

(No Model.)

2 Sheets—Sheet 1.

W. W. HIGGINS.
REEL OVEN.

No. 528,877.

Patented Nov. 6, 1894.

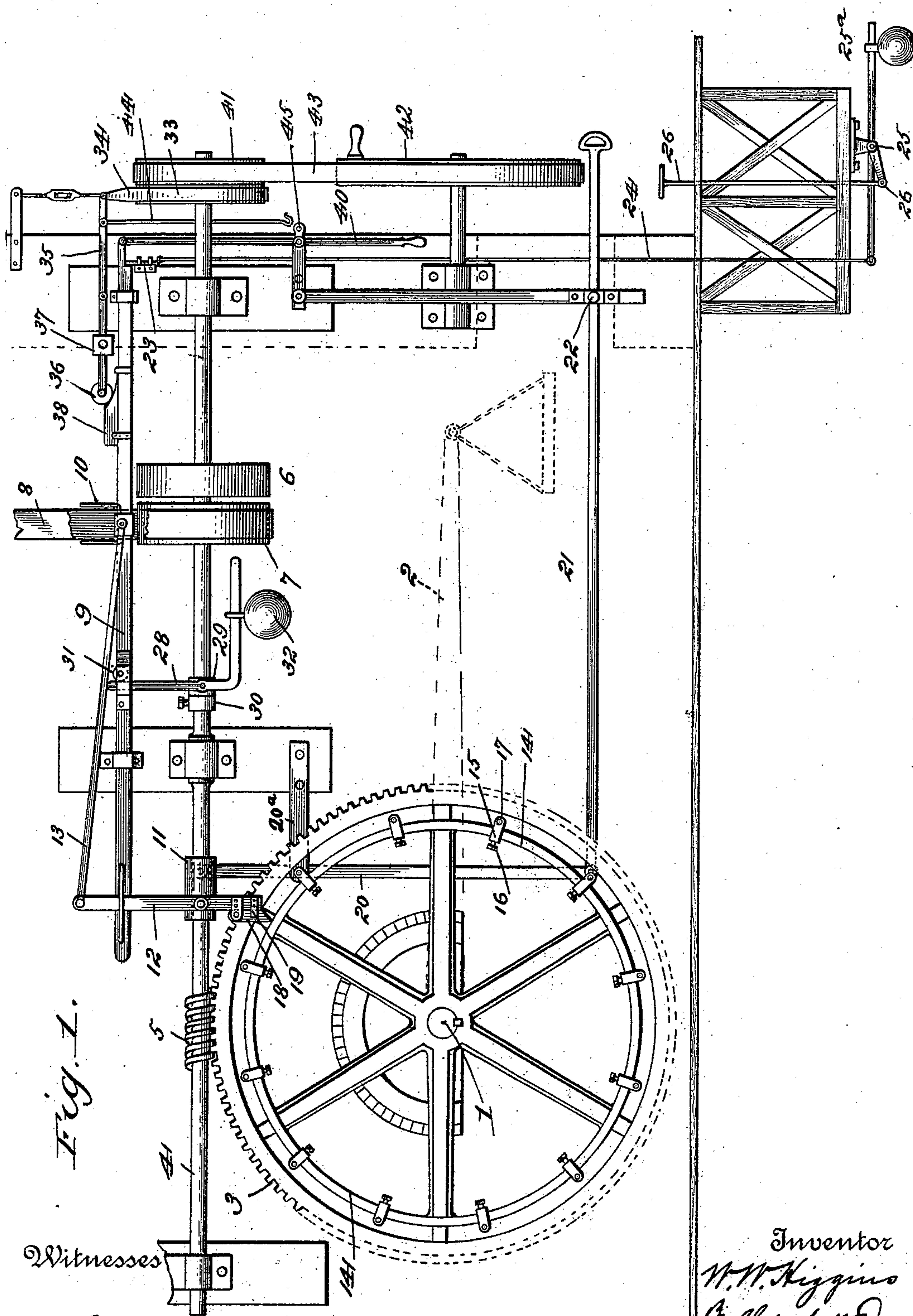


Fig. 1.

Witnesses

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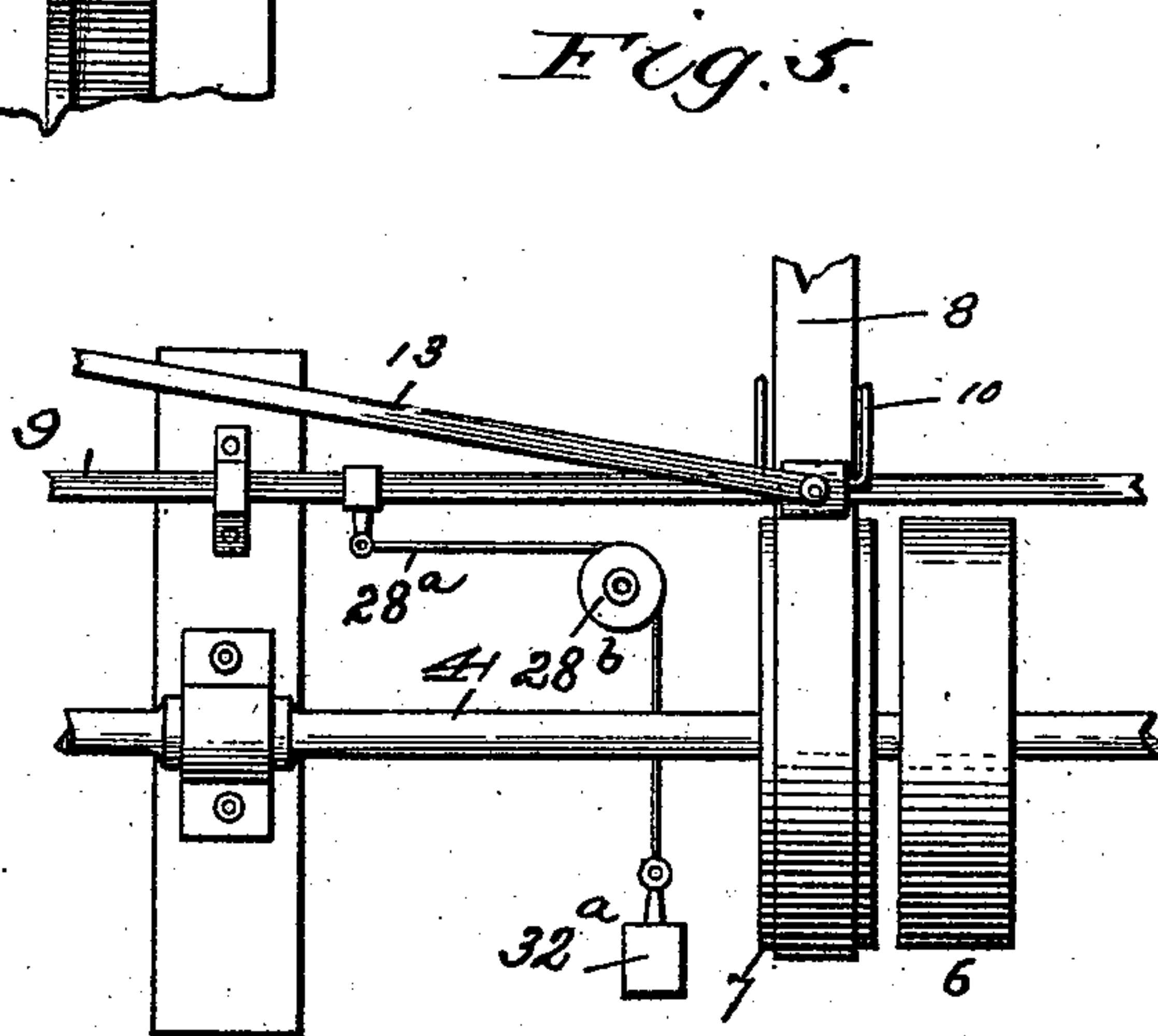
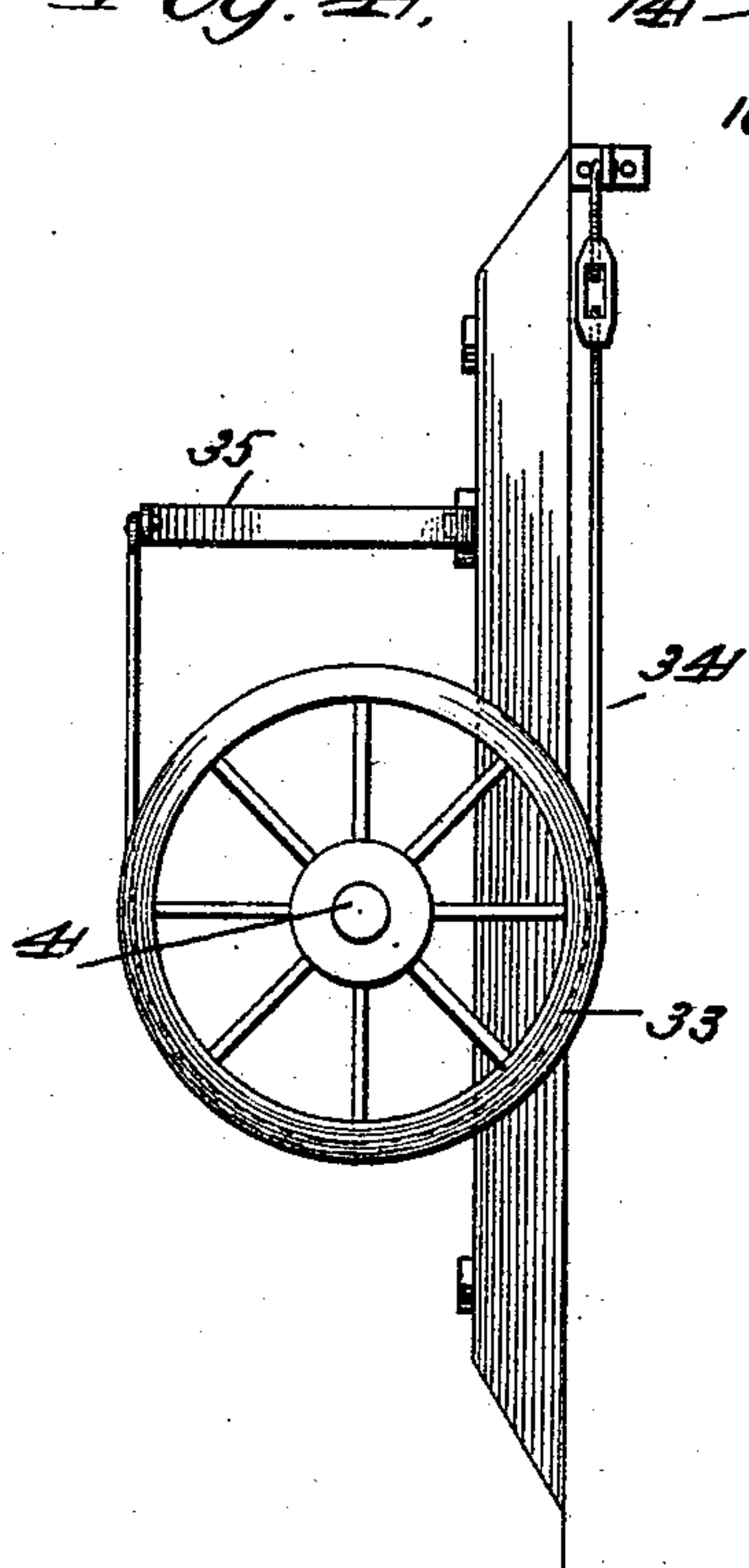
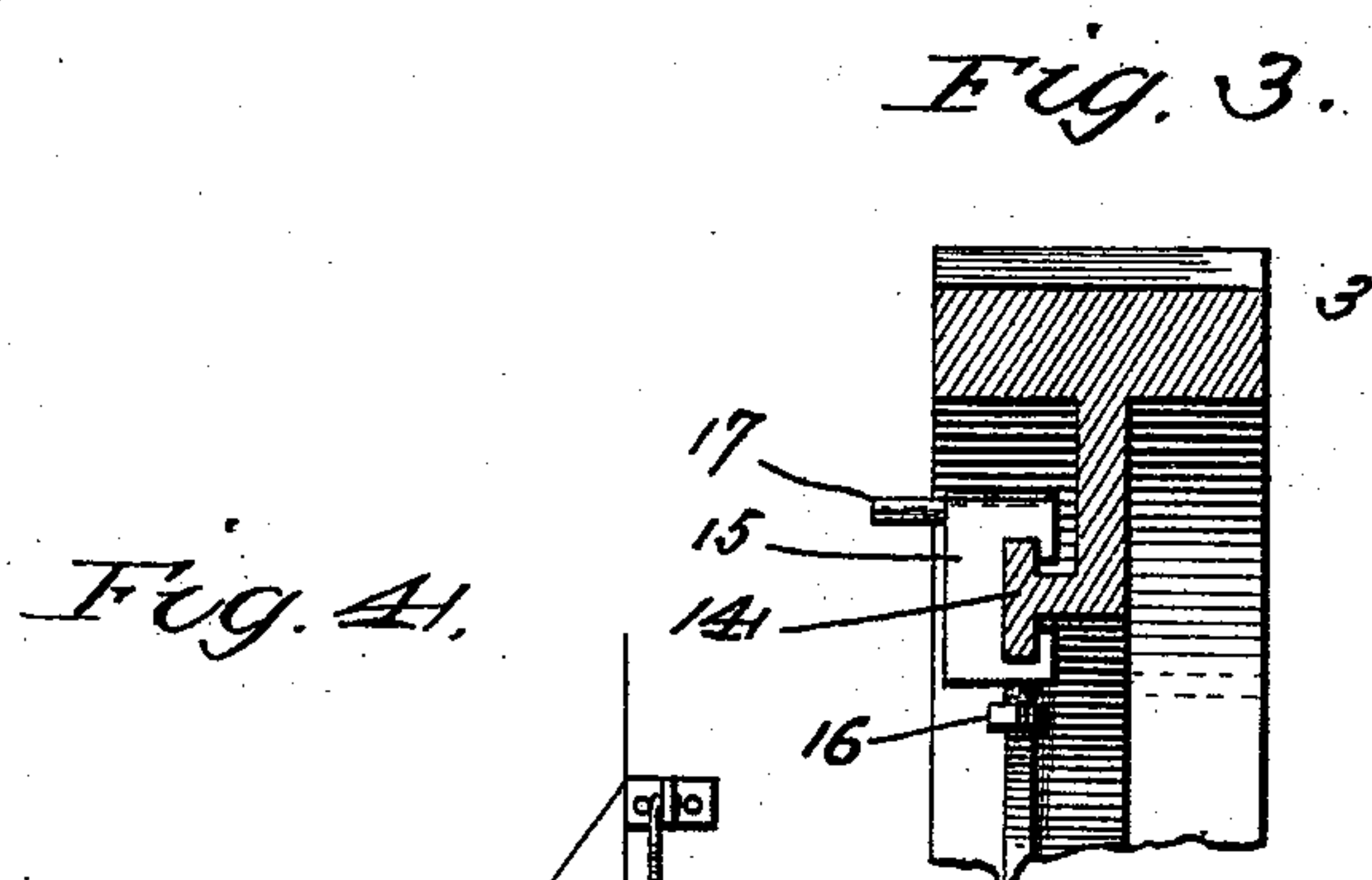
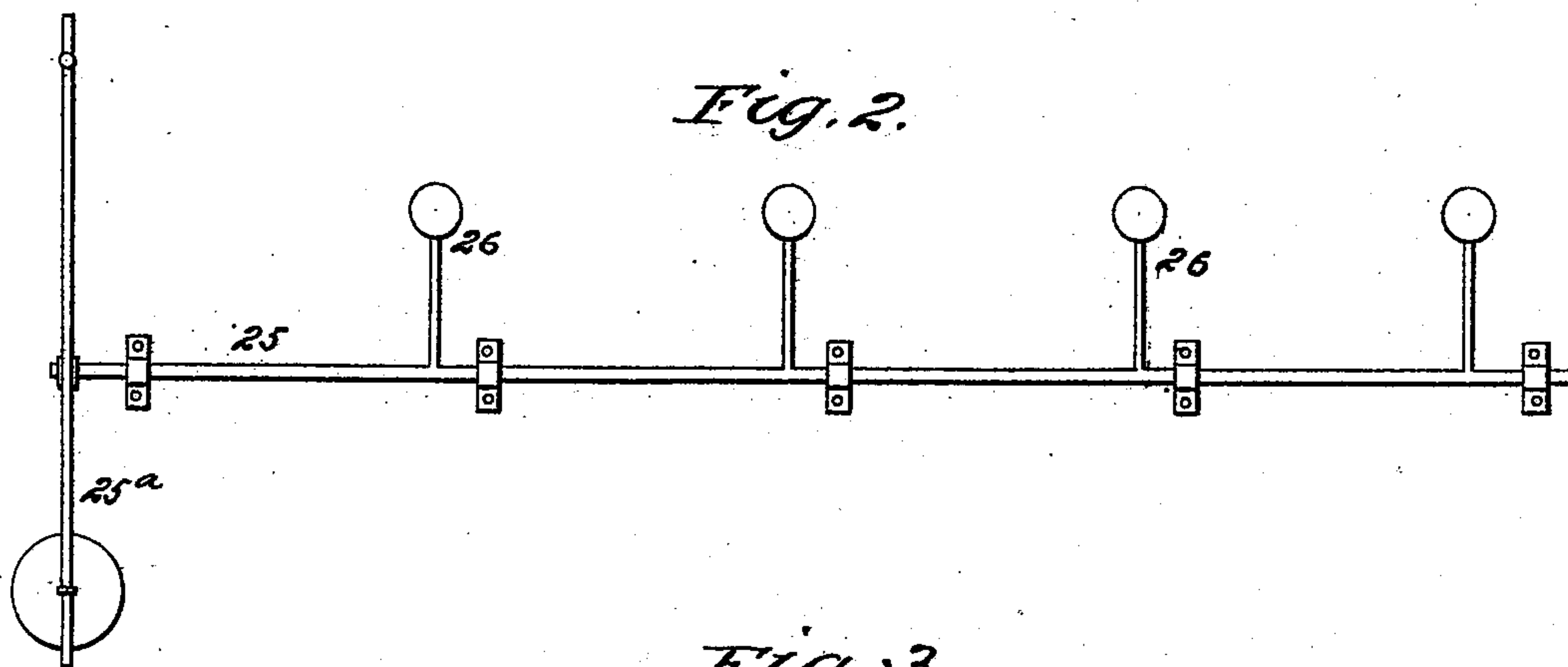
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2 Sheets—Sheet 2.

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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM W. HIGGINS, OF HELENA, MONTANA.

REEL-OVEN.

SPECIFICATION forming part of Letters Patent No. 528,877, dated November 6, 1894.

Application filed June 30, 1894. Serial No. 516,215. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. HIGGINS, a citizen of the United States, residing at Helena, in the county of Lewis and Clarke and State of Montana, have invented certain new and useful Improvements in Reel-Ovens, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to a new and improved mechanism for operating reel-ovens, and it has for its object to provide simple and easily operated means for starting the oven, for automatically stopping it at the proper point, and means whereby it may be made to revolve continuously when desired.

The invention consists in the novel combination and arrangement of parts hereinafter described and particularly set forth in the claims appended.

In the drawings:—Figure 1 is a side elevation of a portion of an oven showing my devices in position; Fig. 2, a detail plan of the pedal shaft which operates the starting mechanism; Fig. 3, a detail sectional view of the worm wheel, showing the adjustable stops carried thereby; Fig. 4, a detail of the brake, and Fig. 5 a detail of a modified form of the automatic belt shifter and brake releasing device.

Referring to the various parts by numerals 1 designates the oven-reel shaft; 2, one arm of the reel, shown in dotted lines in Fig. 1; 3, the worm wheel mounted on the shaft of the oven-reel; 4, the driving shaft provided with the worm 5 which engages and operates the wheel 3, said shaft being mounted in suitable bearings secured to the side of the oven, the forward end thereof extending to the front of the oven, as shown; 6 and 7, adjacent fixed and loose pulleys respectively, carried by the driving-shaft; 8, the driving belt operating on said pulleys.

Above the driving shaft a horizontal bar 9 is slidably mounted in suitable bearings or boxes, said bar carrying a belt-shifting device 10. On the shaft 4 at a suitable point above the wheel 3 is loosely mounted a sleeve 11. On this sleeve is pivoted an upright lever 12, whose upper end is connected by means of a bar 13 to the horizontal bar carrying the

belt shifter, its lower end extending down into position to be engaged by adjustable stops carried by the worm wheel 3. Formed integral with or secured to the outer face of the wheel 3 is an annular-shaped flange 14 on which fit the stops 15. These stops fit over said flange and are adjustable thereon, and are secured in their adjusted positions by set-screws 16. A pin 17 projects laterally from the outer end of each clamp and engages the lower end of lever 12 as the wheel 3 is revolved.

In order that the oven-reel may be turned backward when desired without affecting the lever 12, a block 18 is pivoted to the lower end of lever 12 on the rear side thereof, its lower end extending below the end of said lever. As the wheel 3 turns forward the pins 17 strike said block on its rear side and move the lever 12, but when the wheel moves backward the pins strike it on its forward side and turn it on its pivot and pass under it without affecting the lever 12. Guides 19 are secured to the lever 12 to guide the block 18 and hold it in position.

A vertical lever 20 is pivoted on a suitable bearing 20^a on the side of the oven and the end of said lever is pivoted to the sleeve 11, its lower end being connected to the rear end of an operating rod 21 which extends to the front of the oven and is provided with a suitable handle. By moving the rod 21 back and forth the sleeve 11 may be adjusted on the shaft 4, through the medium of the lever 20, and the block 18 on lever 12 so adjusted with relation to the pins 17 that they will engage it at the proper instant, or said block may be moved entirely out of the path of said pins if desired. A set-screw 22 is provided to hold the bar 21 in its adjusted position.

The forward end of the bar 9 is formed with a notch into which fits the upper end of a sliding latch-bolt 23 when said bar is in its inner position, as shown in Fig. 1. To withdraw this bolt a rod 24 is attached to it and passes below the oven and is there attached to the outer end of an arm of a rock-shaft 25. This shaft extends across in front of the oven and is provided with pedals 26 by means of which it may be rocked and the latch-bolt 23 withdrawn from the notch of bar 9. A

weighted arm 25^a is formed on this shaft and operates to return the pedals and bolt to their operative positions after they have been depressed to release the bar 9.

5 To force the bar 9 forward to shift the belt from the loose to the fast pulley when the bolt 23 is withdrawn, a bell-crank lever 28 is pivoted on a loose collar 29 carried by the shaft 4, said collar abutting against a fixed
10 collar 30 carried by the same shaft. The upper end of lever 28 passes through a strap or keeper on bar 9, its front edge bearing on a roller 31 carried by the strap and the bar. On the lower horizontal and forwardly-project-
15 ing arm of this lever a weight 32 is hung.

On the outer end of the driving shaft 4 is secured the brake-wheel 33, around which passes the brake-strap 34, one end of which is secured to a stationary point above the wheel, its
20 other end being secured to the forward end of a lever 35. This lever is pivoted to the side of the oven in a suitable manner, and its rear end carries a roller 36 just above the bar 7. On the rear arm of the lever is
25 mounted an adjustable weight 37.

A wedge or inclined block 38 is secured to the upper side of the rod 9 in position to pass under the roller 36 when the bar 9 is moved forward as before described, and thereby
30 loosen the brake-band 34, as is manifest. The weight 37 tightens the brake-band again when the wedge 38 has been withdrawn from under the roller 36.

The upper end of a lever 40 is secured to the forward end of the bar 9 in order that said bar may be moved by hand and the driving belt shifted to the loose pulley and the oven stopped whenever desired.

The pulley 41 and hand-wheel 42 connected
40 by the belt 43 are provided in order to turn the oven-reel either backward or forward by hand when desired. A bar 44, provided with a hook is secured to the outer end of lever 35 in order that the brake may be held out
45 of operation when desired by catching said hook in a ring 45.

Fig. 5 shows a slight modification of the means for operating bar 9, a cord 28^a secured at one of its ends to the bar 9, being substituted for the lever 28, said cord passing over pulley 28^b, and carrying a weight 32^a at its
50 free end. It will be readily seen that when the sliding bolt 23 is withdrawn from the bar 9, said bar will be moved forward by weight 32^a in the same manner as it is moved by weight 32.

The parts being in the position shown in Fig. 1, the operation is as follows:—One of the pedals 26 is depressed and bolt 23 with-
60 drawn from the notch in bar 9. Said bar is then moved forward by lever 28 and belt 8 is shifted to fast pulley 6. Block 38 of bar 9 releases the brake, and lever 12 carrying block 18 is moved in position to be engaged
65 by pins 17. The reel now revolves until one of the pins 17 contacts with lever 12 and draws the bar 9 rearwardly by means of lever 12

and its connecting bar 13, thereby shifting the belt to the loose pulley, withdrawing the block 38 from under roller 36 and applying
70 the brake, and stopping the reel in the position desired. The bolt 23 springs into the notch in bar 9 and holds the bar until it is again released as described.

When it is desired to run the reel contin-
75 uously the bar 21 is forced inwardly sufficiently to withdraw the block 18 out of the path of the pins 17.

Having thus fully described my invention,
80 what I claim is—

1. In a mechanism for operating oven reels, the combination of the worm wheel on the reel shaft, a driving-shaft carrying a worm meshing with said wheel, fast and loose pulleys on the shaft, stops carried by the worm
85 wheel, a part, as 11, slidably mounted on the worm shaft above the worm wheel, means for slidably adjusting said part 11 along the shaft and positively holding it in its adjusted positions, a lever 12 pivotally mounted upon
90 said part 11 and having its lower end depending into the path of the stops on the worm wheel, a slidable bar carrying a belt-shifter and pivotally connected to the upper end of said lever 12, substantially as described. 95

2. An improved mechanism for operating reel-ovens consisting of wheel 3, driving shaft 4, worm 5 formed thereon, fast and loose pulleys on said shaft, stops carried by the wheel 3, pivoted lever 12, its lower end extending
100 into the path of the stops on wheel 3, a movable support for said lever, means for horizontally adjusting or moving said support and for securing it positively in its adjusted positions whereby the lever 12 may be bod-
105 ily moved and set with respect to the stops carried by the worm wheel 3, bar 9 carrying a belt shifter engaging the driving belt, and means for connecting the bar 9 with the upper arm of lever 12, substantially as described 110 and for the purpose set forth.

3. In a mechanism for operating oven reels, the combination of the worm wheel, the driving shaft carrying the worm and the fast and loose pulleys, a belt shifting rod 9, means for
115 automatically shifting said rod from the fast to the loose pulley, means for normally pressing said rod toward the fast pulley or forward, a bolt engaging said rod and holding it locked in its backward position, a vertical
120 rod for operating this bolt, a rock shaft extending across the front of the oven and carrying a series of pedals at intervals along its length and an arm pivotally connecting it to said vertical rod, and a weight connected to
125 said rock shaft and adapted to automatically return the pedals and keep said bolt pressed into engagement with the belt shifting rod, substantially as described.

4. An improved mechanism for the purpose
130 described consisting of wheel 3, driving shaft 4, fast and loose pulleys on said shaft, a belt on said pulleys, bar 9 carrying shifter 10, means for reciprocating said bar to shift the

driving belt, a brake wheel on the driving shaft, a band on said wheel, pivoted lever 35, one of its ends connected to the free end of the brake band, its other end carrying a
5 roller, an adjustable weight on the roller end of said lever, and a wedge shaped block on bar 9 engaging said roller, substantially as described and for the purpose set forth,

10 5. An improved mechanism for operating oven-reels consisting of the wheel 3 means for revolving it, an annular flange formed on said wheel, stops fitting over said flange, and

adjustable thereon, set-screws to secure said stops in their adjusted positions, and pins projecting laterally from the outer ends of 15 said stops, and mechanism operated by said stops for automatically stopping the oven reel, substantially as described.

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

WILLIAM W. HIGGINS.

Witnesses:

WM. E. CRAIG,

C. A. PERRIN.