

(No Model.)

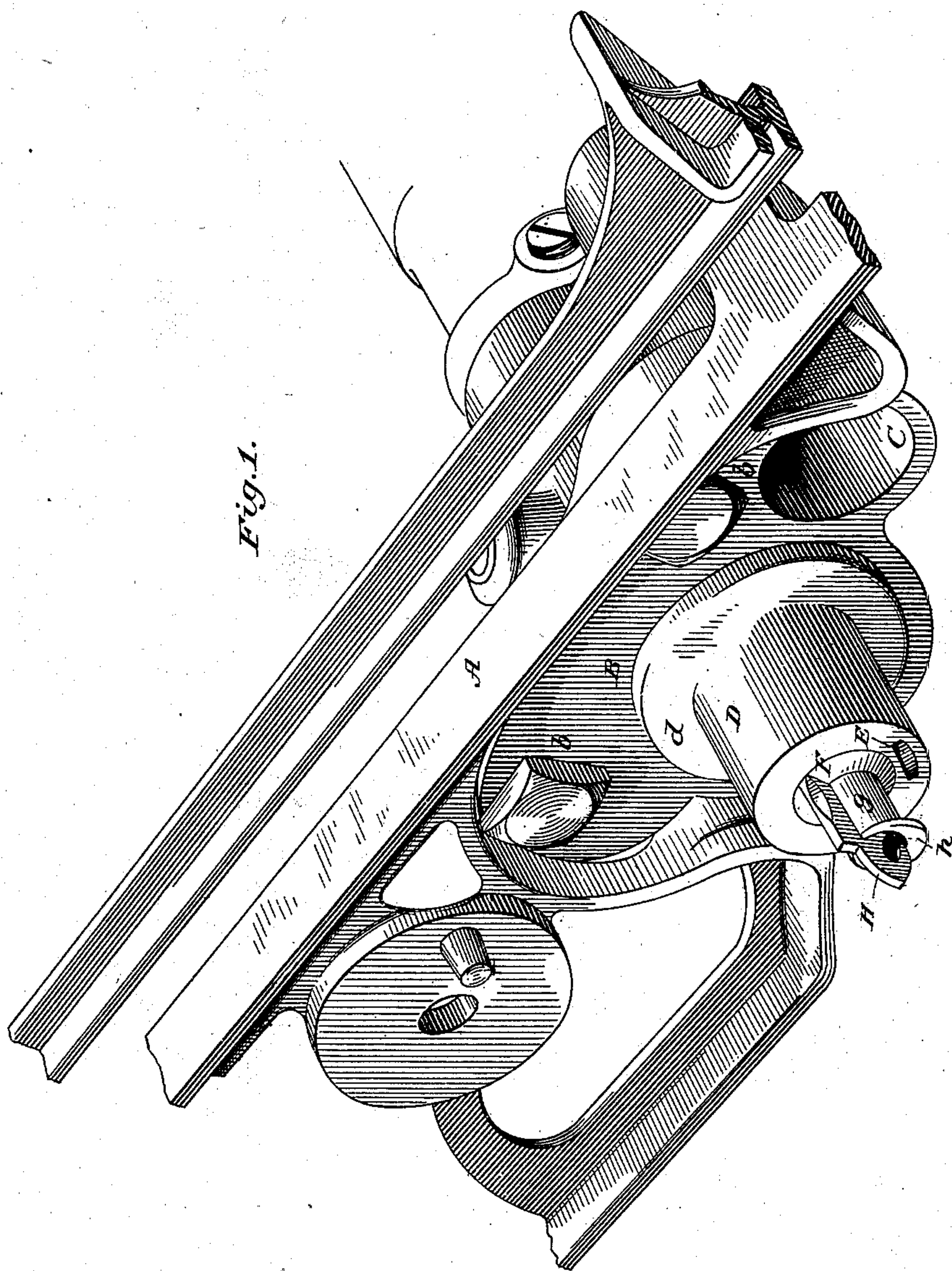
3 Sheets—Sheet 1.

W. N. WHITELEY, W. BAYLEY, & A. HURD.

CORD KNOTTER FOR GRAIN BINDERS.

No. 255,741.

Patented Mar. 28, 1882.



Attest:
R. P. Barnes.
A. B. Smith

Inventor:
William Needham Whiteley
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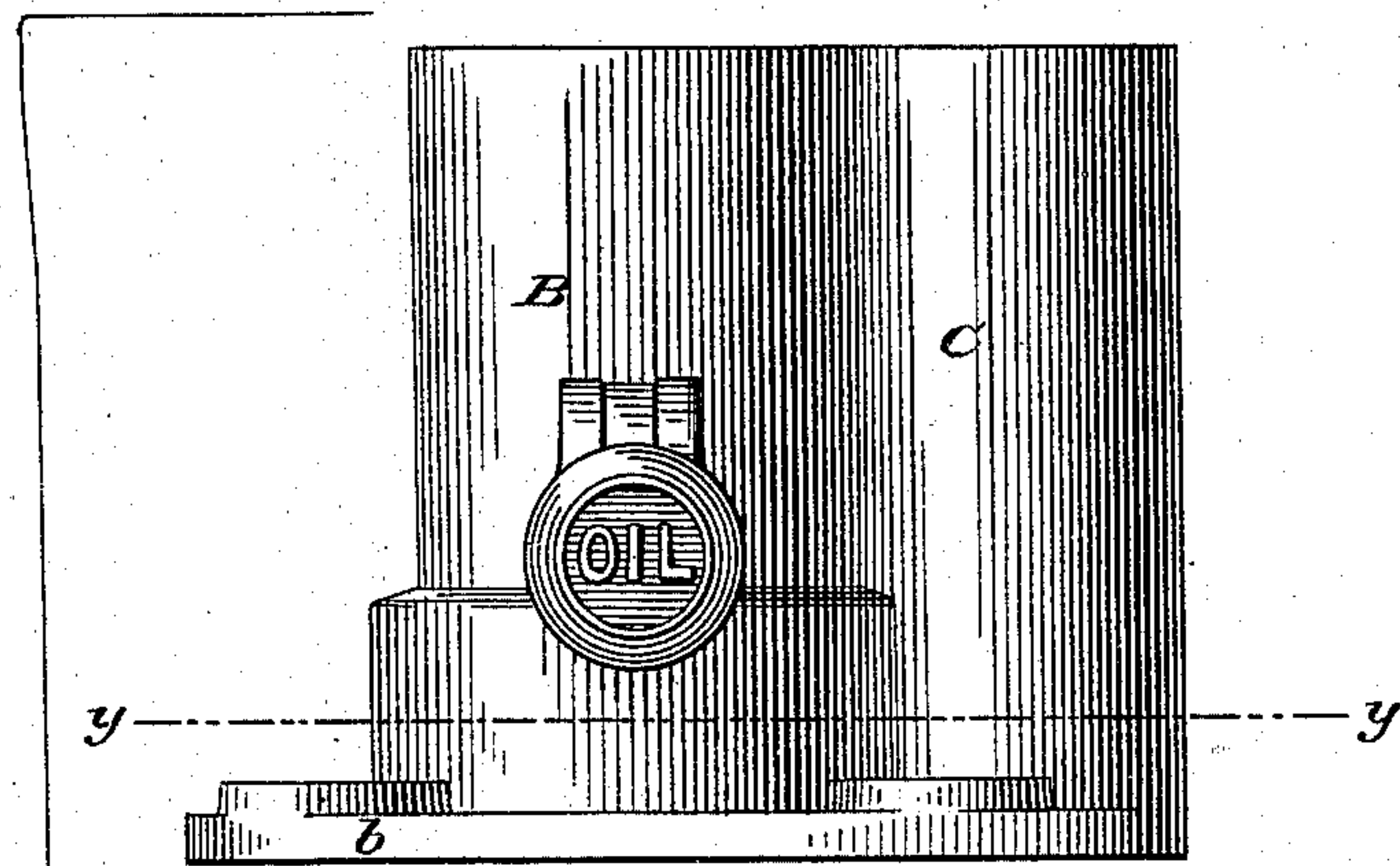


Fig. 2.

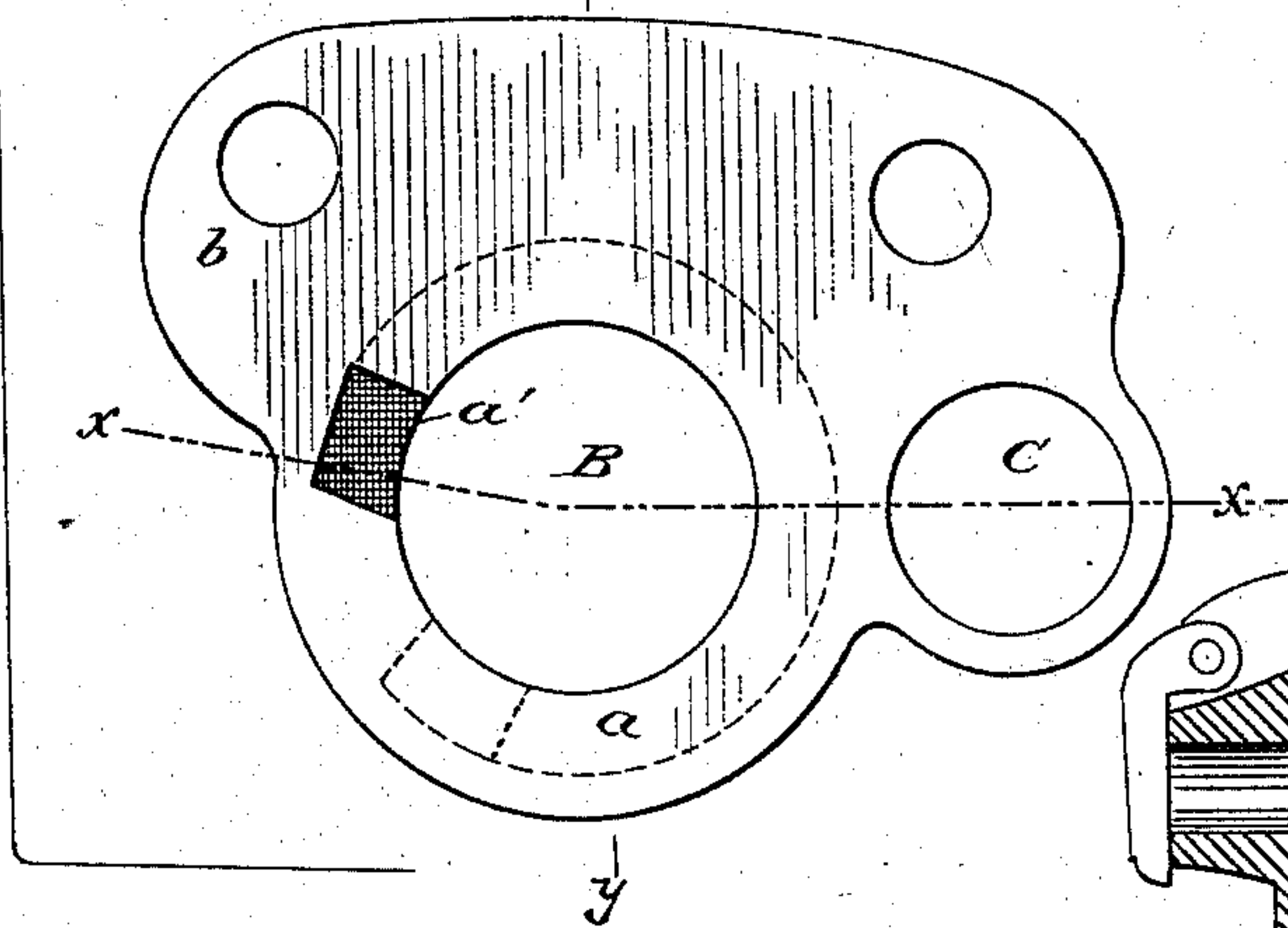


Fig. 3.

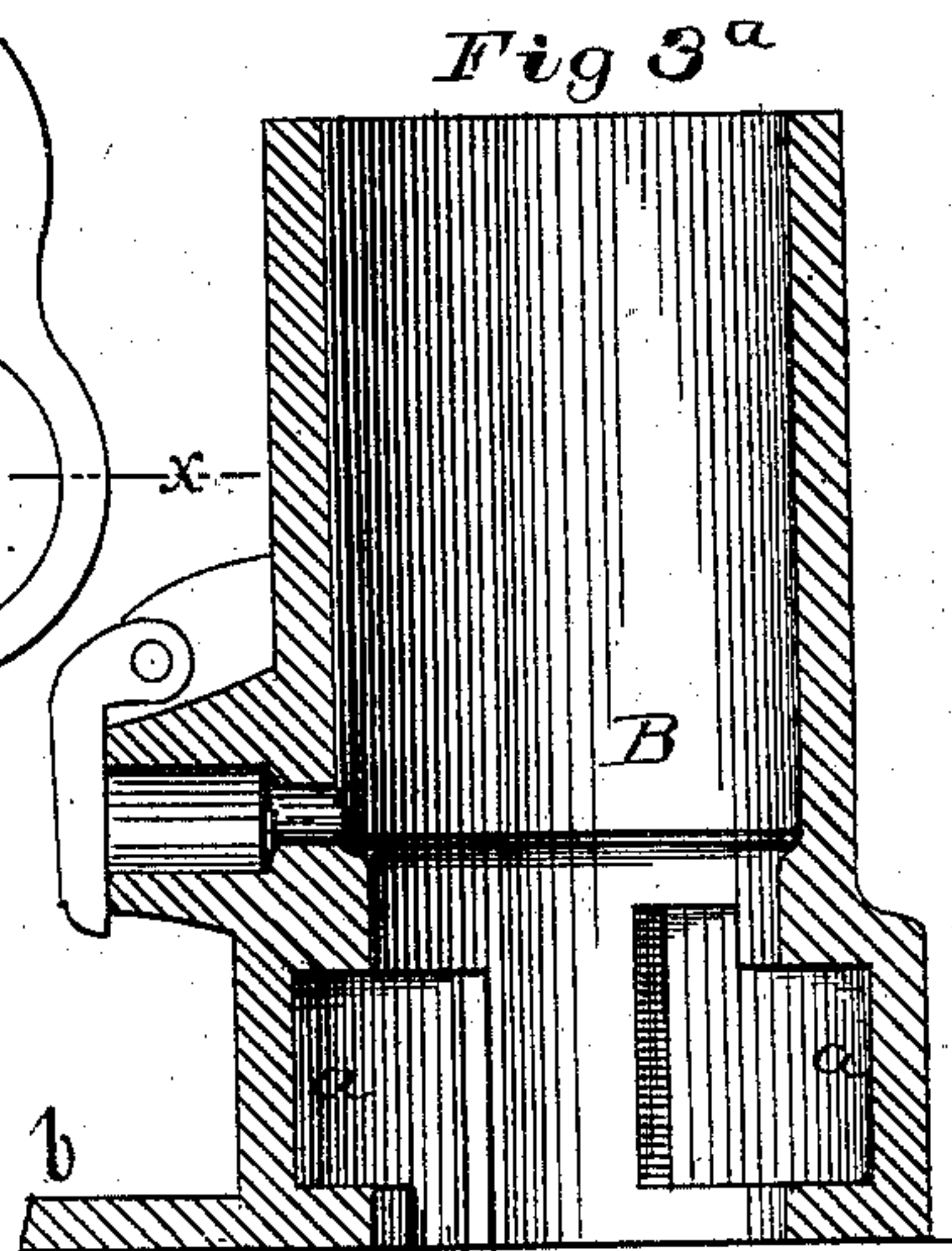
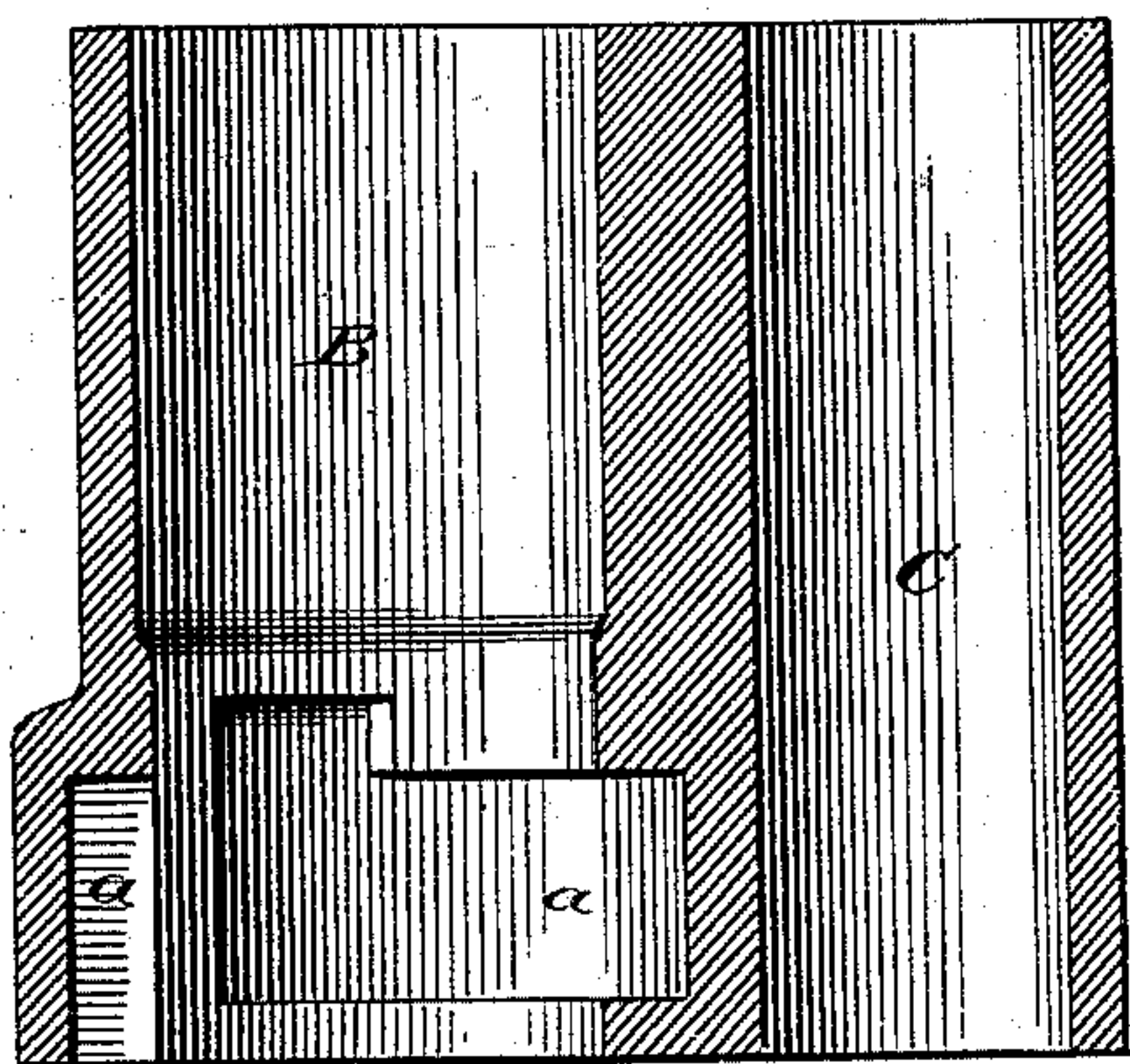
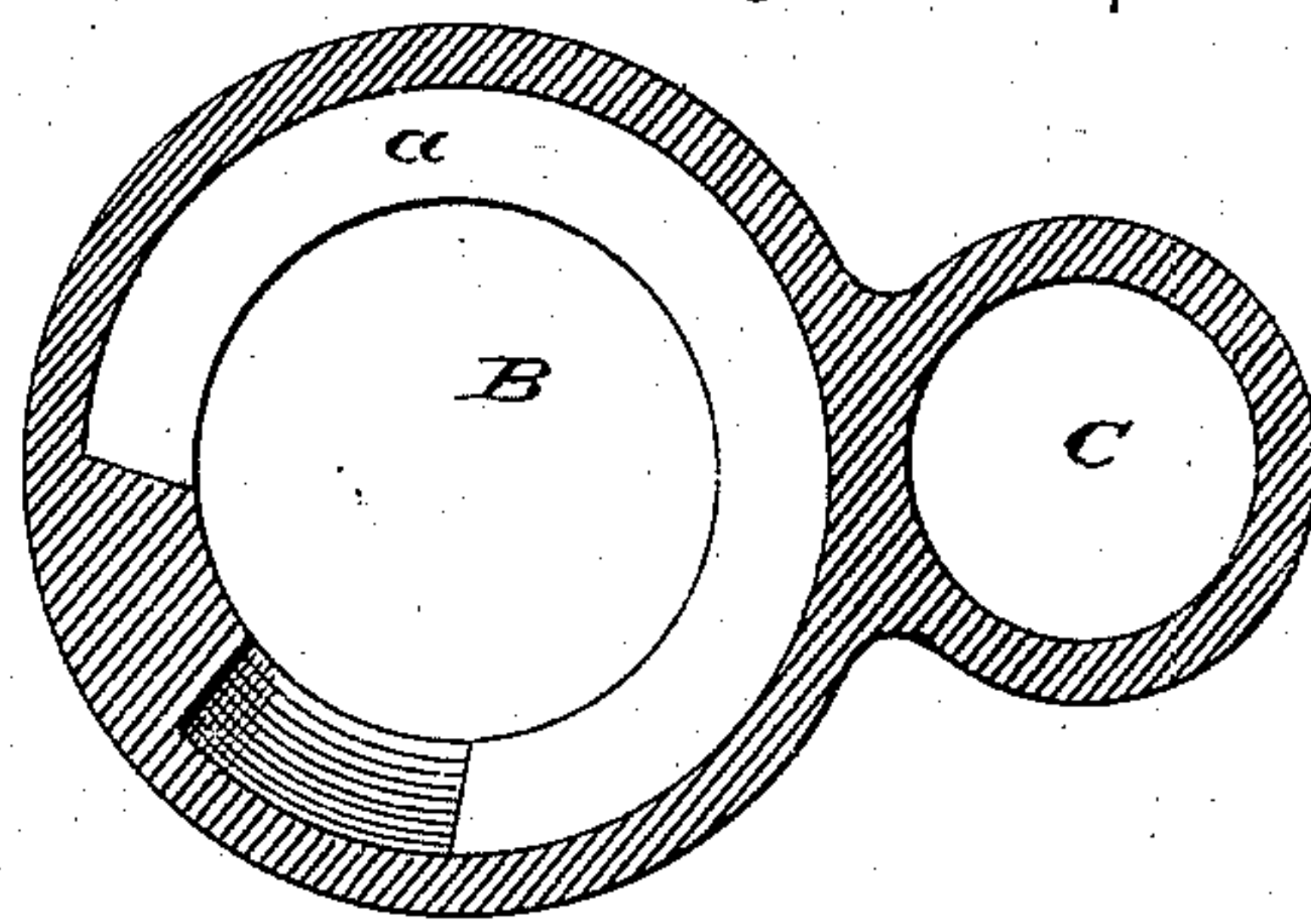


Fig. 4



a'



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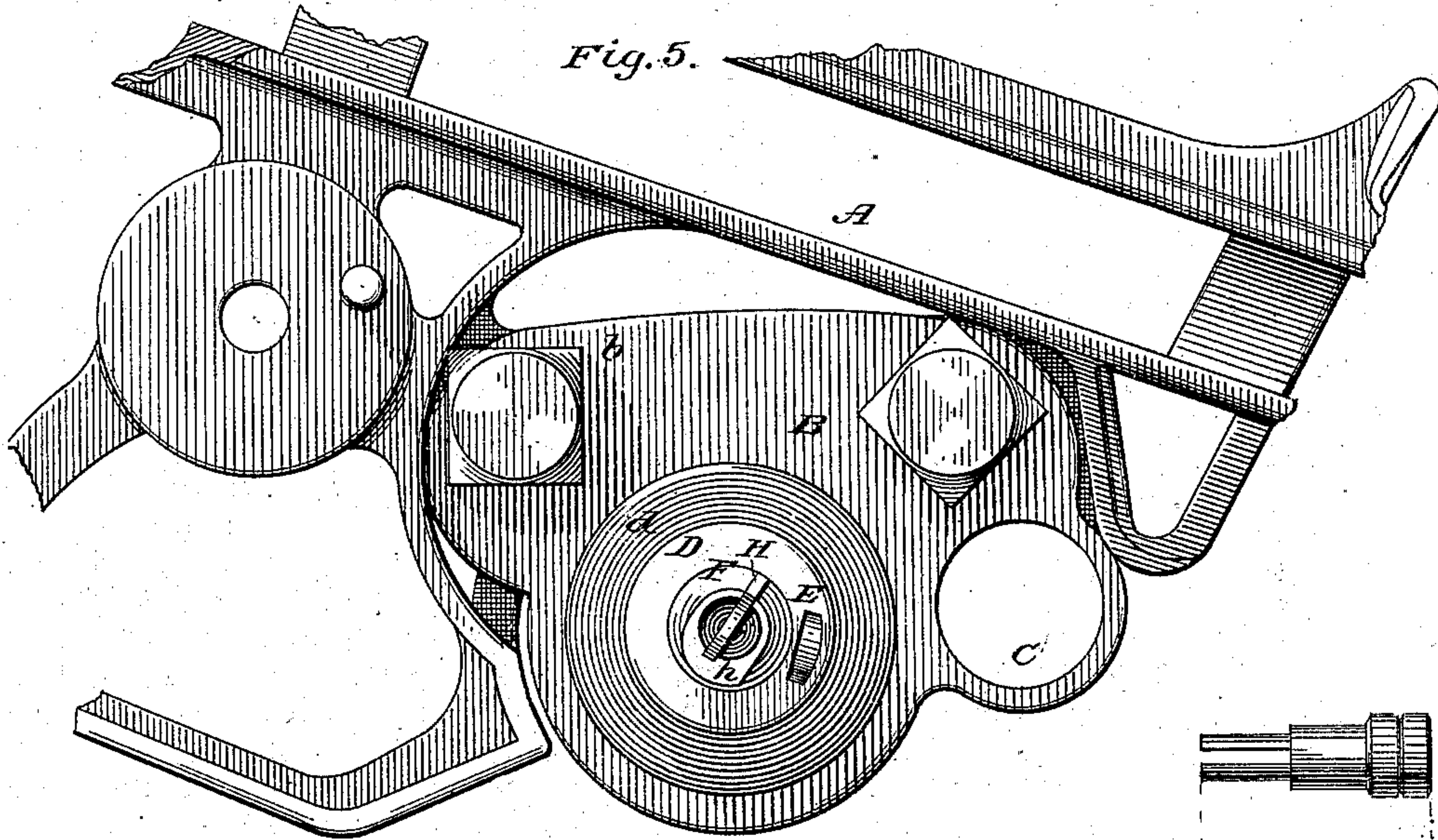
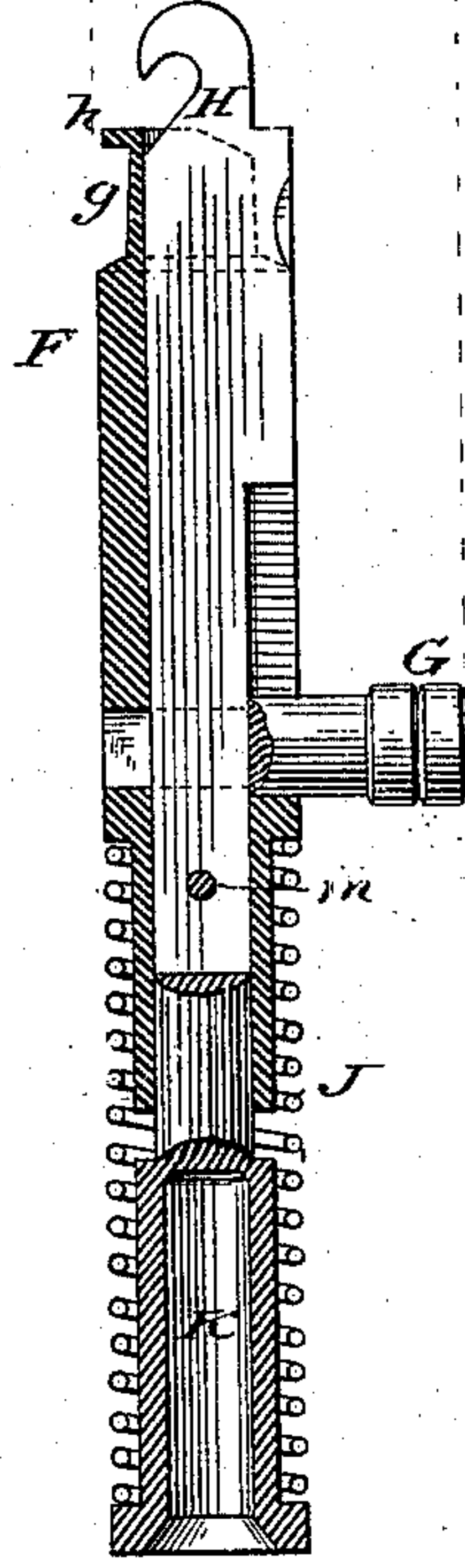
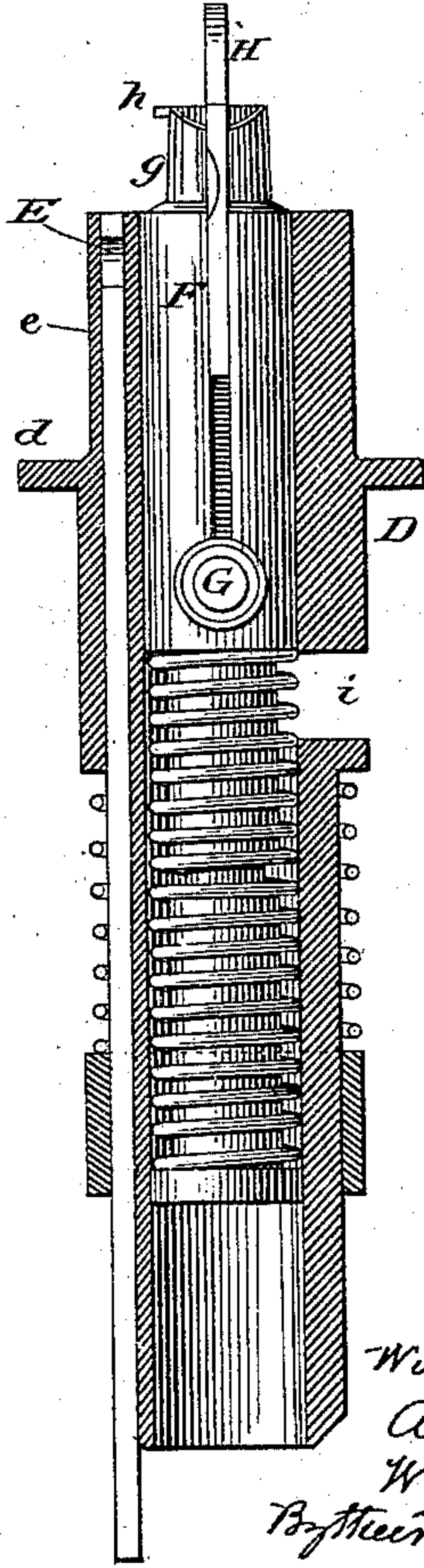
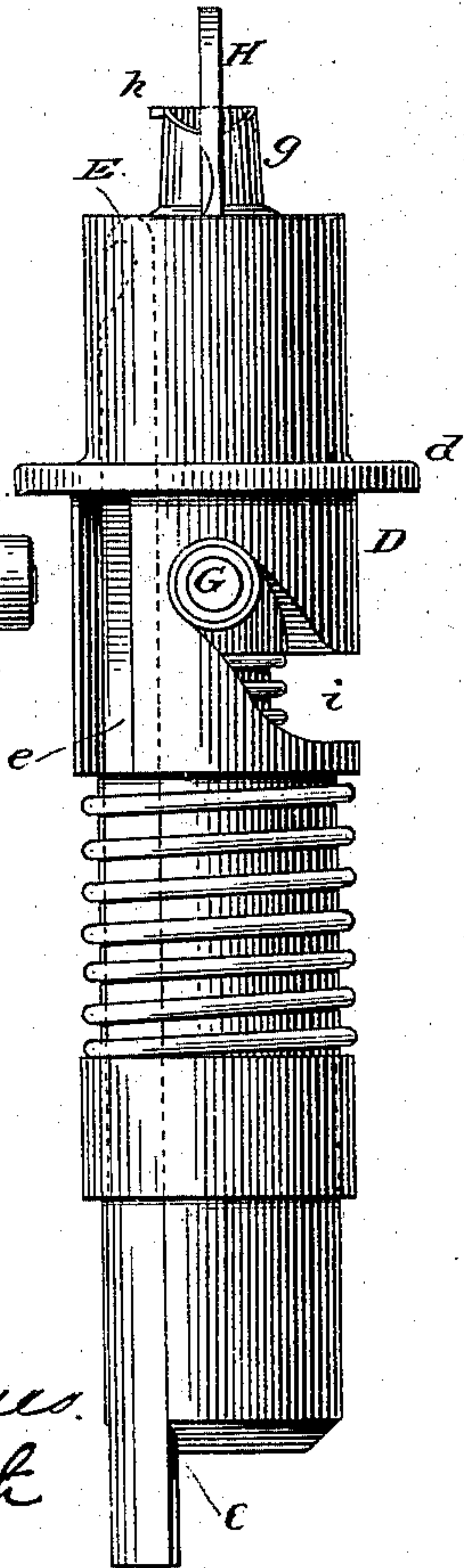
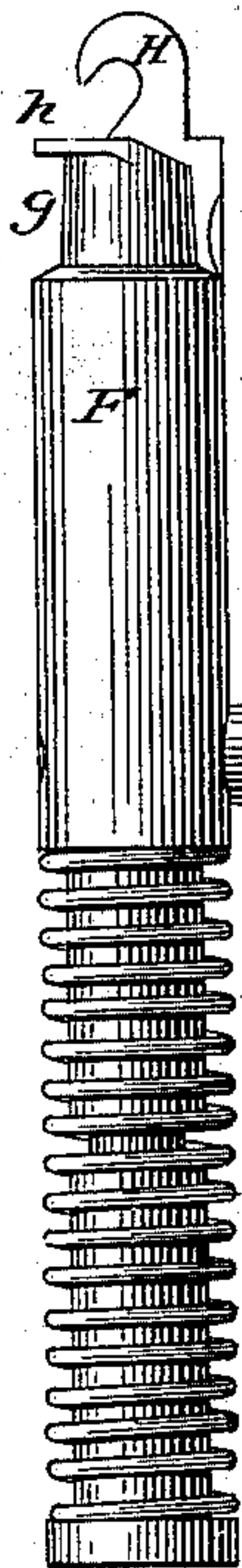


Fig. 9.

Fig. 7.

Fig. 6.

Fig. 8.



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UNITED STATES PATENT OFFICE.

WILLIAM N. WHITELEY, WILLIAM BAYLEY, AND ASA HURD, OF SPRINGFIELD, OHIO, ASSIGNORS TO WHITELEY, FASSLER & KELLY, OF SAME PLACE.

CORD-KNOTTER FOR GRAIN-BINDERS.

SPECIFICATION forming part of Letters Patent No. 255,741, dated March 28, 1882.

Application filed October 5, 1880. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM N. WHITELEY, WILLIAM BAYLEY, and ASA HURD, all of Springfield, in Clarke county, Ohio, have
5 invented new and useful Improvements in Cord-Knotters for Grain-Binders; and we do hereby declare that the following is a full and complete description of the same.

Our invention relates to that class of knotting devices wherein there is a stationary cylinder with an interior groove in a plane perpendicular to the cylinder-axis, its ends approaching, but not meeting, and terminating in grooves parallel to the axis, and extending
10 a short distance in opposite directions, within said stationary cylinder a rotating tubular cylinder, which carries the griper-hook, and within said rotating cylinder a rotating and reciprocating cylinder, which is provided at or
15 near its end with a neck, around which the cord is to be wound, and a reciprocating looping-hook to seize and hold the loop of the cord, and a stud which projects from said inner cylinder through a groove in the middle cylinder
20 into the groove in said stationary cylinder, whereby when said middle cylinder is rotated the inner cylinder is reciprocated and rotated.

The apparatus constructed and operating as above was not invented by us, but our invention
30 relates to it; and it consists, first, in a knotter case or cylinder cast with an interior groove to give direction to the knotting devices, and another case for the outside griper and cutter cast together in one piece, and a flange perpendicular to the axis of said cylinder, where-
35 by said case may be attached to the supporting-frame; second, in the inner cylinder and a thimble having their adjacent ends turned down smaller to accommodate the retracting-
40 spring, and a central looping-hook jointed to said thimble, as more particularly specified in claim 2.

That others may fully understand our invention, we will more particularly describe it, having reference to the accompanying drawings, wherein—

Figure 1 is a perspective of the knotter and case in position. Fig. 2 shows a plan and ele-

vation of the knotter-case. Fig. 3 is a longitudinal section on line *x x*. Fig. 3^a is a vertical section on the line *y y*, Fig. 2. Fig. 4 is a transverse section on line *y y*. Fig. 5 is a front elevation of knotter and case in position. Fig. 6 is a longitudinal part-section of the knotter. Fig. 7 is an elevation of the same. Fig. 8 is a section of the inner cylinder carrying the looping-hook. Fig. 9 is an elevation of the same.

A is a part of the stationary frame of the machine, which bridges over the receptacle and sustains the knotter-case.

B is the knotter-case or stationary cylinder. It is constructed in one piece of cast metal, and has the flange *b* projecting in a plane perpendicular to the axis. The cylinder is cast hollow by aid of a core, and is provided interiorly with a groove, *a*, which passes nearly around the said interior of the cylinder in a plane perpendicular to the axis. The extremities of said groove turn in opposite directions and at right angles to the former course, and at one end it cuts through the wall intervening between the groove and the exterior end of the cylinder B, as at *a'*, for the purpose of admitting the stud *g*, whereby the movements of the knotter are controlled, and at the other end it runs a short distance in a direction parallel with the axis of the cylinder, as shown in Fig. 3. The same casting may, and preferably does, include also the hollow cylindrical shell C, within which the griper and cutter are placed. These two shells or cases, being made in the same casting and bored parallel with each other, must always remain in proper relative positions. The front and back faces of the flange *b* are finished on a machine, so that they are parallel to each other and perpendicular to the axis of the knotter-case. Said knotter-case B is then ready to be bolted fast to its seat on the bridge A, and is certain to be in an accurate position and to remain so.

The case B forms the stationary cylinder above mentioned, and the rotating cylinder D is fitted to its interior surface, and its extent of protrusion is determined by a lateral flange, *d*, which rests against the face of the case B. The cylinder D, at that part which may be

called the inner end, because it is first to enter the case B, and protrudes through the same, is made smaller in diameter than said case, so that it may be inserted or removed easily as a complete structure. The cylinder D is hollow, and has a uniform interior diameter. Just behind the flange *d* it is cut transversely by a slot, *i*, and at one end said slot is prolonged, with an upward direction at an angle of about forty-five degrees, nearly to the flange *d*, as shown in Fig. 7. About midway between the extremities of said slot and on the exterior surface of the cylinder there is a longitudinal groove, *e*, to receive the griper E, by which the ends of the band are held while the band is being passed around the knotter.

Within the cylinder D there is the inner cylinder, F, which has at its outer end a neck, *g*, with the lip *h* at its outer end. The revolution of the cylinder D causes the cord to be wound around this neck in the process of tying the knot.

A stud or pin, G, is attached to the inner cylinder, F, and projects through the slot *i* in cylinder D and into the groove *a* in case B. This arrangement effects the following results: During that part of the revolution of the cylinder D wherein the stud G is free to move in the groove *a* the cylinder F will revolve with the cylinder D; but when the stud G has arrived at the extremity of the groove *a*, and is thereby arrested, the further movement of D will cause the stud G to ascend the inclined part of the slot *i*. Thereby the neck *g* and the cylinder F, which have been rotating with the cylinder D, cease to rotate and commence to reciprocate, and recede within the cylinder D. As shown in the drawings, Figs. 8 and 9, the pin G is attached to the cylinder F by inserting it through said cylinder, as shown by dotted

lines, Fig. 8, and the slot for looper H is cut in said pin, so that said looper passes through the same. The cylinder F is slotted longitudinally to receive the shank of the looper-hook H, which is jointed at its lower end to the thimble K, and is retracted by the spring J, the ends of which are confined between said thimble and the end of the cylinder F. The lower end of the cylinder F is bored out and the upper end of the piston K is fitted therein, so that one slides within the other, while a certain degree of flexibility is permitted at the joint between H and K at *m*.

Having described our invention, what we claim as new is—

1. A knotter-case or outer cylinder, B, with a flange, *b*, and an interior groove, *a*, as described, and a cylindrical shell, C, for the outside griper and cutter, both cast in a single piece, as described.

2. The combination of the cylinder F with a thimble jointed to the looping-hook and sliding therewith in the cylinder, the thimble provided at the end with a shoulder, and a part of the cylinder made smaller, so as to act with the shoulder on the thimble to guide and hold a spring.

3. A cylinder, D, combined with an inclosing stationary knotter-case, cast in one piece, and having the groove *a* and a laterally-projecting flange, *b*, whereby said knotter may be bolted directly to the vertical side of the bridge-frame, substantially as set forth.

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WM. BAYLEY.

ASA HURD.

In presence of—

J. E. LOWRY,

A. N. SUMMERS.