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BORING MACHINE.

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924,473.

Patented June 8, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

Fig. 2.

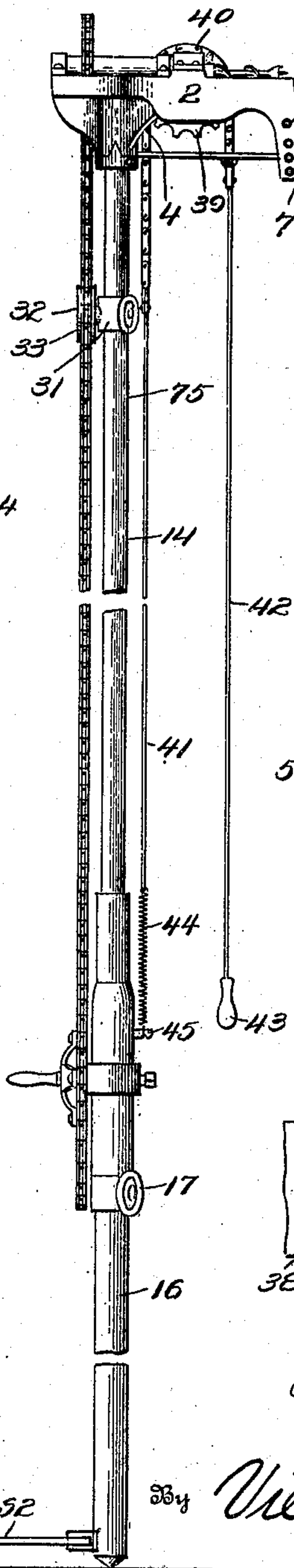
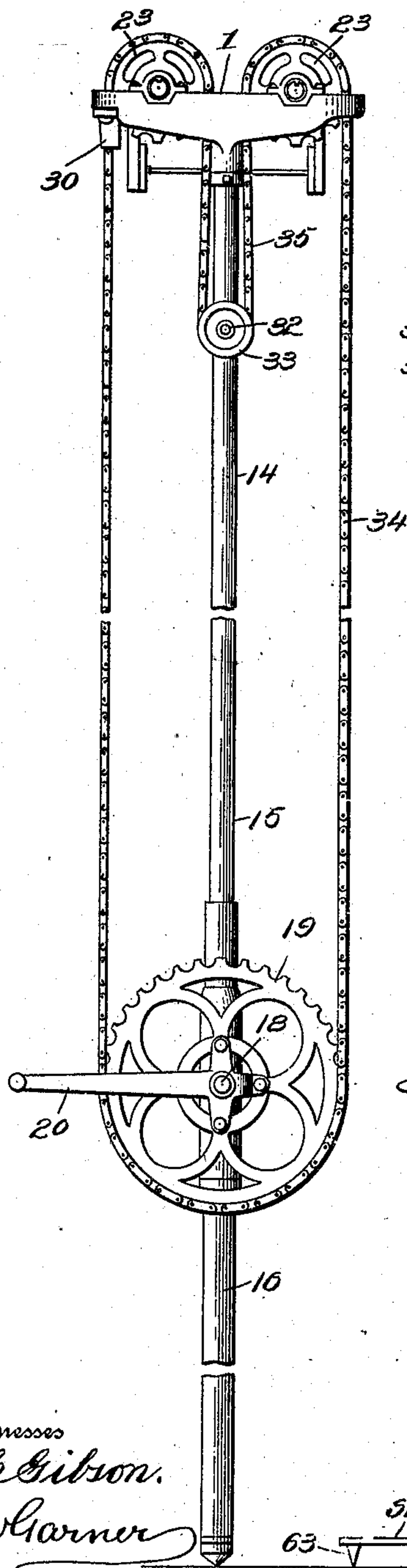


Fig. 6.

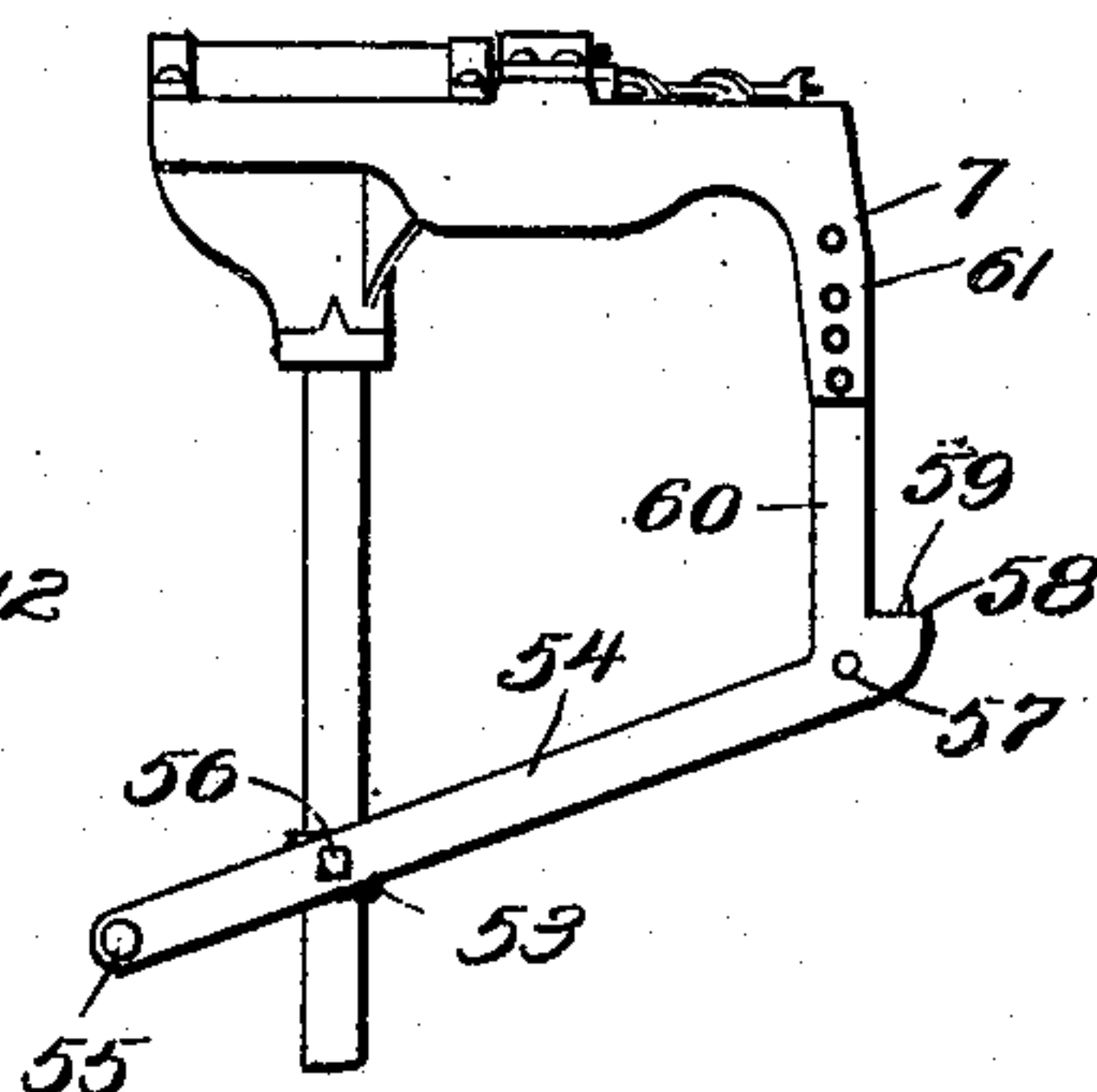


Fig. 7.

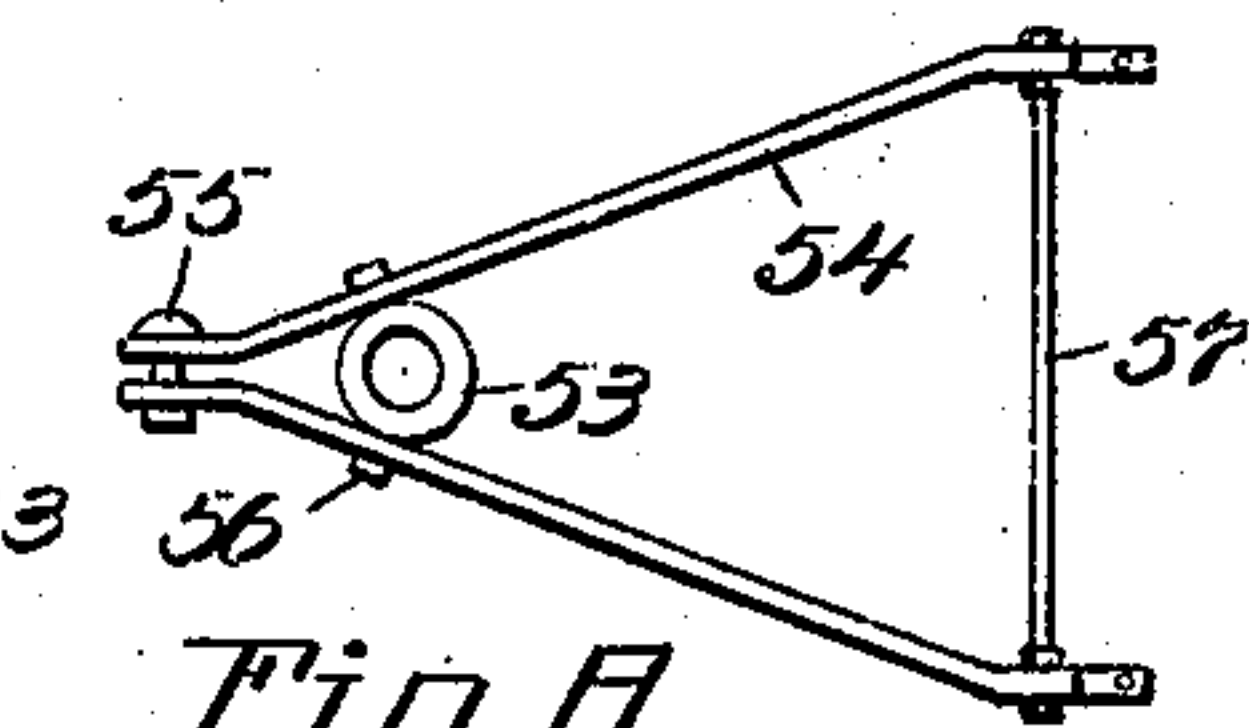
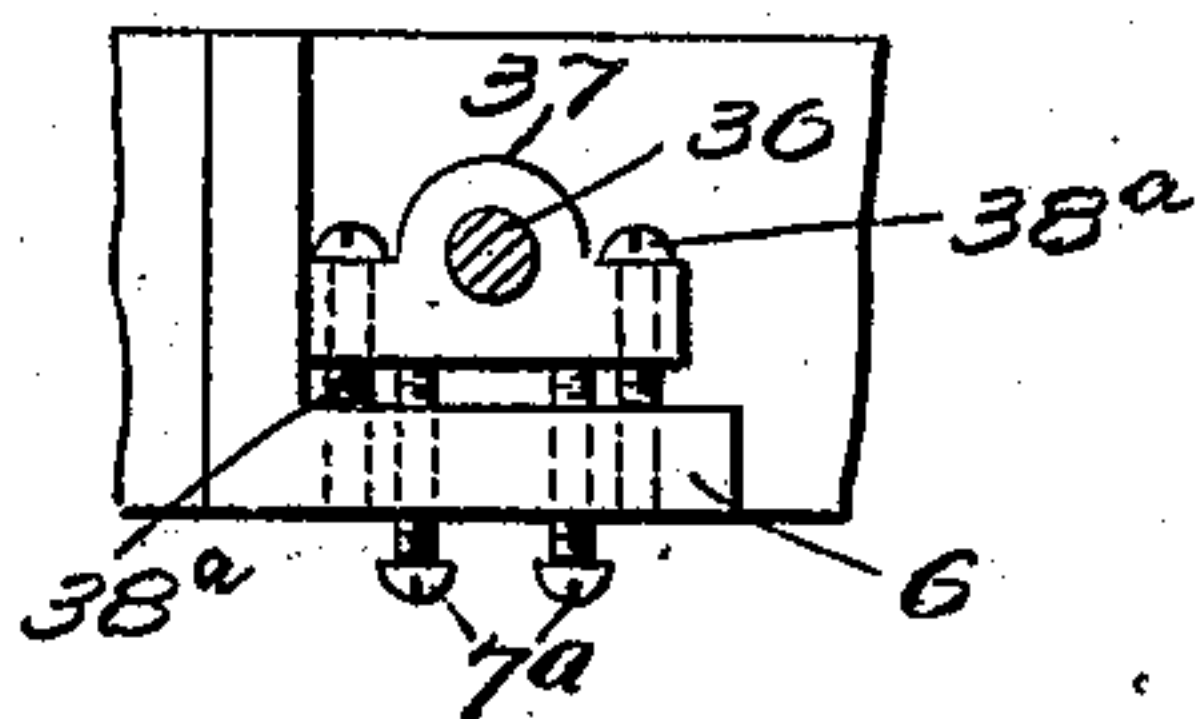


Fig. 8.



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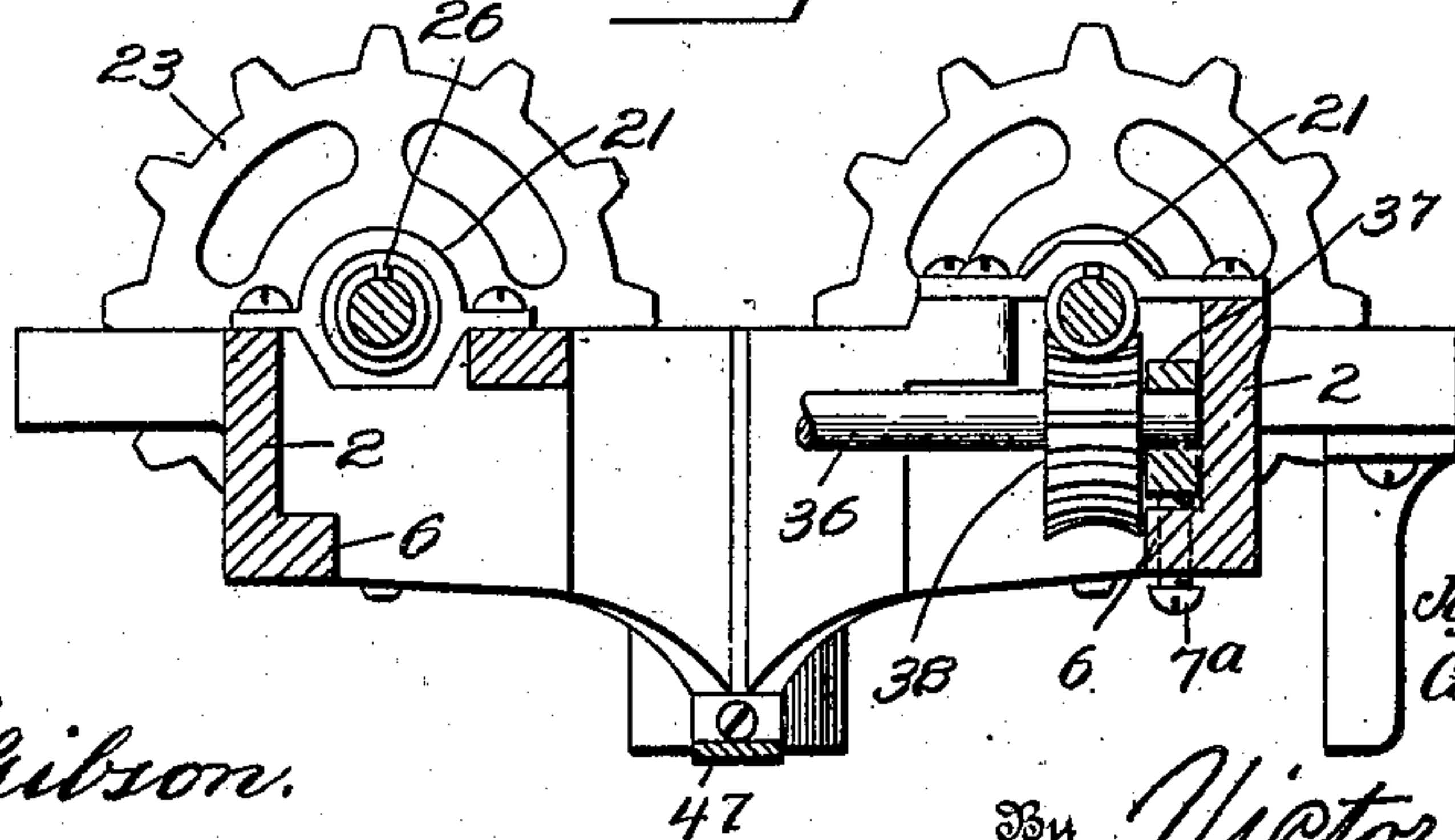
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BORING MACHINE.

924,473.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

JEFFERSON KINDLEBERGER AND GEORGE GARRETSON, OF SAN DIEGO, CALIFORNIA;
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BORING-MACHINE.

No. 924,473.

Specification of Letters Patent.

Patented June 8, 1909.

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To all whom it may concern:

Be it known that we, JEFFERSON KINDLEBERGER and GEORGE GARRETSON, citizens of the United States, residing at San Diego, in the county of San Diego and State of California, have invented new and useful Improvements in Boring-Machines, of which the following is a specification.

This invention is an improved boring machine especially adapted for boring one or a pair of holes simultaneously through an elevated timber such as an overhead joist or rafter, wall, door or window frame or other structure for the purpose of enabling electrical conductors, insulators pipes or the like to be passed through such articles or structures and the said invention consists in the construction, combination and arrangement of devices hereinafter described and claimed.

Referring to the drawings, Figure 1 is a front elevation of a boring machine constructed in accordance with this invention. Fig. 2 is a side elevation of the same. Fig. 3 is a top plan view of the same. Fig. 4 is a longitudinal sectional view of the same on a plane intersecting the tubular sleeve which rotates one of the boring bits. Fig. 5 is a vertical transverse sectional view of the same taken on plane indicated by the line 5—5 of Fig. 3. Fig. 6 is a detail elevation showing a modification. Fig. 7 is a top plan view of the same. Fig. 8 is a detail elevation of one of the journals of the feed shaft, the latter being shown in cross section. Fig. 9 is a detail sectional view of the frame, showing the upper end of the standard attached thereto. Fig. 10 is a detail sectional view of one of the boring bit spindles.

A frame 1 is provided, which is here shown as comprising a pair of bracket arms 2, a cross bar 3, which connects the rear ends of such bracket arms, a substantially V-shaped cross bar 4, which connects such bracket arms at a suitable distance from the outer ends thereof, and a hub or core 5 which connects such V-shaped bar 4 and the bar 3 together. The bracket arms 2 are provided at their lower inner sides with inwardly projecting flanges 6, which are provided with vertical threaded openings to receive screws 7^a. The bars or arms 2 are provided at their outer ends with downwardly extending portions 7, on inner sides of which are secured plates 8, by means of bolts 9. Said plates have shoulders 10, which project beyond the

said portions 7 and are provided on their upper sides with spurs 11. The core or hub 5 is provided on its under side with a downwardly extending web 12 and a hollow cylindrical portion 13 which forms a socket for the reception of the upper end of the standard 14, and is provided with a wedge shaped notch 13^a. Such standard comprises the upper cylindrical section 15 and the lower tubular section 16, in which the lower portion of such upper section is telescopically fitted so that the length of such standard may be varied at will. Set screw wheels 17 are provided to secure the sections 15 and 16 together and the said section 16 is provided with an adjustable collar having a shaft 18 on which is mounted a driving sprocket wheel 19, which has a hand crank 20, whereby it may be rotated.

The upper section of the standard 14 is provided with a collar 14^a which bears under the cylindrical portion 13 of the frame, is provided with set screws 14^b whereby said collar is secured firmly on said standard, and said collar is provided on its upper side with a wedge shaped point 14^c which enters the notch 13^a which serves to prevent the standard from turning as will be understood.

The cross bars 3, 4, of the frame are provided with bearings 21, for tubular shafts or sleeves 22, which are disposed parallel with each other at a suitable distance apart, and are respectively provided with sprocket wheels 23. Each of said tubular shafts is provided in one side with a longitudinally disposed spline 24, which extends from end to end thereof, and in each of said tubular sleeves is fitted a cylindrical, longitudinally movable spindle 25, which is provided with a longitudinal way or groove 26, in one side, engaged by the said spline or key, and with rack teeth 28 on its outer side which extend circumferentially around the same. Housings 48 are secured on the portions 2 and 4 of the frame 1, by means of screws 49, and bear upon the upper sides of the spindles 25 to prevent said spindles from moving upwardly and becoming disengaged from the feed pinions hereinafter described. The bits 29 may be of any suitable construction. The spindles 25 have outer ends reduced and split as at 50 to enable the bits to be readily inserted therein, the bits being provided with cross pins 51 for insertion in the splits or slots formed in the spindles to prevent the bits from

turning in the spindles, and the said reduced portions 50 are exteriorly threaded and are engaged by collar nuts 52 which bear against the outer sides of the cross pins and retain the latter and hence also the bits in place.

An adjustable collar 31 is secured by set screw wheels on the upper section 15 of the standard and is provided with a stub axle 32, on which is mounted an idler pulley 33. An endless sprocket chain 34 connects the sprocket wheels 19 and 23, and has a bight 35, which extends between such sprocket wheels 23 and is engaged by idler pulley 33. Said chain 34 runs through a guide 30 with which the frame 1 is provided on one side as shown in Fig. 3, said guide serving to prevent the chain from moving laterally, and keeping it always in engagement with the wheels 23.

It will be understood from the foregoing description and by reference to the drawings that by turning the wheel 19, the chain 34 and wheels 23 cause the tubular sleeves 22 to revolve and such sleeves by means of the spline connections between them and the spindles cause such spindles to revolve so as to rotate and operate the boring bits.

The feed shaft 36 is mounted in bearings 37 which are disposed on inner sides of the bracket arms 2, above the flanges 6, bear on and are engaged by the screws 7^a, are adjustably connected to such bars 2 for vertical movement and are provided with adjusting screws 38^a. Hence by adjusting such bearings the shaft 36 may be vertically adjusted to cause pinions 38 with which it is provided to engage the rack teeth of the longitudinally movable spindles, so that when such feed shaft is revolved such spindles are moved longitudinally and are caused to feed the bits to the work, or to withdraw the same therefrom after completing the boring, according to the direction in which such feed shaft is turned. Said feed shaft 36 has a sprocket wheel 39 which is engaged on its upper side by the sprocket chain 40. The cord 41 is attached to one end of such chain and depends therefrom, and a cord 42 is attached to the other end of said chain, depends therefrom, and is provided at its lower end with a handle 43. A coiled retractile spring 44 has its upper end attached to the lower end of the rod 41, and its lower end attached as at 45 to the section 16 of the standard. The tension of the said spring causes the chain 40 by coaction with the sprocket wheel 39 to turn the feed shaft 36 in the required direction to withdraw the bits from the work. The standard enables the machine to be set at any desired height from the floor or other base, and the lower outer ends of the bracket arms 2 by bearing against the side of the timber or structure to be bored enable the boring bits to be directed and the boring mechanism to be held while operating. The plates 8 bear under such timber or structure and the

studs pierce the same to a sufficient depth by kicking base of staff along the floor till secure to prevent the former from being casually detached from the timber or structure.

Having put the machine in place as above described and as shown in Fig. 2, the operator turns the crank 20 to cause the boring bits to be revolved by means hereinbefore described and at the same time draws downwardly on handle 43 thereby causing the feed shaft to revolve in the required direction to move the bits longitudinally to the work. Having performed the boring, the operator by releasing the handle 43 enables the spring 44 to cause the boring bits to be retracted.

To strengthen the construction of the frame the bracket arms 2 have their inner sides connected together by a transversely disposed rod 46, a bar 47 connects the hub 5 with said rod, and is provided with openings through which the chain 40 extends.

In the modified form of the frame shown in Figs. 6 and 7 there is provided a collar 53 to engage the standard 14, and a pair of bars 54 which are inclined, converge toward each other in one direction, have their converging ends connected together by a bolt 55, are connected to the said collar 53 by screws 56 and are connected together near their front ends by a cross bar 57, said bars are provided with forwardly extending shoulders 58 to bear under the beam, studs 59 to enter the under side of the beam and connect the frame securely thereto, and said bars are further provided with upwardly extending arms 60 which may be adjustably connected to the depending portion 7 of the arms 2 of the frame 1 by bolts 61 which engage openings in said arms 60 and appropriate adjusting openings 9 in said depending portions 7. It will be understood that by the use of these bars 54 the frame may be so secured to the work as to cause the boring bits to bore holes at any desired distance from the lower side of the work.

At the lower end of the standard 14 is an outwardly projecting arm 62 which has a downwardly extending stud 63 at its outer end which may be forced into the floor by the foot of the operator to secure the standard to the floor so that there is no danger of its becoming displaced while the machine is at work.

Having thus described the invention, what we claim as new and desire to secure by Letters Patent is:—

1. An overhead boring machine comprising a frame, a supporting standard therefor, a shaft mounted on the frame, means for rotating said shaft, a spindle connected to said shaft for rotation therewith and longitudinal movement relative thereto, said spindle having circumferential rack teeth, a feed shaft mounted in said frame and having

a pinion engaging said rack teeth, a sprocket wheel on said feed shaft, a sprocket chain passing over said wheel, a spring connected with said chain and operating to revolve 5 said feed shaft in one direction and an operating connection associated with said chain for causing the latter to act on the feed sprocket wheel and revolve the feed shaft in the reverse direction against the tension of 10 said spring.

2. An overhead boring machine embodying a head frame, a standard for supporting said frame at an elevation, boring means carried

by said head frame, and a work engaging bracket embodying a shoulder projecting in 15 a plane parallel to the axis of the boring means and having an upstanding work engaging spur which extends at right angles to the axis of the boring means.

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

JEFFERSON KINDLEBERGER.

GEORGE GARRETSON.

Witnesses:

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