

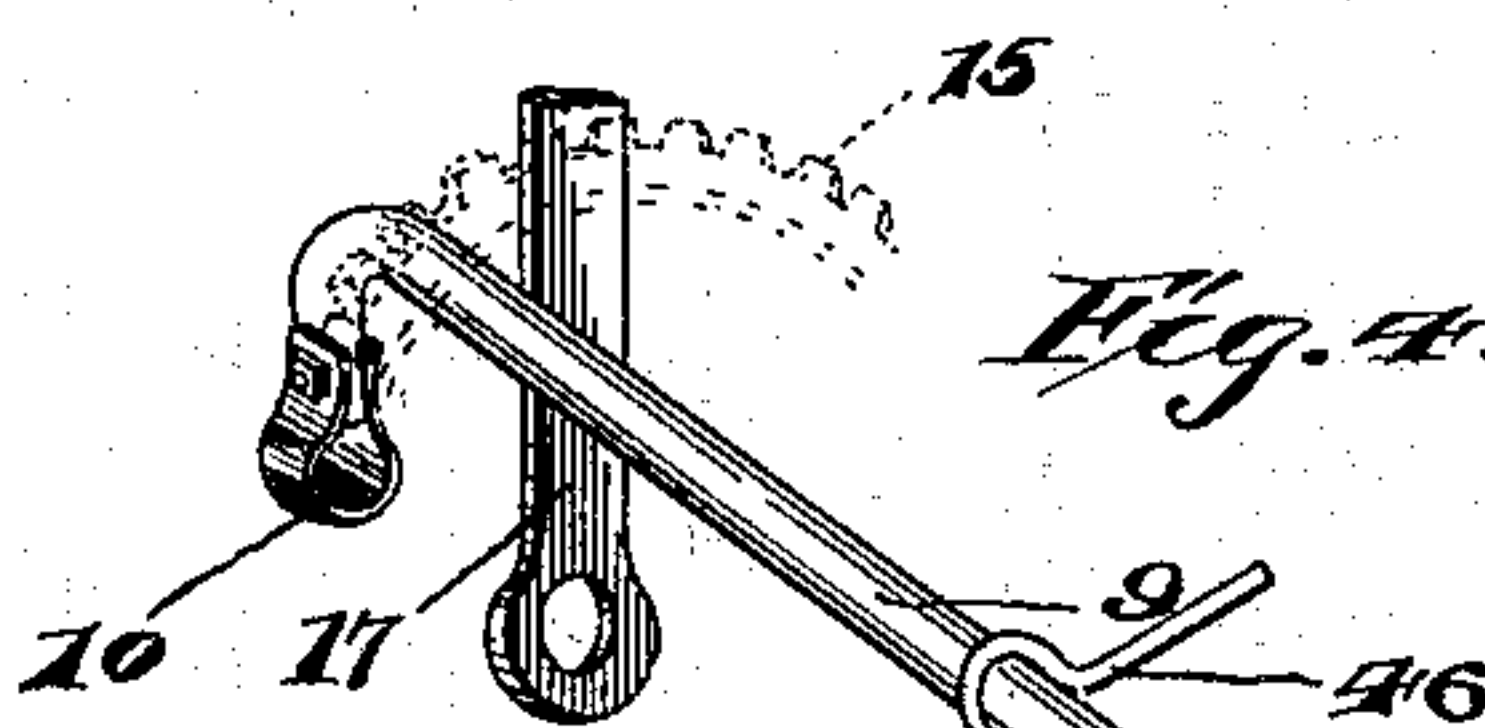
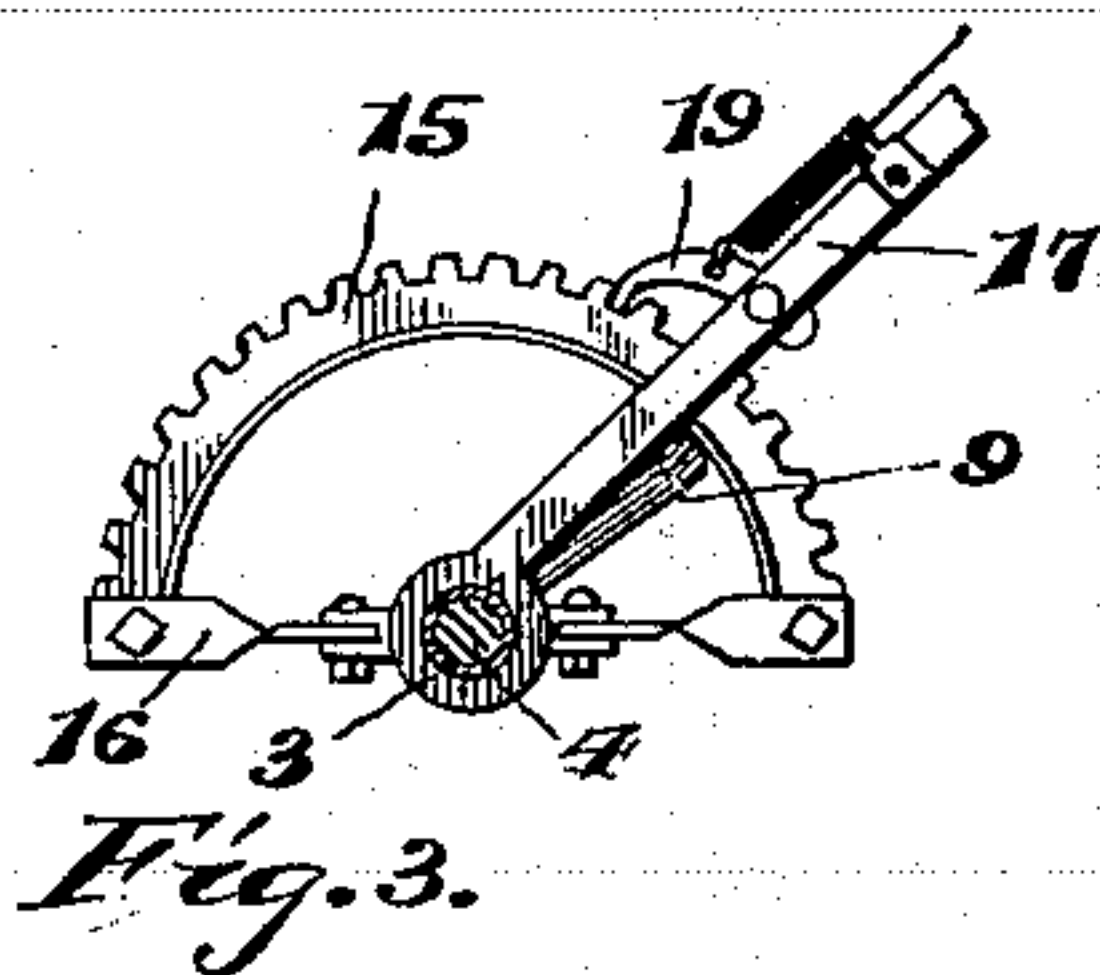
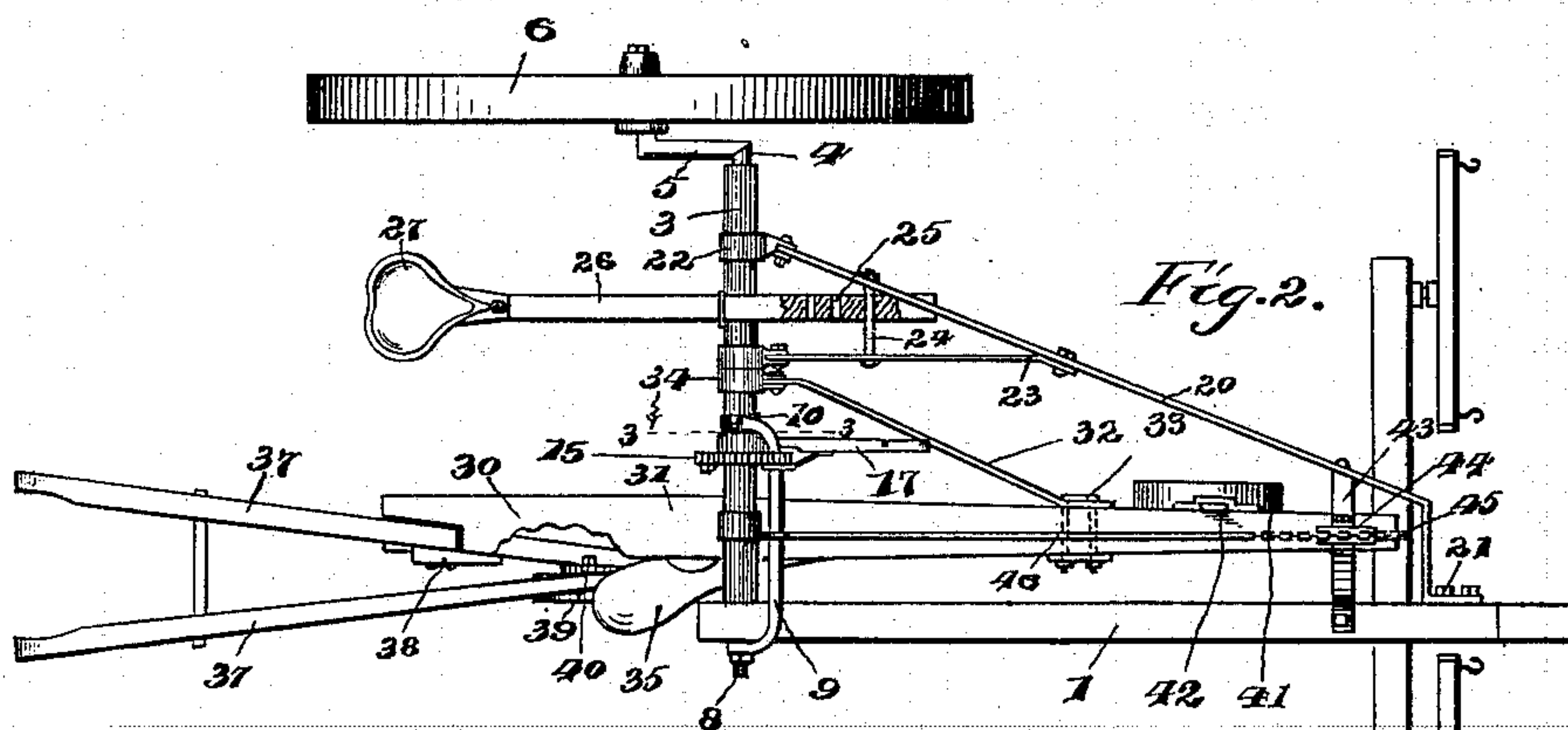
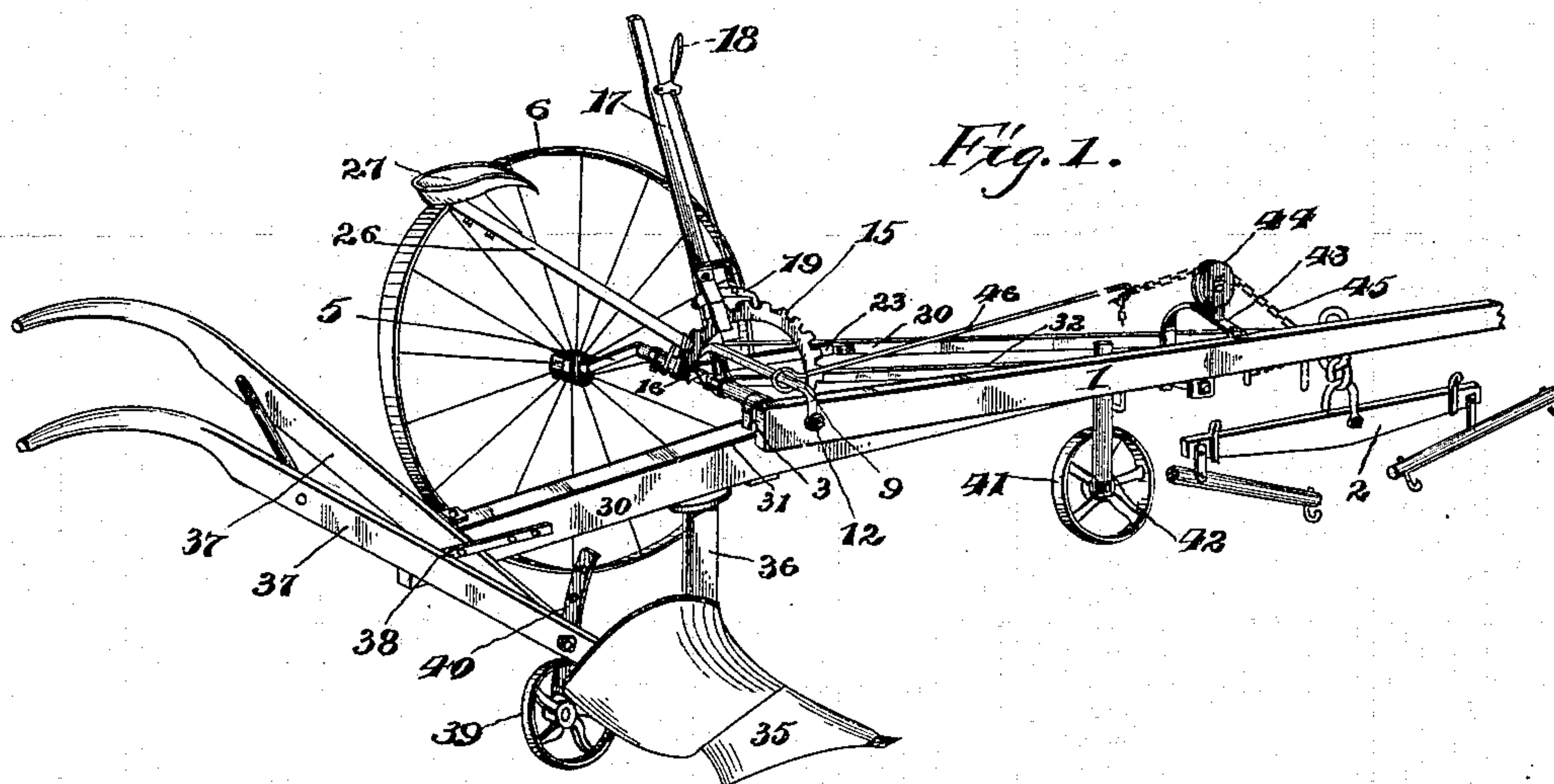
No. 615,462.

Patented Dec. 6, 1898.

W. B. RICHARDS.
WHEEL PLOW.

(Application filed June 10, 1898.)

(No Model.)



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UNITED STATES PATENT OFFICE.

WILLARD B. RICHARDS, OF SALT LAKE CITY, UTAH, ASSIGNOR TO WILLARD B. RICHARDS, JR., OF SAME PLACE.

WHEEL-PLOW.

SPECIFICATION forming part of Letters Patent No. 615,462, dated December 6, 1898.

Application filed June 10, 1898. Serial No. 683,059. (No model.)

To all whom it may concern:

Be it known that I, WILLARD B. RICHARDS, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented certain new and useful Improvements in Wheel - Plows, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to plows, and more especially to that class thereof which employ a wheel; and the object of the same is to effect improvements in the means for regulating the depth of the plowshare and its angle to its direction of movement.

15 A further object of the present invention is the improvements in details of construction.

To this end the invention consists in the device hereinafter more fully described and claimed, and as illustrated in the drawings, wherein—

25 Figure 1 is a perspective view of this plow complete. Fig. 2 is a plan view of the device, partly broken away. Fig. 3 is a partial section taken on the line 3 3 of Fig. 2. Fig. 4 is an enlarged perspective detail of the arch and cooperating parts.

Referring to the said drawings, 1 is the tongue, in whose body, near its rear end, is seated a pipe 3, here extending to the left of the tongue 1. Through this pipe is journaled the crank-axle 4, whose crank 5 is at the left end beyond the pipe 3 and carries a large single supporting-wheel 6. The right end of the shaft 4 projects beyond the corresponding end of the pipe 3 and is squared, as at 7, beyond which it is threaded, as at 8.

9 is an arch having an eye 10 in its left end, journaled on the exterior of the pipe 3, and a square socket 11 in its right end, removably engaging the squared portion 7 of the crank-shaft and held thereon by a nut 12 and washer 13.

15 is a toothed rack of semicircular form, having a diametric clamp 16 standing approximately horizontal and tightly surrounding the pipe 3, and 17 is the main hand-lever, journaled on the pipe concentric within this rack and having a thumb-lever 18 and pawl 19, as usual. The clamp 16 tightly surrounds the pipe 3 between the pivotal point of the

eye 10 and the opposite end of the arch, whereby the body 9 of said arch extends completely through the toothed rack 15, and it stands in rear of the main lever 17, as seen in Fig. 3. Hence the movement of said lever to the rear will carry the arch in the same direction and the eye 10 of the arch will turn around the pipe 3, while its squared socket 11 will cause the crank-shaft 4 to oscillate within said pipe in a direction to depress the crank 5 and wheel 6, and hence to cause the rising of the main portion of the frame.

In addition to the tongue 1 the frame consists of a rod or strap 20, rigidly secured at 21 to the tongue at a point near its forward end, extending thence laterally outward and thence obliquely to the rear and tightly clamped, as at 22, to the pipe 3, and, if desired, a longitudinal strap 23 may extend from a point about midway of the oblique strap 20 rearward to the pipe 3. Between these two straps extends a bolt 24, which passes through one of a number of holes 25 in the seat-standard 26. The front end of the latter stands under the oblique strap 20, its body rests on the pipe 3, and its rear end carries the driver's seat 27. It will be obvious that by the adjustment of the bolt 20 into one or the other of the holes 25 the weight of the rider can be moved forward or backward, so as to more accurately counterbalance the entire device.

The numeral 30 designates the plow-beam, passing between its ends beneath the pipe 3 and journaled thereon by a clip 31. Forward of that point it extends alongside the tongue, and an oblique brace 32 may be clipped at 33 to the beam, extend thence to the rear, and have a collar 34 journaled on the pipe 3, as best seen in Fig. 2.

35 is the plowshare, pendent from and supported by the beam 30 through a colter 36, and 37 are handles by which the movement of the plow may be directed by a second operator walking in rear of the machine, if desired, and when used these handles are preferably connected with the plow-beam, as at 38.

39 is a wheel traveling on the land side of the plowshare and supported in a bracket-arm 40, adjustably clipped to the left handle, as shown.

41 is a small wheel which I preferably em-

ploy for supporting the forward end of the beam 30, this wheel having a bracket-arm 42 adjustably connected with said beam, as seen in Figs. 1 and 2.

43 is a bracket, which in the present instance arches over the tongue 1 to the oblique strap 20, and this bracket carries a groove-pulley 44, over which passes a chain 45, leading upward from the front end of the plow-beam and rearward to the arch 9, a rod 46 being substituted for the straight portion of the chain, if desired.

All parts of this device (excepting possibly the tongue, beam, handles, lever, seat-support, and whiffletree) are preferably of iron and of such relative sizes, shapes, and proportions as are best adapted to the circumstances.

Considerable change may be made in the details without departing from the principle of my invention, among which I might note that for the single plowshare herein shown a double plow could be used if desired, and one or both of the small wheels might be omitted entirely.

In operation the horse or horses are hitched to the whiffletree, the driver takes his seat, and the plow is transported to its field of operations. The small wheel 39 is set to travel on the land side of the plowshare, so that the latter will embed itself into the earth only to the desired extent. The horses being started the pawl 19 is tripped and the main lever 17 moved forward to raise the crank 5, which operation permits the descent of the entire frame and the plow, and the point of the latter turns up its furrow. As the lever 17 moves forward it permits a similar movement of the arch 9, and this slackens on the rod and chain 46 and 45 and permits the front end of the plow-beam to descend, by which means the plow-beam and the line of movement of the plowshare are maintained at the proper relative angle to the surface of the earth. It will be clear that by adjusting the length of the chain (as at the point where it engages the hook of the rod 46) the forward end of the plow-beam will be caused to stand higher or lower with respect to the plow and the angle of the latter can be adjusted as desired. The vertical adjustment of the wheel 41, which travels at the land side of the beam, will give proper support to the same, the large wheel 6 always traveling on the ground, as is clear. In order to raise the plowshare out of the furrow, the lever 17 is drawn to the rear by the rider. This throws the arch 9 to the rear, causes an oscillation of the crank-shaft 4, tending to depress the wheel 6, and hence resulting in the raising of the shaft, the pipe 3, and the entire frame and plow, and this movement also draws on the rod and chain and raises the front end of the plow-beam. By proper manipulation of the main lever it will be clear that the plow-point can be caused to travel at the desired depth within the earth or above the surface, and the small

wheel 39 serves only as a positive limit to the depth of the furrow and can be removed entirely, if desired. From the relative position of parts herein shown it will be obvious that by proper adjustment of the position of the seat through the mechanism above described the greater or less weight of a rider can be brought to bear at the proper point in rear of the axle to support the frame at a practical balance on a line through the hub of the main wheel.

What I claim is—

1. In a wheel-plow, the combination with the tongue, a pipe at right angles thereto, a shaft journaled through the pipe and having a crank at one end, and the main wheel carried by said crank; of an oblique strap connecting the front end of the tongue with the outer end of the pipe, a longitudinal brace connecting said pipe with the oblique brace at about the center of the latter, a seat-standard resting on the pipe and provided with a series of holes, a bolt connecting said braces and adjustable into one of said holes, a plow, and connections between the plow and frame for adjusting the height of the former with respect to the latter, as and for the purpose set forth.

2. In a wheel-plow, the combination with a transverse pipe supported by the frame, a plow whose beam is connected with said pipe, a shaft journaled through the pipe and having one projecting end squared and threaded beyond its squared portion, and a crank at its other end carrying the main supporting-wheel; of an arch having an eye at one end journaled on the pipe and a squared socket at the other end engaging the extremity of the shaft, a nut on the threaded portion of the latter beyond said socket, connections between the arch and the plow-beam, and means for oscillating the arch, as and for the purpose set forth.

3. In a wheel-plow, the combination with a transverse pipe supported by the frame, a plow whose beam is connected with said pipe, and a shaft journaled through the pipe and having one end cranked and carrying the main supporting-wheel; of an arch having an eye at one end journaled on the pipe and a socket at the other end tightly engaging the extremity of the shaft, a grooved pulley carried by the front end of the frame, a rod and chain adjustable in length leading from the arch over said pulley to the front end of the plow-beam, and means for oscillating the arch, as and for the purpose set forth.

4. In a wheel-plow, the combination with a transverse pipe carried by the frame, a crank-shaft journaled therethrough and having a main wheel on its cranked end, an arch having an eye at one extremity journaled on the pipe and its other extremity rigidly connected with the crank-shaft, a semicircular toothed rack extending over the arch, a diametric clamp therein tightly engaging the pipe between the ends of the arch, a main lever jour-

naled on the pipe with its body in front of the body of the arch, and a thumb-lever and pawl; of a plow whose beam is connected with the pipe, and flexible and adjustable connections between its front end and the body of the arch, as and for the purpose set forth.

5 5. In a wheel-plow, the combination with the tongue, a transverse pipe braced therefrom, a crank-shaft journaled through said pipe and carrying a main wheel on its crank, a main lever moving adjacent a rack carried by the pipe, and a swinging arch connected with the crank-shaft and operated by said lever; of a plow-beam parallel with the tongue and extending beneath the pipe, a clip on the beam embracing the pipe, a small wheel whose standard is adjustably connected with the forward portion of the plow-beam, a plowshare whose colter depends from the beam, handles for the share, a small wheel whose standard is vertically adjustable on said handles, and longitudinally-adjustable connections between said arch and the front end of the plow-beam, as and for the purpose set forth.

25 6. In a wheel-plow, the combination with the tongue, a transverse pipe extending laterally therefrom, an oblique brace connecting

the remote ends of these members, a bracket connecting the tongue and brace near their forward ends, a grooved pulley mounted on the bracket, a crank-shaft journaled through said pipe and carrying a main wheel on its crank, a main lever moving adjacent a rack carried by the pipe, and a swinging arch connected with the crank-shaft and operated by said lever; of a plow-beam pivotally connected with the pipe and having its forward end standing between said tongue and brace, a small wheel whose standard is adjustably connected with the forward portion of the plow-beam, an oblique brace extending from the beam to an eye journaled on the pipe, a plowshare carried by the beam, a rod leaning forward from said arch, and a chain connected with the rod and passing over said grooved pulley to the front end of the plow-beam, as and for the purpose set forth.

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

WILLARD B. RICHARDS.

Witnesses:

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