No. 876,542. PATENTED JAN. 14, 1908.

H. V. HAIGHT.

CHANNELING MACHINE.

APPLICATION FILED AUG. 31, 1906.

3 SHEETS—SHEET 1.

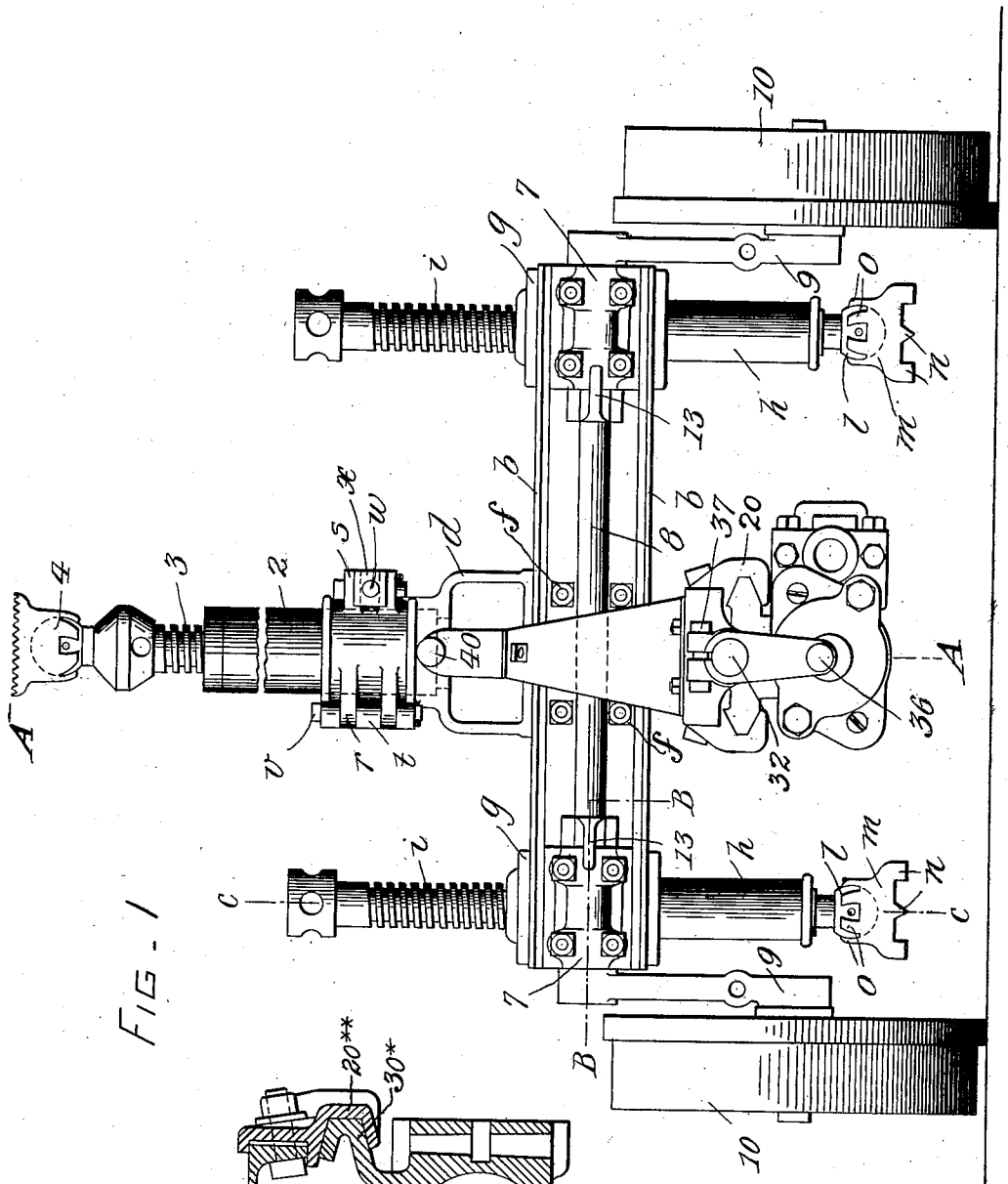


FIG. 1

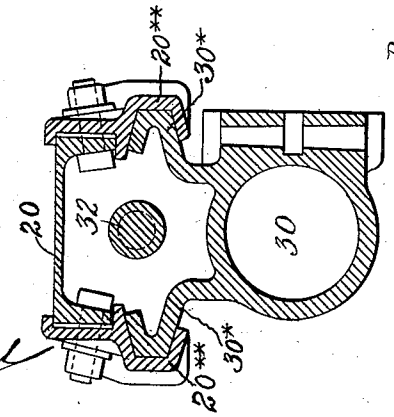


FIG. 6

Witnesses

Ed. Page.

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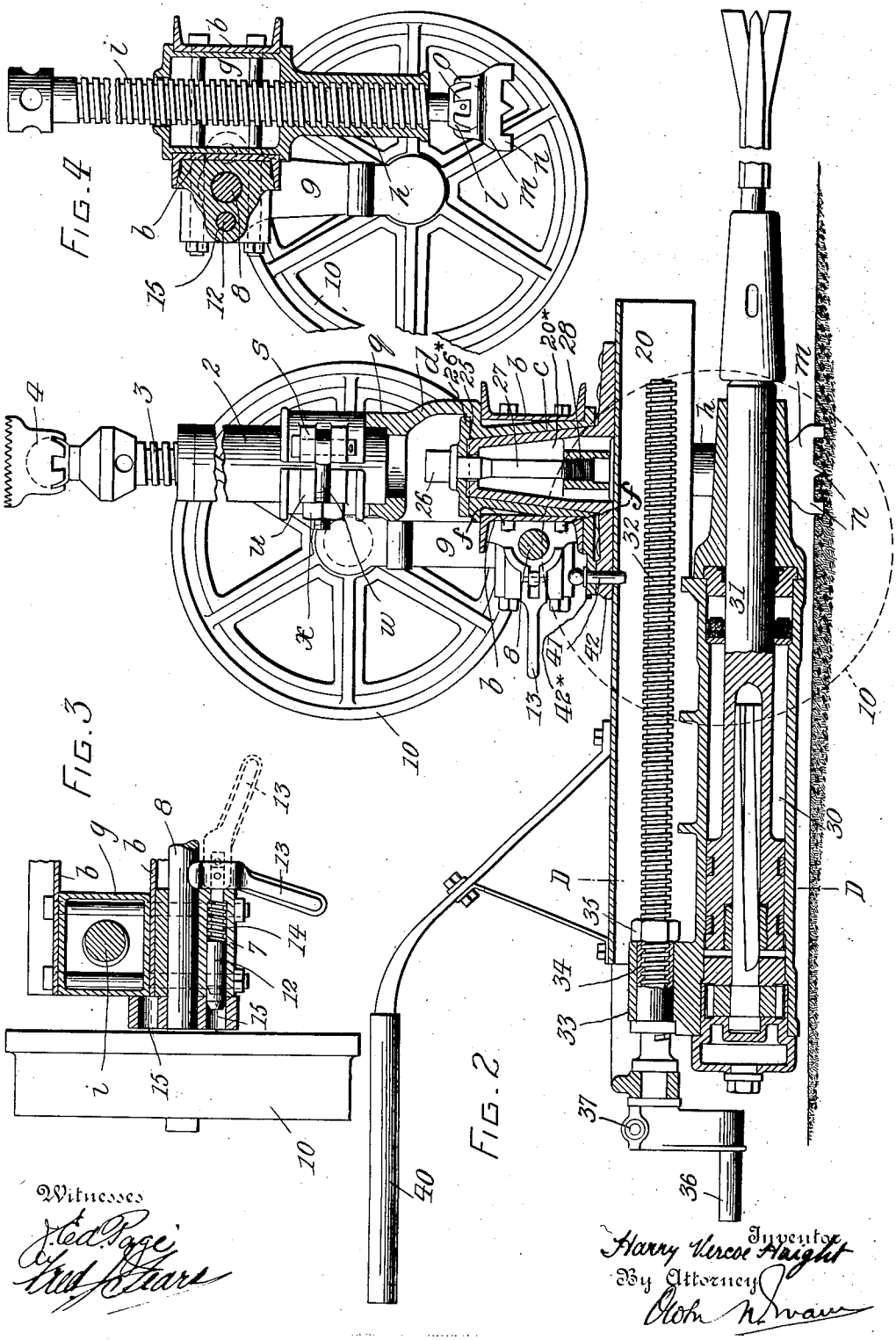
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3 SHEETS—SHEET 2.



Witnesses

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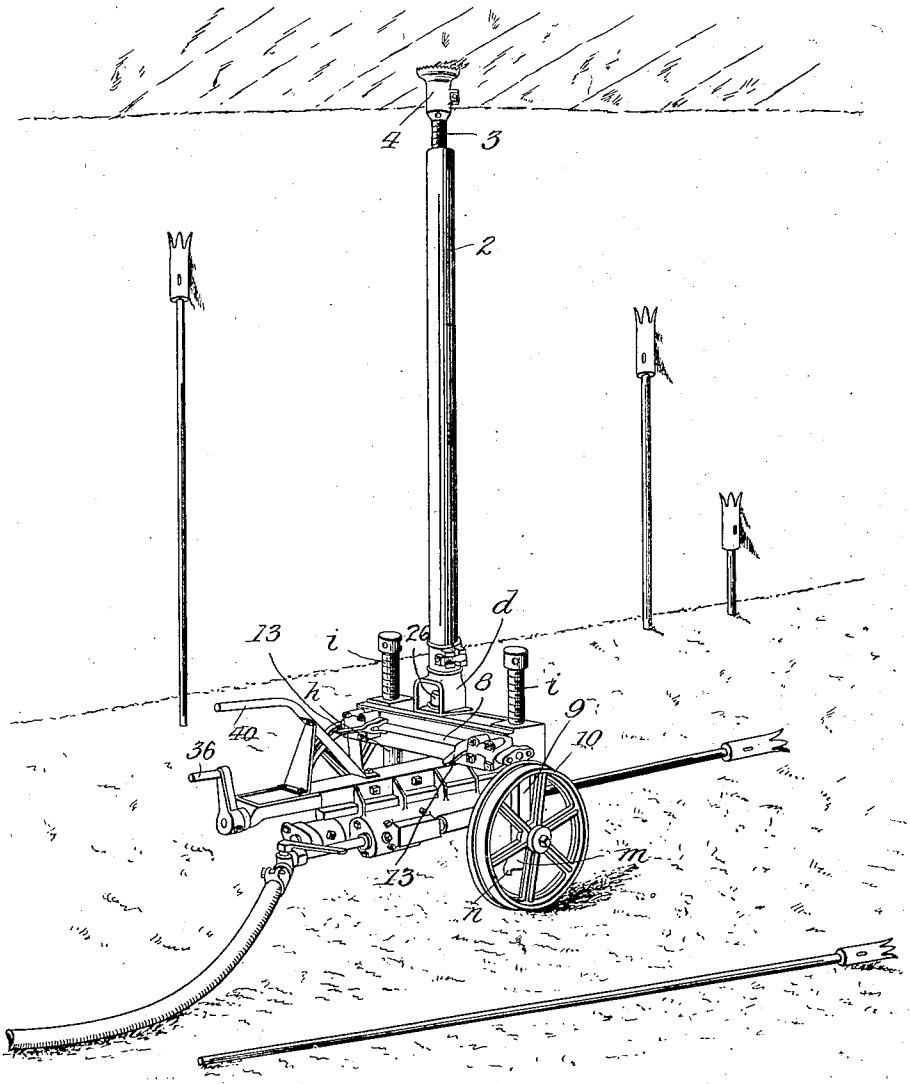
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CHANNELING MACHINE.

APPLICATION FILED AUG. 31, 1906.

3 SHEETS—SHEET 3.

FIG. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

HARRY VERCOE HAIGHT, OF SHERBROOKE, QUEBEC, CANADA, ASSIGNOR TO INGERSOLL-RAND COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

CHANNELING-MACHINE.

No. 876,542. Specification of Letters Patent. Patented Jan. 14, 1908.

Application filed August 31, 1906. Serial No. 332,836.

To all whom it may concern:

Be it known that I, HARRY VERCOE HAIGHT, of Sherbrooke, Province of Quebec, Canada, have invented certain new and useful Improvements in Channeling-Machines; and I do hereby declare that the following is a full, clear, and exact description of the same.

The invention may be said to consist of the several combinations and arrangements of parts hereinafter described, and illustrated in the accompanying drawing to which reference must be had for full comprehension of the invention and wherein similar reference characters indicate the same parts.

The main features of this invention are: first; the combination of a radial tool for channeling or other purpose, and a portable carriage: second; the carriage for the tool being mounted upon wheels and provided with devices for rigidly supporting the body thereof independently of the wheels which are adapted to be swung up from beneath the plane in which the tool lies while working: third; the location of the tool below the horizontal member of the truck frame and between the said devices for rigidly supporting the machine independently of the wheels: fourth; the machine being adapted to be swiveled or swung about a vertical axis preferably in vertical line with one of the said supporting devices: fifth; particular specific means for holding the wheels relatively to the truck frame either in supporting position or lifted, and additional means for locking the tool carrying member proper at right angles to the truck.

In the accompanying drawings, Figure 1 is an end elevation of a channeling machine embodying the improvement; Fig. 2 is a longitudinal vertical sectional view thereof taken on line A—A of Fig. 1; Fig. 3 is an enlarged horizontal sectional view taken on line B—B of Fig. 1 and illustrating particularly the means for detachably locking the wheel support to the truck frame in different adjustments. Fig. 4 is a transverse sectional view on line C—C of Fig. 1 and illustrating the same details as Fig. 3; Fig. 5 is a perspective view of the machine and the channeling tools for use therewith; and Fig. 6 is a transverse vertical sectional view taken on line D—D Fig. 2 and illustrating particularly the sliding connection between the longitudinally adjustable tool carrier and the member in which it is slidably mounted.

The truck comprises a pair of channel irons *b*, *b*, disposed with their backs towards each other and a sufficient distance apart to accommodate between them the lower truncated conical end *c* of a pedestal *d* to be presently further alluded to, the said lower end being secured to the channel irons *b*, *b*, by bolts *f*. The said channel irons are bolted at their ends to a pair of boxes *g* having downwardly projecting internally screw-threaded sleeves *h*. These sleeves form portions of the before mentioned devices (which may be termed jacks) for rigidly supporting the carriage independently of the wheels, the third of the said devices being clamped in the upper end of the pedestal *d* above mentioned. A pair of jack screws *i* are screwed downwardly through the boxes *g* and sleeves *h* and their lower ends are diminished and have secured rigidly thereon, balls *l* which are adapted to fit into sockets formed in a pair of feet *m* having their treads provided with teeth *n* and the upper annular edge of each formed with lugs *o* adapted to be bent inwardly and retain the balls against entire displacement while allowing them the freedom necessary in a ball and socket joint.

In order to afford means for clamping to the pedestal *d* the third device for rigidly holding the machine while it is operating, the upper end of the said pedestal is cut away to present a semicircular part *q* having perforated lugs *r* and *s* at opposite ends and a clamping cap also of semicircular form is provided and has lugs *t* coacting with the lugs *r* to form a hinge and lugs *u* adapted to coact with the lugs *s*. The hinge lugs *t* and *r* are connected by an ordinary pintle *v* while the lugs *s* have a bolt *w* pivotally connected thereto and adapted to project between the lugs *u* and have a clamping nut *x* screwed thereon. A column 2, in the form of a pipe, has its lower end clamped in the clamping device, just described, and its upper end internally screw-threaded with a jack screw 3 screwed therein and a serrated foot 4 is connected to the upper end of this jack screw by a ball and socket connection as shown in Fig. 2.

As thus far described, the truck frame and means for supporting the same rigidly at different working levels are disclosed, and for the purpose of moving this mechanism to different working positions a pair of bearing brackets 7 are bolted to the rear side of the

main transverse truck member *b* and has a crank shaft 8 bearing therein and having a pair of crank arms 9 secured rigidly upon its opposite ends and carrying a pair of traction wheels 10. The shaft is loose in its bearings to enable the wheels to be swung either to position supporting the truck frame or above the same, and these wheels are locked in either position by a pair of latches each consisting of a bolt 12 located slidably in the shaft bearing and pivoted to a cam lever 13, while an expansile helical spring 14 yieldingly retains the bolt in position to engage either of a pair of holes 15 in the crank arm adjacent thereto.

The tool carrying member is located beneath the truck frame and comprises a guiding part 20 of female dovetail cross section, carrying a truncated conoidal standard 20* corresponding in dimensions to the interior of the lower end *c* of the pedestal *d* into which it fits rotatably. The top of this standard 20* is perforated and a washer 26* rests thereon and is of sufficient diameter to overlap a bearing face 25 presented by an enlargement of the portion of the pedestal *d* intermediate the said lower conoidal end and the clamping top. This enlargement also accommodates the head 26 of a center bolt 27 which is passed downwardly through the washer 26* and perforated top of the standard 20* and is threaded into a hub 28 formed integral with the lower end of the said standard, thus pivotally connecting the above mentioned guiding part 20 to the truck or carriage. The cylinder 30 in which the tool piston 31 reciprocates, is supported in the guide 20 by means of a male dovetail 30* formed upon or cast in one with the top of the cylinder and mounted slidably in the female dovetail 20** of the guide 20.

A screw 32 for feeding the tool is mounted rotatably in a cross head 33 carried rigidly by the guiding member and threaded through a nut 34 constituted by a threaded boring through the male dovetail, a jam nut 35 being located adjacent to the forward end of the said nut 34, and an operating handle 36 is rigidly clamped (by a bolt 37) upon the rear end of the screw.

A tiller 40 is secured rigidly upon the top of the rear end of the guiding member 20, and a pin 41 adapted to be inserted through registering holes in the flange 42* upon the lower conical end *c* of the pedestal *d* and the flanged lower end 42 of the standard 20*. This pin 41 is for the purpose of locking the tool bearing member against horizontal oscillation in the truck, and the tiller affords means for directing the truck in its movement.

I do not describe the valve for controlling the operation of the tool as it forms the subject matter of an application filed by me November 22nd, 1906 under No. 344,552, while the rotary bar and the tool and the mechanism intermediate such parts, are the same as heretofore used in mining, quarrying and the like.

When being moved from one place to another, the truck frame is supported on the wheels, the lower jacks are shortened, or screwed up, and the upper jack is unclamped and removed, if more convenient, the tool can be removed. The place for operation being arrived at, the lower jacks are extended until the wheels are lifted clear of the ground, the wheel latches are then moved to disengage the locking pins from the crank arms, and the latter, with the wheels carried thereby are swung up to the position shown in Fig. 2. These supporting jacks are then operated upon until the tool is brought to the required level after which the upper jack is caused to bear tightly against the ceiling, cross timbers, or other available abutment surface above the machine. The pin 41 is then removed and the machine is ready for operation.

What I claim is:

1. The combination with a tool carrying member, of a movable truck, means for rigidly supporting the truck, devices for movably supporting the truck arranged to be moved into and out of their supporting position independently of the means for rigidly supporting the truck, and means supporting the said tool carrying member from and beneath the truck.

2. The combination with a tool carrying member, of a truck, means for rigidly supporting the truck, wheels for movably supporting the truck arranged to be moved into and out of their supporting position independently of the means for rigidly supporting the truck and means supporting the said tool carrying member from and beneath the truck.

3. The combination with a tool carrying member, of a movable truck, lifting jacks carried by the said truck upon opposite sides of the tool carrying member and means supporting the said tool carrying member from and beneath the truck and between the lifting jacks.

4. The combination with a tool carrying member, of a wheeled truck, means supporting the said tool carrying member from and beneath the truck to oscillate horizontally, a pair of lifting jacks carried by the truck at opposite sides of the said supporting means, and a vertically extensible columnar member mounted upon the truck.

5. The combination with a tool carrying member, of a wheeled truck, means supporting the said tool carrying member from and beneath the truck to oscillate horizontally, a pair of lifting jacks carried by the truck at opposite sides of and in horizontal line with the said supporting means, and a vertically

extensible columnar member mounted upon the truck in the vertical plane of the said lifting jacks.

6. The combination with a tool carrying member, of a wheeled truck, means supporting the member upon the truck to oscillate horizontally, a pair of lifting jacks carried by the truck at opposite sides of and in horizontal line with the said supporting means, and a vertically extensible columnar member mounted upon the truck in the vertical plane of the said lifting jacks.

7. The combination with a tool carrying member, of a wheeled truck, means supporting the member upon the truck to oscillate horizontally beneath the body of the truck, a pair of lifting jacks carried by the truck at opposite sides of and in horizontal line with the said supporting means, and a vertically extensible columnar member mounted upon the truck in the vertical plane of the said lifting jacks.

8. The combination with a tool carrying member, of a wheeled truck, means supporting the member upon the truck to oscillate horizontally, a pair of lifting jacks carried by the truck at opposite sides of and in horizontal line with the said supporting means, a vertically extensible columnar member mounted upon the truck in the vertical plane of the said lifting jacks, and means whereby the wheels of the truck are moved above the level of the said tool carrying member.

9. The combination with a tool carrying member, of a wheeled truck, means supporting the member upon the truck to oscillate horizontally beneath the body of the truck, a pair of lifting jacks carried by the truck at opposite sides of and in horizontal line with the said supporting means, a vertically extensible columnar member mounted upon the truck in the vertical plane of the said lifting jacks, and means whereby the wheels of the truck are moved above the level of the said tool carrying member.

10. The combination with a wheeled truck having a clamping device mounted thereon, a vertically extensible columnar member clamped in the said clamping device, a tool carrying member supported upon the truck, and means coacting with the columnar member for retaining the said truck against displacement during the operation of the tool.

11. A machine for channeling and the like, comprising a pedestal, a main transverse member consisting of a pair of parallel sub-members with the lower end of the pedestal secured rigidly between them, a pair of downwardly projecting lifting jacks having their bases secured rigidly between the ends of the said sub-members, a shaft mounted rotatably upon the said main transverse member, crank arms secured rigidly upon the ends of the said shaft, wheels mounted on said crank arms, means for locking the said shaft in different angular positions, a clamping device at the upper end of the pedestal, an extensible columnar member clamped in the said clamping device, a tool carrying member secured rotatably to the main transverse member, means for locking the said tool carrying member against oscillatory movement, means for feeding the tool horizontally relatively to its carrier, and a tiller upon the said carrier.

12. A machine for channeling and the like, comprising a pedestal with truncated conoidal lower end, a main transverse member consisting of a pair of parallel sub-members with the said lower end secured rigidly between them, a pair of downwardly projecting lifting jacks having their bases secured rigidly between the ends of the said sub-members, a shaft mounted rotatably upon the said main transverse member, crank arms secured rigidly upon the ends of the said shaft and having wheels mounted thereon, means for locking the said shaft in different angular positions, a clamping device at the upper end of the pedestal, an extensible columnar member clamped in the said clamping device, a tool carrying member having a truncated conical standard secured rotatably within the lower end of the pedestal, means for locking the said tool carrying member against oscillatory movement, means for feeding the tool longitudinally relatively to its carrier, and a tiller upon the said carrier.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

HARRY VERCOE HAIGHT.

Witnesses:
EMETT WEBBER GILMAN,
WILLIAM FREDERICK CARTER.