

*J. Cook,
Gage Lathe.*

No 27,696.

Patented Apr. 3, 1860.

Fig. 1.

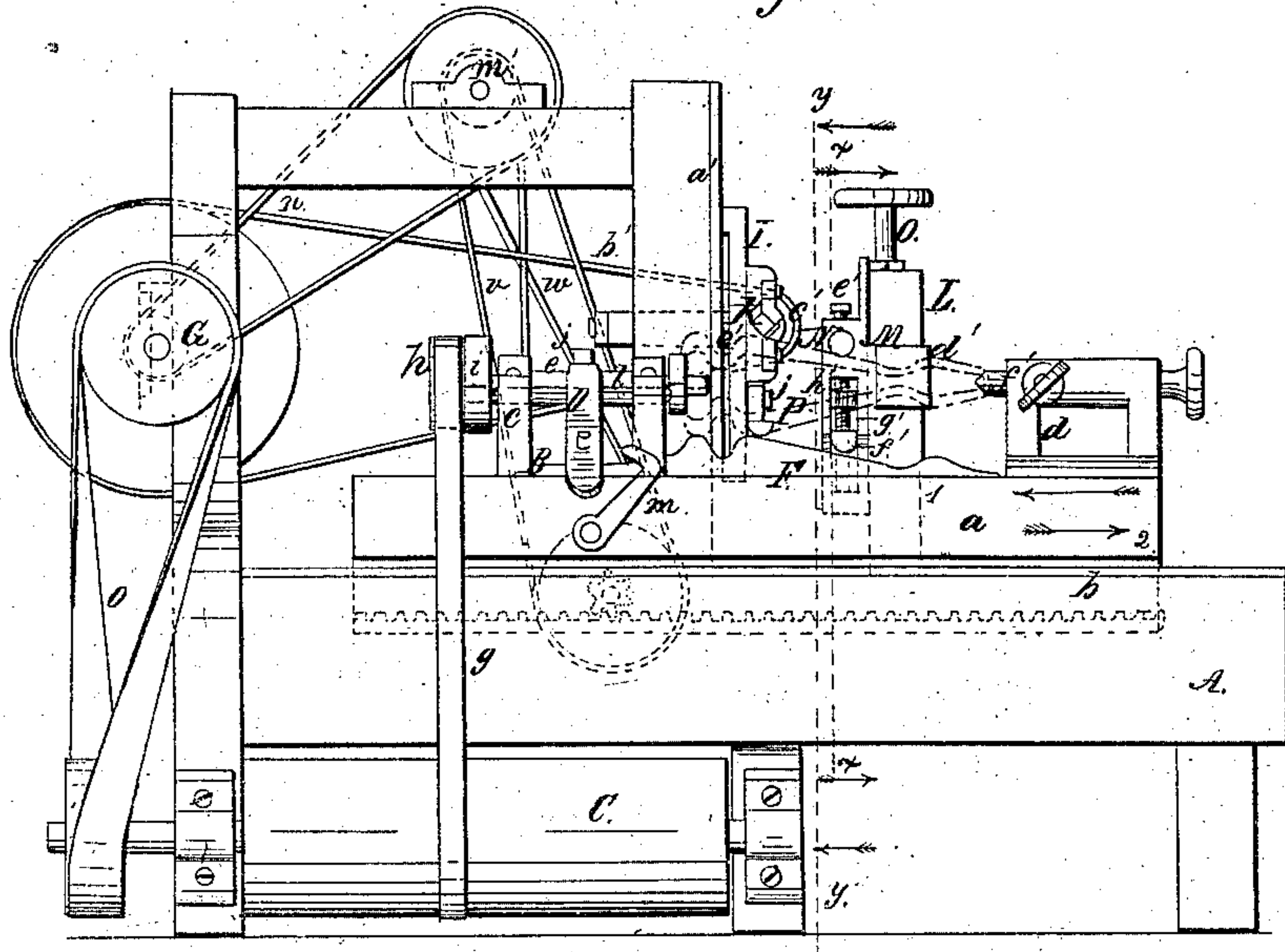


Fig. 3.

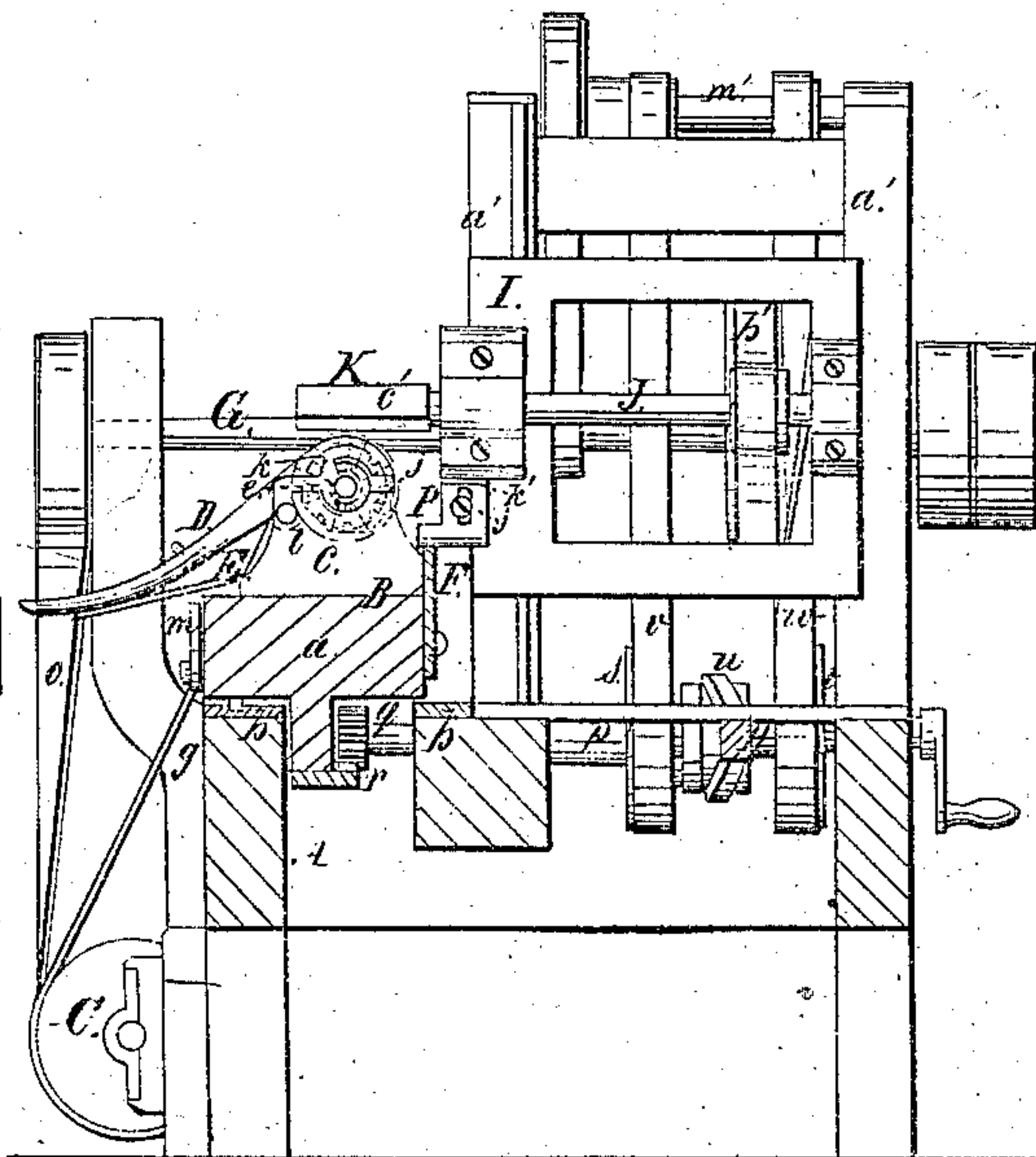


Fig. 4.

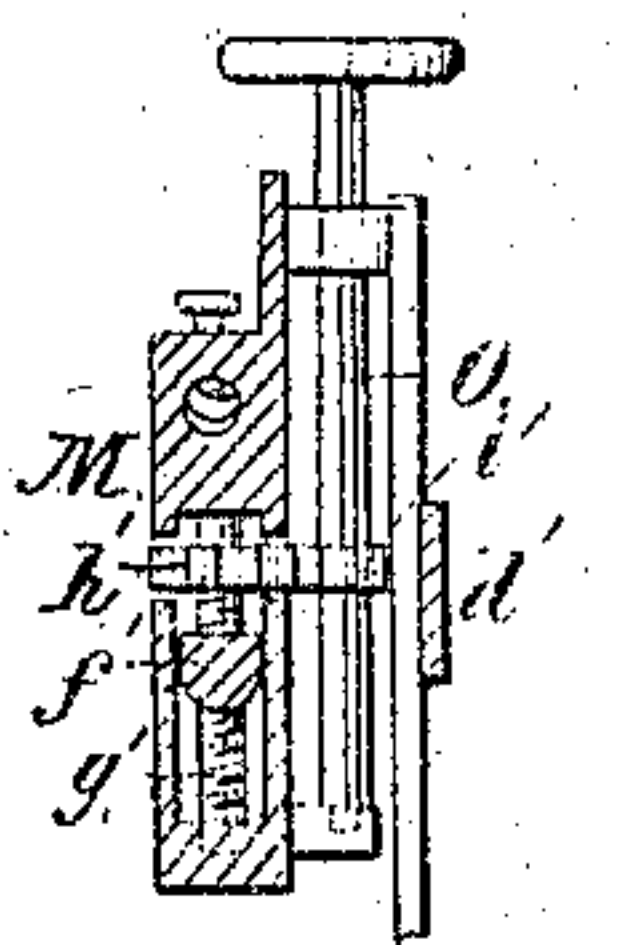
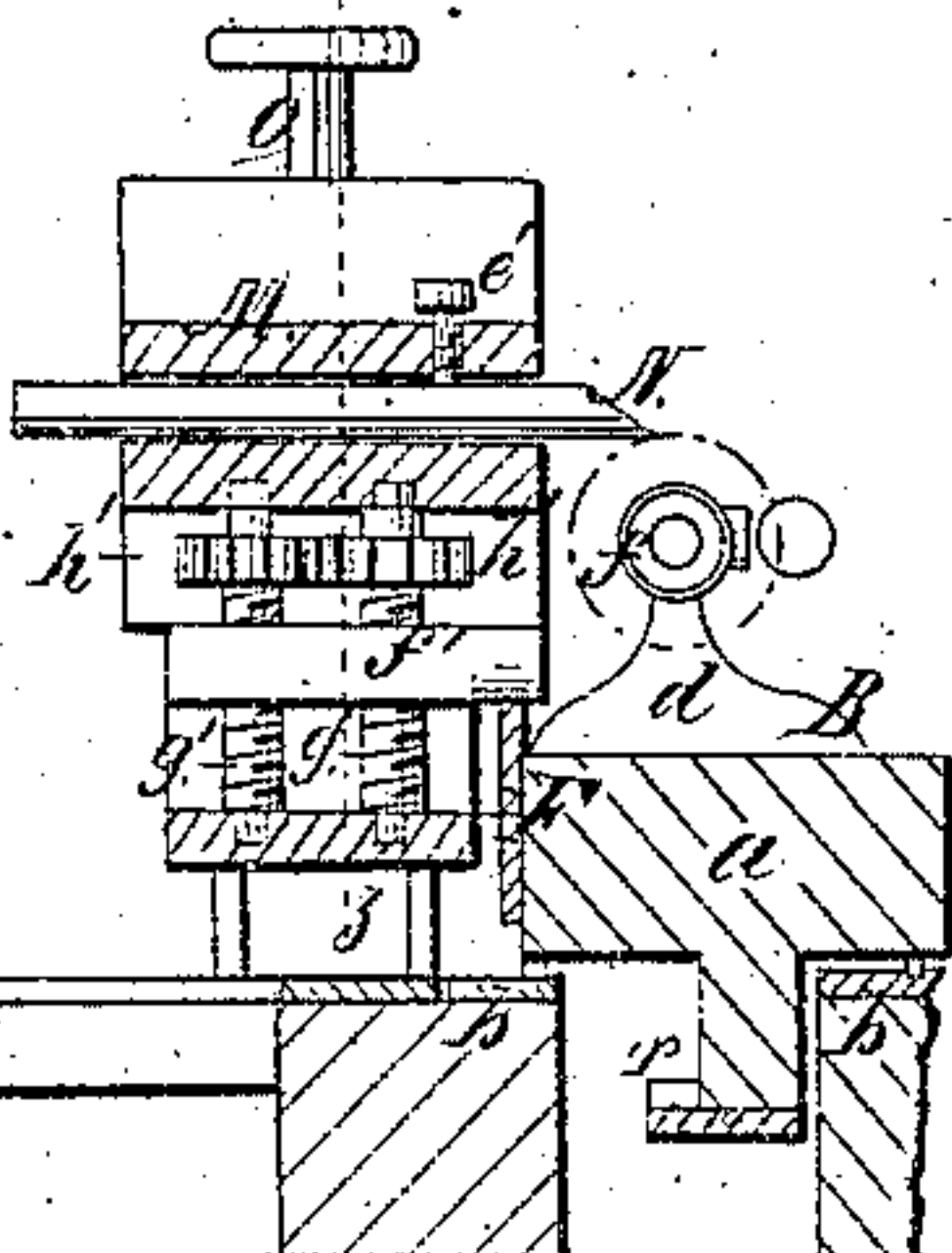


Fig. 2.



Witnesses:

Chas E Bacon

Thos L Thornton.

Inventor:

John Cook

UNITED STATES PATENT OFFICE.

JOHN COOK, OF BUFFALO, NEW YORK.

LATHE.

Specification of Letters Patent No. 27,696, dated April 3, 1860.

To all whom it may concern:

Be it known that I, JOHN COOK, of Buffalo, in the county of Erie and State of New York, have invented a new and Improved Machine for Manufacturing or Forming Polygonal-Shaped Articles, such as Legs for Furniture and Musical Instruments, Newels for Balusters, &c.; 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 front elevation of my invention. Fig. 2, a transverse vertical section of ditto, taken in the line *y, y*, Fig. 1. Fig. 3, a transverse vertical section of one of the cutter-heads, taken in the line *z, z*, Fig. 2.

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

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

A represents a rectangular frame on the upper part of which a turning lathe B is placed. The bed *a*, of this turning lathe is allowed to slide back and forth on the frame A, said bed being properly fitted on longitudinal ways or guides *b, b*, on the frame A. On the bed *a*, the two heads *c, d*, are placed. One head *c*, being provided with a mandrel *e*, and the other with a rod *f*, having a center point at its end. The mandrel *e*, is driven by a belt *g*, from a drum C, at the lower part of the frame A, the mandrel *e*, having an idle pulley *h*, on it and a working pulley *i*, so that the mandrel may be rotated or kept stationary as desired with a constant movement of the belt *g*.

On the mandrel *e*, of the lathe B, there is a circular plate *j*, the edges of which are notched to receive the lip *k*, of a lever D, said lever being connected with a fulcrum rod *l*, which is allowed to turn in the head *c*. This lever D, has a spring E, bearing against its under side, said spring having a tendency to keep the lip *k*, in any of the notches of plate *j*. This will be fully understood by referring to Fig. 3. To the bed *a*, a hook *m*, is attached, said hook, when necessary, securing down the outer part of the lever D, and keeping the lip *k*, elevated free from the notches of the plate *j*.

The lathe B, is constructed similarly to an ordinary turning lathe, the only difference being the sliding feature of the bed *a*,

and the circular notched plate *j*, with its stop or holding lever D.

To the back side of the bed *a*, of the lathe a pattern F, is attached. This pattern may be constructed of a metal plate, and its upper edge is formed or shaped to correspond with a longitudinal profile of the work to be produced by the machine. This will be seen by referring to Fig. 1, in which a piano leg is shown (in red) secured in the lathe B, and the pattern is shown corresponding to the longitudinal profile of the leg.

On the upper part of the frame A, a shaft *m*, is placed. The shaft is driven by a belt *n*, from the driving shaft G, of the machine, from which shaft the drum C, is also driven by a belt *o*. On the frame A, below the shaft *m*, there is a shaft *p*, on the inner end of which a pinion *q* is secured, said pinion gearing into a rack *r*, at the under side of the lathe bed *a*, as shown clearly in Fig. 3.

On the shaft *p*, two pulleys *s, t*, are placed loosely, and either of these pulleys are connected with the shaft *p*, by means of a clutch *u*, which has a lever H, attached to it. Around the pulley *s*, a straight belt *v*, passes and a cross belt *w*, passes around the pulley *t*.

I, is an upright sash or gate which is fitted between two uprights *a', a'*, on the frame A, and allowed to work freely up and down between said uprights. In this sash or gate I, a horizontal shaft J, is placed, said shaft being driven by a belt *b'*, from the driving shaft G. On one end of the shaft J, a planer K, is attached. This planer is simply a head with straight cutters *c*, attached. The planer K, projects over the stick to be operated on and which is centered in the lathe B.

On the frame A, there is secured a three sided upright case or socket L, to which a box M is fitted by a loop or guide *d'*; in the upper part of the box M, a gouged shaped turning tool N, is secured by a set screw *e'*, as shown clearly in Fig. 2; in the lower part of the box M, a bar *f'*, is placed, an end of which is rounded at its bottom, and rests on the pattern F, as shown clearly in Fig. 2. Through the bar *f'*, two screw rods *g', g'*, pass, said rods working in internal screw threads in bar *f*, and on each screw-rod a pinion *h'* is placed. The pinions *h, h*, both gear into a pinion *i'*, on a shaft *o*, which has its bearings attached to one side of the box M, as shown clearly in Fig. 4.

To the lower part of the sash or gate I, at one side a short bar P, is attached by a

set screw j' , said screw passing through a slot k' , in the bar P, which slot admits of the bar being raised or lowered as occasion may require.

5 The operation is as follows: The stick to be operated on is centered in the lathe B, and the latter is moved to the right until the bar f , rests on the end of the pattern F. The outer part of the lever D, is secured
10 down by the hook m , so that the lip k , of the lever will be free from the plate j . The pulley s , is then connected with the clutch u , and the turning tool N, in the box M, is adjusted to the desired height by turning the shaft o , the box M, being raised or
15 lowered by turning said shaft and consequently the tool N, will be correspondingly moved. The sash or gate I, is shoved upward until the planer K, will be free from the stick. The parts being adjusted, power
20 is applied to the shaft G, and the stick in the latter is rotated through the medium of the belt g , the tool N, acting upon the stick. As the stick is turned the lathe is
25 moved gradually to the left, as indicated by the arrow 1, in Fig. 1, and the tool N, will be raised and lowered by the pattern F, and the former will consequently turn the stick in a form, the longitudinal profile
30 of which, will correspond to the pattern F; when the stick is turned, the shaft G, is stopped, its driving belt being thrown on a loose pulley, the tool N is elevated, the belt g , thrown on the idle pulley h , of the
35 lathe, the sash or gate I, is then lowered, so that its bar P will rest on the pattern F, and the planer K rests on the turned stick. The pulley t , is then connected with the

shaft p , the pulley s , being liberated from it, and the lever D, is relieved from the
40 hook m , so that the lip k , will catch into one of the notches of the plate j , and prevent the turned stick from rotating. Power is then again applied to the shaft G, and the
45 lathe B, is moved in the direction indicated by arrow 2, the planer K, which is rotated from the shaft G, by the belt b' acts on the stick and cuts a plane surface thereon the
50 whole distance of its length. The stick is then turned a certain distance to allow the lip k , of the lever to catch into another notch of plate j , and the pulley s , being
again connected to the shaft p , and the pulley t , liberated, the lathe is moved, and a succeeding plane surface cut. This op-
55 eration is repeated until the stick is cut in polygonal form. The planer K, is regulated, so as to have a proper position relatively with the stick by adjusting the bar P.

I do not claim a pattern in connection
60 with a lathe, for turning and cutting articles in polygonal form, for said parts have been previously used although arranged differently from the plan herein shown; but,

I do claim as new and desire to secure by
65 Letters Patent—

Placing the turning tool N, in a sliding-box M, operated by the shaft o , screw rods
70 g , g , and bar f' for the purpose of readily adjusting the turning tool with the stick, and permitting the tool to be operated by the pattern as described.

JOHN COOK.

Witnesses:

CHAS. E. BACON,
THOS. F. THORNTON.