

(No Model.)

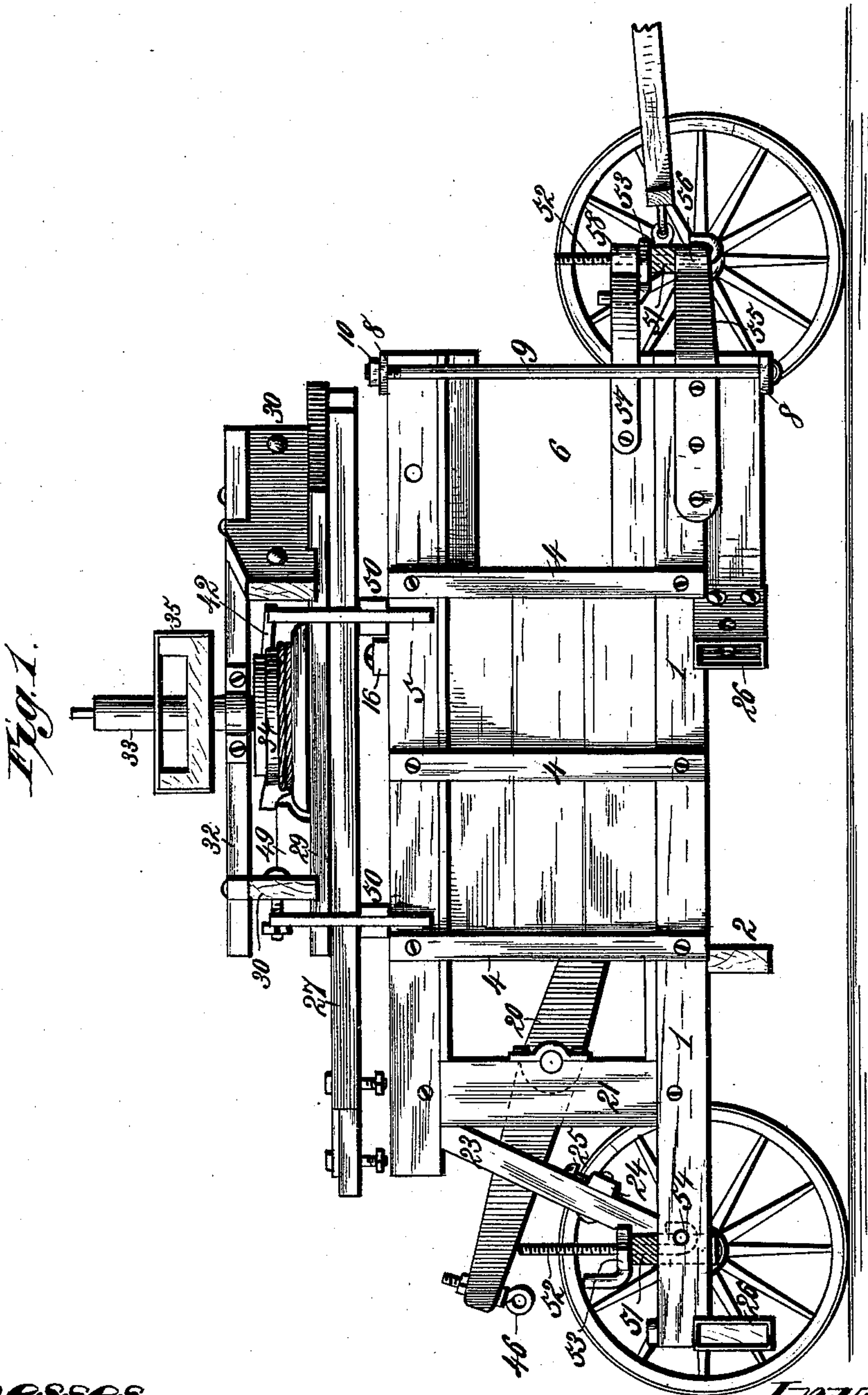
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F. FREY & H. W. SCHWARZBURG.

BALING PRESS.

No. 378,831.

Patented Feb. 28, 1888.



Witnesses,
Robert Court,
J. A. Rutherford.

Inventors,
Franklin Frey
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(No Model.)

3 Sheets—Sheet 2

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Fig. 2.

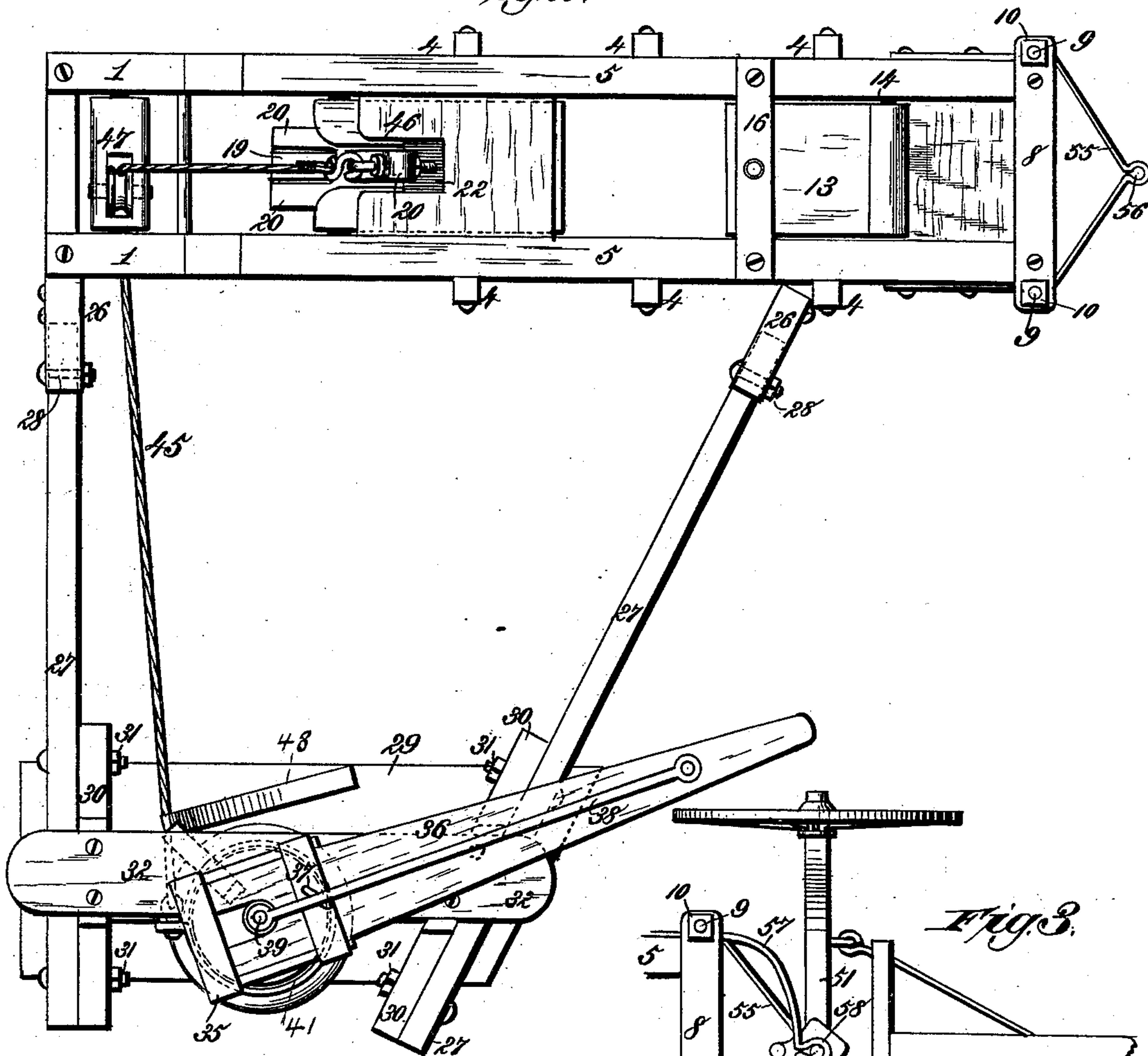
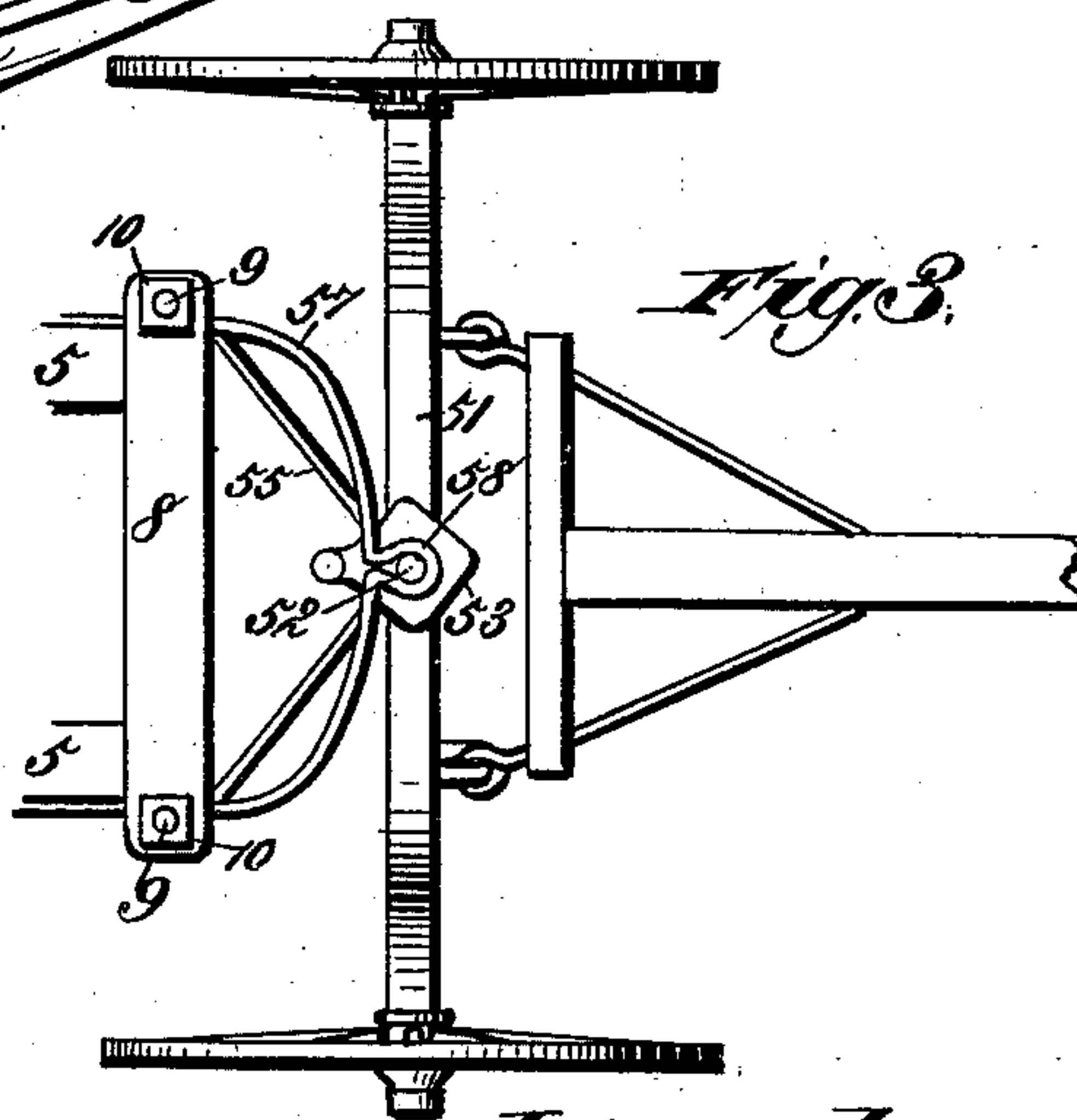


Fig. 3.



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(No Model.)

3 Sheets—Sheet 3.

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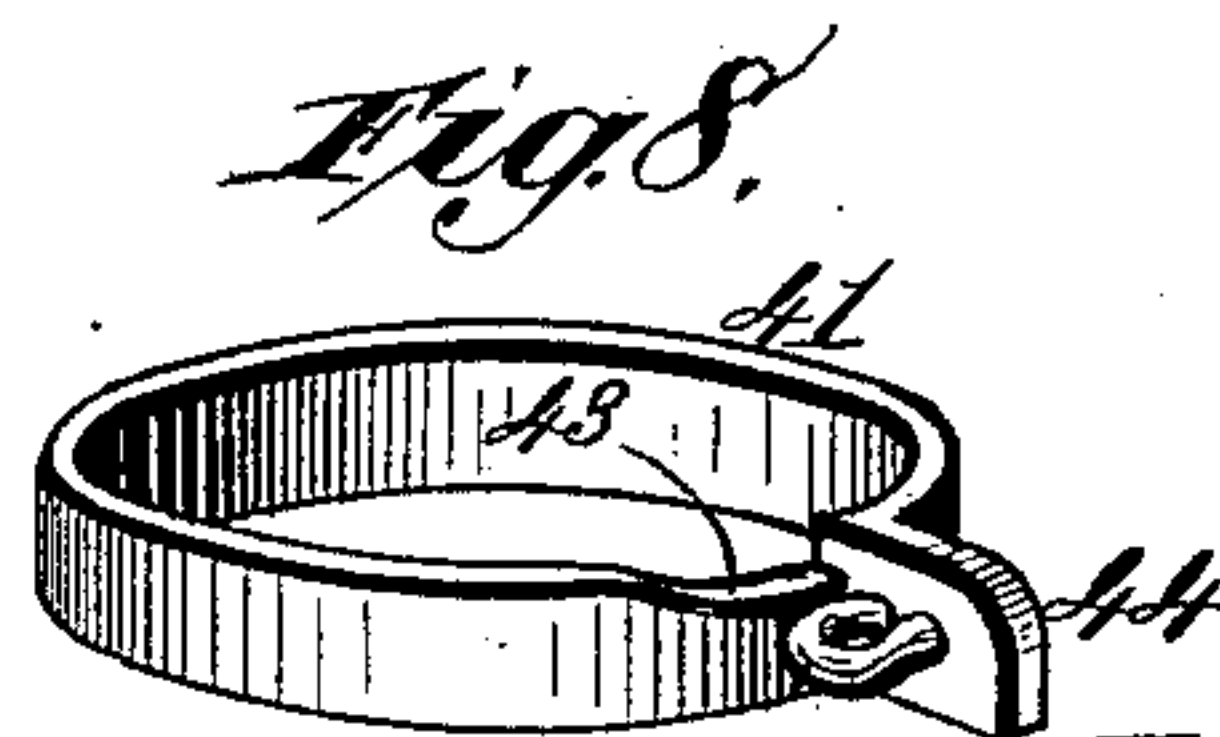
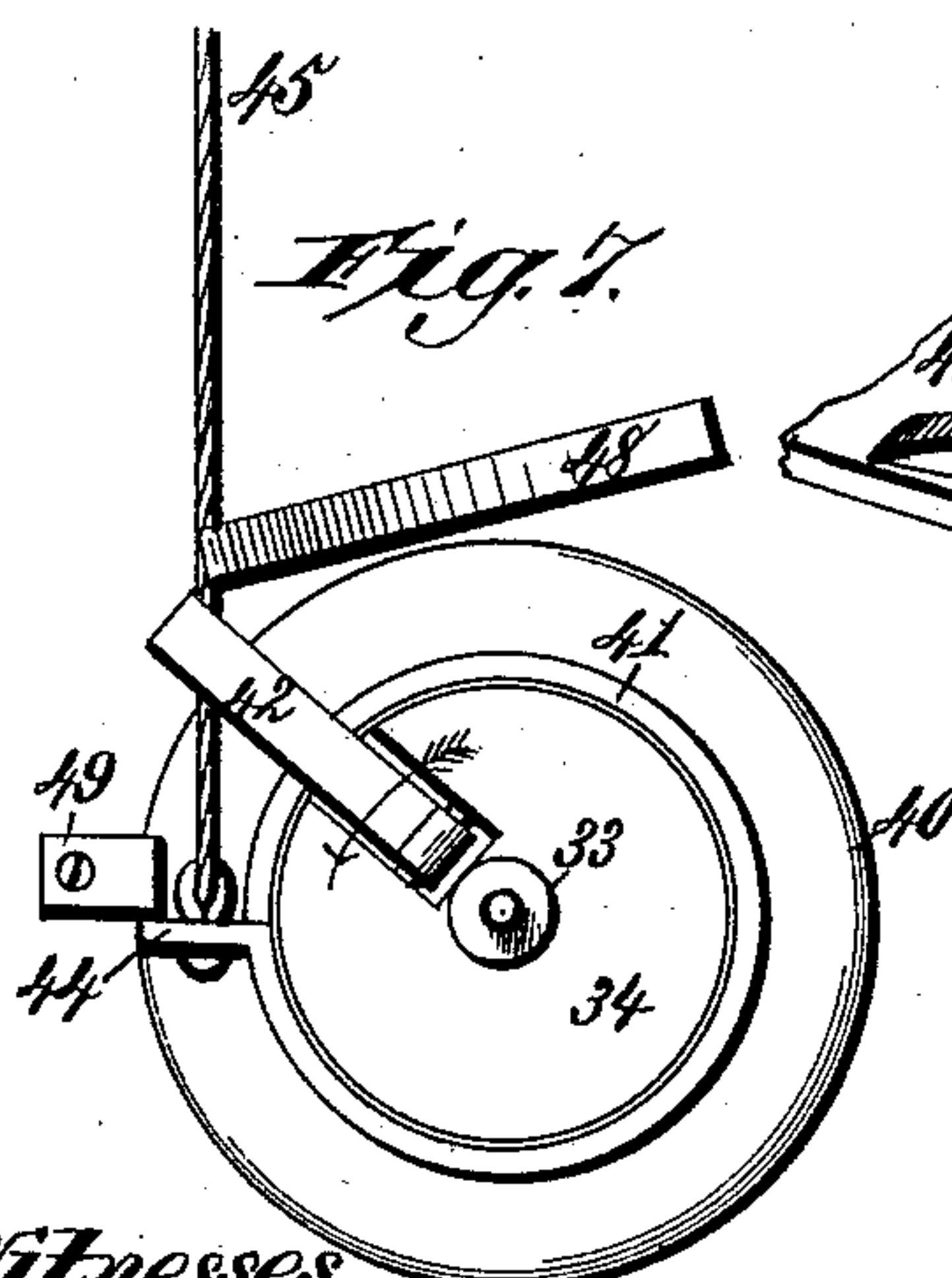
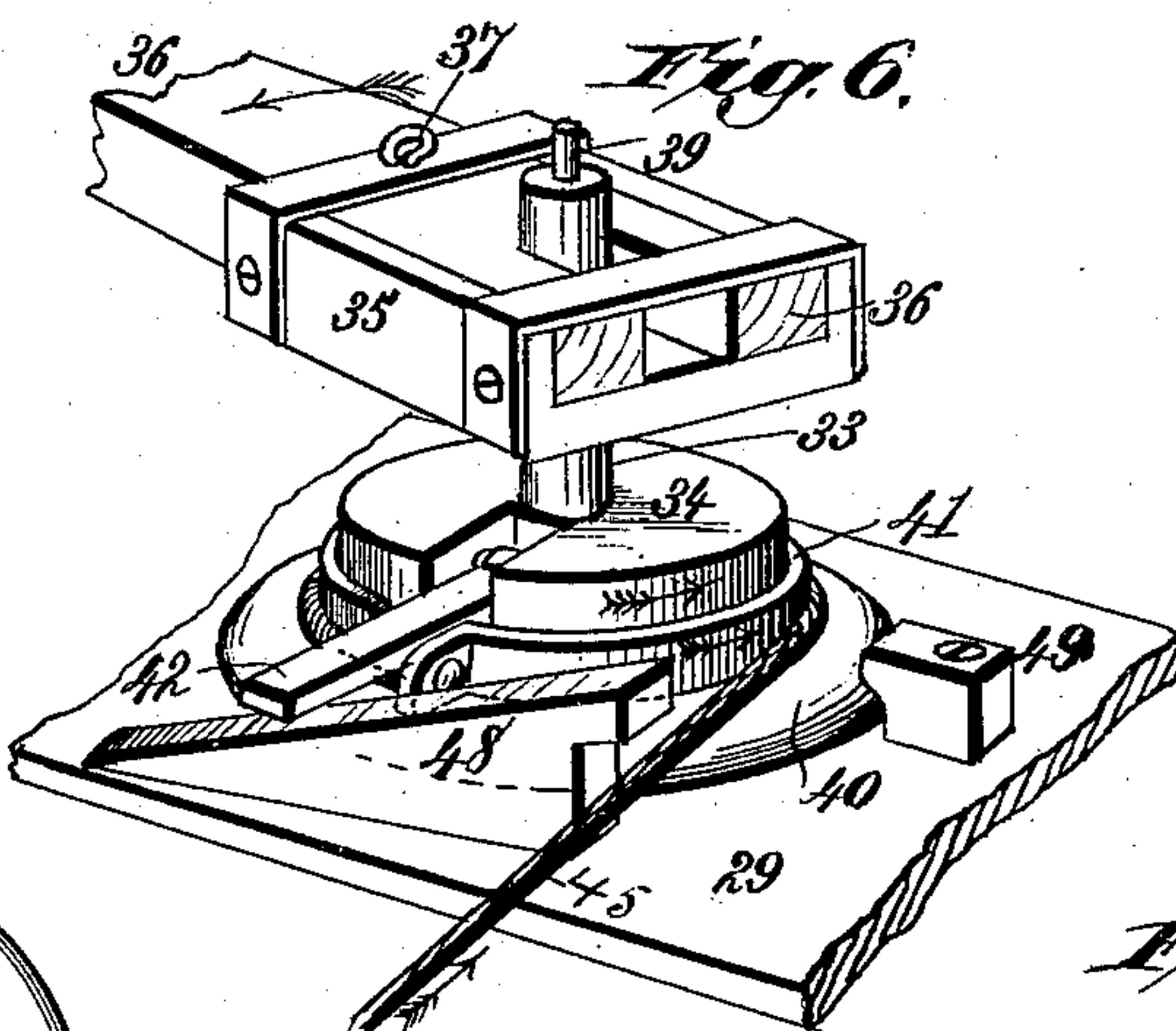
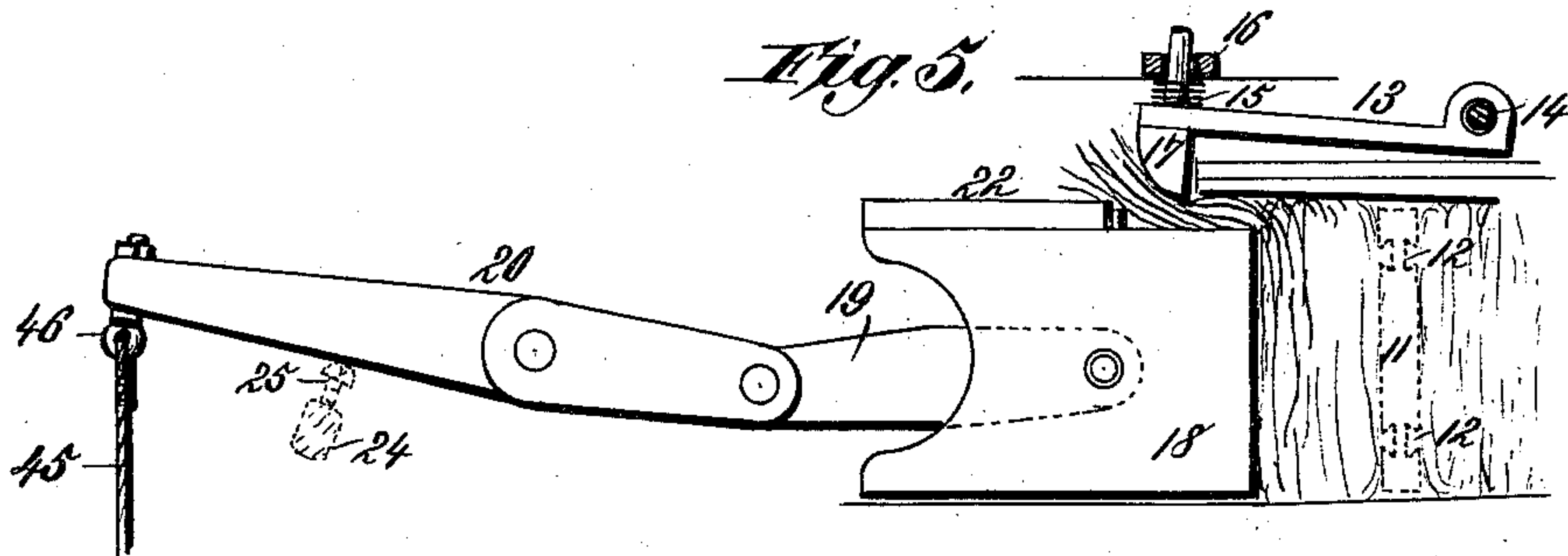
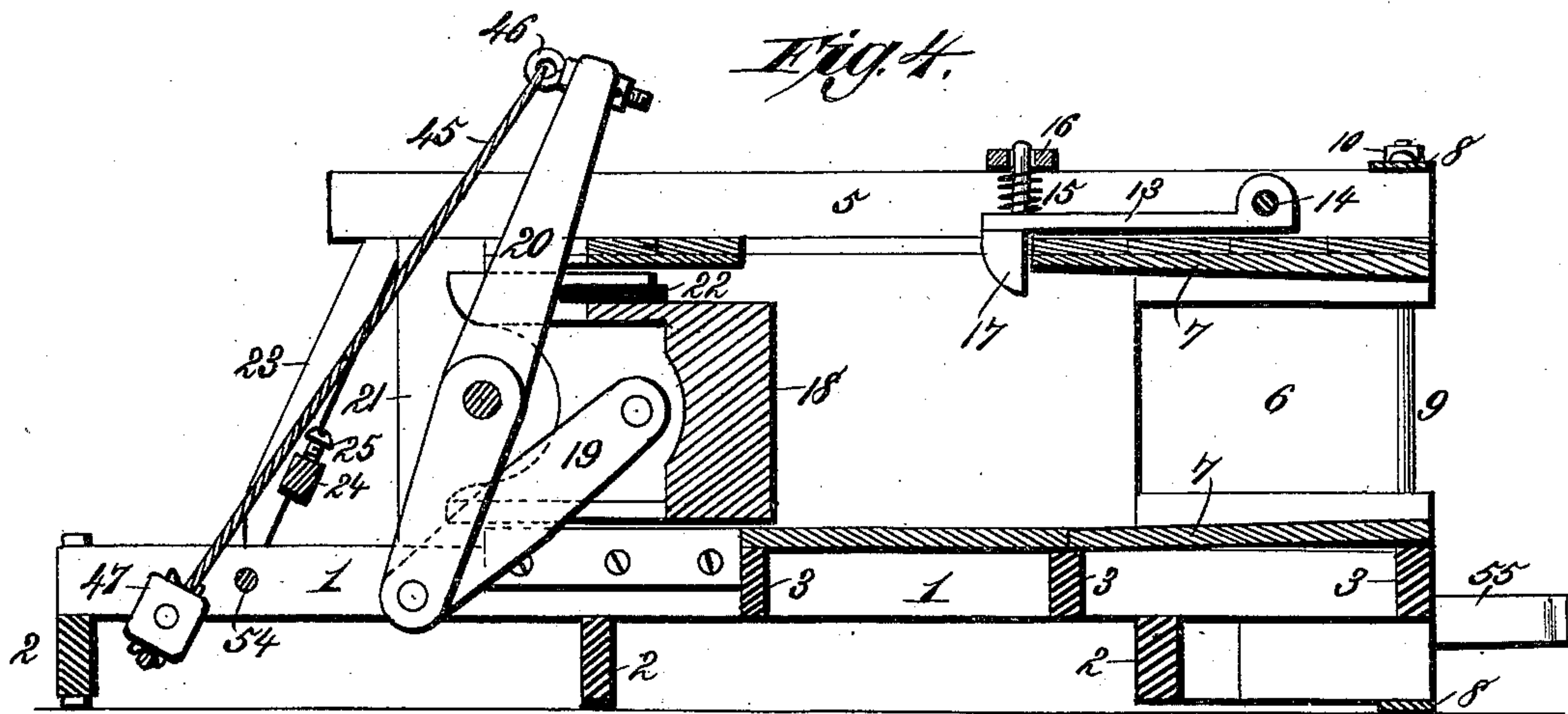
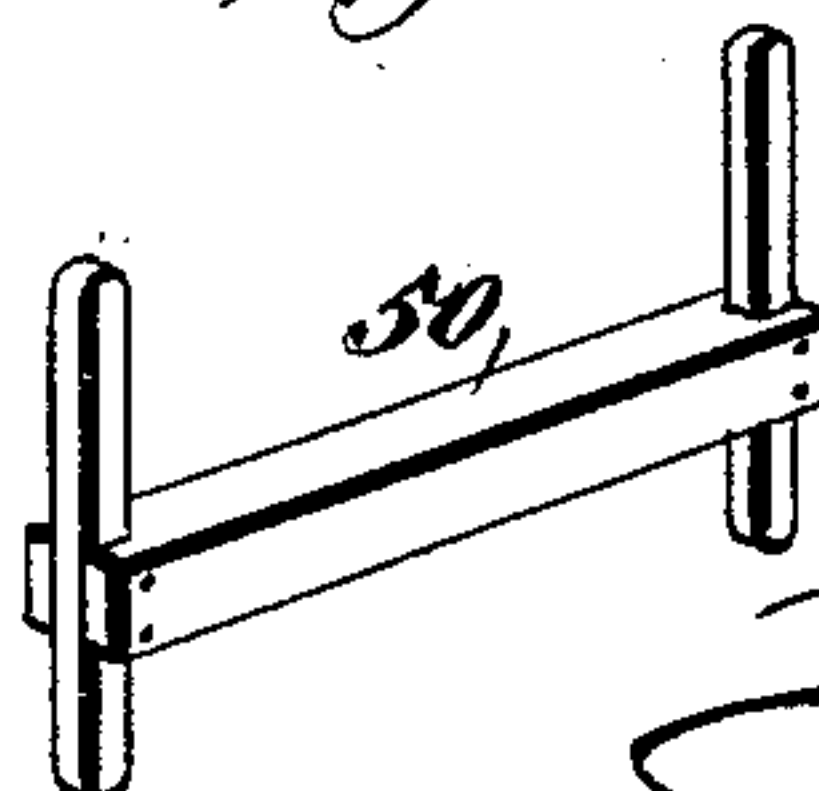


Fig. 9.



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UNITED STATES PATENT OFFICE.

FRANKLIN FREY AND HENRY W. SCHWARZBURG, OF QUINCY, ILLINOIS.

BALING-PRESS.

SPECIFICATION forming part of Letters Patent No. 378,831, dated February 28, 1888.

Application filed October 13, 1887. Serial No. 252,247. (No model.)

To all whom it may concern:

Be it known that we, FRANKLIN FREY and HENRY W. SCHWARZBURG, citizens of the United States, residing at Quincy, in the county of Adams and State of Illinois, have invented new and useful Improvements in Baling-Presses, of which the following is a specification.

Our invention relates to horse-power presses for baling hay, straw, cotton, and other materials, and comprises a press in which a horizontally-movable follower and its actuating lever or levers are driven by means of a cable connected with a horse-power at the side of the press and continually acting in one direction, said horse-power being provided with mechanism for automatically releasing the cable and attached follower-levers when the follower has completed its forward stroke and for again engaging and actuating the cable for the next forward stroke of the follower. It also comprises means for detaching or disconnecting the press and horse-power and mounting them together on wheels for transportation.

In the accompanying drawings, Figure 1 is a side elevation of our improved baling-press mounted upon wheels ready for transportation and with the horse-power attachment disconnected and packed upon the top of the machine. Fig. 2 is a plan or top view of the press dismantled and with the horse-power attached in operative position at one side. Fig. 3 is a detail plan of the forward end of the machine, illustrating the manner of mounting the press on the wheeled axles. Fig. 4 is a vertical longitudinal section of the press with follower and self-adjustable folder. Fig. 5 is a detail view illustrating the operation of the follower and self-adjusting folder. Fig. 6 is a perspective view of the horse-power sweep and drum, showing a latch pivoted to the drum and engaging a loose collar or ring to which is attached one end of a cable for actuating the follower-levers, and also showing means for automatically disengaging the rotary collar and latch and a stop for limiting the rebound of the released collar. Fig. 7 is a plan or top view of the drum with latch, collar, releasing device, and stop, showing one end of the cable attached to the loose collar. Fig. 8 is a perspective of the collar or ring to which one end of the cable is attached. Fig. 9 is a view of

one of the detachable bolsters for supporting the disconnected horse-power when packed on the top of the machine.

The press is built upon longitudinally-arranged sills 1, that are supported by cross-sills 2 and braced by transverse beams 3 in any approved manner. To the longitudinal or side sills, 1, are secured the uprights 4, which support the top side pieces, 5, and securely brace the side walls of the press.

The baling-chamber 6 is at the forward end of the press and has its upper and lower inner walls or lining, 7, tapered forward, as shown in Fig. 4, to gradually decrease the diameter of said chamber and increase the pressure on the bale, the chamber-outlet being about two inches less in height than the entrance. Upper and lower pressure bars or plates, 8, are attached across the forward end of the press and connected by vertical tie-rods 9, having adjusting-nuts 10, by which the outlet end of the baling-chamber is strengthened and a means afforded for regulating the pressure on the bale at that point. As usual, the press is provided with movable transverse platens 11, which are ejected with the finished bale and have grooves 12 for receiving the cords that confine the baled material. One of these platens is shown by dotted lines in Fig. 5.

Above the baling-chamber 6 is a folder, 13, Figs. 2, 4, and 5, which is pivoted at its forward end on a rod, 14, supported transversely in the upper part of the press-frame. The rear end of this folder is held down with a yielding pressure by means of a spring, 15, which can have a bearing against a cross-bar, 16, or be constructed and arranged in any convenient manner, so as to render the folder self-adjustable. At its rear end the folder 13 is provided with a depending lip or flange, 17, which overhangs the entrance to the baling-chamber. The rear surface of this lip or flange is beveled or rounded to prevent pinching or cramping of the pressed material as it is forced into the baling-chamber by a horizontally-moving follower, as hereinafter described. By holding down the folder 13 with a yielding pressure, it readily accommodates itself to the reciprocating movements of the follower, and through the lip or flange 17 serves to retain the pressed material and fold its upper edge inward, while the rounded or beveled outer

surface of this lip or flange and its yielding upward movement on the forward stroke of the follower obviates any liability of pinching or binding the pressed material at the entrance into the baling-chamber.

The follower 18 moves in suitable guide-ways provided in the rear part of the press-frame, and is actuated through a toggle or knuckle lever consisting of a short arm, 19, pivoted to the follower, and a long arm, 20, fulcrumed to standards 21 or other suitable supports. The rear end of the follower is recessed, as shown in Fig. 4, to receive the short arm 19 of the knuckle-lever, which is pivoted in said follower, and also to permit the upward and forward movement of the long arm 20 on the rearward stroke of the follower; and in order to prevent injury to the knuckle-lever and follower from forcible contact of said parts on the rebound of the follower the latter is provided with a buffer, 22, of rubber or other elastic material. The lower end of the long knuckle-lever arm 20 is bifurcated, as shown in Fig. 2, to receive the short arm 19, which is pivoted in the bifurcation. The standards 21, to which the knuckle-lever is pivoted, may be braced by inclined studs 23, and to these studs may be attached a cross-bar, 24, carrying at its center an adjustable bolt, 25, to serve as a stop for the downward and rearward movement of the long lever-arm 20, as shown in Fig. 5.

In order to actuate the knuckle-lever and attached follower with the requisite force, a continuous horse-power is arranged at one side of the press, as shown in Fig. 2, and for convenience of transportation this horse-power is made in detachable parts, so that it can be readily taken apart and packed in or upon the press, when the entire machine can be mounted on wheels and moved to any desired point.

To afford a firm support for the horse-power the cross-sills 2 at or near the ends of the press-frame are provided on one side of the press with sockets 26, to receive the ends of detachable sills 27, which are secured in said sockets by means of bolts and nuts 28, or other suitable fastenings. At their outer ends these sills 27 rest on a base-board, 29, having on its upper surface cross-bars 30, to which the sills 27 are secured by bolts and nuts 31, or other fastenings. The bars 30 support a cross-piece, 32, Fig. 2, which affords an upper bearing for the vertical shaft 33 of the drum 34, a lower bearing for the drum being provided in the base-board. To the upper part of the drum-shaft 33 is secured a socket, 35, Fig. 6, for receiving one end of a sweep, 36, which is bifurcated to embrace the drum-shaft, and is securely held in the socket by means of a thumb-screw, 37, Fig. 2, or otherwise, so as to be detachable when necessary. If desired, the sweep may be provided with a brace, 38, having one end attached to a pivot, 39, in the upper end of the drum-shaft. The base of the drum 34 is provided with a flange, 40, Figs. 6

and 7, on which rests a loose collar, 41, and a latch or pawl, 42, is pivoted in a recessed portion of the drum in position to engage a notch, 43, Fig. 8, formed in the upper edge of the collar, so that the drum and collar can be made to rotate together. This rotary collar 41 is provided with a lug, 44, to which is attached one end of a cable, 45, the other end of which is attached to a tension-bolt, 46, adjustably fastened to the upper end of the knuckle-lever of the press. The cable 45 is passed beneath a guide-sheave, 47, pivotally supported between the sills 1 at the rear end of the press-frame, so as to be capable of inclining forward or back with the movements of the cable and lever.

The rotation of the drum 34 actuates the loose collar 41 through the latch 42, engaged in the notch 43, and as the collar is thus rotated it partially winds the cable 45, thus drawing down the long arm 20 of the knuckle-lever and forcing the short lever-arm 19 and follower 18 forward toward the baling-chamber. By the time that the follower 18 has reached the end of the forward stroke the drum 34 will have been rotated sufficiently to bring the outer end of the latch 42 above and in contact with the upper surface of an inclined plane, 48, thus raising the latch out of engagement with the collar and allowing the knuckle-lever to rebound and move the follower 18 backward. A stop, 49, is arranged in such relation to the drum 34 as to offer no obstruction to the rotation of the collar 41 in winding the cable, while at the same time it is capable of catching the lug 44, and so limiting the rebound of the collar when released from the latch, the collar being thus left in position to be engaged by the latch at the proper time for again drawing down and extending the knuckle-lever to force the follower forward. It will thus be seen that the operation of the horse-power is continuous in one direction, whereby it can be driven with greater regularity and with less strain and friction and less liability of injury to the driving mechanism and press than is possible when the power is applied to the right and left or forward and back alternately.

The laterally-projecting sills 27 extend sufficiently far to afford ample room for turning the sweep 36, to which may be attached a whiffletree or other draft devices, and as these sills, together with the horizontal portion of the cable 45, are near the ground they will offer no obstruction to the travel of the draft-animal. With a continuous horse-power mechanism thus arranged at the side of a press, the operation of baling hay, cotton, and other material can be rapidly and conveniently carried on in a moderate space with great economy of time and labor.

While the press and its horse-power driving mechanism are in operation they rest firmly on the ground upon the sills 2 and 27 and base-board 29, one or two stakes or pins being driven into the ground alongside the sills 27, if neces-

sary. By disconnecting the cable from the knuckle-lever, unshipping the sweep 36, and removing the fastenings 28 and 31, the horse-power mechanism can be taken apart and

5 packed securely and compactly in bolster-frames 50, Fig. 9, supported on top of the press, as shown in Fig. 1, which represents the press and its attachments mounted on wheels and ready for transportation.

10 For convenience in mounting and dismounting the press the wheel-axes 51 are arched and provided with vertical screw-bolts 52, having hooked lower ends, and a hand-nut, 53, is placed on the threaded portion of each bolt

15 above the axle. In the rear end of the press-frame between the sills 1 is a transverse rod, 54, for engaging the hooked end of the bolt on the rear axle, and attached to the forward end of the press is a yoke, 55, having an eye, 56,

20 for engaging the hooked end of the bolt on the front axle. To connect the press and wheel-axes the ends of the press-frame are elevated beneath the arched axles and engaged with the hook-bolts, which are then securely tightened

25 by turning their hand-nuts down onto the axles. The front axle is provided with suitable draft devices, and its engagement with the yoke 55 is such that it will readily turn to either side in guiding or turning the machine. After the

30 press has been attached to its wheels an additional yoke, 57, having an eye, 58, can be secured to the forward end of the press and engaged with the adjacent screw-bolt 52, as shown in Figs. 1 and 3, in such a way as to prevent

35 its hand-nut 53 from turning backward or working loose. This upper yoke, 57, forms a stiff connection between the press-frame and forward axle and prevents rocking of the axle without interfering with its pivotal move-

40 ments, so that the machine can be as readily backed or guided as other vehicles.

What we claim as our invention is—

1. The combination, with a horizontally-movable follower and a knuckle-lever for actu-

45 ating said follower, of a horse-power comprising a drum having a pivoted latch, a loose collar placed on said drum and adapted to be automatically engaged with and disengaged from the drum-latch, a cable for connecting

50 said collar with the follower-lever to draw down and extend the lever, means, substantially as described, for automatically releasing the drum-latch from the rotating collar when the follower has finished its forward stroke,

55 and a stop for limiting the rebound of the released collar, substantially as described.

2. The combination, with a horizontally-movable follower and a knuckle-lever for actuating said follower, of an adjustable tension-

bolt mounted in the free end of the said knuckle- 60 lever, a cable attached to said bolt, and a horse-power for partially winding the cable to extend the lever and actuate the follower, said horse-power being provided with devices, substantially as described, for automatically releasing 65 the cable to permit the rebound of the follower and its knuckle-lever when the forward stroke of the follower is completed, substantially as described.

3. The combination, with a horizontally-movable follower and a knuckle lever for actu- 70 ating said follower, of a cable connected with said lever, a horse-power located at the side of the press for winding the cable, and a cable-guide sheave journaled in a bearing pivoted 75 in the press-frame, substantially as described.

4. The combination, with a horizontally-movable follower and a knuckle-lever for actuating said follower, of socket-pieces attached to one side of the press-frame, detachable sills 80 adapted to be secured in said sockets to project on one side of the press, and a portable horse-power adapted to be detachably secured to said detachable sills, substantially as de-

scribed. 85

5. The combination, with a horizontally-movable follower and a knuckle-lever for actuating said follower, of socket-pieces attached to one side of the press-frame, and a detachable and portable horse-power located at the side 90 of the press on sills secured in said socket and comprising a drum, a cable connected with the knuckle-lever and drum, and mechanism, as described, for automatically releasing the cable from the drum, substantially as de- 95 scribed.

6. The combination, with a portable baling-press, of detachable wheeled axles having adjustable screw-bolts provided with hooked ends to engage the press-frame or its attach- 100 ments and nuts for tightening said bolts, substantially as described.

7. The combination, with a portable baling-press having a transverse rod at the rear end of its frame and at its forward end a yoke pro- 105 vided with an eye, of detachable wheeled axles having adjustable screw-bolts with hooked ends to engage said rod and yoke and an upper yoke to brace the forward axle, substantially as described. 110

In testimony whereof we have affixed our signatures in presence of two witnesses.

FRANKLIN FREY.

HENRY W. SCHWARZBURG.

Witnesses:

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H. F. BLANK.