

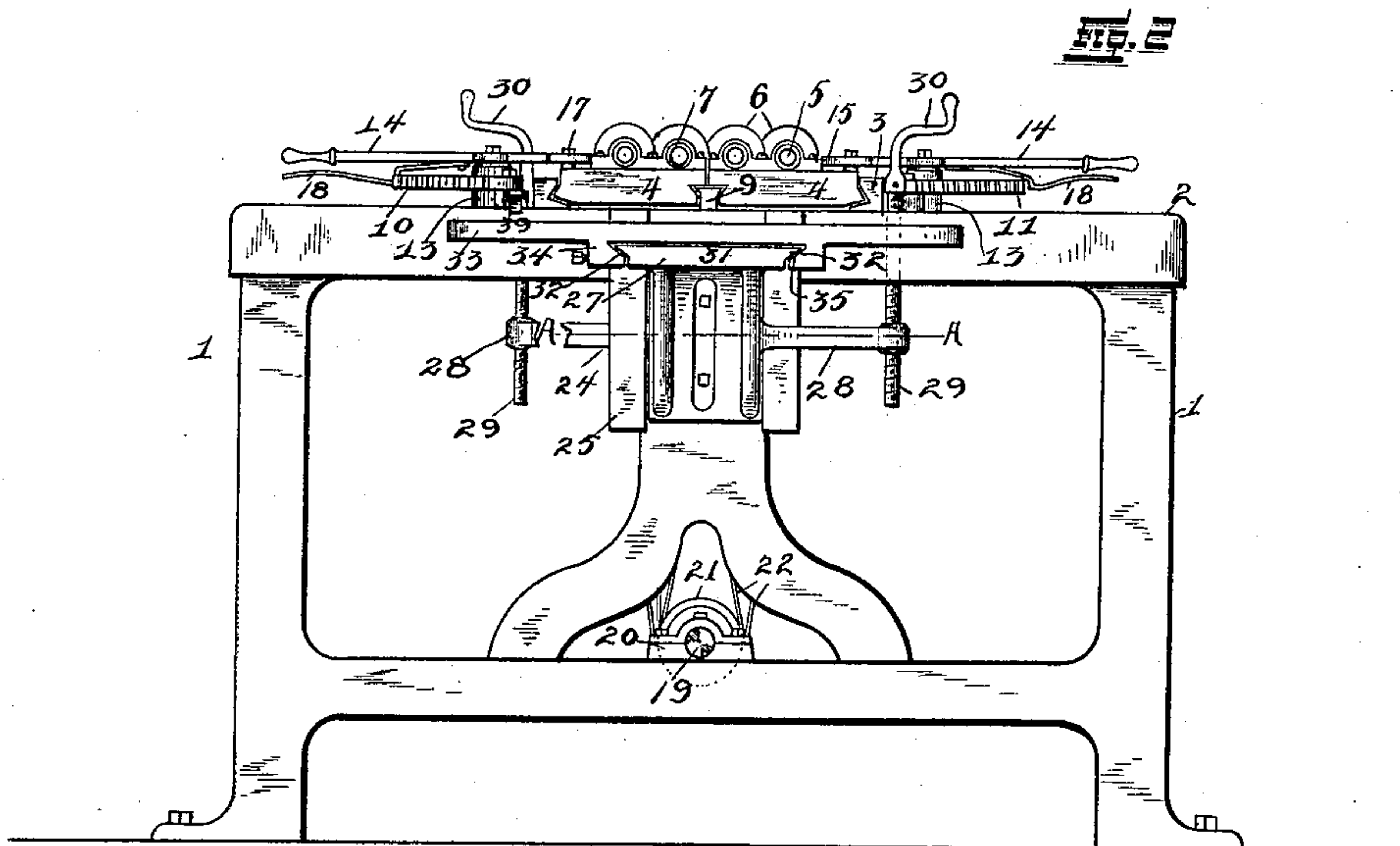
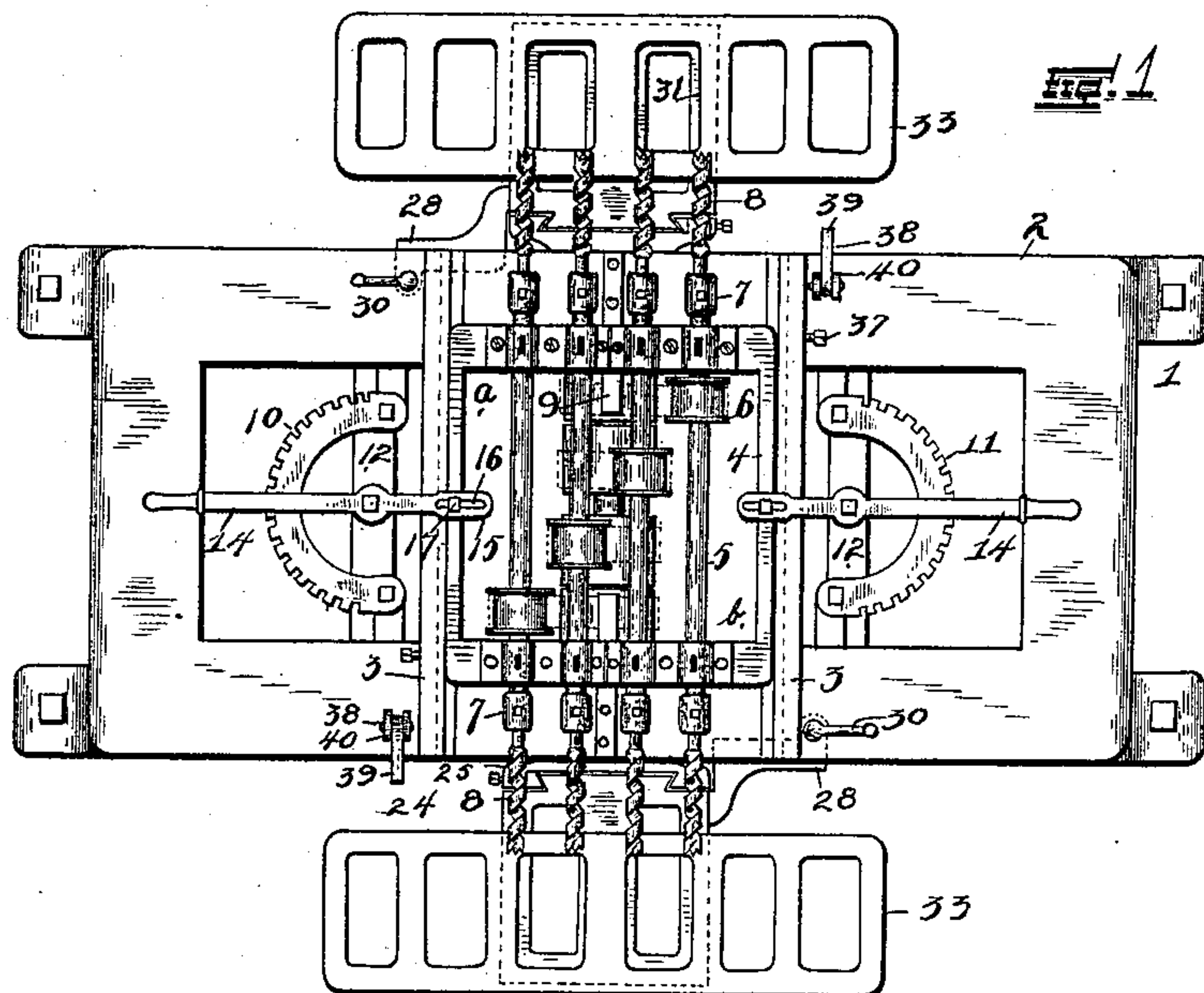
(No Model.)

3 Sheets—Sheet 1.

H. A. POERTNER.
DOWEL HOLE BORING MACHINE.

No. 568,320.

Patented Sept. 22, 1896.



Witnesses

Geo. F. Lane
B. Meinhold.

Inventor.

Henry Anton Poertner.

By Alfred A. Eicher Attorney.

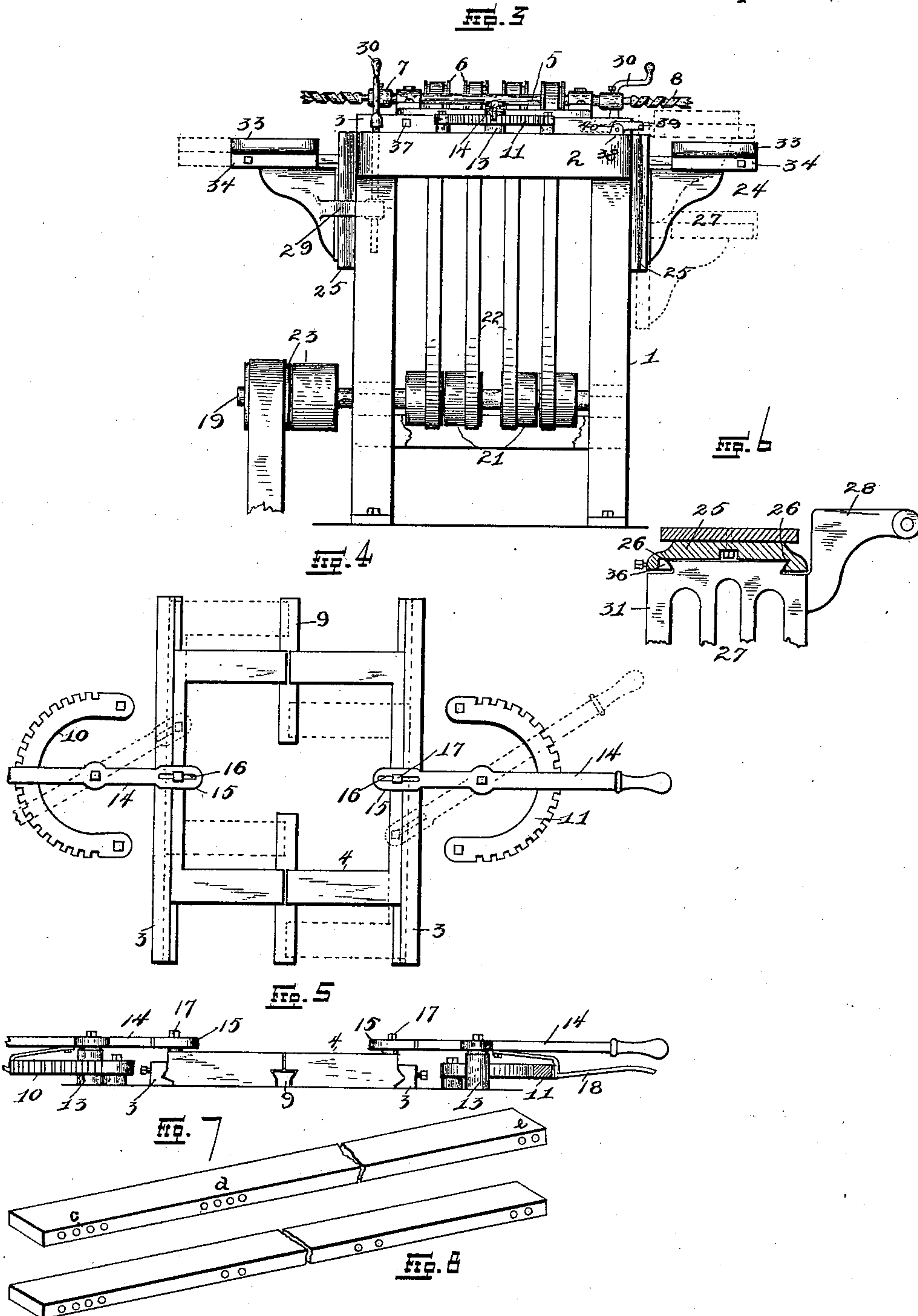
(No Model.)

3 Sheets—Sheet 2.

H. A. POERTNER.
DOWEL HOLE BORING MACHINE.

No. 568,320.

Patented Sept. 22, 1896.



Witnesses.

Geo. L. Lane
B. Meinhold.

Inventor

Henry Anton Poertner.

By Alfred A. Eichen Attorney.

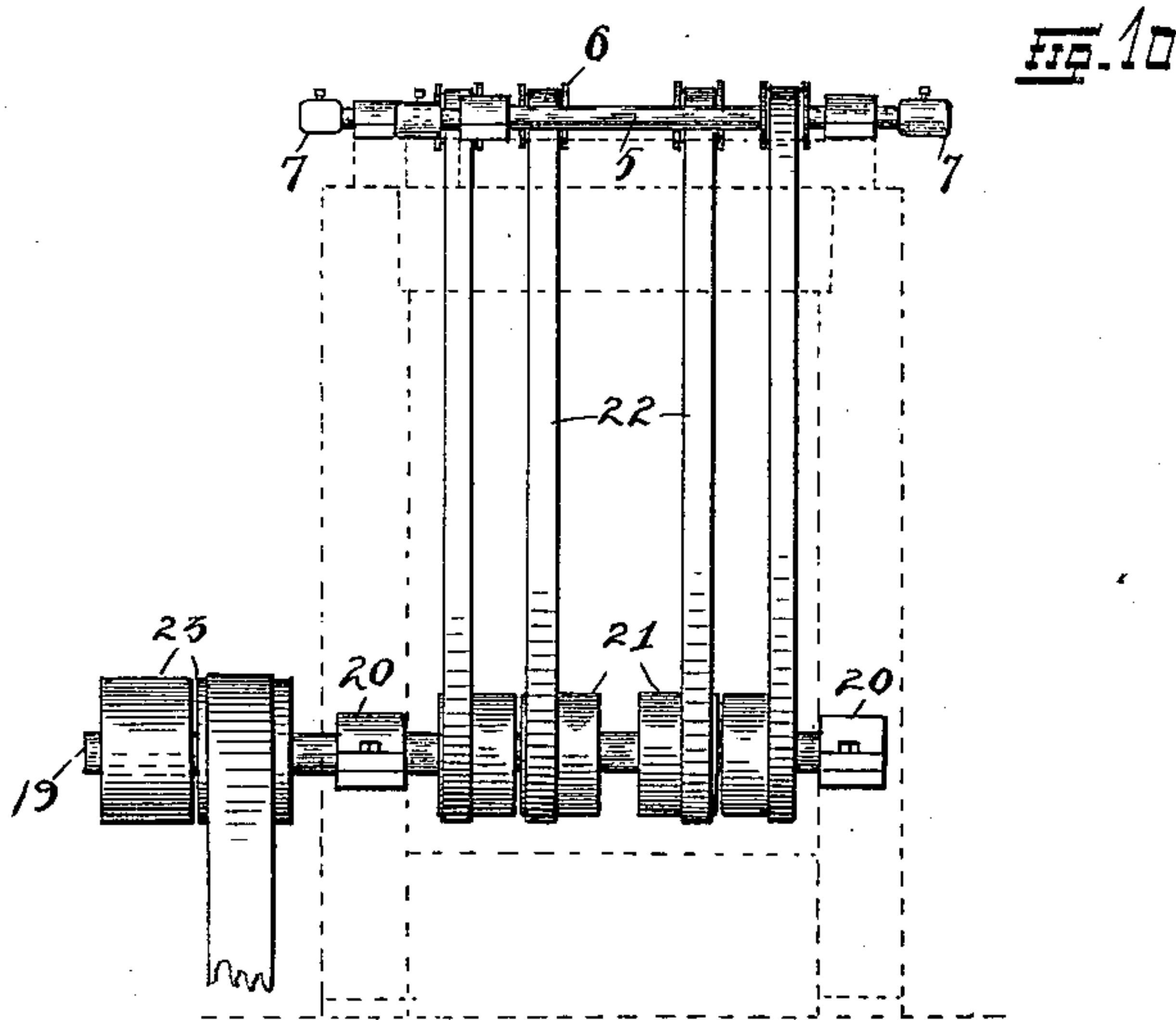
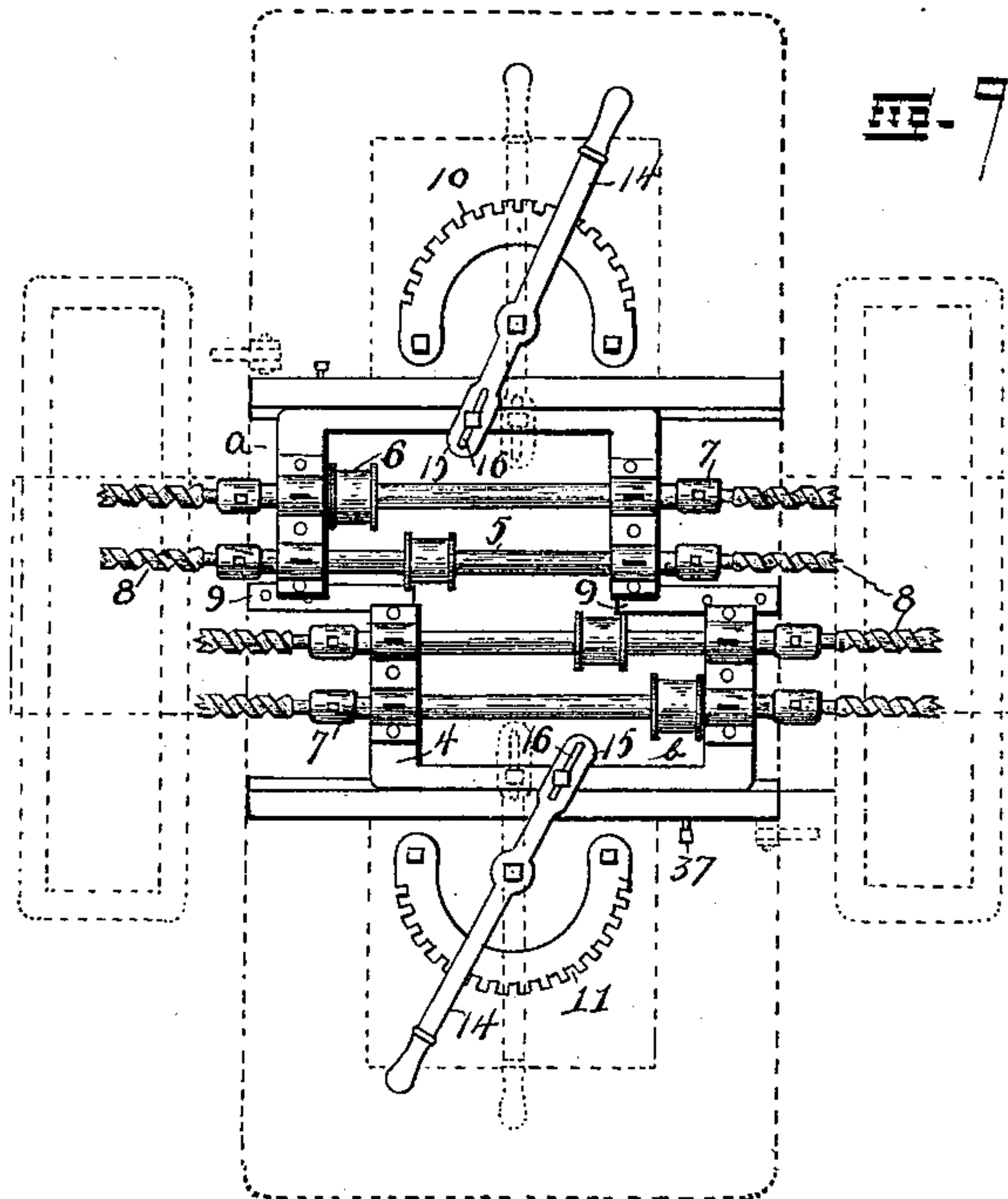
(No Model.)

3 Sheets—Sheet 3.

H. A. POERTNER.
DOWEL HOLE BORING MACHINE.

No. 568,320.

Patented Sept. 22, 1896.



Witnesses

Geo. F. Lane
B. Meinhold.

Inventor

Henry Anton Poertner.

By Alfred A. Eichs Attorney.

UNITED STATES PATENT OFFICE.

HENRY A. POERTNER, OF ST. LOUIS, MISSOURI.

DOWEL-HOLE-BORING MACHINE.

SPECIFICATION forming part of Letters Patent No. 568,320, dated September 22, 1896.

Application filed May 4, 1896. Serial No. 590,152. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. POERTNER, of St. Louis, State of Missouri, have invented certain new and useful Improvements in Dowel-Hole-Boring Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in a dowel-hole-boring machine; and it consists in the novel arrangement, construction, and combination of parts, as will be more fully hereinafter described, and set forth in the claims.

The object of my invention is to construct a boring-machine which may be adjusted to bore two or four holes by the manipulation of a lever operating the tool-supporting frame.

The tool-supporting frame being composed of two parts, each part can be adjusted independently of the other, and by said device a number of holes may be bored, either four or two, as is desired by the operator. It is also arranged for two operators who work jointly with each other. When one operator is boring four holes, the other is doing likewise, and the same when two holes are being bored.

Referring to the drawings, Figure 1 is a top plan view of my complete invention. Fig. 2 is a side view of the same. Fig. 3 is an end view showing by dotted lines the adjustment of the side work-supporting tables. Fig. 4 is a detail view of the tool-supporting frame, to an enlarged scale, detached from the machine. Fig. 5 is an edge view of the same. Fig. 6 is a horizontal sectional view of the work-supporting table-raising device, to an enlarged scale, taken on the line A A of Fig. 2. Fig. 7 is a perspective view of the work, showing the number and position of the holes as bored. Fig. 8 is a view similar to Fig. 7. Fig. 9 is a top plan view of the adjustable boring device in its adjustment, showing the bed and tables in dotted lines. Fig. 10 is a side view of the same, showing the relative arrangement of the pulleys for accommodating the belt-driving device for the movement of the arbors.

In the drawings, 1 indicates an ordinary base or framework, which is constructed in

the ordinary manner and is provided at its top with a bed 2. Upon the bed 2 is firmly secured guides 3, in which is guided a tool-supporting frame 4. Upon said frame 4 and in bearings are held arbors 5, which are provided with flanged pulleys 6. At each end of said arbors 5 are fixed in the usual manner chucks 7, in which are held boring-tools 8, by means of set-screws or other well-known means. The said tool-supporting frame 4 is composed of two parts *a* and *b*, and each part carrying two arbors 5, by which the boring-tools 8 are operated. In order that each part may be operated separately, I place between them a guide 9, which is firmly secured to the bed 2 by means of bolts, screws, &c.

To the bed 2 of the framework 1 I secure a toothed segment 10 and 11 by means of a plate 12, which is fixed to said framework in a manner well known to the trade. Upon said plate 12 and at its center I place a standard or pivot-post 13, upon which is pivoted a lever 14, said lever 14 having at its one end an enlargement 15, in which is provided an elongated slot 16, through which is adapted to be placed a bolt or set-screw 17, which is held by the tool-supporting frame 4, and by which said tool-supporting frame is moved when the lever is manipulated.

To the under side of the lever 14 is secured a spring-lock 18, which comes in contact with the teeth upon said segment 11, thereby locking said lever, and the use of said lever is to advance the boring-tools into various positions, so that the feed of the work remains constant and different depths of holes are bored, according to the adjustment in which the tools are placed. To the lower portion of said framework 1 I place a driving-shaft 19, which is held and guided in bearings 20, and upon said shaft and in said framework are four pulleys 21, so arranged as to be in direct alinement with the flanged pulleys 6 of the boring-shafts, and said pulleys 21 are of sufficient width to allow the belts 22 to slide thereon without becoming disconnected when the lever 14 is manipulated. Upon the said shaft 19 are also the tight and loose pulleys 23, upon which the driving-belt is placed which operates the entire machine.

To each side of the framework 1, and un-

der and in alinement with the boring-tools 8, I place an adjustable table 24, said table composed of a vertical guide-plate 25, provided with V-shaped grooves 26. Within said guide-plate 25 is placed and guided a frame 27, which is provided with an arm or extension 28, through which is passed a screw-threaded rod 29, which raises and lowers said table when said screw-threaded rod 29 is turned by the crank 30 secured thereto.

The horizontal portion 31 of the frame 27 is provided with inclined edges 32, over which is adapted to be placed and guided a bed-table 33, having at its under surface projections 34, forming V-shaped grooves 35, which is placed over the inclined edges 32, as before specified. To one side of the projections 34 is a set-screw, which is for the purpose of tightening the table 33 when in position for the work to be bored. The guide-plate 25 is also provided at one side with a set-screw, which is for the purpose to press against a wedge 36 for taking up the play in the grooves.

The guides 3 on the bed 2, which support and guide the boring-frame 4, are provided with set-screws 37, which are also for the purpose to take up play.

Upon the bed 2 of the framework 1 I place a stop 38, which is composed of a casting 39, or otherwise, and pivoted between two ears 40, which are for the purpose to allow said casting 39 to be set or released, as desired.

The operation of my invention is as follows: When it is desired to dowel a piece of work, as shown in Figs. 7 and 8, the tables are set for the depth of the hole to be bored. The work is then laid upon said tables, and the machine is in position, as shown in Fig. 1. Said work is then brought in contact with the boring-tools by pushing it along the table by hand, and in this manner the four holes *c*, as shown in Fig. 7, are bored. The work is then removed and the four holes *d* are bored. Then the two holes *e* are bored by placing the work in contact with two boring-tools. This can be done without materially altering or adjusting the tool-supporting frame, as the two holes being close to the end of the work it will pass the other two boring-tools; but when it is desired to bore work as shown in Fig. 8 the four holes are bored as the device stands in Fig. 1. Then two holes are to be bored. It is now necessary to adjust the tool-supporting frame, and in order to do so I grasp the lever 14, press the spring-lock 18, releasing it from the segment 11. I then pull upon the lever 14, which brings the one part of tool-supporting frame in position, as shown in Fig. 9, and the opposite part is likewise operated, thereby bringing two boring-tools entirely out of alinement with the other, as shown in Fig. 9. Thus in this manner two holes are bored. When this adjustment is being made, the operator places the stop in position, and when the arbors are in their central position, as shown in Fig. 1, the stops 39 are thrown back out of the way, leaving

the work to engage the lugs 40, and when one set of boring-tools is advanced a certain amount, as shown in Fig. 9, the stops 39 are thrown into operation, and being of the length equal to the advance which has been given by the tools they will gage the hole to the same depth as is made when the tools are in their central position. When the work is placed upon the table 33, the table is raised and lowered, according to thickness of lumber, by turning the crank-arm 30.

Each pulley on the boring-shaft is provided with flanges for the purpose to prevent the belt from slipping off when the frame is shifted, and the driving-pulleys 21 are of sufficient width to allow the belt to shift thereon in unison with the boring-shaft, but yet not to slip therefrom.

The articles which are to be bored by my improved device are doors, blinds, sash, and other articles best known to the wood-working trade.

The device can be manufactured cheaper and is more compact and simple than any such device upon the market, and does the work correctly and to the greatest of satisfaction.

The main article for which my device is constructed is specially doors of all descriptions. Therefore it has been found necessary to arrange the boring-frame, as described, so as to shift the bits instantly, as it is necessary to bore a different number of holes on the same piece of work. In boring a four-panel door the machine may remain unshifted, as the base requires four holes, the lock-rail also four holes, and the top two holes, which can be done by passing two of the bits, as before described.

In boring a five-horizontal-panel door it is necessary to bore four holes in the base. Then two holes are to be bored in each cross-rail, and in such case it is necessary to shift the bits, as the holes are arranged at intervals in said work. (For clearness see Figs. 7 and 8.)

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In an improved dowel-hole-boring machine, having parallel guides secured to the top of the frame, a series of boring-spindles arranged in a common plane, and parallel with the guides, and mounted in two sets on supports sliding in said guides, levers handled on one end and pivoted to the machine-frame having their other end movably secured to the tool-supports, spring-locks secured to said levers, segments secured to said frame, and with which the spring-locks engage to hold the tool-supports in their various adjustments, substantially as shown and described.

2. In an improved dowel-hole-boring machine, having a series of boring tools arranged in a common plane and mounted on two tool-supports slidable in guides in the axial direction of the tools, adjusting and locking devices adapted to lock said sup-

ports so that one set of the tools is even with
or in advance of the other, lugs on the ma-
chine-frame to gage the depth of hole bored
by stopping the work, and a removable gage-
5 stop hinged to said lugs of a length commen-
surate with the advance to be given one set
of the tools, to gage the depth of holes to be
bored by the tools when in their advanced
position by stopping the work in advance of

the lugs, substantially as shown, and for the
purpose set forth.

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

HENRY A. POERTNER.

Witnesses:

ALFRED A. EICKS,
GEO. F. LANE.