J. Cumming.

Metal-Drilling Machine.

No. 25,886. Patented Oct. 25, 1859.

Fig. 1.

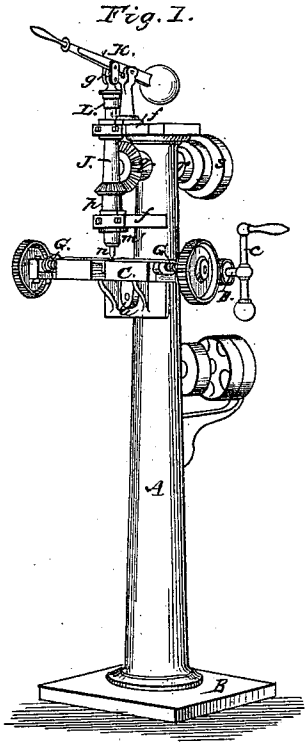


Fig. 2.

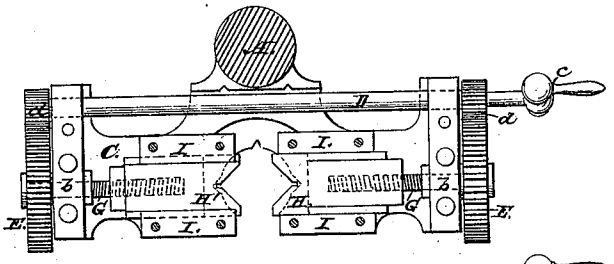


Fig. 3.

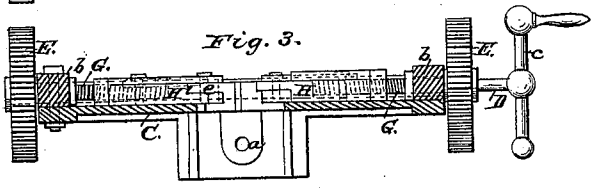


Fig. 4.

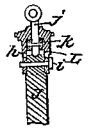
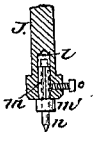


Fig 5.



Witnesses:

C. M. Hughes.

Wm. Hughes

Inventor.

James Cumming.

UNITED STATES PATENT OFFICE.

JAMES CUMMING, OF BOSTON, MASSACHUSETTS.

DRILLING-MACHINE.

Specification of Letters Patent No. 25,886, dated October 25, 1859.

To all whom it may concern:

Be it known that I, JAMES CUMMING, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Centering-Machine for Centering Work to be Turned in Lathes; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a perspective view of my invention. Fig. 2, is a detached plan view of the clamping device. Fig. 3, is a detached front view of ditto. Fig. 4, is a detached vertical section of the coupling which connects the arbor with the lever. Fig. 5, is a detached vertical section of the mode of securing the center point in the arbor.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my invention consists 1st. In the employment of two interlocking centering slides—moved by two right and left screws which are arranged directly in line with the horizontal axis of said slides, in combination with four gear wheels, a transverse shaft, a horizontal bed plate and a vertical drill, in the manner hereinafter described; whereby a very simple and compact upright centering drill is produced, in which a variety of sizes can be centered and the articles while being centered, held by a pressure acting directly in line with their horizontal axis, and thus all liability of their shifting or canting in the slightest degree rendered impossible.

It consists 2nd. In the manner of allowing vertical play in the connecting rods between the swivel of the drill arbor and the weighted or counterpoised lever; whereby, at every elevation of the drill by the counterpoised lever, said rod rises from its seat and allows oil to flow into the same and thus a perfect lubrication at this point effected.

To enable those skilled in the art to fully understand and construct my invention I will proceed to describe it.

A, represents a vertical column supported by a proper base B, and C, is a bed or horizontal plate which is attached to the column by a bolt *a*, arranged in any proper way to admit of the raising and lowering of the bed to a certain extent and the securing of it at any desired point within the range of its movement.

At each side of the bed C, there is a bar *b*, the inner ends of which form bearings for a shaft D, which has a crank *c*, at one end and two pinions *d*, *d*, on it. The pinions *d*, *d*, gear into wheels E, E, which are on screw rods G, G, the bearings of which are also in the bars *b*, *b*. The screw rods G, G, have reverse threads as shown clearly in Figs. 2, and 3. These screw rods work in slides H, H′, said slides being fitted between proper guides I, on the bed C, the guides I, of one slide being in line with those of the other as shown plainly in Fig. 2.

The inner ends of the slides H, H′, are cut or notched so as to form V-shaped recesses as shown plainly in Fig. 2, and one slide H′, is slotted horizontally as shown at *e*, in Fig. 3, in order to form a recess to receive the end of slide H, when the two slides are moved toward each other the slide H′, being sufficiently thick to admit of such an arrangement, to wit, the interlocking of the slides H, H′.

By turning the shaft D, it will be seen that the two slides H, H′, will be moved simultaneously toward and from each other in consequence of the gearing *d*, *d*, E, E, and screw rods G, G.

At the upper part of the column A, there are two horizontal bars *f*, *f*, placed one over the other in the same plane. These bars form bearings or guides for a vertical arbor J, which is allowed to slide freely up and down and is connected to a loaded or counterpoised lever K, by a swivel L, and link *g*. The swivel L, is formed of a cap or tube *h*, which is secured on the upper end of the arbor J, by a pin *i*, said cap or tube having a rod *j*, fitting in its upper end and secured therein by a disk *k*, the rod *j*, being secured to the link *g*. This coupling admits of the vertical and rotating movements of the arbor as will be readily seen. It also allows of the rod *j*, rising out of its seat when the drill is elevated and thus the oil has a chance to run into said seat and lubricate the same ready for another descent and revolutions of the drill.

In the lower end of the arbor J, there is a vertical opening *l*, made to receive a longitudinally slitted tube *m*, provided with a shoulder *m′*, in which tube the drill *u*, is fitted. The drill is secured in the tube *m*, and the latter secured in the arbor by a screw *o*, which passes laterally into the arbor. By this arrangement the drill may

always be firmly secured in the arbor as all wear is compensated for and it may be readily detached by relaxing the screw *o*.

The arbor J, is in a vertical line precisely equi-distant between the two slides H, H′, and on the arbor J, a bevel pinion *p*, is placed loosely and secured thereto by a feather and groove. Into the bevel pinion *p*, a corresponding pinion *q*, gears, said pinion being attached to a horizontal shaft *r*, having a driving pulley *s*, at one end.

Motion is given the shaft *r*, by any convenient power and the article to be center-marked is placed between the slides H, H′. The shaft D, is then rotated and the slides made to grasp the article, the slides bringing the same precisely under the drill so that the latter by being forced down by the lever will accurately center-mark the article.

By having the slides H, H′, interlock as they approach each other a better bearing than usual is obtained, the article being held much firmer and the slides rendered much stiffer.

I do not claim the employment of interlocking notched slides, in themselves considered, nor the operating of said slides by a right and left screw, when said screw is out of line with the horizontal axis of the slides, as this is not new, but

What I do claim as my invention and desire to secure by Letters Patent, is—

1. The arrangement of the notched interlocking slides H, H′, right and left screws G, G, pinions E, E, *d*, *d*, shaft D, bed plate C, I, and upright drill J, all for operation together in the manner and for the purpose herein described.

2. The combination of the drill arbor J, hollow swivel oiling cap K, L, independently rising and falling rod *j*, with disk *k*, attached, in the manner and for the purpose herein described.

JAMES CUMMING.

Witnesses:
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