(Model.)

A. G. ANDERSON.

BUNG BUSH MOLDING MACHINE.

No. 335,331. Patented Feb. 2, 1886.

Fig. 1.

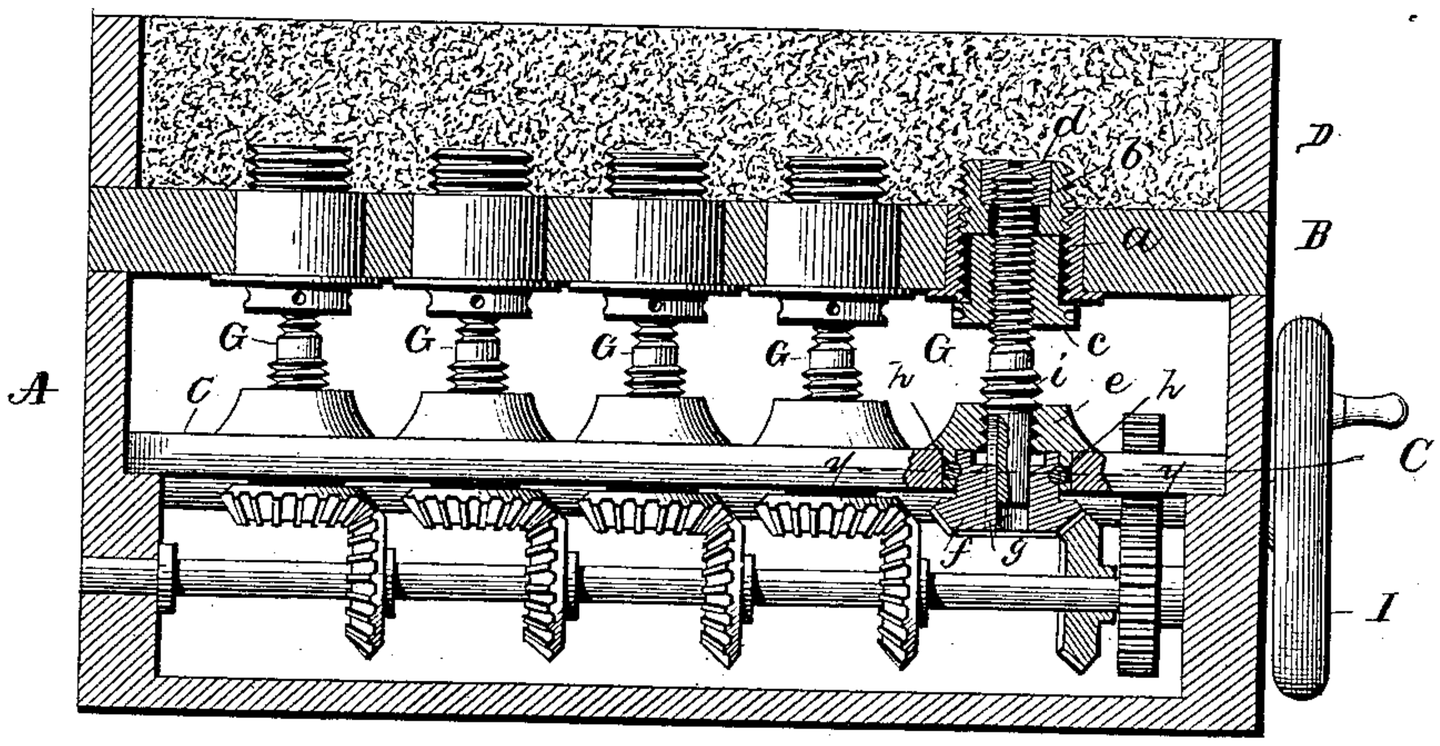


Fig. 2.

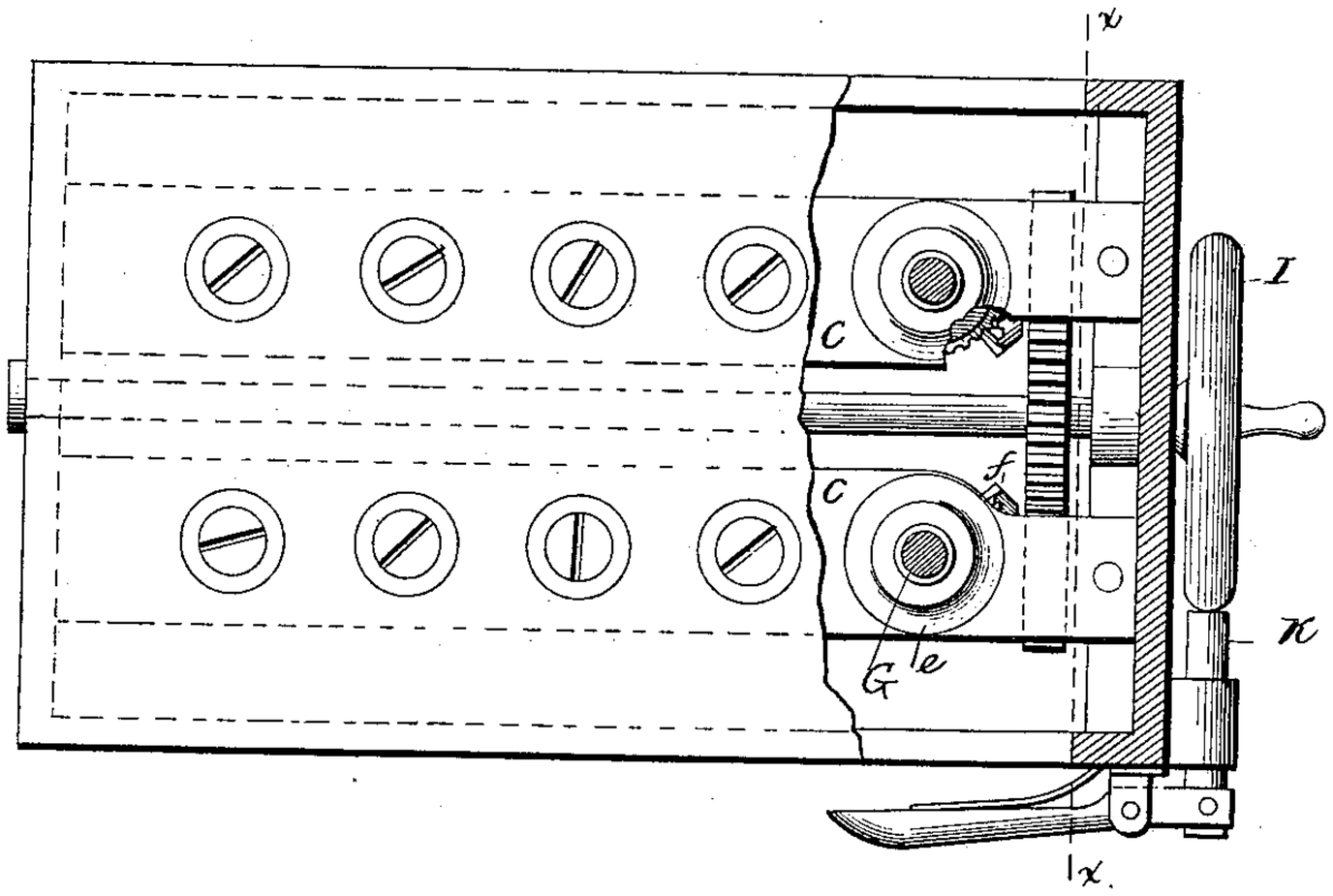


Fig. 3.

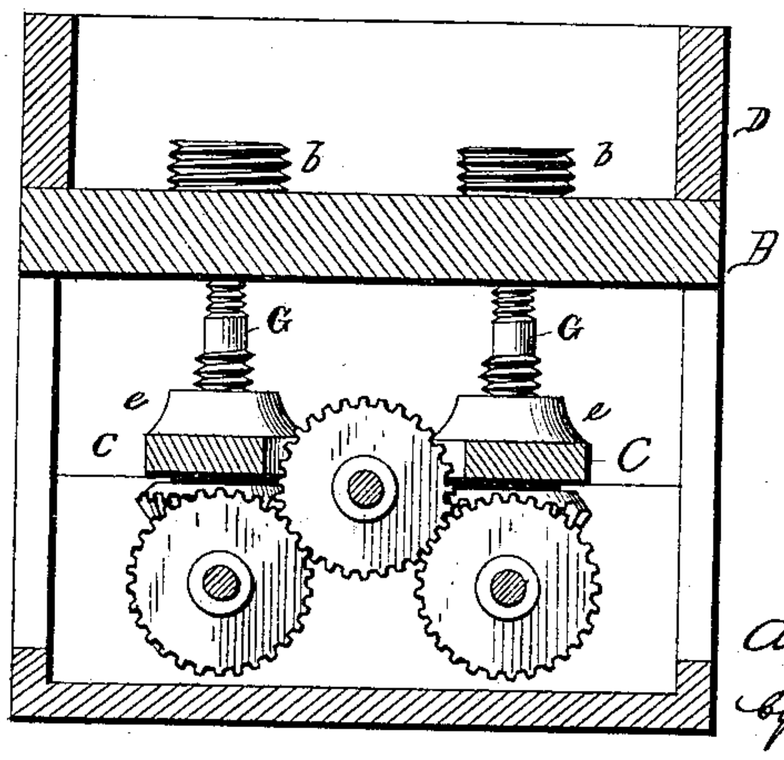
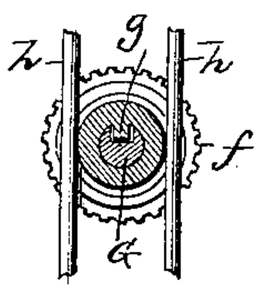


Fig. 4.



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ANTON G. ANDERSON, OF CHICAGO, ILLINOIS.

BUNG-BUSH-MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 335,331, dated February 2, 1886.

Application filed January 2, 1885. Serial No. 151,799. (Model.)

To all whom it may concern:

Be it known that I, ANTON G. ANDERSON, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Molding Bushes, of which the following is a specification.

My invention relates to machines for molding bung and other bushes, and has for its object an improved construction of such machine, whereby molds for bushes can be made with greater facility and accuracy.

The invention is embodied in a machine comprising, essentially, a molding-sand-receiving table or bed made with screw-threaded openings or provided with removable interiorly-threaded bushings, the pitch and size of the threads of which are substantially the same as those of the pattern which is to be turned through the same, the said pattern being secured on the end of a shaft suitably constructed, and operated by mechanism for turning and at the same time raising or lowering the same.

In the accompanying drawings, in which like letters refer to corresponding parts in the different figures, Figure 1 is a vertical longitudinal section of a machine embodying my invention, with half of the flask and the bush-bung patterns in position to make their impression in the sand. Fig. 2 is a top plan view with a portion broken out to show the operating mechanism. Fig. 3 is a section on the line *x x* of Fig. 2, and Fig. 4 is a detail section on the line *y y* of Fig. 1.

The letter A designates the frame; B, a bed or table supported and preferably fixed thereon. This bed is made with one or more openings, in which are removably secured screw-threaded or other bushings, *a*, so that their upper edges will be flush with the surface of the sand-receiving table. A bung-bush or other pattern, *b*, fits into and is adapted to move through the removable bushing *a*. In this instance the pattern *b* is secured upon the upper screw-threaded end of a vertical shaft, G, between suitable screw-nuts, *c* and *d*, one above and the other below the pattern. The upper nut, *d*, fits in a socket in the upper side of the bush-pattern, so that when the parts are in place on the shaft G the upper surface of the nut *d* will be flush with the top of the bush-pattern. These nuts serve to securely hold the pattern *b* in place. Upon a bar or beam, C, is mounted a screw-threaded boss, *e*, and a bevel-gear, *f*, which is centrally bored and provided with a feather or spline, *g*. The boss is fixed, and the bevel-gear is adapted to be rotated. As a means for securing the boss and bevel-gear in place, I have shown pins *h*, passing through the bar or beam C and the boss *e*, the said pins engaging a circumferential groove in the upper portion of the bevel-gear. These pins, while permitting the rotation of said gear, serve also to hold both the boss and the gear in position. That portion of the shaft G which passes through the boss is screw-threaded, as seen at *i*, to engage the screw-thread in said boss, so that rotation of the shaft will cause it to move vertically therein. The lower end of the shaft G, where it passes through the bevel-gear, is made with a groove to correspond with and receive the feather or spline *g*. Suitable connecting-gear, and an operating or driving wheel, I, and a latch or brake, K, for the latter, may be provided.

The letter D designates a half-flask which is placed upon the bed or table B to receive the sand in which the patterns are to leave their impressions.

The operation of the machine is as follows: Supposing that the bung-bush pattern is below the opening in the bed or table B, and it is desired to make a mold for a bung-bush, the bevel-gear *f* is turned in the proper direction and the shaft G turns with it. The shaft G, together with the pattern *b*, will be elevated by the turning of the shaft in the screw-threaded boss *e*. The feather or spline *g* engaging the groove in the end of the shaft, while compelling the said shaft to revolve, permits the vertical movements thereof. It is of course understood that if the pattern and the opening through which it passes are threaded the pitch of the thread at the portion *i* of the shaft and that in the boss which it engages must be such that a single turn in either alone will produce an equal vertical movement of the shaft. When the pattern has been raised sufficiently above the upper surface of the bed B, the half-flask is placed upon the bed, and the molding-sand, in proper condition for such work, is placed and tamped or packed firmly therein around the pattern, so as to entirely fill the threads and conform to its shape and

configuration. This having been done, the pattern is removed by revolving the bevel-gear *f* in the direction the reverse of that for raising the pattern. They are made to descend with an even and regular descent until they are even with or below the upper surface of the bed, so as to leave the same with a perfect impression of the threads or other external configuration. The flask is then carefully removed, and is ready to be joined to its fellow flask, which contains the form for the core.

To provide for the molding of a number of bushes, as shown in the drawings, the frame is fitted longitudinally with a driving-shaft having a suitable spur-gear wheel at one end thereof. This gear engages similar gears upon two other shafts extending parallel with the drive-shafts. The two latter shafts are fitted with bevel-gears, which mesh with and turn bevel-gears *f*, which turn screw-shafts carrying patterns to be raised and lowered, as hereinafter particularly set forth.

It is evident that the bushing *a* and the boss *e* may be formed integral with the respective parts, from which they are shown as being separate, though secured to the same.

By making the screw-threaded boss through which the pattern-shaft G is elevated, the bushing in the sand-receiving table, and the pattern upon the shaft removable, as hereinbefore set forth, it will be seen that by simply parts of the required size bung-bushes of different sizes and bung-bushes having a different pitch of screw-thread may be made.

What I claim, and desire to secure by Letters Patent, is—

1. In a machine for making molds for bung-bushes, the combination, with the screw-threaded shaft supporting the pattern, of a removable pattern having its upper side socketed to receive a securing-nut at that side and a securing-nut engaging and supporting the pattern at its under side, as shown.

2. In a machine for making molds for the exterior of bung or other bushes, the combination, with the shaft supporting the bush-pattern, having its lower portion threaded and made with a feather or spline, of the boss threaded to correspond with the threaded portion of the shaft, and a gear centrally bored and provided with a longitudinal groove to engage the feather or spline on the shaft, the said boss and gear being removably secured in the frame of the machine by means of removable pins, which engage the boss and gear, to hold fixed the boss and permit the gear to turn, as set forth.

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