

2 Sheets--Sheet 1.

J. C. & L. COBURN

Mechanisms for Molding Paper-Pulp.

No. 158,782.

Patented Jan. 19, 1875.

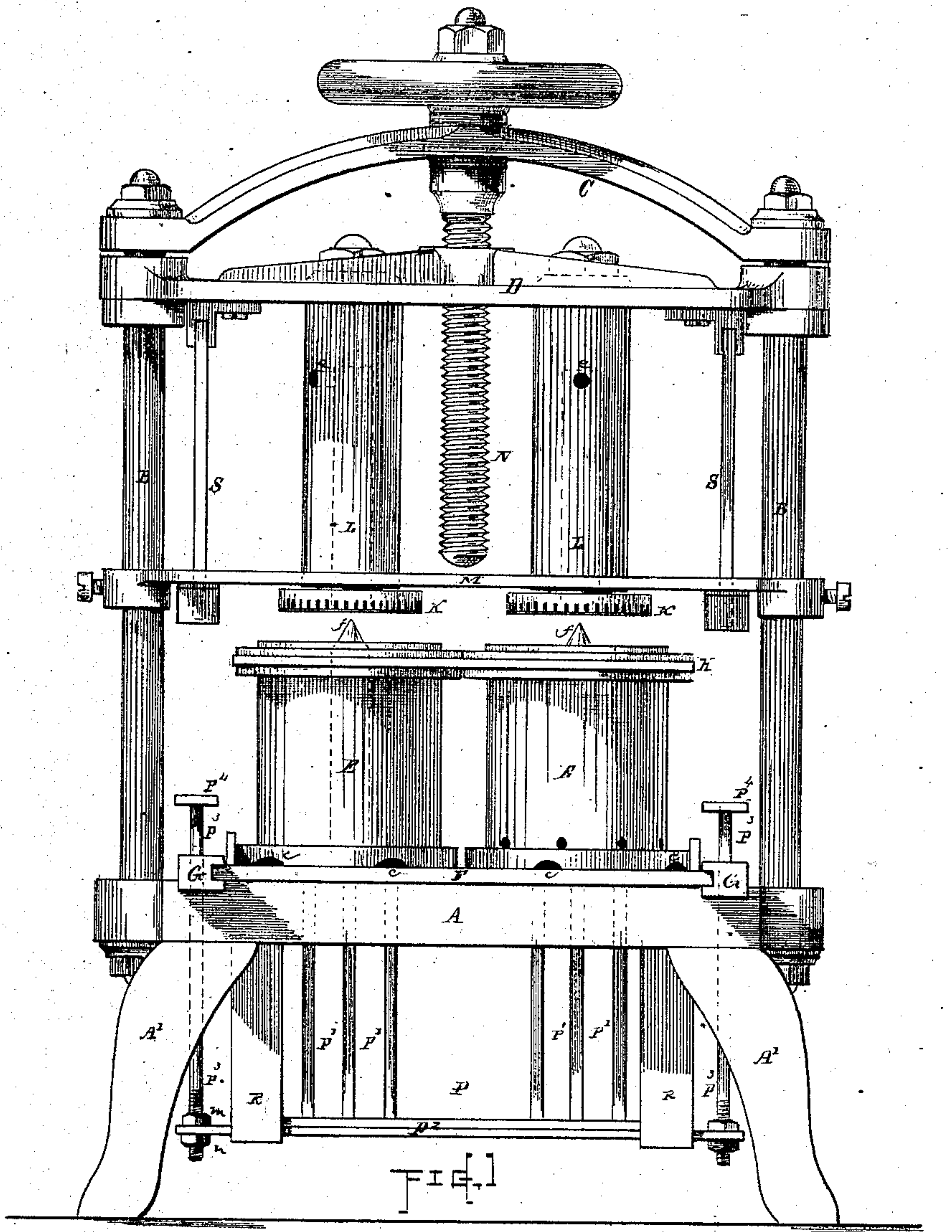
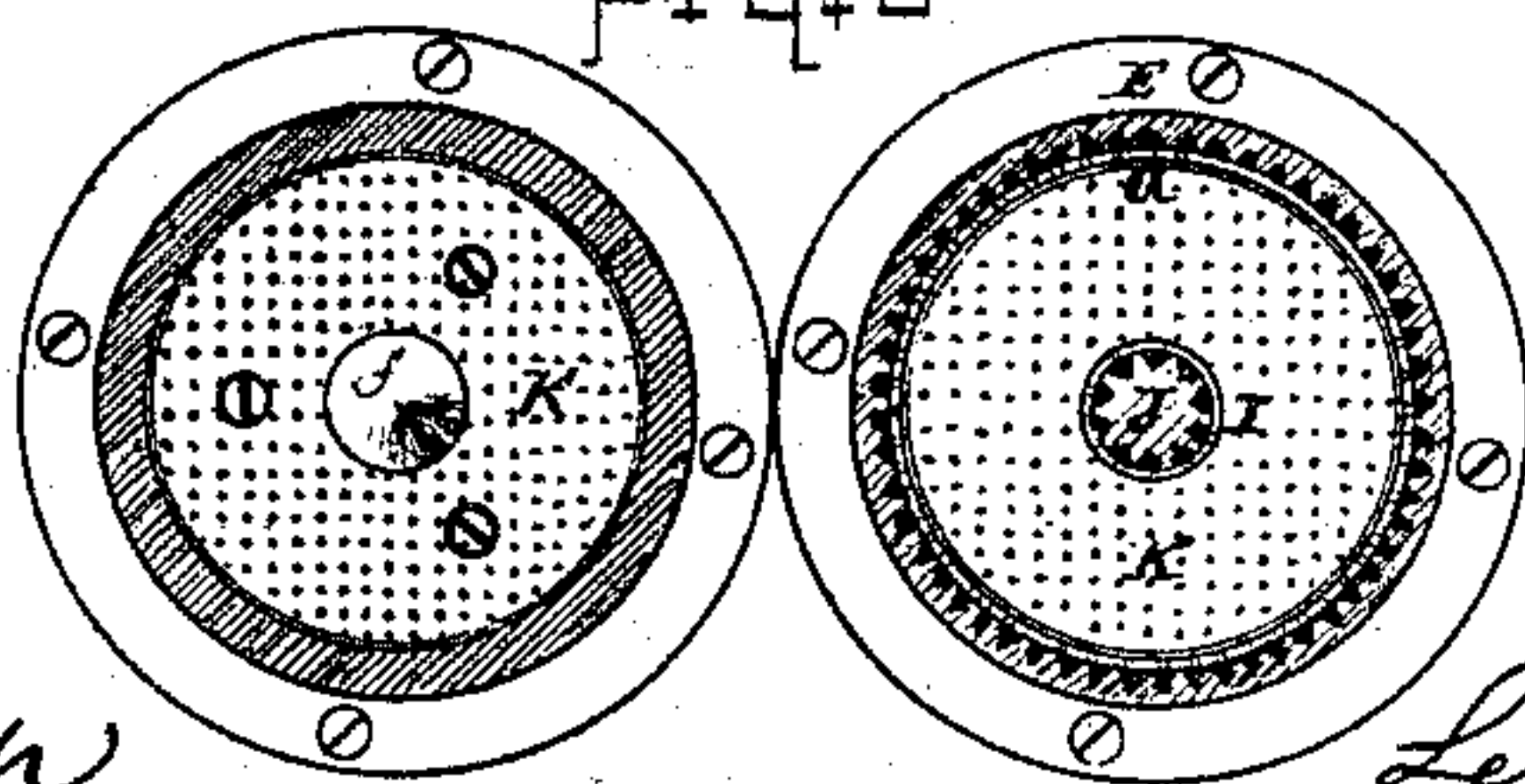


FIG. 2



Witnesses

Charles Bowditch
P. P. Fairbank

Inventors

Lemuel Coburn
Jehiel C. Coburn

J. C. & L. COBURN

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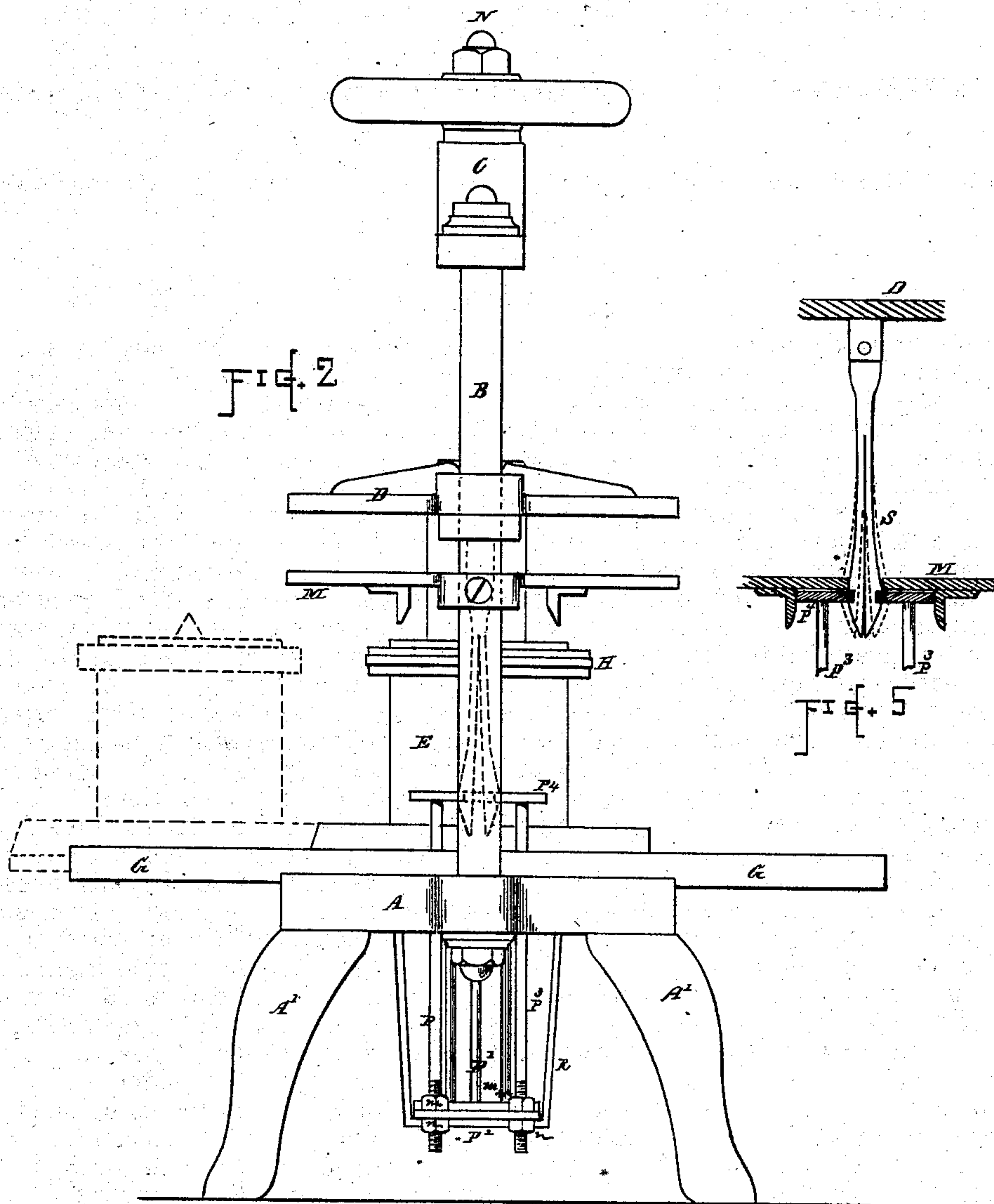


FIG. 2

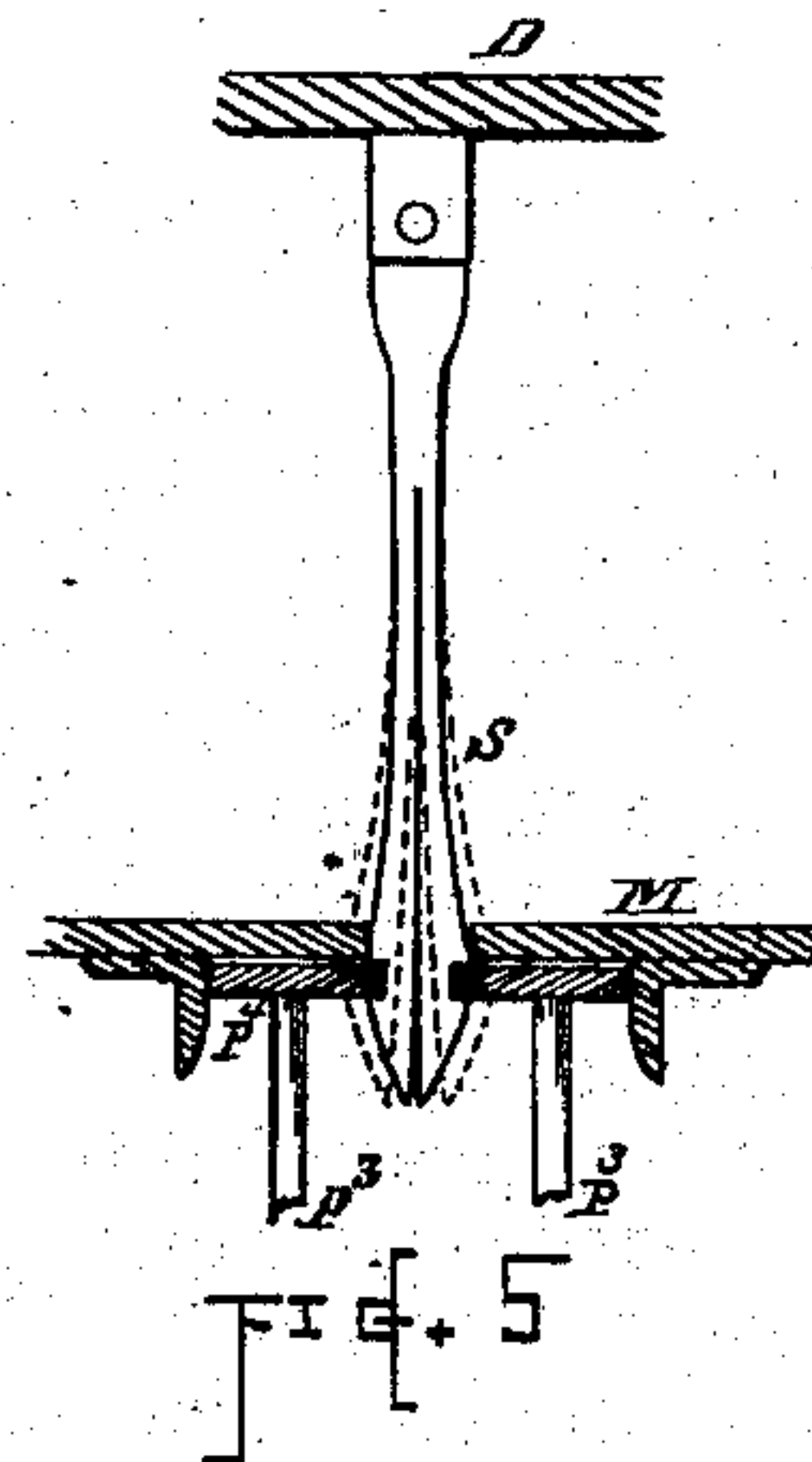
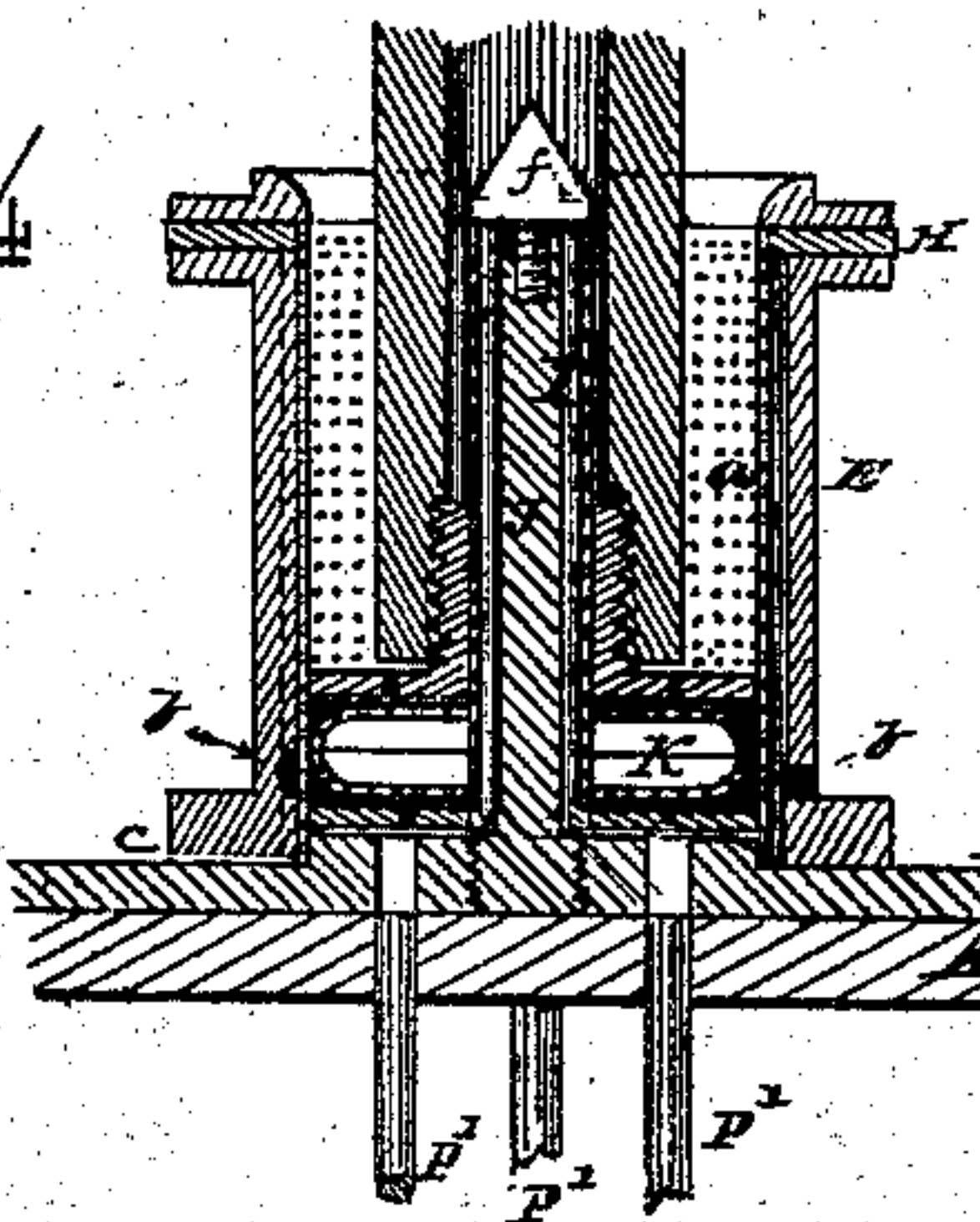


FIG. 5

FIG. 4



Witnesses

Charles Burleigh
S. P. Faircott

Inventors

Jehiel C. Coburn
Lund Coburn

UNITED STATES PATENT OFFICE.

JEHIEL C. COBURN AND LEMUEL COBURN, OF WORCESTER, MASS.; SAID
JEHIEL C. COBURN ASSIGNOR TO SAID LEMUEL COBURN.

IMPROVEMENT IN MECHANISMS FOR MOLDING PAPER-PULP.

Specification forming part of Letters Patent No. 158,782, dated January 19, 1875; application filed
December 10, 1873.

CASE C.

To all whom it may concern:

Be it known that we, JEHIEL C. COBURN and LEMUEL COBURN, both of the city and county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Mechanism for Pressing Pulp; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings which form a part of this specification, and in which—

Figure 1 represents a front view of our improved pressing-machine. Fig. 2 represents a side view of the same. Fig. 3 represents a horizontal section of the matrix chambers or cylinders. Fig. 4 represents a central vertical section of one of the matrix-chambers, condensing-dies, and end of presser-plunger. Fig. 5 shows a detail side view of one of the spring-latches to the discharging device.

The first part of our invention relates to the combination, with the platen and matrix-chambers, of a peculiar discharging mechanism, working automatically by spring-latches, for raising the bottom of the condensing-die to expel the pressed material from the chamber, as hereinafter described.

The second part of our invention relates to the combination, with the inner or central perforated cylinder, of a grooved core and conical cap-piece, as hereafter set forth.

To enable other skilled artisans to understand the construction and operation of our improved mechanism, we will proceed to describe it in detail.

In the drawings, A denotes the bed of the machine supported on suitable legs A¹. B B indicate the uprights or standards which support the top bar C, and parts connected therewith, and serve as guides for the platen D. E E indicate the matrix chambers or cylinders, into which the material is placed for compressing. Said cylinders E are mounted upon a sliding plate, F, that rests upon the bed A, and is fitted to move back and forth between the guideways G G.

The cylinders E are made with a solid band of metal, flanged at top and bottom and hav-

ing the required internal diameter to correspond with the size of the condensing-dies. The interior surface is channeled vertically with small grooves, between which are left ridges which support the perforated lining *a*, as indicated in Figs. 3 and 4. An annular groove, *b*, is formed around the interior lower part of the cylinder, from which passages *c* extend to the exterior of the lower flange, as indicated. The moisture which is forced from the pulp when compressed, flows into the vertical groove, and from thence to the exterior of the cylinders by way of the groove *b* and passage or passages *c*, which latter may be provided with suitably-arranged pipes or conductors for conveying the liquid away from the machine to any convenient locality, thus keeping the bed of the machine dry or comparatively free from moisture.

Any desired number of matrix chambers or cylinders may be used upon a single slide-plate, F, to which they are attached by bolts or screws through their lower flange. The upper ends of the cylinders are connected by a plate, H, bolted to their upper flanges, which covers the space, and prevents the pulp from falling between the cylinders.

The internal perforated cylinder I is supported on a core or standard, J, secured in and projecting up from the plate F. This core is grooved vertically, as indicated, to prevent the passage of moisture, while it supports the cylinder from collapsing with the force required for condensing the pulp, and permits of the central cylinder I being made of very thin metal. The grooves of the core communicate by suitable passages with the openings *c*, for the exit of the moisture. The core J is fitted with a conical top or cap, *f*, which prevents any material from lodging on the upper end thereof, and also serves as a guide for the descending presser-plunger and die. The lower parts of the condensing-dies K are arranged in the matrix-chambers, while their upper parts are secured to the presser-plungers L, as shown. These compressing-dies K¹ may be made with a thin perforated lining, supported by flanges or ridges having water-passages

between, and the edges of the die curved inward to impart the proper degree of roundness to the edge of the spool-heads to be formed therein, and an opening is formed through the center of the die through which passes the inner cylinder I. The presser-plungers L correspond in number to the chambers E. Their upper ends are secured to the platen D, while their lower ends pass through the guide-plate M, and carry the upper portions of the condensing-dies, which are screwed into their ends, as shown. The plungers L are made of sufficient length to reach the lower part of the chambers E, when the platen descends, and they are formed hollow to receive the inner cylinder at their center, and a vent-hole, *e*, is formed in their side for the escape of the inclosed air. The platen D is moved up and down by the press-screw N in the present instance, but, if preferred, hydraulic or lever pressure may be used in lieu of the screw. D indicates the discharging devices, which consist of a plate having vertical rods P¹, which extends up through the bed A and plate F, their ends resting flush with the top of the bed when the plate P² is fully depressed, while, when the plate P² is raised, the ends of the rods P¹ strike the bottoms of the dies K and force them upward within the chambers E. The plate P² is supported at its lowest position by two hangers, R, while at each end of said plate are arranged vertical elevating-rods P³ that extend up through the bed A, and are furnished at their upper ends with slotted cross heads or plates P⁴, as indicated. These rods P³ are made adjustable in the plate P², by nuts *m n* screwed onto their ends above and below the plate, as shown.

Double spring-latches S are attached to the platen D, directly above the cross-heads P⁴, and extend downward through openings in the guide-plate M, their construction and arrangement being such that when the platen D moves down to close the dies, and compress the material in the chambers E, the ends of the latches S will enter the slots of the cross-heads P⁴, and by their elasticity be latched onto the edges thereof, so that when the platen D rises the plate P² will be drawn upward, and the die K, with the compressed material contained therein, will be raised to the top of

the chamber or cylinder E. When the parts have moved upward to the required position, the latches S are disengaged from the cross-heads P⁴ by the enlarged portion of the latch entering the small opening of the guide-plate M, (see Fig. 5,) and the parts being thus freed, the plate P², rods P¹ P³, and dies K, drop to their original position, leaving the finished spool-head at the mouth of the cylinder in a convenient position to be removed by hand, or otherwise. The slide plate and cylinders are moved to the front for charging and discharging, as indicated by dotted lines, Fig. 2, and the pulp may be poured into the cylinders from properly-arranged tanks and pipes.

The cylinders may be arranged in two sets upon the slide-plate in such manner that one set will be beneath the pressers while the other set is in position for charging, and vice versa, all the cylinders in the set being operated upon simultaneously, and the charging performed alternately at the front and rear of the press.

By forming the matrix-chambers E with close solid rims grooved with passages, as shown, they are rendered very strong to sustain severe pressure, can be cheaply constructed, and also retain the expelled moisture in proper bounds and channels, and prevent its promiscuous flow over the machine.

The size and shape of the chambers and dies may be varied to suit the size and shape of the articles to be formed therein.

Having described our improved mechanism for pressing pulp, what we claim therein as new and of our invention, and desire to secure by Letters Patent, is—

1. The combination, with the bed A, platen D, matrix-chambers E, and dies K, of the elevating-plate P², rods P¹ P³, guide-plate M, and spring-latches S, substantially as and for purpose set forth.

2. The combination, with the internal cylinder I, of the grooved core J, and conical point or cap *f*, as and for the purpose stated.

JEHIEL C. COBURN.
LEMUEL COBURN.

Witnesses:

CHAS. H. BURLEIGH,
L. P. TRISCOTT.