J. Humphreys.

Turning Lathe.

No. 83,774. Patented Nov. 3, 1868.

Fig. 1.

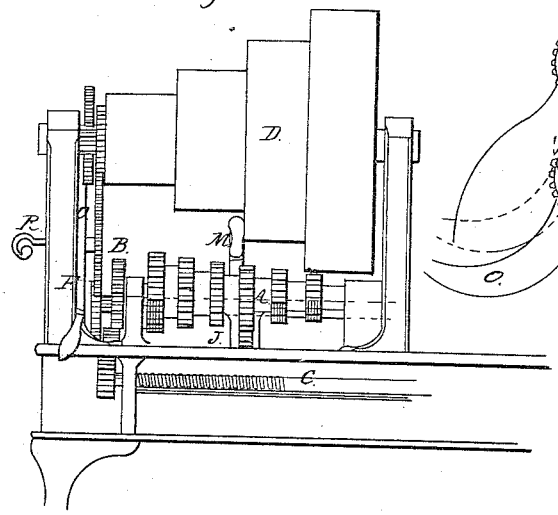


Fig. 2.

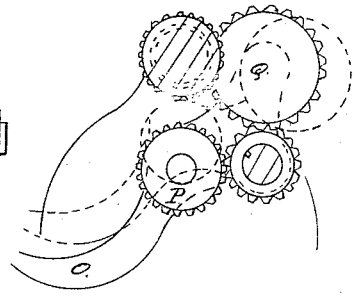


Fig. 5.

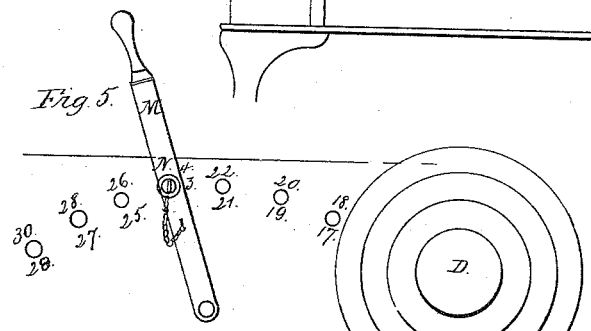


Fig. 3.

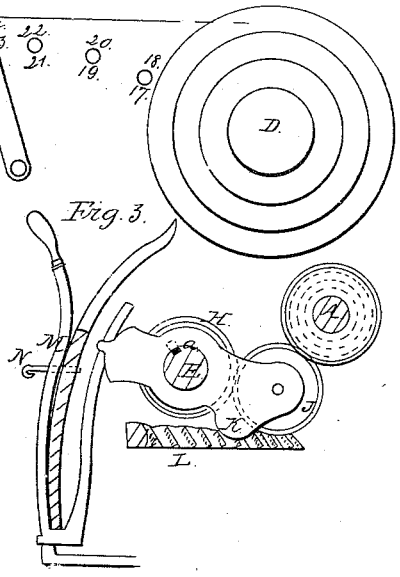
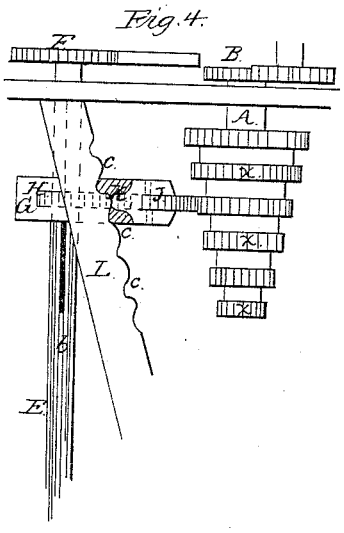


Fig. 4.



Witnesses.

W. McGuinness

R. Smith.

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attys.

United States Patent Office.

JOHN HUMPHREYS, OF CHICOPEE, MASSACHUSETTS.

Letters Patent No. 83,774, *dated November* 3, 1868.

IMPROVED ADJUSTABLE GEARING FOR LATHES

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, JOHN HUMPHREYS, of Chicopee, Hampden county, Commonwealth of Massachusetts, have invented a new and useful Adjustable Gear for Screw-Cutting Lathes; and I do hereby declare that the following is a full and clear description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

In the drawings—

Figure I is a side view of my device;

Figure II, a detailed view of a part of the same;

Figures III and IV are detail end and bottom views of part of the device; and

Figure V, a diagram of a part.

This invention consists of a new and simple device, by which the use of separate gear-wheels may be dispensed with in screw-cutting lathes. It is well known that a great deal of trouble arises in a workshop from the mislaying and losing of the gear-wheels used for changing the inclination of the screw-cutting devices in this kind of lathes; these wheels being made in sets of all sizes, and requiring to be numbered and kept in the proper places, to prevent mistakes. In my device the only thing required, in order to change the machine to any-numbered screw, is to move a lever, and pin it or otherwise fasten it to the proper place, as indicated by the number on a scale marked for the purpose.

In order to accomplish this, I place my gear-wheels all upon a shaft, A, ranging from the smallest to the largest, and leaving a space between them of about the same width as the wheels themselves.

This shaft A has on one end a gear-wheel, B, which engages with the gear running the traveller-screw C, and is placed in bearings underneath the belt-pulley D. Parallel to the shaft A, and about on the same horizontal plane, is placed a shaft, E, which has a gear, F, on one end, engaging with other gear operated immediately by the belt-pulley D, and on this shaft is a traveller, G, carrying gear-wheels H and I, meshing with each other, the one, H, being turned by the shaft E, by means of a key, *a*, and the gear I being shafted in the traveller, which is free to turn on the shaft E, or to slide upon it with the gear H and I, the key *a* sliding in a groove, *b*, in the shaft, so that the shaft E, in revolving, operates the gear H and I without communicating any motion to the traveller G. On the underneath side of the traveller is a projection, K, which rests upon a rack, L, placed at an angle to the shafts A and E, and parallel to the line of decrease of the gear *x x*, as they are fixed upon the shaft A. There are as many projecting teeth to the rack L as there are gear *x x*, and these come opposite each other, so that when the traveller G rests upon a projecting tooth, *c*, as shown in Fig. IV, the gear I meshes with the gear X, opposite, so that when the traveller is moved to any position upon the shaft E, that will bring it to rest upon a projecting tooth, *c*, of the rack, the machine is ready to cut the number of thread determined by the number of gear *x* communicating motion from the shaft E to the one, A, and, consequently, the screw C, operating the traveller of the machine.

In order to move the traveller G, I use a lever, *m*, which is kept in position by means of a pin, *n*, put through it into holes in the side of the machine-bed. These holes are numbered with the numbers of the gear *x*, which the positions of the lever bring into play. Different arrangements of this lever may be made without altering any principle involved.

An arrangement for bringing different-sized gear into connection between the pulley-gear and shaft E is shown in Fig. II and Fig. I. This consists of a lever, O, pivoted upon the centre, corresponding to the centre of the shaft E, and having gear P and Q shafted upon it in such a manner that either may be brought between the gear on the shaft E and that on the belt-pulley. This lever is held in place by a pin, R, in either position.

The spaces between the gear *x x*, on the shaft A, are necessary, in order to allow the gear-wheel I to free itself from the gear X in being moved, and to enter the next mesh, and the notches between the projections on the rack also assist this operation, by allowing the traveller, with the gear I, to fall back as it is moved.

Various unimportant changes may be made in this device, without altering the principle clearly shown. For instance, the shaft A may be set at an inclination to the shaft E, and the gear used between them be bevelled to correspond with bevelled gear *x x*.

Fig. V shows a view of the scale for indicating the place to pin the lever *m*, in order to set such gear in position as will produce the desired number of thread. Different combinations of gear, such as P and Q, will produce different results with the arrangement of the gear *x x*. In this manner I obtain a simple and effective device, by which the screw-cutting lathe is much simplified and improved, as, instead of the mechanic being obliged to take out one number of gear and put in another, when he changes the number of thread in the machine, he only has to move the lever operating the traveller, and refix it in the place indicated by the required number, and can double the number of gear used, in effect, by the use of the lever O, with its gear P and Q.

Now, having described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the shaft A, having the gear *x x* arranged upon it, the shaft E, with traveller G, and the rack L, the parts being arranged and constructed substantially in the manner shown and for the purpose set forth.

2. In combination with the rest of my device, as herein shown, the arrangement of the lever O, with gear P and Q, substantially as here described, and for the purpose set forth.

3. In combination with the gear *x x* and traveller G, the dial-plate or index W, with the different sizes of gear numbered upon it, substantially as herein described.

JOHN HUMPHREYS.

Witnesses:

R. F. HYDE,

E. H. HYDE.