J. Zook,

Lathe Tool.

No. 10,585 Patented Feb. 28, 1854

Fig. 1

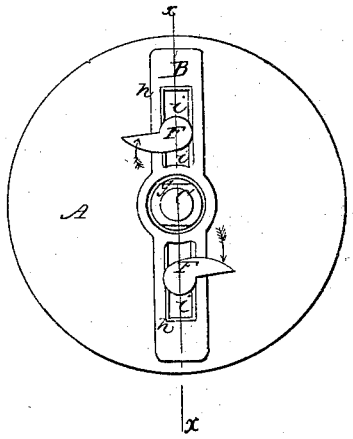


Fig. 2

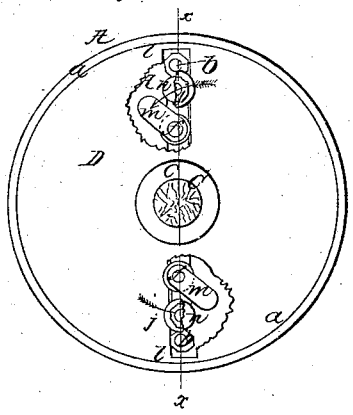


Fig. 4.

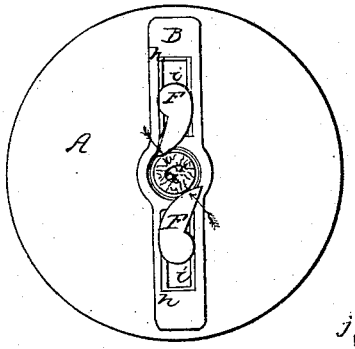


Fig. 3

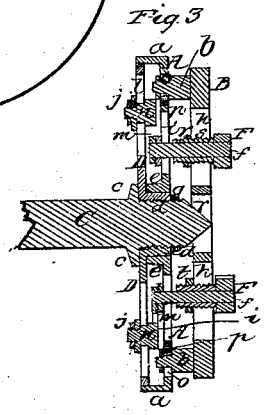
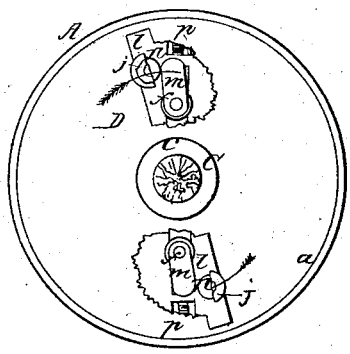


Fig 5



UNITED STATES PATENT OFFICE.

JACOB ZOOK, OF HARRISBURG, PENNSYLVANIA.

CARRIER FOR LATHES.

Specification of Letters Patent No. 10,585, dated February 28, 1854.

To all whom it may concern:

Be it known that I, JACOB ZOOK, of Harrisburg, in the county of Dauphin and State of Pennsylvania, have invented a new and Improved Self-Acting Carrier for Lathes; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, Figure 1 being a front elevation thereof in the position when its action is reversed and the article loosed from it; Fig. 2, a rear elevation of the same in a similar position, certain portions being broken away to show other parts more distinctly; and Fig. 3, a diametrical section of the same in the line *x x*, Figs. 1, and 2; Fig. 4, a front elevation thereof, showing it in action against an article to be turned; and Fig. 5, a rear elevation of the same in a similar position.

Like letters designate corresponding parts in all the figures.

The nature of my invention consists in producing a self-acting carrier for a lathe, by means of projections attached to the carrier-plate of the mandrel, which operate against levers situated and vibrating in an auxiliary plate, or disk, and yielding bar attached thereto, which levers operate eccentrics fixed to the same vibratory pivots and thereby cause them to press against and confine the article to be turned, with a force produced by, and proportional to that required to turn the article, or cause said eccentrics to separate from and set free the article, when the motion of the mandrel is reversed, arranged, combined and operating substantially as hereinafter set forth.

A circular carrier-plate D, of suitable dimensions, is attached to the driving shaft C, by means of a hub *d*, whereby it is screwed firmly down upon a shoulder *c*, on said shaft, as shown in Fig. 3. A concentric auxiliary plate, or disk, A, is secured a short distance in front of said carrier-plate, by rims, or ledges, *a*, *e*, which embrace respectively its periphery and hub, at the same time enabling the disk to turn or vibrate freely around it. A nut *g*, screwed upon the end of the shaft C, secures both plates in their places. A bar B, is situated before the face of the disk A, passing diametrically across its center, and being separated a little distance from it by means of projections *b*, *b*, whereby it is attached to said disk; which projections are allowed to move diametrically a little within slots *o*, *o*, in the disk; and this movement is rendered yielding or elastic by means of small coiled springs *p*, *p*, or their equivalents, arranged in said slots as represented in Fig. 3, for the purpose hereinafter stated. A central aperture *r*, is formed in the bar B, through which passes the article to be turned in order to be pressed against the conical point of the driving shaft C, which determines and fixes its center of revolution. On opposite sides of the aperture *r*, the bar is provided with longitudinal slots, *h*, *h*, within which the pivots of eccentrics F, F, which are shaped substantially as represented in Figs. 1, and 4, are secured and made adjustable toward or from the centers of the disks, without preventing their turning or vibrating freely, by means of the collars *s*, *s*, and fastening nuts *t*, *t*. Said pivots *f*, *f*, extend through corresponding slots *i*, *i*, in the disk A, into the space between said disk and the carrier-plate D, and terminate in, or have attached to their inner extremities, short vibratory arms *m*, *m*, at or nearly at right angles to their axes, as shown in Figs. 2, 3, and 5. These arms should be of such a length and arranged in such a relation to the positions of the eccentrics F, F, that while said eccentrics are moving within the proper limits of their action, their vibratory ends shall cross the path of two projections *n*, *n*, which are attached to the carrier-plate D, and made adjustable diametrically by means of fastening nuts *j*, *j*, securing them in slots *l*, *l*, in said carrier-plate. In Figs. 2, and 5, portions of the plate D, are broken away, in order to show the relative positions and actions of the arms *m*, *m*, and projections *n*, *n*.

The limited elastic longitudinal movement given to the bar B, which bears the eccentrics F, F, is intended to equalize the pressure of the two eccentrics, and obviate the tendency to force the article to be turned sidewise, when its center is not exactly upon the point of the shaft C, or when irregularities on its surface cause the bearing points of the eccentrics to be at unequal distances from the center of revolution; as the eccentrics are supposed always to be adjusted at equal distances from said center of revolution. The springs *p*, *p*, will keep the bar B, in a central position when not forced out of it by the eccentricity or irregularity of the article to be turned as first inserted.

Figs. 1, 2, and 3, show the positions of

the parts before the article to be turned is inserted, the mandrel being at rest, or reversed in its motion. The article G, (Fig. 4,) having then been inserted in a proper position between the shaft C, and the puppet at the other end, the driving shaft is caused to revolve in the right direction, which moves the carrier-plate D, and its projections *n*, *n*, in the direction indicated by the arrows in Figs. 4, and 5, and consequently causes them to bear against the arms *m*, *m*, and thus press the eccentrics F, F, against said article G, as shown in Fig. 4, with a force proportional to that given to the mandrel, or rather to the resistance offered by the article in turning it. When the article has been turned, the driving shaft is reversed in motion, which causes said carrier-plate and its projections *n*, *n*, to move in the direction indicated by the arrows in Figs. 1, and 2, and thereby move the arms *m*, *m*, and eccentrics F, F, in the same direction; which movement separates the latter from the article and sets it free.

Having thus fully described my improved self-acting carrier for lathes, what I claim as new and desire to secure by Letters Patent, is—

1. The combination of the projections *n*, *n*, on the carrier-plate D, with the vibratory arms *m*, *m*, and eccentrics F, F, (attached to the same pivots *f*, *f*,) or their equivalents, situated and adjustable in, and combined with the auxiliary disk A, and bar B; arranged and operating substantially in the manner and for the purpose herein set forth.

2. I also claim giving a limited elastic play, longitudinally, to the bar B, in the disk A, by means of the slots *o*, *o*, and springs *p*, *p*, or their equivalents, substantially as herein described, in order that the pressure of the eccentrics F, F, against the article to be turned, may be equalized, in case their bearing points should, by the irregularity or eccentricity of the article, be at unequal distances from the center of revolution, which is determined and fixed by the conical point of the driving shaft.

The above specification of my new and improved self-acting carrier for lathes signed by me this twenty seventh day of September 1853.

JACOB ZOOK.

Witnesses:
J. S. Brown,
Geo. A. C. Smith.