

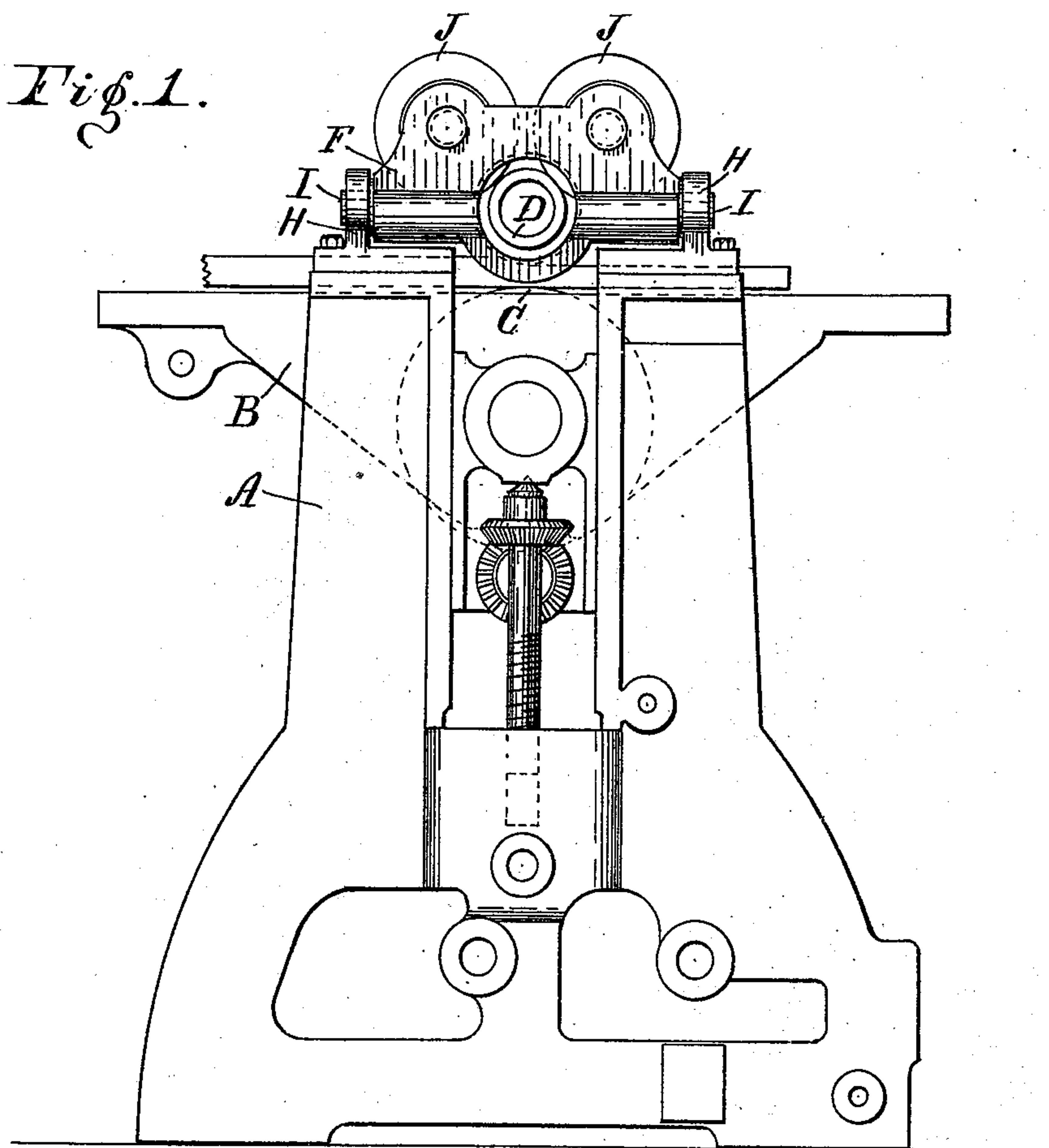
(No Model.)

2 Sheets—Sheet 1.

M. B. CRIST.  
WOOD EMBOSSING MACHINE.

No. 510,162.

Patented Dec. 5, 1893.



WITNESSES:

*V. M. Hood.*  
*F. A. Hetherington.*

INVENTOR

*Marvin B. Crist.*

BY

*H. P. Hood.*

ATTORNEY.

(No Model.)

2 Sheets—Sheet 2.

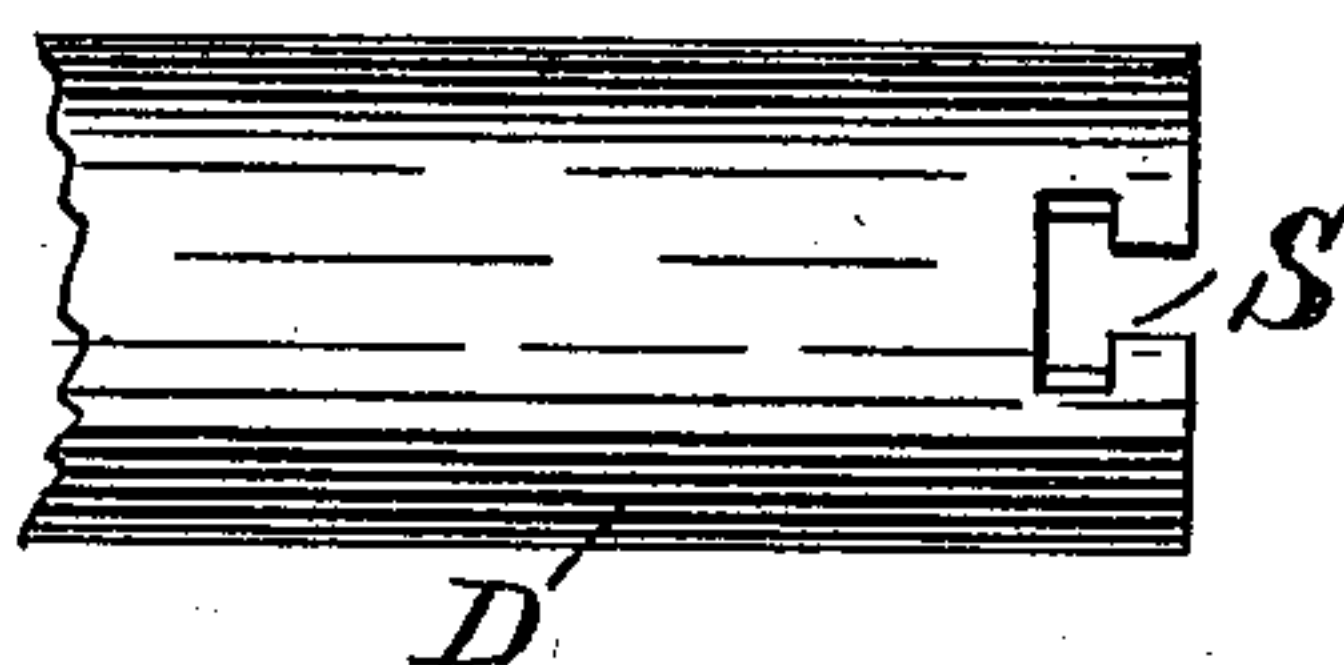
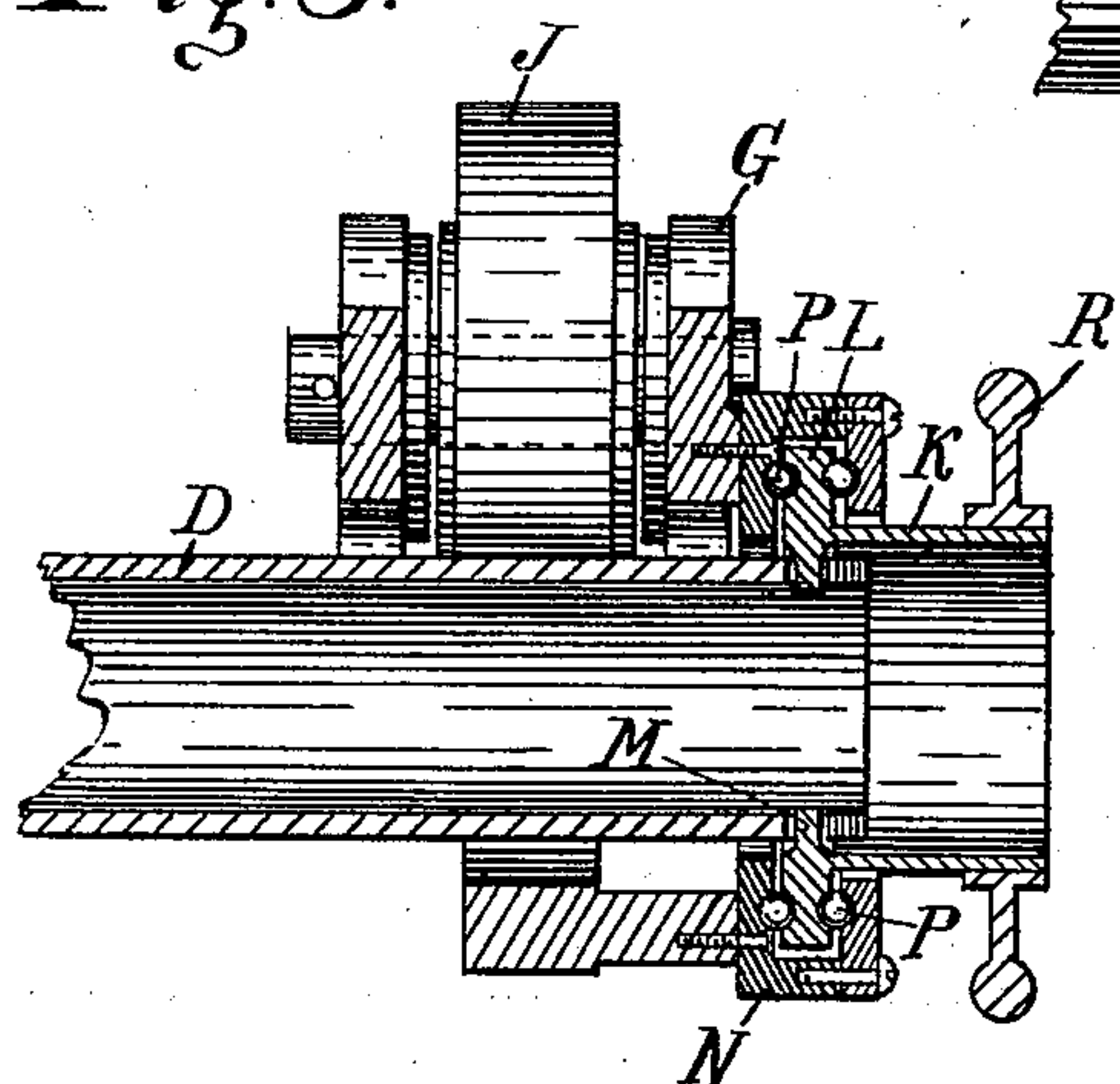
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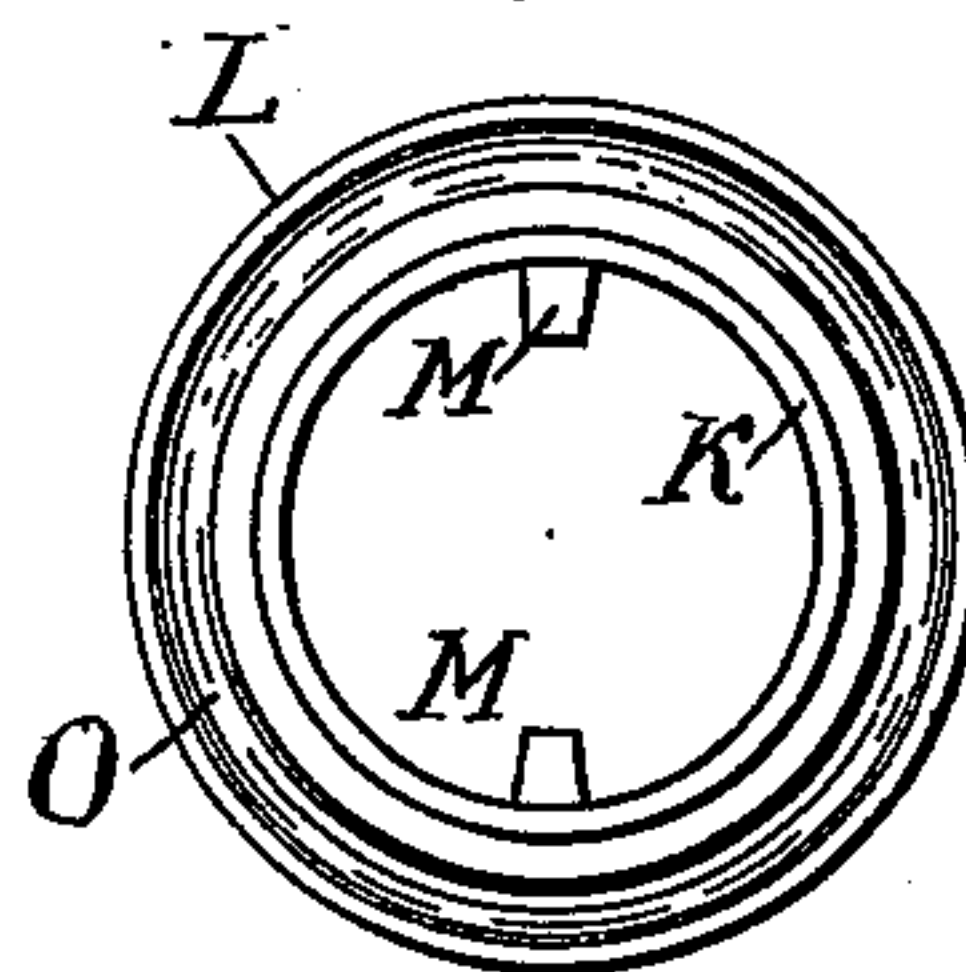
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*Fig. 5.*

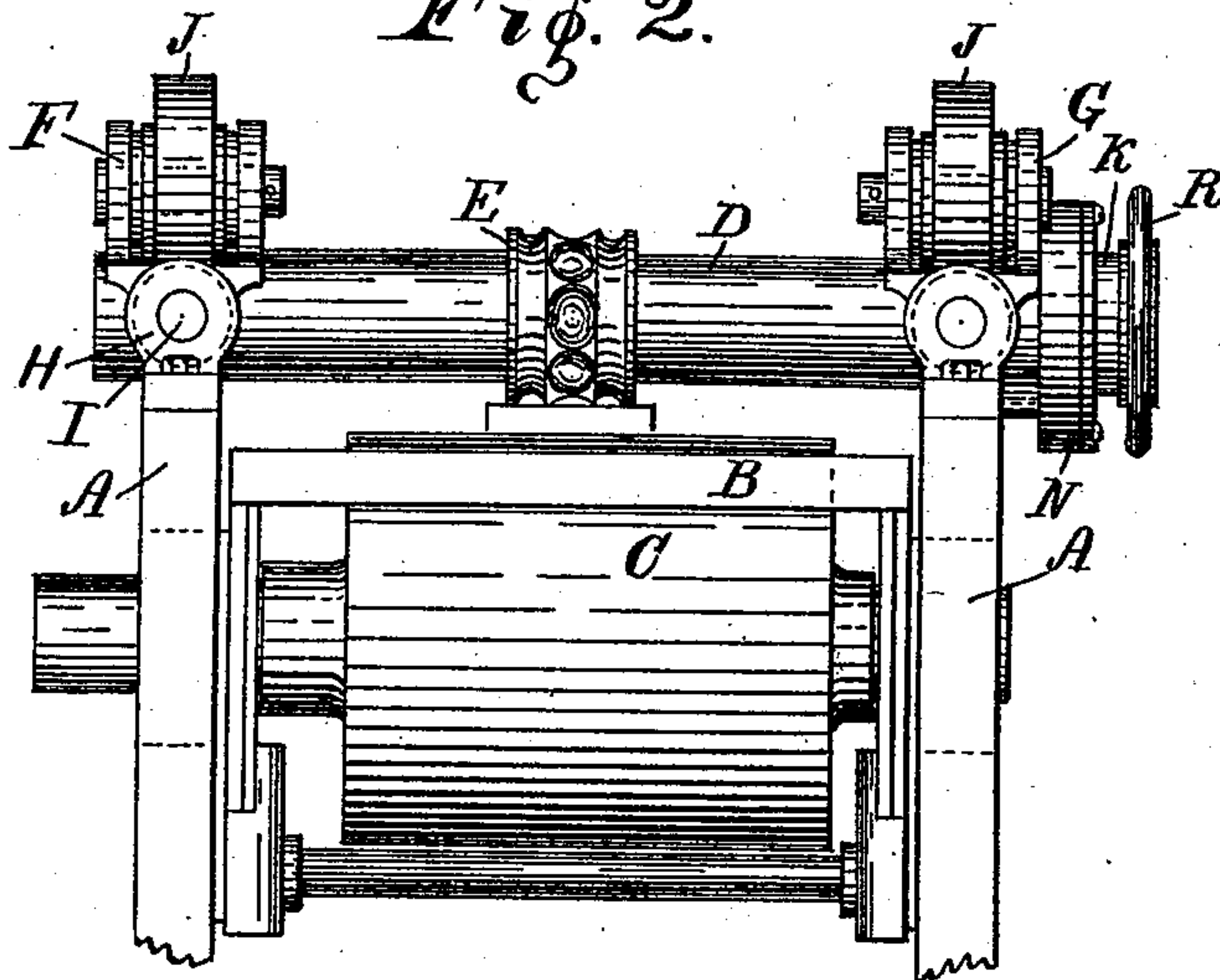
*Fig. 3.*



*Fig. 4.*



*Fig. 2.*



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# UNITED STATES PATENT OFFICE.

MARVIN B. CRIST, OF INDIANAPOLIS, INDIANA.

## WOOD-EMBOSSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 510,162, dated December 5, 1893.

Application filed April 3, 1893. Serial No. 468,779. (No model.)

*To all whom it may concern:*

Be it known that I, MARVIN B. CRIST, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Wood-Embossing Machines, of which the following is a specification.

My invention relates to an improvement in that class of wood-embossing machines in which the embossing is produced by means of a cylindrical die.

The object of my improvement is to provide improved means for turning the die-shaft by hand and for preventing the longitudinal movement of the die-shaft, all as hereinafter fully set forth.

The accompanying drawings illustrate my invention.

Figure 1 represents a side elevation of a wood-embossing machine having anti-friction-roll bearings for the die-shaft and provided with my improvement. Fig. 2 represents a front elevation of the upper part of the machine. Fig. 3 represents, on an enlarged scale, a diametrical longitudinal section of the die-shaft and one of its end bearings, showing the means for preventing the longitudinal movement of the shaft and for turning the shaft by hand for the purpose of adjusting the relation of the die to the work. Fig. 4 represents an end elevation of the shaft-holding device. Fig. 5 represents a plan of that portion of the die-shaft which engages the holding device shown in Fig. 4.

In the drawings, A, A, indicate the ends of the main-frame of the machine.

B, indicates the work-table which is mounted in the main-frame so as to be vertically adjustable therein, and which carries the pressure-roll, C, whose periphery projects slightly above the upper surface of the table. Said pressure-roll is provided with suitable mechanism, (not shown,) for rotating it.

The hollow die-shaft, D, carries the cylindrical die, E, which is opposed to the projecting peripheral surface of the pressure-roll C. The die-shaft is supported at each end, so as to resist upward pressure, in bearings, F, and G, which are each attached to the main-frame by means of a pair of brackets, H, H, rigidly

bolted to the frame and forming bearings which receive a pair of journals, I, I, which are formed on the ends of the shaft-bearing, and whose axes are arranged at right angles to the axis of the die-shaft, so that, when the die-shaft is deflected from its straight line by the passage of the material to be embossed between the pressure-roll and the die, the bearing turns on its journals, I, I, and yields to the changed position of the die-shaft. Bearings F, and G, are each provided with a pair of anti-friction-rollers, J, J, between the peripheries of which the die-shaft rests.

For the purpose of turning the die-shaft by hand, and for preventing endwise movement of the shaft when at work, a hollow hub, K, having at one end an outwardly projecting radial flange, L, and a pair of inwardly projecting radial lugs, M, M, is mounted in a circular bearing, N, which is secured to the outer face of the shaft-bearing G. Each side of the flange L is provided with a circular groove, O, and corresponding grooves are formed in the inner opposed faces of the bearing N, and a series of balls, P, P, are mounted in said grooves so as to form a ball-bearing for the hollow hub K, which will resist endwise movement. A hand-wheel, R, is secured to the outer end of hub K.

One end of the die-shaft is provided on opposite sides with open T-shaped slots, as at S, Fig. 5; which slots are adapted to receive and interlock with the inwardly projecting lugs M, on hub K; so that, when interlocked, the shaft is held against longitudinal movement, and the hub revolves with the shaft.

In operation, the material is to be embossed, passing between the pressure-roll and the die, springs the shaft to a greater or less extent, and the bearings for the shaft, F, and G, yielding to the changed position of the bearing surface of the shaft, are automatically tilted in opposite directions, and all cramping of the shaft in its bearings, or unequal wearing of the contact surfaces of the anti-friction-rolls is avoided. The hub K, which prevents the longitudinal movement of the shaft, being mounted in the bearing N which is secured to the tilting shaft-bearing, necessarily follows the movement of said shaft-bearing and pre-

sents no obstacle to the free rotation of the shaft.

I claim as my invention—

5 In a wood-embossing machine, the combination of the hollow hub K having flange L and lugs M, the circular bearing N provided with balls P and arranged to inclose said

flange, and the die-shaft adapted to interlock with said lugs, all arranged to co-operate substantially as set forth.

MARVIN B. CRIST.

Witnesses:

H. P. HOOD,

F. A. HETHERINGTON.