

(No Model.)

2 Sheets—Sheet 1.

F. W. HOOD.

BURNISHING MACHINE FOR BOOTS OR SHOES.

No. 371,941.

Patented Oct. 25, 1887.

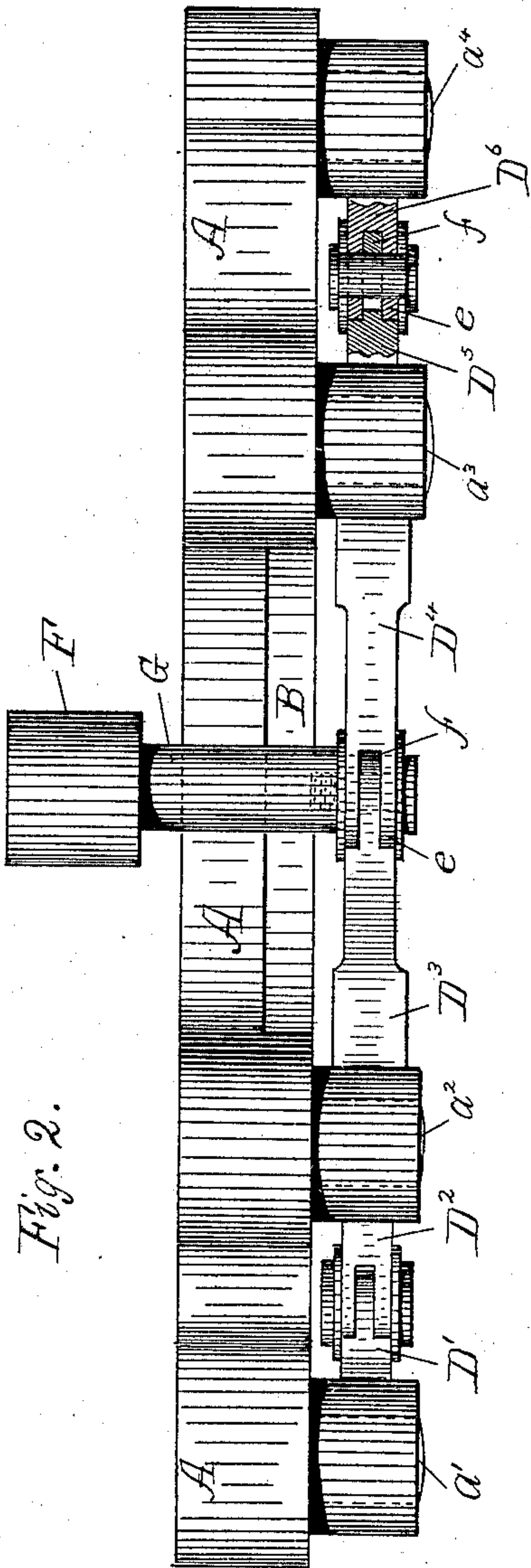


Fig. 2.

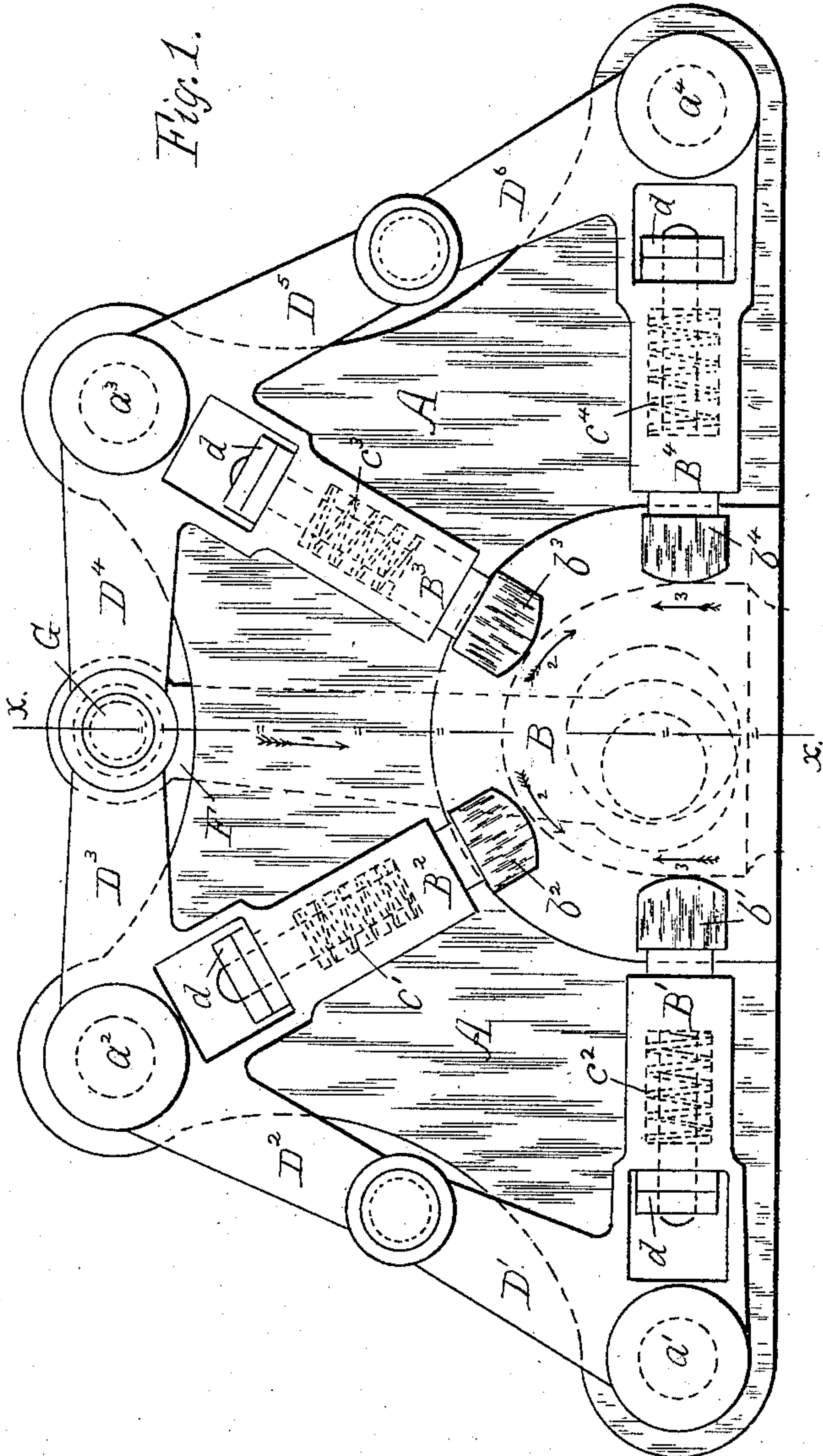


Fig. 1.

Witnesses.
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F. Curtis, atty

(No Model.)

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Fig. 3.

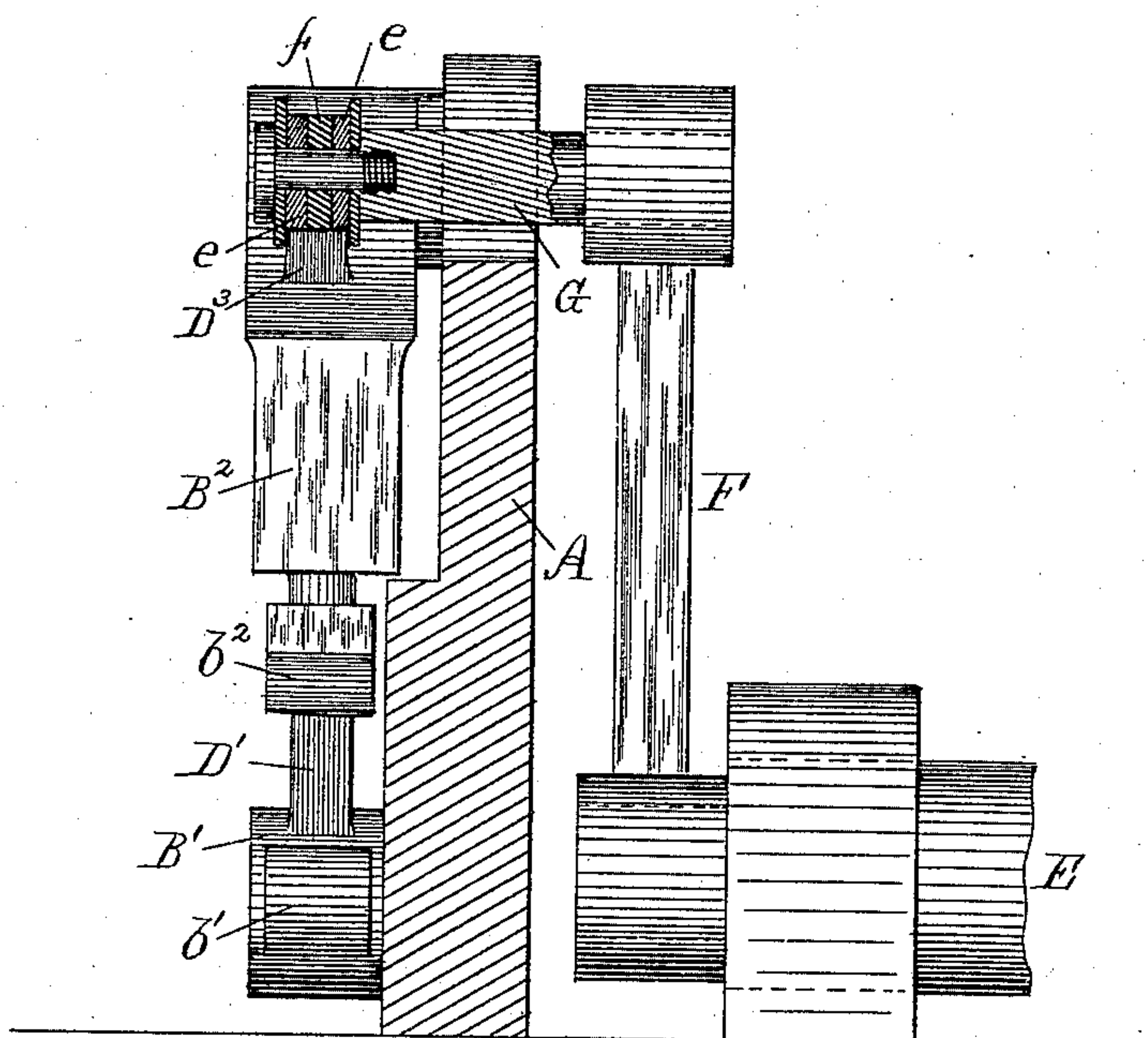
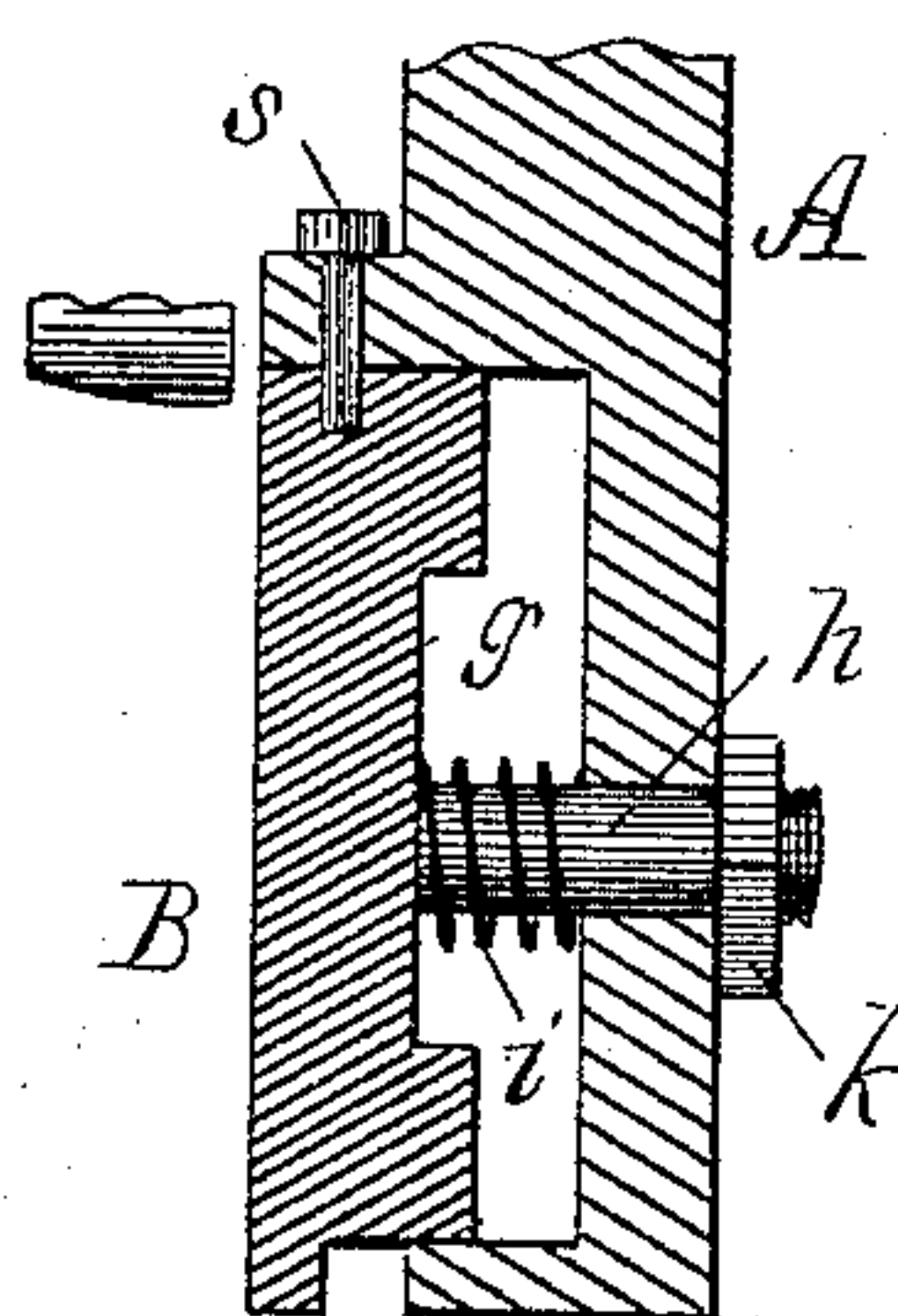


Fig. 4.



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UNITED STATES PATENT OFFICE.

FREEMAN WESTON HOOD, OF WELLESLEY, MASSACHUSETTS.

BURNISHING-MACHINE FOR BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 371,941, dated October 25, 1887.

Application filed February 21, 1887. Serial No. 228,343. (No model.)

To all whom it may concern:

Be it known that I, FREEMAN WESTON HOOD, a citizen of the United States, residing at Wellesley, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Burnishing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to "burnishing-machines," so called, for imparting a high finish to the heels of boots or shoes; and it consists, primarily, of a series of pivotally-mounted oscillating tool-carriers armed with burnishing-irons, said irons being radially arranged about but to one side of a stationary plate, against which the heel of the boot or shoe in process is to rest. Furthermore, these pivotal tool-carriers are stationary, in contradistinction to pivoted carriers, which describe partly or entirely rotary movement about the heel of a boot or shoe.

The primary object of my invention consists in making a machine the movements of which in burnishing a boot or shoe heel will effect a result most nearly approximating to that produced by hand-work; hence, first, I do away with the jack, and in lieu thereof present the bottom lift of the heel against a plate or heel-rest, about which are radially disposed a series of polishers or burnishers, between which the heel to be finished is thrust. Secondly, in lieu of reciprocating or partly or entirely rotating the burnishing-tool about the periphery of the heel in process, I provide a series of tool-carriers upon pivots disposed in a fixed standard and oscillate them after the manner of an iron manipulated by hand. Thirdly, an important feature consists in the arrangement of the mechanism by which the burnishers are operated in pairs, the number of each pair moving oppositely one of the other. Thus when the heel is presented to the polishers the resultant effect of the combined wiping movement is to keep the heel stationary between said polishers and not thrust it back, as occurs when but one polishing-tool is employed. Moreover, the axis of oscillation of the burnishers is parallel with and not across the lifts.

Fourthly and lastly, in the general relation and operation of the various component parts, which are few in number, whereby the machine is simplified and economy in manufacture is obtained, while the work effected is more nearly allied to hand-work, which is acknowledged to be superior to machine-burnished heels.

The drawings represent, in Figure 1, a side elevation, Fig. 2 a plan, and Fig. 3 a cross-section on line $x x$, of a burnishing-machine embodying my improvements. Fig. 4 is a cross-section of the heel-rest, showing a modification, hereinafter fully explained.

In said drawings, A represents a standard, which is to be firmly fixed upon a table or other means of support. Upon the front side of said standard are cast bosses bored to receive the pivotal pins $a' a^2 a^3 a^4$, which secure the tool-carriers $B' B^2 B^3 B^4$ to the standard. These carriers are adapted to oscillate about the pins as centers, and are radially disposed in front of a circular boss, B, forming a part of the standard, and against which the bottom of the heel of the boot or shoe in process is to be held. Furthermore, these tool-carriers are longitudinally bored and furnished with burnishing-irons or polishers $b' b^2 b^3 b^4$, so called, the active wiping-surfaces of which are convex or crowned, to more readily adapt them to the curved surface of the heel, and are spring-actuated, as shown at $c' c^2 c^3 c^4$, the tension of said springs being adjustable by means of the nuts $d d$, &c. Thus when the burnishers are at rest their extremities are tangent to the contour of a heel, as shown by the dotted lines, and generally adjusted somewhat smaller, so that when the heel is thrust between them they will be forced to compress the springs and yield to any desired degree. To impart proper wiping or oscillating movement to said tool-carriers and the burnishers with which they are armed, I have cast, integrally with said carriers, arms $D' D^2 D^3$, &c., obliquely disposed upon said carriers and interconnecting, to induce and create simultaneous action of all the burnishers oppositely in pairs, as shown by arrows 2 2 3 3 in Fig. 1. Oscillating motion is imparted by means of a continuously-rotary shaft, E, to one extremity of which—that adjacent to but in rear of the standard A—is eccentrically mounted the connecting-rod F. This rod is united by the crank-pin G directly to the arm D^4 , and thus

the rod F, which reciprocates in vertical paths of movement, oscillates the arms D' D², &c., interconnected with each other, to operate and likewise oscillate the tool-carriers with their burnishers.

The joint or union between the arms D' D², and, similarly, the arms D³ D⁴ and D⁵ D⁶, is effected by means of an ordinary hinged connection—that is, one arm is forked and provided with two ears, *e e*, between which is secured the tongue *f*, formed upon the other arm, the bolt-hole in the latter being elongated to accommodate the slight increase in length of said arms when at their extremes of oscillation.

In Fig. 4 I have shown a modification in the construction of the heel-rest B, which is made yielding. This is effected by chambering the front of the standard at *g*, securing a retaining-bolt, *h*, to the rear of the heel-rest B, and inserting thereon a coiled spring, *i*, or its equivalent, said spring being located between the back of the heel-rest and the chamber. These several parts are maintained in place by a locking-nut, *k*. One advantage in the movability of the heel-rest is that a narrow-faced burnisher can be employed while the heel is advanced or fed by hand. It will be understood that the heel-rest is normally flush with the standard and in close proximity to the burnishing-tool; hence as the lower portion of the heel is polished the latter is advanced by pressure against the rest, which retreats before it. When the operator desires to employ a fixed heel-rest, a locking-pin, *s*, may be provided, as shown.

The operation of the burnishing-machine above described is as follows: Premising that the various parts in the several positions shown in Fig. 1 have just been carried there by the movement of the connecting-rod F, which is now advancing downward, induced by the rotation of the shaft E, the bottom lift of the boot or shoe (represented by broken lines) is thrust against the heel-rest B. This brings the heel between the burnishers, which now bear against its periphery. Rotation of the shaft E advances the rod F in the direction of arrow 1, while simultaneously the burnishers *b² b³* oscillate in the direction as indicated by arrows 2 2, and the burnishers *b' b⁴* oppositely, but toward the former, (see arrows 4 4.) Thus it will be readily perceived that the wiping movement of the burnishers, which tends to crowd the heel out from between said burnishers, is counteracted by those burnishers moving in an opposite direction, while the shoe is maintained in position with but little effort. Continuous movement of the shaft E effects successive and rapid oscillations of the fixed pivotally-mounted burnishers, while the heel is moved and swung around by the operator until every portion of its contour is thoroughly polished. In presenting the bottom of the heel against the heel-rest B, owing to the arrangement of the carriers with respect thereto, it follows that

the series of lifts are aligned with the axis of oscillation of said carriers, and the burnishers do not move across the lifts composing the heel—an obvious advantage.

This machine, as will be observed, is very simple in construction and effective in operation. As before premised, the work accomplished is very similar if not equal to hand-work, and principally owing to the fact that the shoe is not held rigidly by a jack, but is able to yield from side to side between the burnishers, dependent upon and away from the point of greatest pressure.

It is evident that various mechanical expedients can be adopted in lieu of the hinged connection between the arms of the tool-carriers—such as sectoral gears—and I do not desire to be limited to the precise structural arrangement herein shown.

I claim—

1. In a burnishing-machine, the combination, with a fixed standard and two or more radially-disposed tool-carriers pivotally affixed thereto, of the heel-rest, in front of which said carriers with their burnishers oscillate, and a shaft and connections which cause said carriers to move simultaneously in reverse directions, substantially as and for purposes herein set forth.

2. In a burnishing-machine for boot and shoe heels, the standard A, heel-rest B, and the pivotally-fixed oscillating tool-carriers B' B² B³ B⁴ upon said standard, in combination with the arms D' D² D³, &c., by which the carriers are united, and the operating continuously-rotary shaft E, substantially as described.

3. In combination with the driving mechanism, as herein described, two or more tool-carriers, B' B², convergingly disposed and pivotally fixed upon a standard, the interconnecting arms D' D², which unite said carriers, and the spring-actuated burnishers *b' b²*, operating to wipe the periphery of the heel simultaneously in opposite directions, substantially in the manner herein stated.

4. In a burnishing-machine, two or more spring-actuated burnishers located in the same plane and radially disposed about a rest against which the heel is held, in combination with the carriers united by hinged arms and the driving mechanism which causes the burnishers to travel simultaneously in opposite directions and polish the heel, substantially as set forth.

5. The combination, with the standard A, the pivotally-fixed oscillating tool-carriers B' B² B³ B⁴, and burnishers *b' b² b³ b⁴*, of the movable heel-rest B, located in the chamber *g*, and spring-actuated, substantially as explained.

In testimony whereof I affix my signature in presence of two witnesses.

FREEMAN WESTON HOOD.

Witnesses:

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F. CURTIS.