, F, supported by the side rods,  $f$ , movable vertically in the guides,  $f'$ , the balanced arms,  $f^2$ , pivoted to the rods,  $f$ , and also to the press and extending beyond the latter pivots, a cross-bar connecting said arms at their latter ends, the pivoted arm,  $f^3$ , extending into the path of the cross-rod,  $d^{12}$ , and the link,  $f^7$ , connecting said cross-bar with said arm; substantially as described.

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Witnesses:

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