

(No Model.)

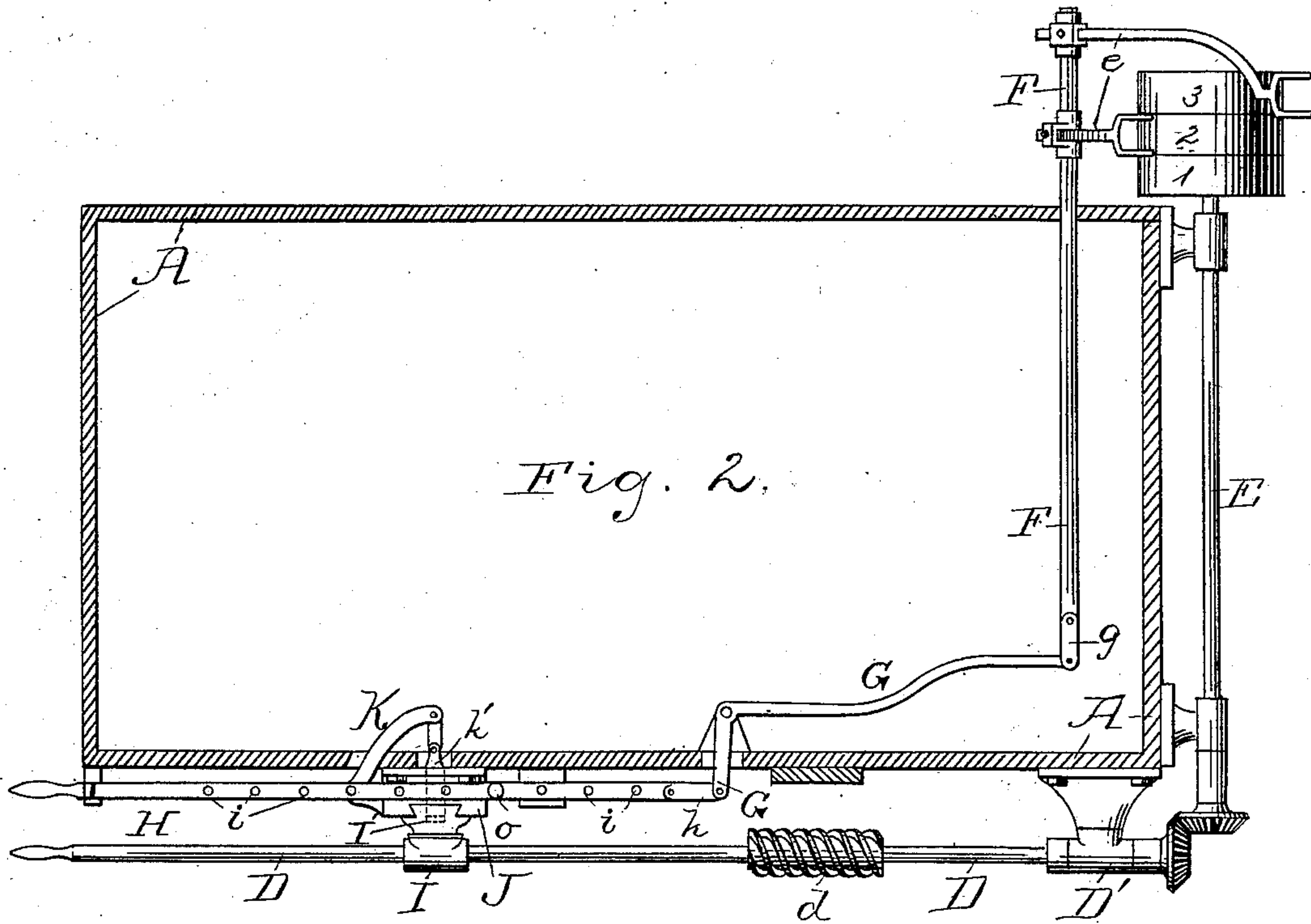
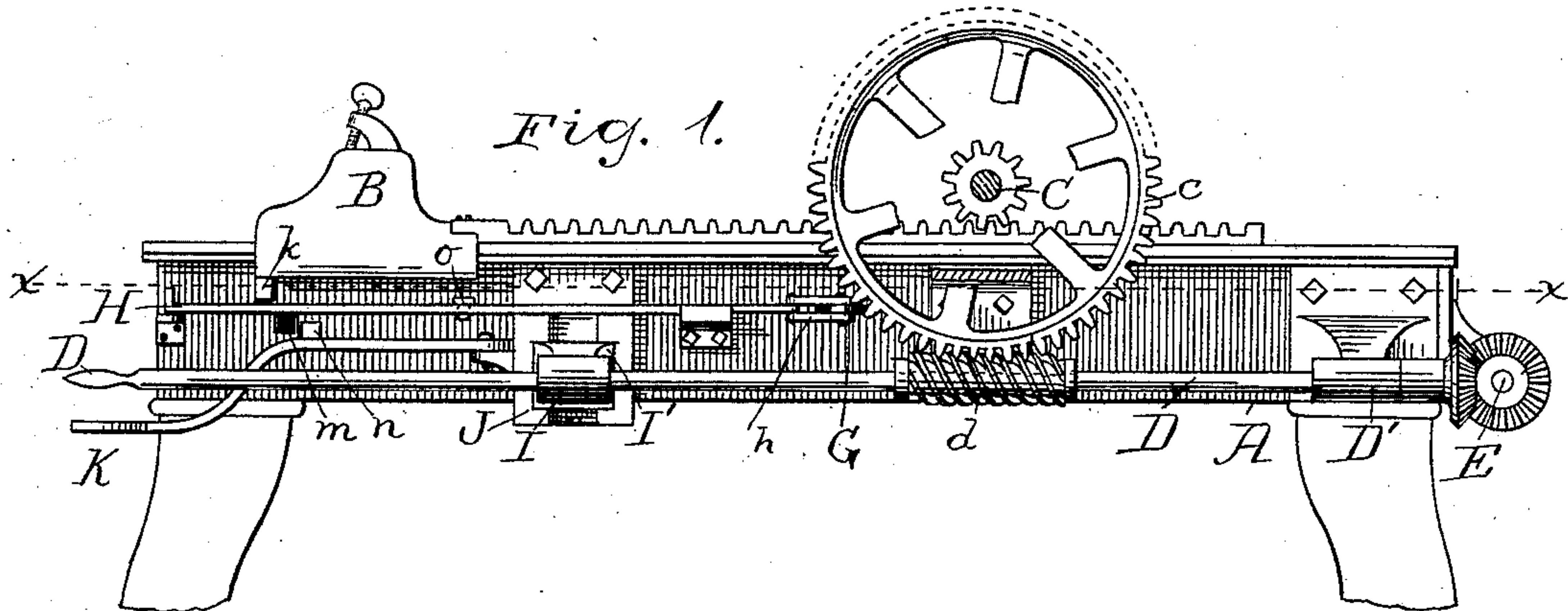
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E. A. BLAKE.

STEREOTYPE SHAVING MACHINE.

No. 347,222.

Patented Aug. 10, 1886.



WITNESSES

Edward M. Schirach
Mo. W. Sickels.

Edward A. Blake,
INVENTOR

James A. Coyne,
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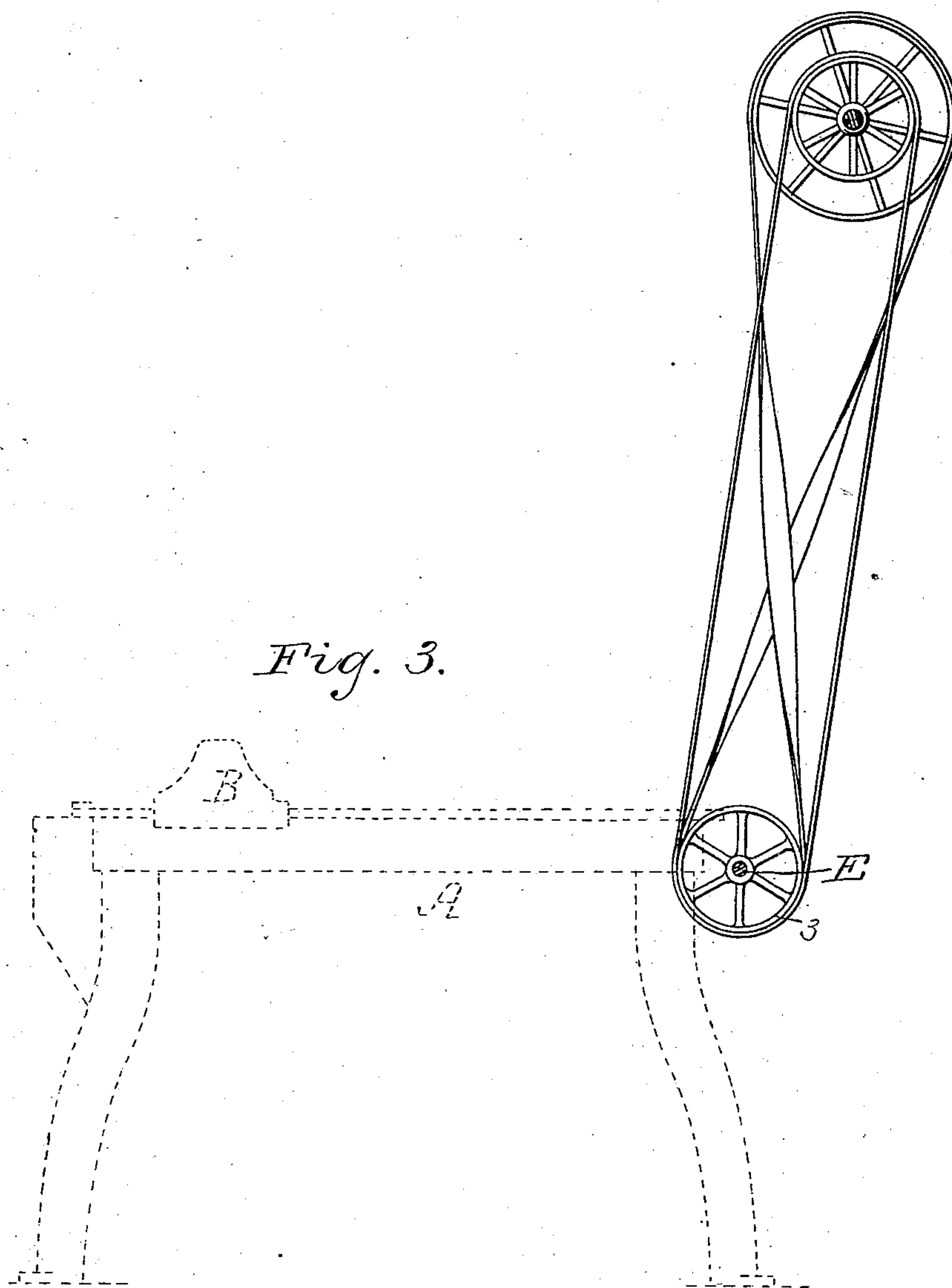
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BY James H. Coyne,
ATTORNEY

UNITED STATES PATENT OFFICE.

EDWARD A. BLAKE, OF CHICAGO, ILLINOIS.

STEREOTYPE-SHAVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 347,222, dated August 10, 1886.

Application filed October 2, 1885. Serial No. 178,784. (No model.)

To all whom it may concern:

Be it known that I, EDWARD A. BLAKE, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful
5 Improvements in Stereotype-Shaving Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use
10 the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The object of my invention is to provide a
15 new and improved stereotype-shaving machine in which both the advance and withdrawal movements of the carrier-head and knife are accomplished by steam, in which the throw of the carrier-head and knife may be regulated
20 and when in motion stopped at any point.

In the drawings, Figure 1 is a side elevation of my improved machine; and Fig. 2 is a plan view of the same, taken on line *x x*, Fig. 1. Fig. 3 is a detail view showing the means
25 for connecting the power of the main shaft to the machine, an outline of which is shown in dotted lines.

In the drawings, A represents a table-frame having a suitable bed-plate placed thereon.
30 Having a longitudinal reciprocal movement on this bed-plate is the carrier B, the end frames of which surround and slide on the beveled side edges of said bed-plate.

Extending from the end frames of the carrier longitudinally to the rear and parallel to each other are racks, which are engaged by the pinions on the transverse shaft C. This shaft has a large worm-gear, *c*, on one end, which meshes with the worm *d* on the oscillating shaft D. Shaft D is journaled in the oscillating bearings D', secured to the side of frame A near the rear end of the machine, and pursues a longitudinal course to the front end of the same, where it terminates in a handle
45 within convenient reach of the operator. On the rear end of the oscillating shaft is a beveled gear, which is engaged and driven by a similar gear on the contiguous end of the drive-shaft E. The drive-shaft is journaled
50 in suitable brackets extending from the rear end of the machine, and has three pulleys, 1,

2, and 3, respectively, on the end opposite the beveled gear. Pulleys 1 and 3 are loose on the shaft, while pulley 2 is fast. Two belts engage these pulleys. One, a crossed belt, is
55 driven by a larger pulley on the main shaft—say pulley 1 is driven by the crossed belt, and pulley 2 by the straight belt. If these belts were shifted the crossed belt would engage pulley 2 and the straight belt pulley 3. The
60 crossed belt is intended to produce the withdrawal movement of the carrier, and is driven by a larger pulley on the main shaft, in order that the withdrawal movement may be made quicker than the advance. These belts are
65 shifted automatically by means of the shifter-arms *e e*, which extend from and are secured in suitable bosses, adjustable on the contiguous end of the shifter-bar F beyond the side of frame A. Bar F passes laterally under the
70 bed-plate through suitable guides depending from the same to near the opposite side of the machine, where, by means of links *g*, it is connected to the L-shaped lever G. The longer arm of lever G runs in a longitudinal direction from the links *g* to the fulcrumal point thereof, and the short arm of the same extends laterally from said fulcrumal point through an elongated hole in the side of frame A to a point just beyond the same, where it is connected by
80 means of links *h* to the gage-bar H. This gage-bar is provided with a vertical lug on its front end, and in the stretch between said lug and link *h* it has a series of vertical holes, *i i*, in any one of which bolt *o* may be placed, to
85 increase or decrease the distance between it and the lug on the forward end of bar H to gage the throw of carrier B, as will hereinafter be more fully explained.

Depending from (preferably) the forward
90 end of the adjacent end frame of carrier B is a stop, *k*, which, when the carrier has reached the limit of its forward or cutting stroke, strikes against the lug at the forward end of bar H, thus forcing the latter forward sufficiently to reverse the shifting-bar (through
95 the medium of the L-lever G) and shift the crossed belt onto pulley 2, to reverse the motion of the drive-shaft and devices actuated thereby. When said carrier reaches the limit
100 of its withdrawal stroke, the stop *k* strikes the bolt *o* and pushes bar H back, thus indirectly

through the medium of the L-lever and shifting-bar reversing the motion of the machine. It will thus be noticed how the stroke of the carrier can be regulated by the adjustment in any one of holes *i* of bolt *o*.

I have before referred to the oscillating bearings of shaft D near the rear end of the machine. It is obvious that in order that this shaft can be oscillated the bearings for the forward end thereof must have a vertical reciprocal and a rocking motion so as to accommodate the oscillation struck from the center of the rear bearings. This I accomplish by means of bearings I, which are suitably pivoted to a head, I'. Head I' is provided with a dovetail tenon, which extends into a corresponding mortise in a bracket, J, extending from and secured to the contiguous side of frame A. At the bottom of the mortise is a stop or other similar device to prevent the bearings from dropping out therefrom.

Passing laterally from inside frame, A, under the bed-plate, through bracket J, and into the bearing-head is a bolt, *k'*, which is connected to lever K by means of links. This lever K is of a shape corresponding to the lines of an obtuse angle, and it is fulcrumed at its vertex to a suitable lug projecting from the side of bracket J. Its longer arm extends from its fulcrum-point to just beyond the front of the machine and parallel to its side. A spring is attached to the longer arm, from whence it is stretched to the side of the machine or past the side of the same to some suitable point under the bed-plate, so that its tension will keep bolt *k* pressing outward to enter the hole in the bearing-heads, made for its reception, when possible.

Extending down from the bar H is a cam-block, *m*, the oblique surface of which engages the corresponding oblique opposing surface of the companion block *n* on the longer arm of lever K. Thus when said carrier has traveled to the limit of its withdrawal stroke and reciprocates bar H, the block *m* engages block *n*, forcing it and the long arm of lever K, to which block *n* is attached, outward, thus withdrawing bolt *k'* from the bearing-head, permitting it and the shaft journaled therein to drop to disengage the worm from the worm-gear. Should the operator desire the reciprocation of the carrier to continue when it has reached the limit of its withdrawal movement he grasps the handle-shaped end of shaft D and holds it up in engagement with the worm-gear until the bolt *k'* can play back into the hole in the bearing-head I. If said operator desires to stop the machine at any point, either while the knife-carrier is advancing to or withdrawing from the work, he can do so by pressing his leg outward against the contiguous end of lever K. This action

withdraws the bolt *k'* from the hole in the bearing-head, which drops and disengages the worm from the worm-gear. If the operator wishes to withdraw the knife-carrier from the work before the cutting movement thereof is completed, he pulls the gage-rod toward him, thus shifting the belts and reversing the motion of the head.

If desirable, the worm-shaft D may be journaled in permanent bearings. In this event, however, two pulleys (a fast and one loose one) would be placed on drive-shaft E, and the lever K and devices operating in conjunction therewith would be omitted as useless.

Instead of the end of bar H being provided with a lug, a bolt could be used, similar to bolt *o*.

What I claim as new is—

1. The combination, in a stereotype-shaving machine, of the carrier B, having racks extending from the rear thereof, shaft C, having pinions thereon engaging said racks, worm-gear *c*, shaft D, worm *d*, and shaft E, substantially as set forth.

2. The combination, in a stereotype-shaving machine, of the carrier, means, as described, for operating the same, consisting of racks extending to the rear of said head, shaft C, having pinions thereon, worm-gear *c*, shaft D, and worm *d*, shaft E, and pulleys 1, 2, and 3, 1 and 3 of which are loose, and a straight and crossed belt, which latter is driven by a larger pulley on the main shaft.

3. The combination, in a stereotype-shaving machine, of shaft E, having a set of three pulleys, the outer ones of which are loose thereon, of the shifter-arms, shifter-bar F, lever-gage bar H, having a lug or stop on its forward end, a bolt, *o*, and the carrier-head having a reciprocal motion on the bed-plate of the machine, and a stop, *k*.

4. In a stereotype-shaving machine, the combination of the carrier B, racks extending to the rear therefrom, shaft C, having pinions thereon engaging said racks, worm-gear, oscillating shaft D, worm *d*, the vertically-reciprocating and rocking bearings, and means for oscillating the same, as set forth.

5. In a stereotyper's shaving-machine, the combination of the worm-gear, shaft D, worm *d*, vertically-reciprocating and rocking bearings I, bolt *k'*, lever K, having block *n*, and gage-bar H, having block *m*, and means, as described, for operating said bar.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

EDWARD A. BLAKE.

Witnesses:

JAMES H. COYNE,
FRANK D. THOMASON.