

J. & A. E. WHITNEY.
Leather Rolling-Machines.

Patented April 21, 1874.

No. 149,906.

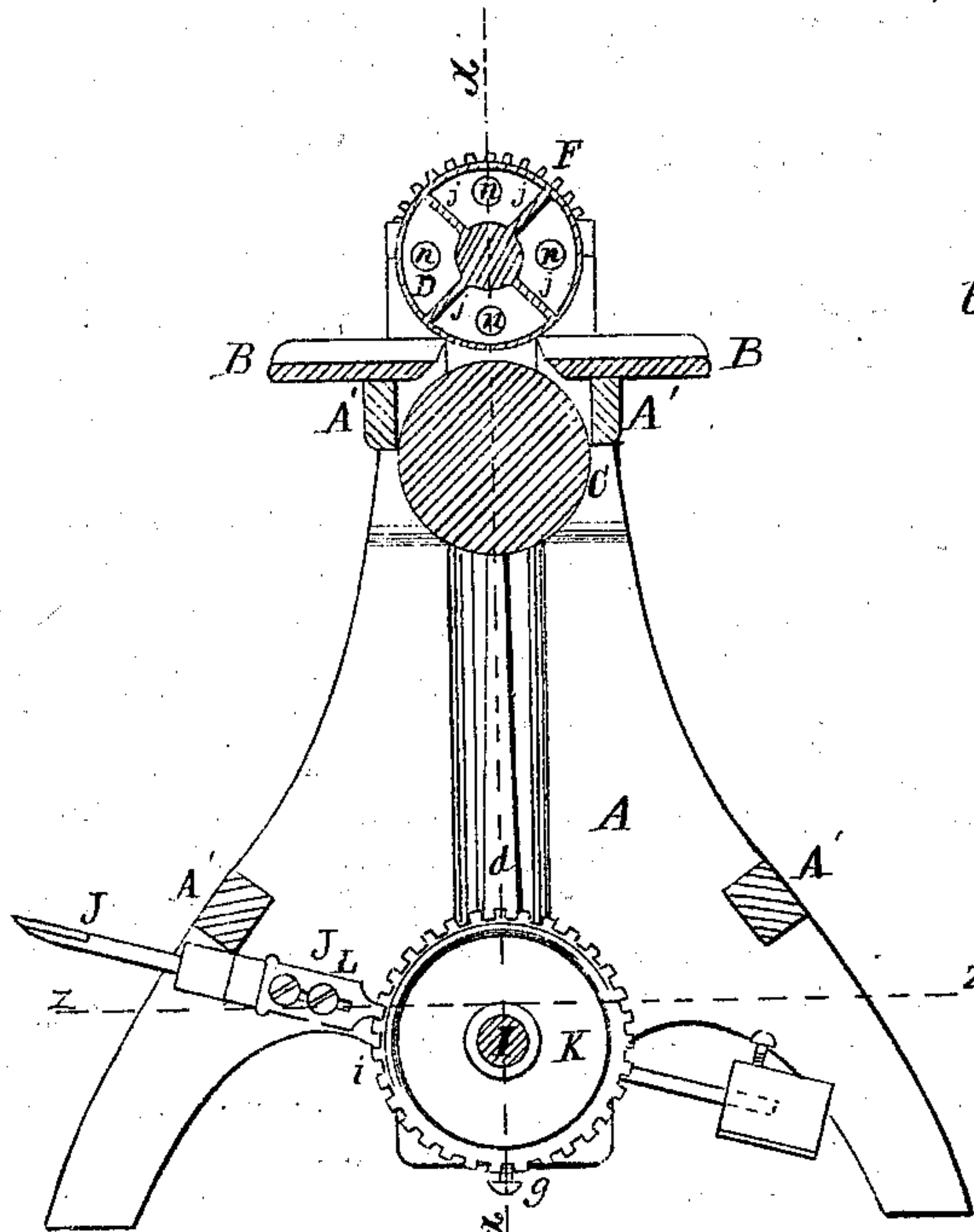


FIG. 1.

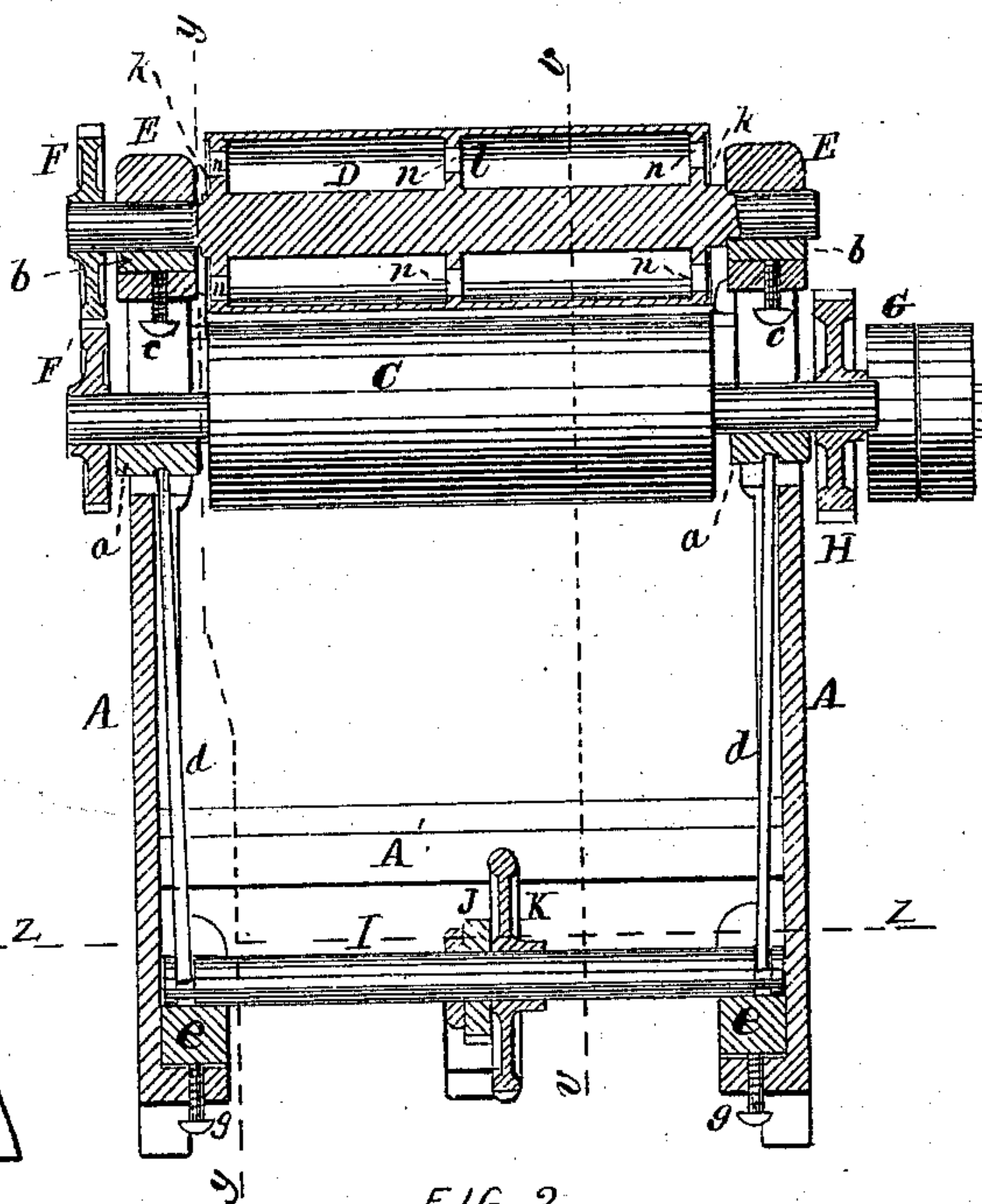


FIG. 2.

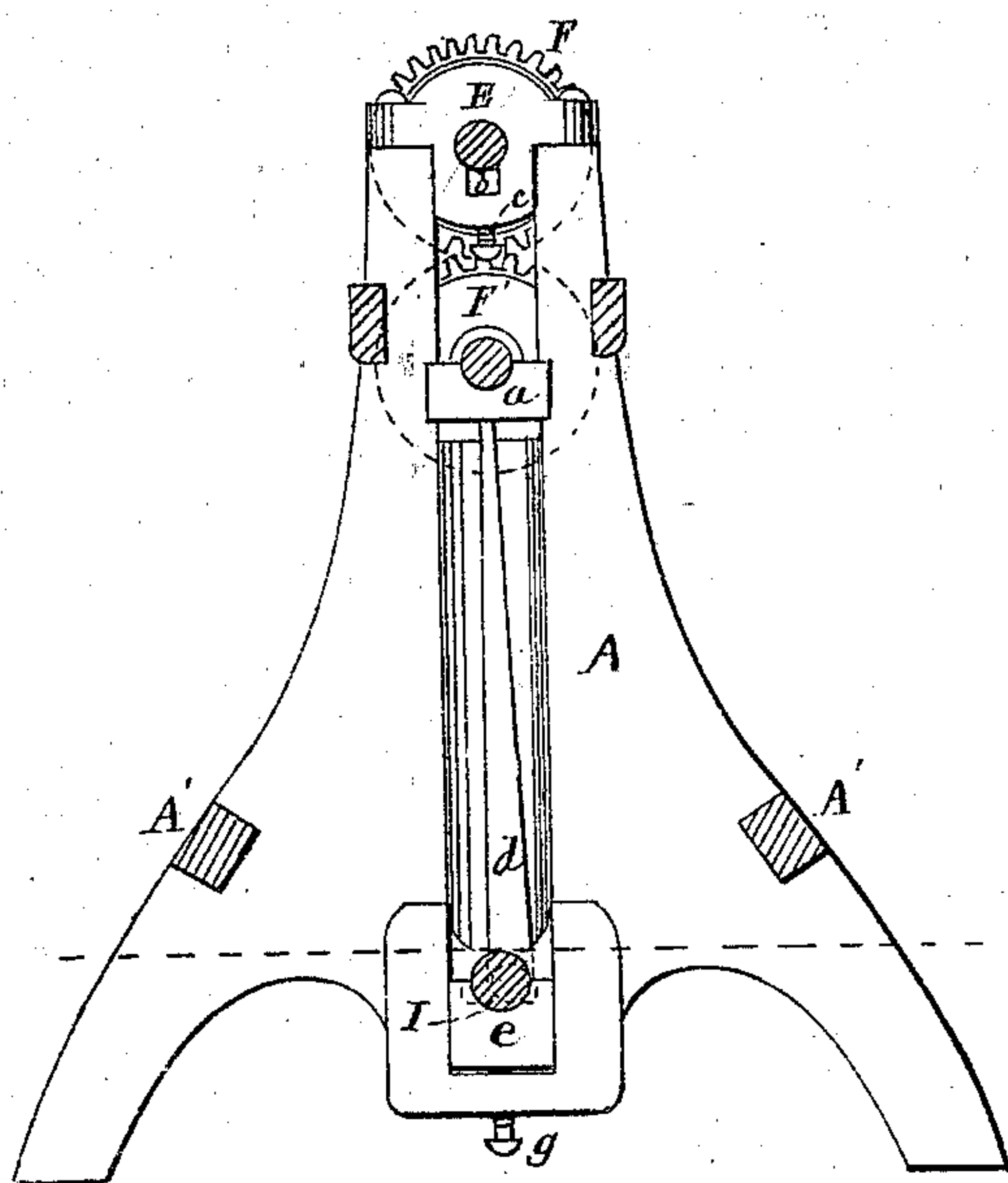


FIG. 3.

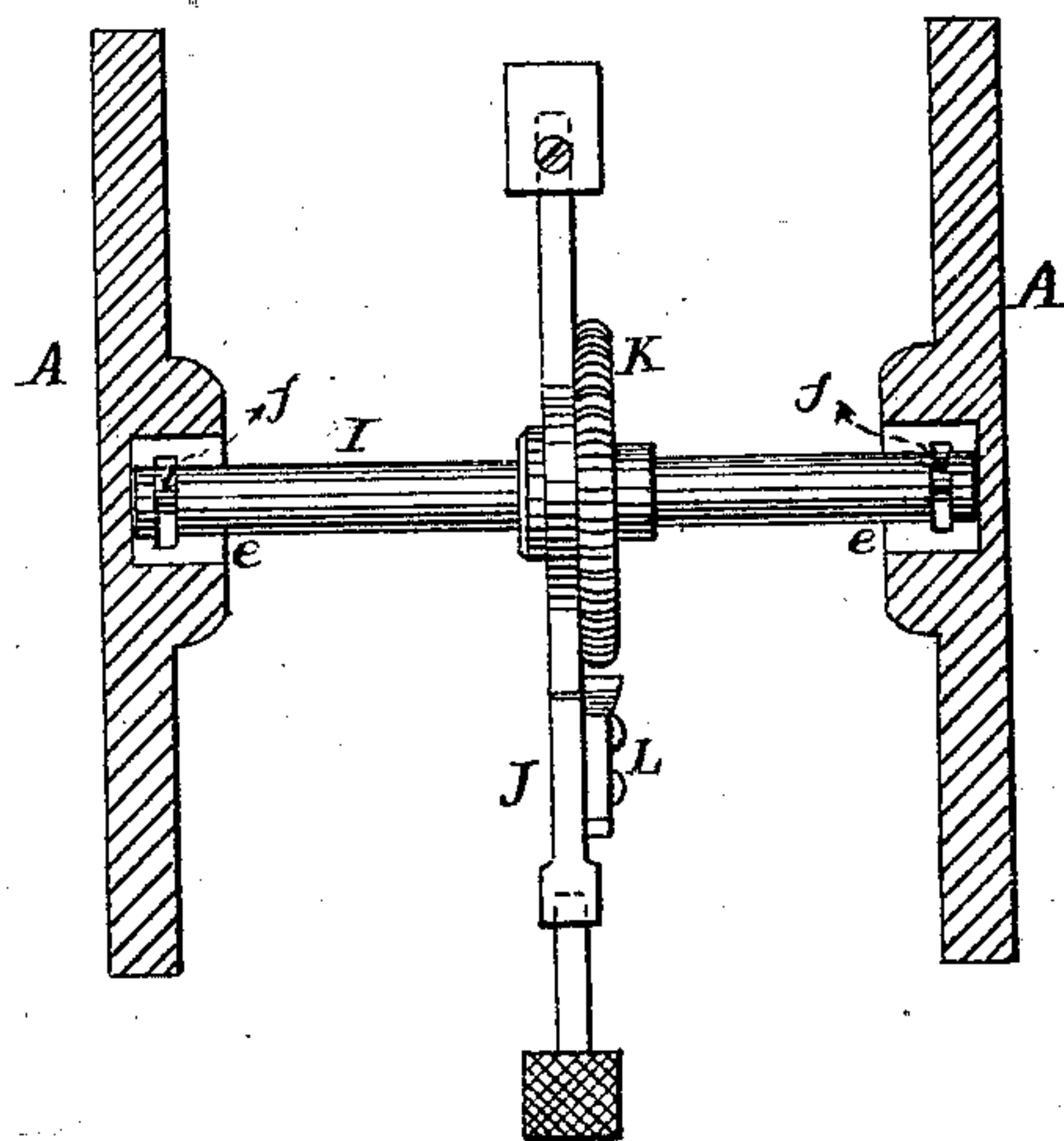


FIG. 4.

Witnesses.
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UNITED STATES PATENT OFFICE.

JOEL WHITNEY AND ARTHUR E. WHITNEY, OF WINCHESTER, MASS.

IMPROVEMENT IN LEATHER-ROLLING MACHINES.

Specification forming part of Letters Patent No. **149,906**, dated April 21, 1874; application filed September 26, 1873.

To all whom it may concern:

Be it known that we, JOEL WHITNEY and ARTHUR E. WHITNEY, both of Winchester, in the county of Middlesex and State of Massachusetts, have jointly invented certain new and useful Improvements in Leather-Rolling Machines, of which the following, taken in connection with the accompanying drawings, is a specification;

Our invention relates to the construction of the pressure-rolls, and the manner of hanging, adjusting, and operating the same; and it consists, first, in the employment of a roll or cylinder, cast hollow, with a thin outer shell, and provided interiorly with two or more longitudinally-arranged wings or ribs, radiating from the axis of said cylinder, and extending to and connected with the exterior shell, and also provided with heads at either end of said cylinder, and with or without intermediate disks between said heads to support said exterior shell between the longitudinal wings; the object of such construction being the production of a roll or cylinder capable of sustaining a great strain or pressure, while at the same time it is comparatively light, and much cheaper than a solid roll or cylinder. Our invention consists, in the second place, in hanging the upper roll in a pair of closed or pipe boxes, secured firmly to the frame in a fixed position, and each provided with an adjustable gib and set-screw, for taking up the wear of the journal. Our invention further consists in moving the lower roll to give the pressure by means of a treadle, secured to a rocker-shaft, mounted in suitable bearings in the lower part of the frame, each of said bearings being concentric with the axis of said shaft, and upon either side of a crank formed in said shaft, upon which rests the lower end of a strut, the upper end of which supports a half-box, in which is mounted one end of the lower roll. It further consists in mounting said rocker-shaft in adjustable boxes, resting upon set-screws, by means of which the lower roll may be leveled or adjusted to a position parallel to the upper roll. It further consists in mounting the treadle, for operating the rocker-shaft, loosely upon said shaft, by the side of a toothed wheel or segment, firmly secured to said shaft, and connecting said treadle to said

wheel, and thereby to the shaft, by means of a movable dog or latch secured upon the side of said treadle, and arranged to enter a notch between the teeth on said wheel, said device being for the purpose of adjusting or varying the height to which the lower roll can be raised by a given or determined movement of the treadle by the operator's foot.

In the drawings, Figure 1 is a vertical transverse section on line *v v* on Fig. 2. Fig. 2 is a longitudinal section on line *x x* on Fig. 1. Fig. 3 is a vertical transverse section on line *y y* on Fig. 2, looking toward the frame; and Fig. 4 is a horizontal section on line *z z* on Figs. 1 and 2.

A A are the side frames, connected together by the girts A' and the tables B B. The upper portions of the frames A are bifurcated, so as to form an open slot therein, in the lower portion of which are placed the half-boxes *a a*, in which rests the lower roll C. The upper roll D is mounted in the closed or pipe boxes E E, bolted to the top of the frames A in a fixed position, and provided with the gibs *b b* and set-screws *c c*, for taking up the wear of the journals. The rolls C and D are connected together by the spur-gears F and F', and are made to revolve by means of a belt running on the pulley G, and a pinion on the shaft of said pulley meshing into the gear H on the shaft of the lower roll C. The lower roll C, resting in the boxes *a a*, which, in their turn, rest upon the upper ends of the struts *d d*, is adjustable in a vertical direction, for the double purpose of leveling it, and to adapt its position to the varying thicknesses of the material being operated upon.

These adjustments are effected as follows: In suitable pockets in the lower part of the frames A A are placed the half-boxes *e e*, in which rest the ends of the rocker-shaft I, a small portion of which near each end is reduced in size, so as to form a crank eccentric to the axis of said shaft, as shown in Fig. 4 at *f f*, and in dotted lines in Fig. 3, and upon said cranks rest the lower ends of the struts *d d*, which are so shaped as to partially embrace said cranks to prevent them from being displaced therefrom, said cranks and struts together forming a pair of toggles, the partial straightening of which, by a vibratory move-

ment of said shaft, will cause the roll C to be raised and reduce the distance between C and D. The half-boxes *e e* rest upon the set-screws *g g*, by means of which either end of the roll C may be raised or lowered to bring it into a position parallel to the upper roll D. This arrangement would always give the same rise and fall to the roll C, with a given motion of the rocker-shaft, and the space between the two rolls would always be the same when the roll C was raised; but, as the material to be operated upon by said roll varies considerably in thickness, it is desirable to be able to readily vary the throw or movement of the lower roll, or its position at the extreme of its upward motion. This we accomplish by mounting the treadle J loosely upon the rocker-shaft I, by the side of the wheel K, which is firmly secured to said shaft, and has cut in its periphery a series of notches, *i*, so as to form teeth upon the side of said wheel toward the front of the machine; or, instead of the notches or teeth, a series of round holes may be drilled into the rim of said wheel radially. Upon the side of the treadle J, toward the wheel K, and immediately in front thereof, is secured the dog or latch L, one end of which is fitted to the notches *i* in the edge of the wheel K, said dog being so attached to the treadle-lever J that it may be withdrawn from said notches and moved from one to another, so that the relative positions of the shaft and treadle-lever one to the other may be varied at the will of the operator, which variation, assuming that the treadle always moves through the same arc, would, of necessity, vary the height to which the roll C would be raised.

The rolls C and D are cast in one piece, but hollow, and provided with the longitudinal ribs or wings *j j*, radiating from the axis of said roll, and supporting the thin outer shell of the roll. Said rolls are also provided with a head, *k*, at either end, and may have one or more in-

termediate disks or transverse ribs, or partitions, *l*, connecting the longitudinal ribs *j j* and the outer shell, and supporting the latter between said ribs *j j*, the heads *k*, and intermediate disks or partitions *l*, having holes *n n* cast therein for the purpose of removing the core.

What we claim as new, and desire to secure by Letters Patent of the United States, is—

1. The box E, constructed in one piece, and provided with the gib *b* and set-screw *c*, substantially as described, for the purpose specified.

2. A pressure roll or cylinder having a thin exterior shell, and provided with longitudinal ribs or partitions *j j* and the heads *k*, and with or without the intermediate transverse partitions *l*, when said roll or cylinder is cast in one piece, substantially as described.

3. In combination with a pair of pressure-rolls, the rocker-shaft I, provided with the eccentric portions *f f*, and the struts *d d*, resting upon said eccentric portions *f f*, and supporting upon their upper ends the boxes *a a* and the roll C, and a treadle-lever for imparting a vibratory motion to said rocker-shaft, substantially as described.

4. The combination of the roll C, the struts *d d*, the rocker-shaft I, the boxes *e e*, and set-screws *g g*, all arranged and operating substantially as described.

5. The combination of the rocker-shaft I, the wheel K, having holes or notches formed in its periphery, with the treadle-lever J and dog or latch L, all arranged and operating substantially as described, for the purposes specified.

Executed at Boston this 23d day of September, 1873.

JOEL WHITNEY.

ARTHUR E. WHITNEY.

Witnesses:

N. C. LOMBARD,

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