2 Sheets—Sheet 1.

J. TOMLINSON.

BARREL-MACHINES.

No. 195,185. Patented Sept. 11, 1877.

Fig. 1.

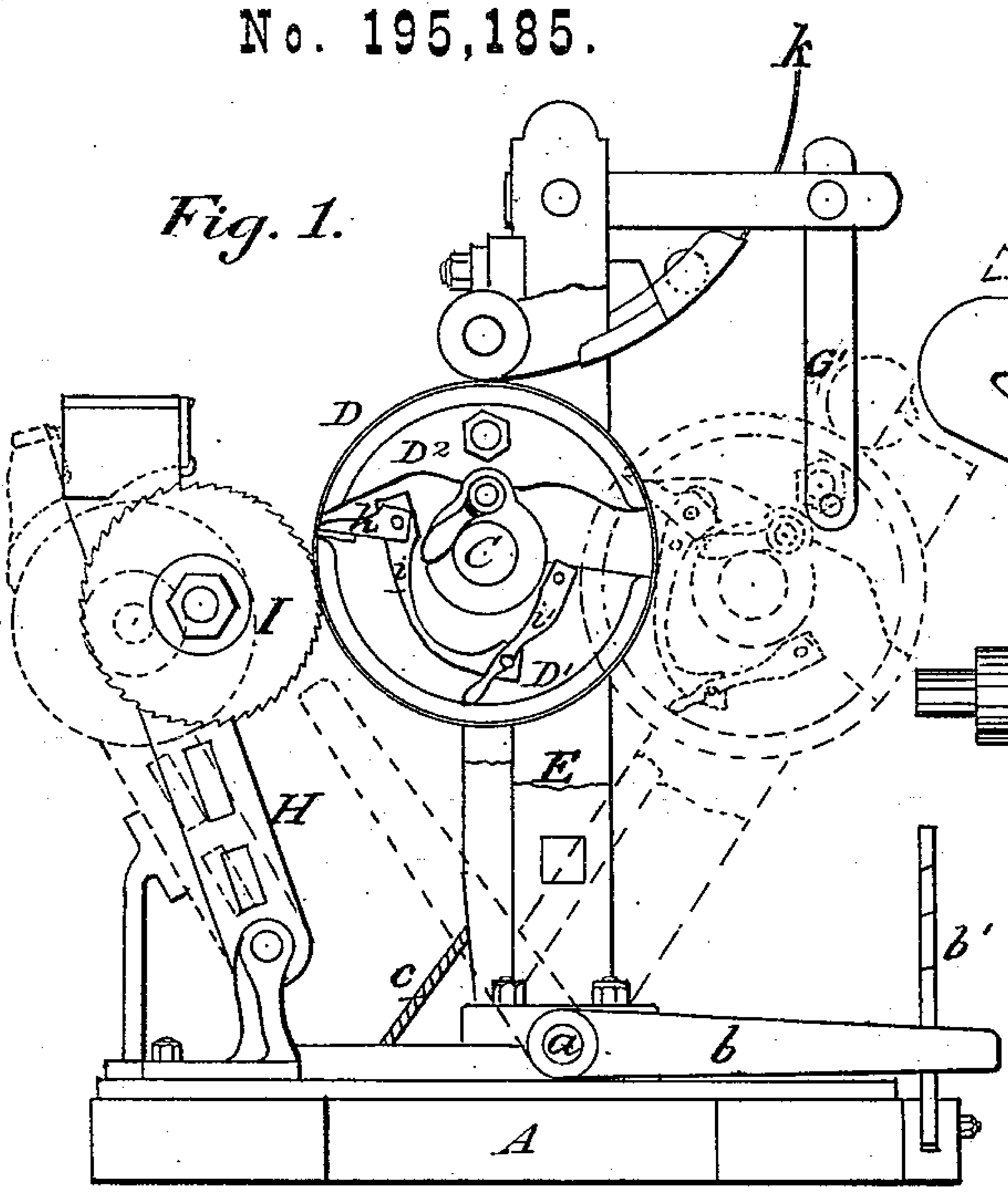


Fig. 2.

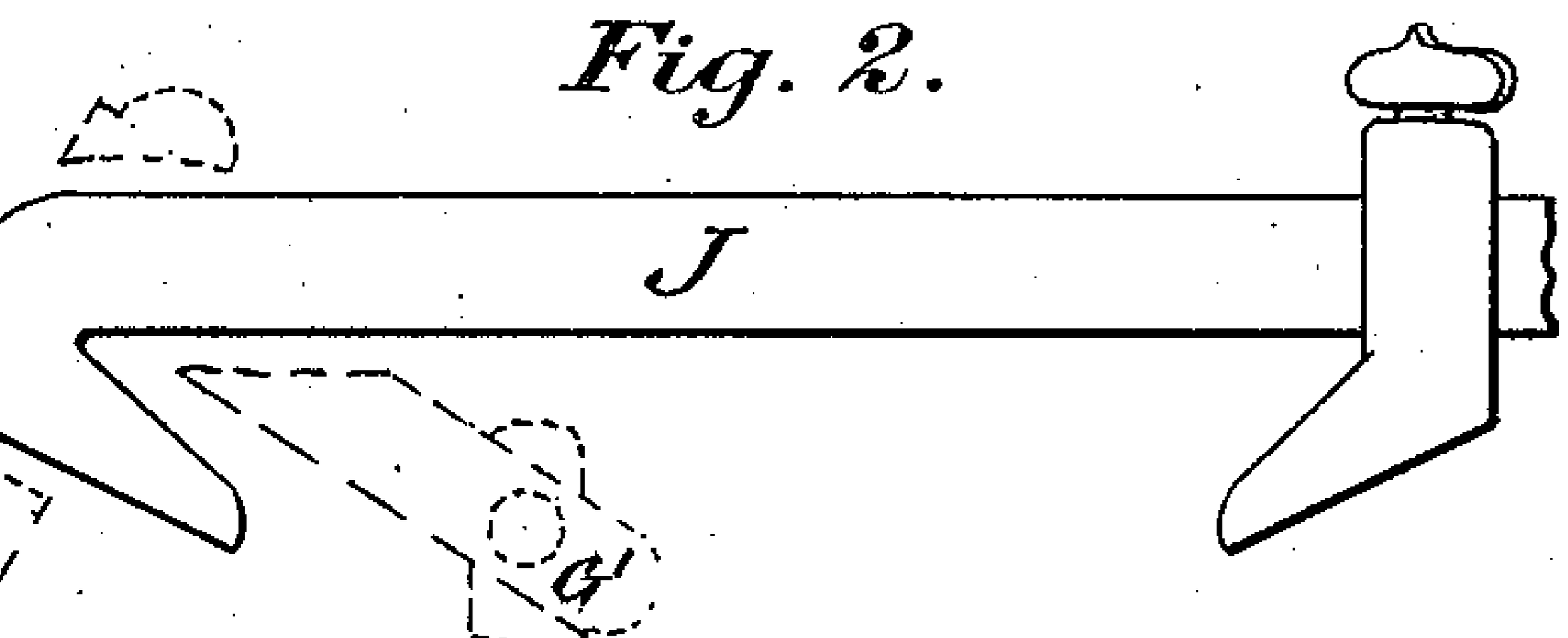


Fig. 3.

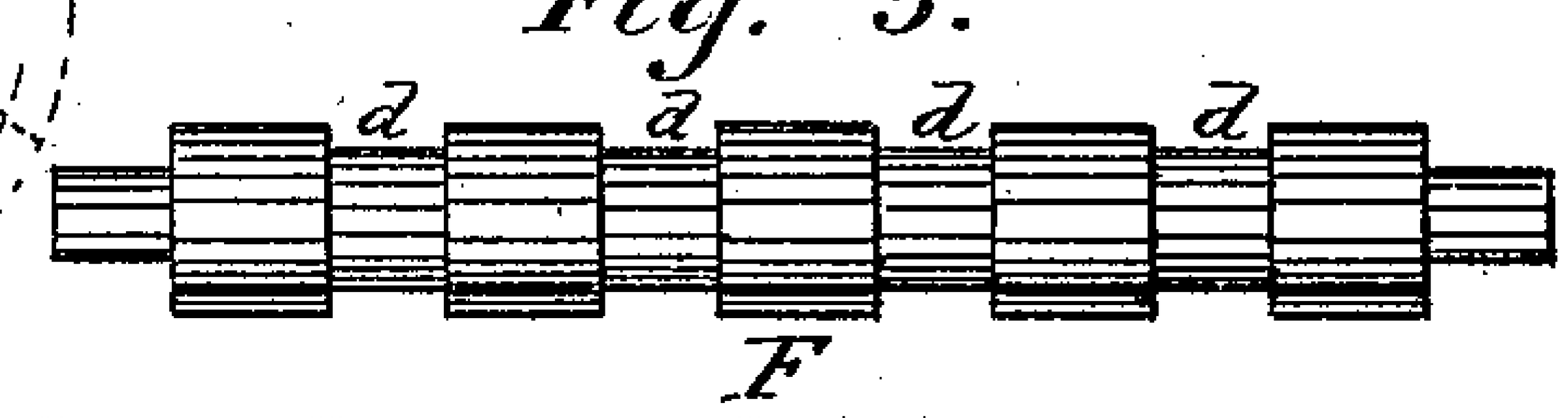
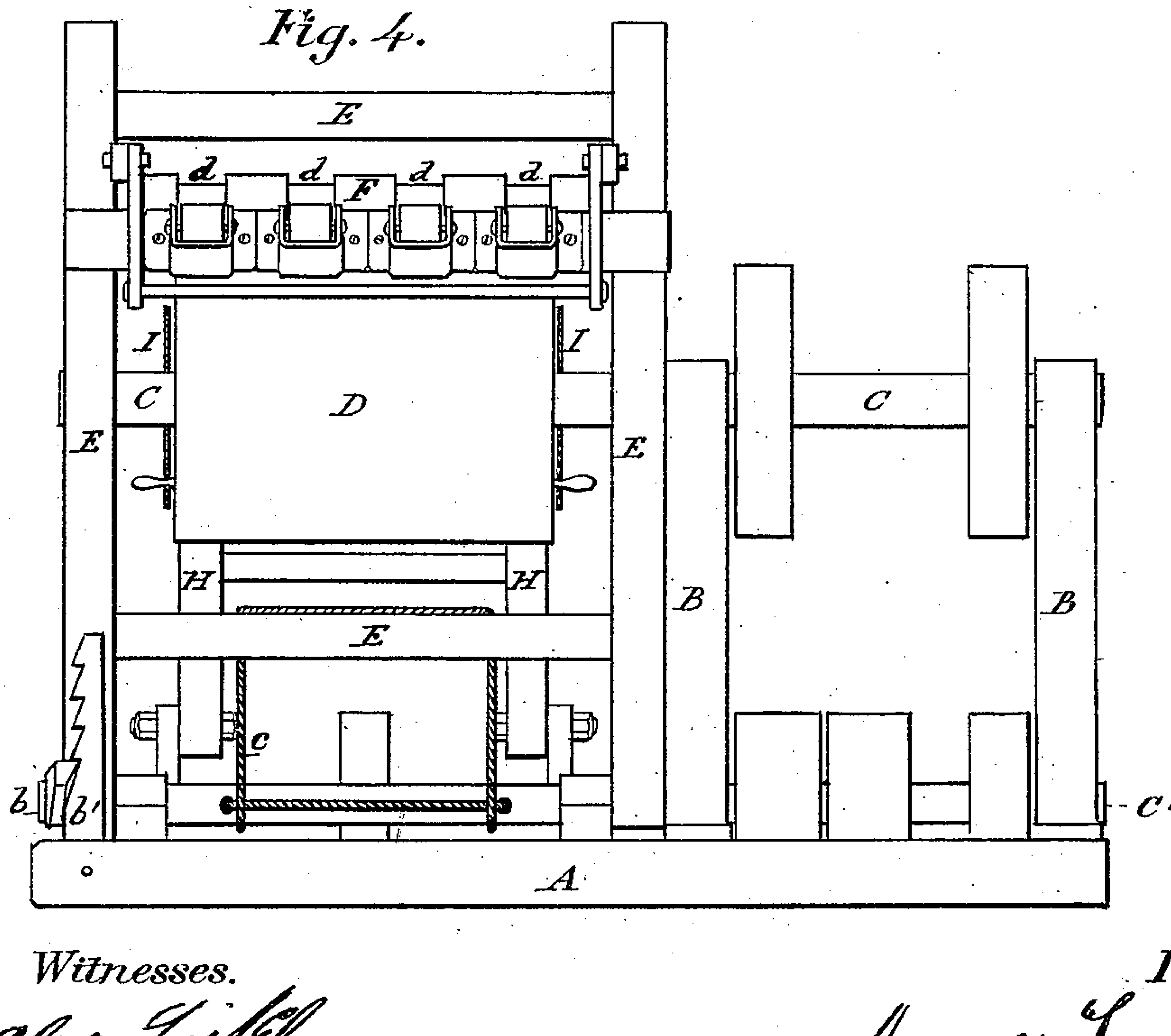


Fig. 4.



Witnesses.

Inventor

James Tomlinson.

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2 Sheets—Sheet 2.

J. TOMLINSON.

BARREL-MACHINES

No. 195,185. Patented Sept. 11, 1877.

Fig. 5.

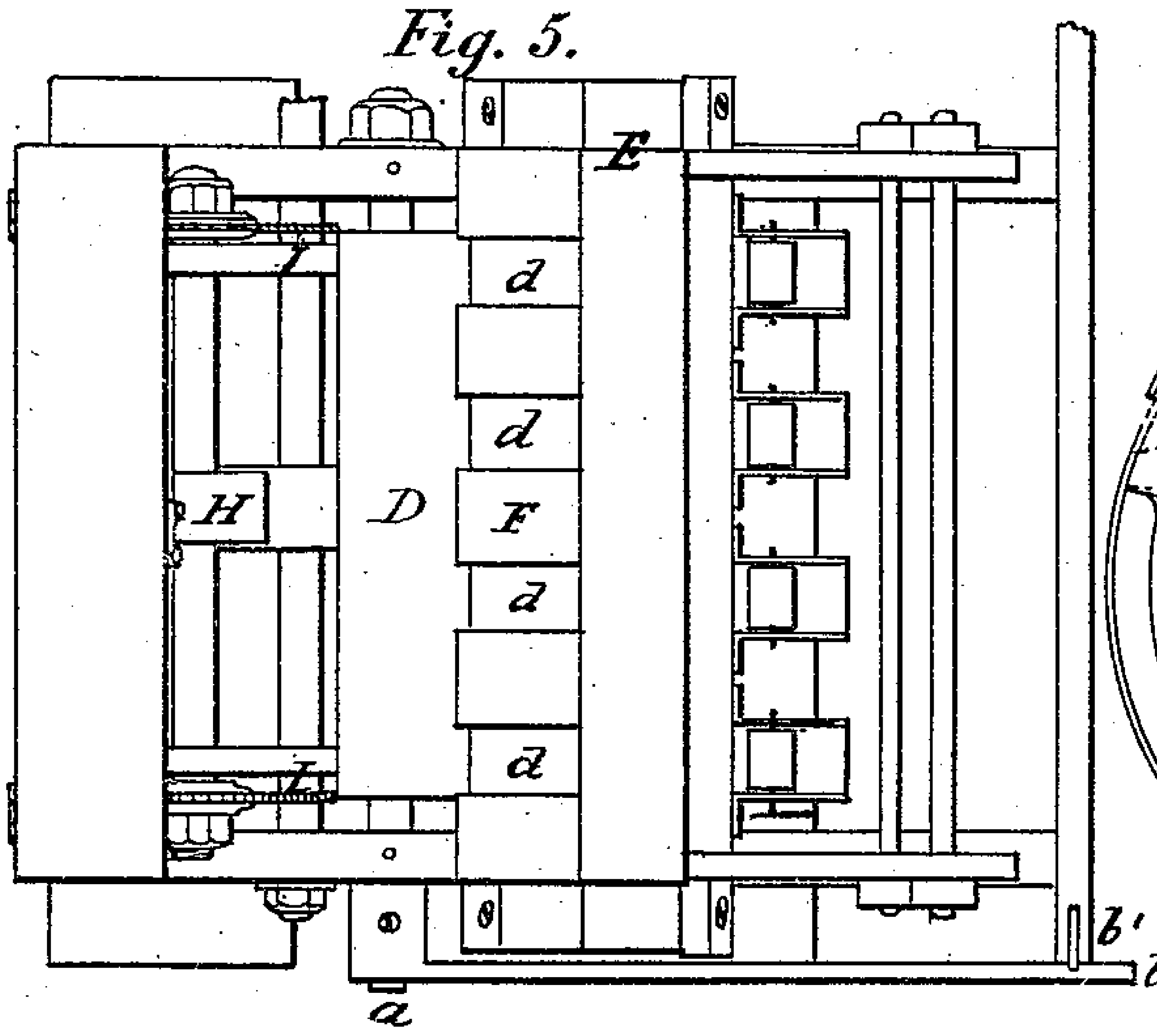


Fig. 6.

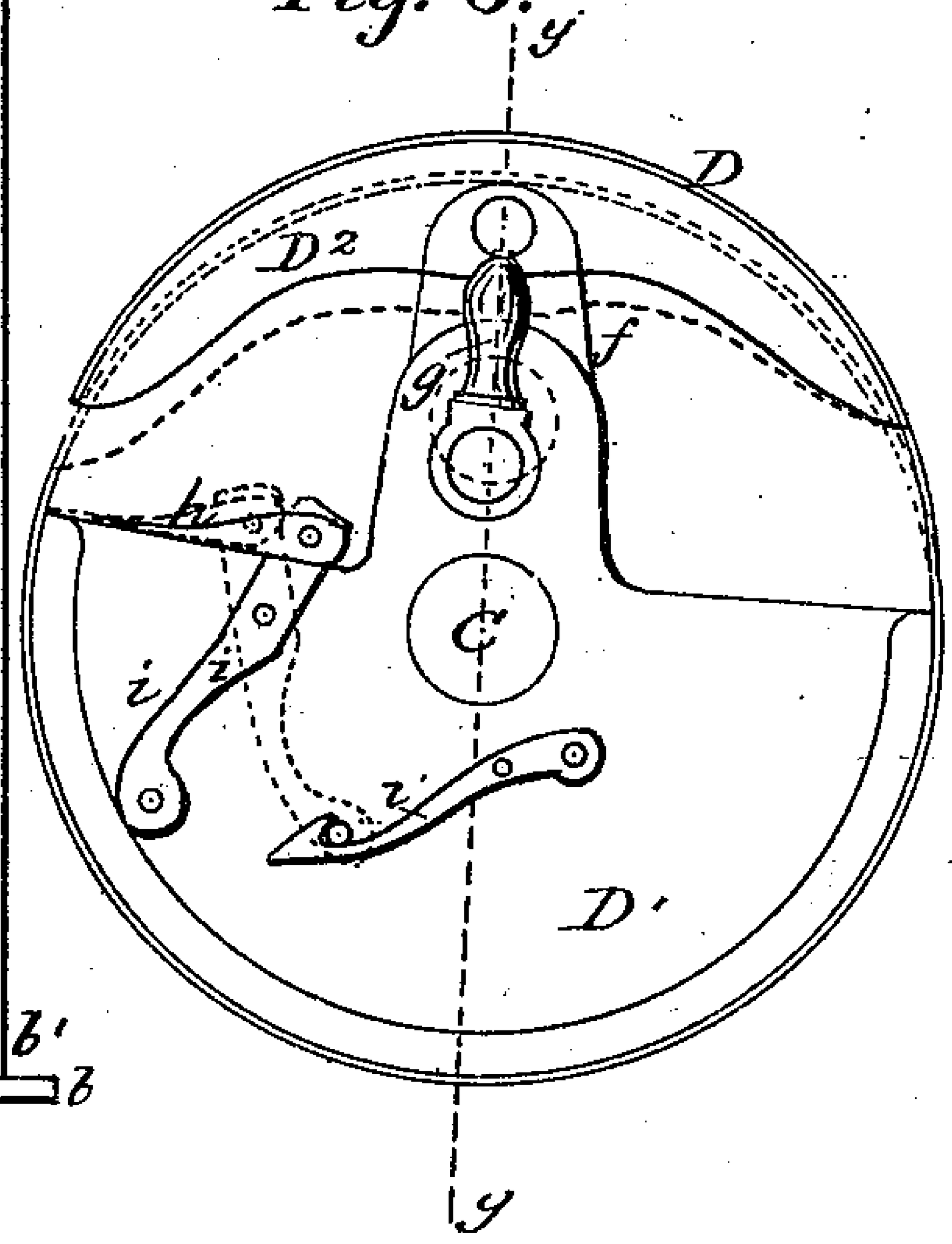
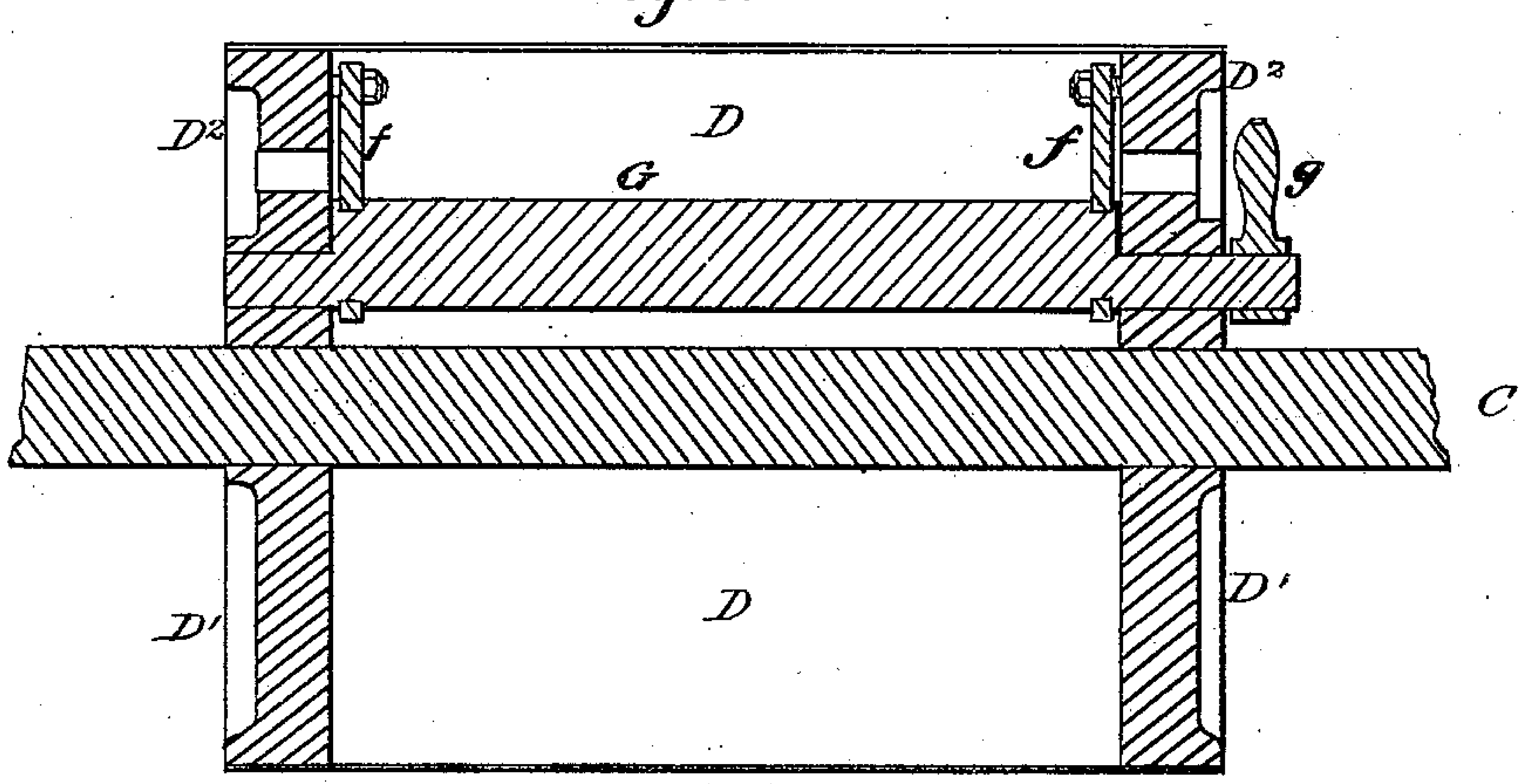


Fig. 7.



Witnesses.

[illegible]

[illegible]

Inventor.

James Tomlinson

UNITED STATES PATENT OFFICE.

JAMES TOMLINSON, OF GODERICH, ONTARIO, CANADA, ASSIGNOR OF ONE-HALF HIS RIGHT TO JAMES LORENZO GAGE, OF ROCHESTER, NEW YORK.

IMPROVEMENT IN BARREL-MACHINES.

Specification forming part of Letters Patent No. **195,185**, dated September 11, 1877; application filed August 24, 1877.

To all whom it may concern:

Be it known that I, JAMES TOMLINSON, of Goderich, in the county of Huron, and Province of Ontario, Canada, have invented an Improvement in a Machine for Making Barrels and other cylindrical packages, of which the following is a specification:

My invention has relation to the manufacture of that variety of barrels and similar packages wherein the cylindrical body is formed or built up of two layers of wood-veneers, so disposed as to cross the direction of their respective grains.

The object I have in view is to provide a single machine with which the body may be formed and held while the hoops are run on and fastened, and, also, by means of a pair of circular saws, to equalize the ends of the finished body. To this end, my invention consists, mainly, in a slotted sheet-metal cylinder or former, over which the body is formed and arranged to collapse, so as to permit the finished body to be withdrawn; also, in combination with a rotating collapsible former, a series of guides in a swinging frame, and a guiding press-roll journaled therein for directing the hoops upon the body, and to compress the whole upon the former until all the parts are firmly secured together; also, in combination with the said rotating former, a pair of circular cut-off saws, mounted on the ends of an arbor rotating in a vibrating frame, for equalizing the ends of the completed body; and in the general construction and arrangement of the various parts, as more fully hereinafter set forth.

Figure 1, Sheet 1, is an end elevation, with a portion of the head of the former broken away. Fig. 2 is an elevation of the clamp. Fig. 3 is a plan of the press-roll. Fig. 4 is a front elevation of the machine. Fig. 5, Sheet 2, is a plan view. Fig. 6 is an enlarged end elevation of the forming-drum. Fig. 7 is a longitudinal section of the same at *g g*, Fig. 6.

In the drawings, A represents the base of the machine, upon one end of which two standards, B B, are erected, and through which a shaft, C, is journaled, and provided with fast and loose pulleys, so as to be rotated by belts from a counter-shaft, C′, below.

D is a drum or cylinder, of sheet metal, mounted on heads D^1 D^1 mounted on the overhanging end of the shaft C. The drum D is longitudinally slotted or cut from end to end, and one edge or end is not secured to the heads, so that, being elastic, it can be sprung inwardly, or partially collapsed, (the corresponding parts of the heads being cut away for that purpose,) so as to permit of the withdrawal of the finished body.

E is a frame, whose foot is pivoted by a rock-shaft, *a*, to the spring-lever A′. A treadle, *b*, at the end of the rock-shaft, engaging with an adjacent ratchet, *b′*, serves, through a cord, *c*, attached to the said shaft and to a girt of the frame, to draw up the latter and secure it in a vertical plane.

A′ is a spring attached to the frame A, and serves, in connection with a ratchet, *b′*, spring-lever A′, cord *c*, and lever *b*, to hold the press-roll in a rigidly yielding condition while the veneers are being wound on the drum, and thereby allowing the roll to rise under pressure when and after the second layer of veneer is inserted.

The frame has a bracket at one end, which comes under and supports the overhanging end of the shaft C when the frame is swung into position.

F is a press-roll, journaled in the frame E, which is slotted where the rock-shaft *a* passes through it, to allow a limited vertical play of the roll as the work passes between it and the drum. This press-roll has a series of grooves, *d*, each of which receives a hoop and presses it to place on the barrel.

On a girt of the frame E a series of curved shoe-guides, *e*, is secured, one in line with each groove *d* in the press-roll. A roller, *e′*, is transversely pivoted in each shoe, and under it the hoop passes while being guided to the press-roll.

A folding press-bar, G′, is pivoted to a pair of brackets on the front side of the frame E, whose function is to bend down the veneer-sheet as it goes onto the drum.

The drum is normally expanded into a true cylinder, from which it would not be easy to remove the finished barrel-body. It is, therefore, made to collapse to permit the withdrawal of the body. The heads D^1 each inclose a little more than half the end, while nearly all the rest has fastened in it a crescent-shaped head, D^2, each of which is connected on the inside, by a link, *f*, with an eccentric, G, journaled in the heads D, and which eccentric-shaft may be rotated by an external lever, *g*, to throw out or retract the free part of the cylinder-body.

Just inside the stationary lip of the cylinder there is a clamp-bar, *h*, with an inwardly-turned arm at each end, that is pivoted to a lever, *i*, pivoted on the outside of each head D^1. By means of these levers the clamp-bar may be thrown forward to compress the edge of a sheet of veneer against the lip of the cylinder, where it is held by engaging the long arm of each lever with a spring-catch, *i'*.

H is a frame, whose foot is pivoted to the base behind the drum. On each end of an arbor, journaled through said frame, a circular saw, I, is mounted, and the arbor is arranged to be driven, when the saws are moved toward the drum, so as to cut off or equalize the projecting ends of the body.

The barrel is made in two layers or thicknesses of veneer. The inner one is a single sheet, disposed with the grain circumferential to the axis of the barrel, while the outer thickness may be in two or more sheets, whose grain runs parallel with the axis.

The *modus operandi* is as follows: The saw-frame is thrown back, as represented in dotted lines in Fig. 1. The press-roll frame is also thrown into the vertical position over the drum, whose clamp-bar is retracted. A sheet of veneer is then introduced in the slot of the drum and clamped fast. The drum is then rotated about one-quarter of a revolution, the sheet bending around closely as it passes under the press-roll. An outer stave is then laid on, and the drum rotated until it has passed behind the press-roll. A set of hoops, *k*, Fig. 1, are then laid in the guides and passed through the grooves in the press-roll and onto the second sheet, and nailed fast to both sheets, the ends of the nails being clinched on the iron drum. The drum is again rotated, and arrested when the edge of the stave is under the press-roll, when a second stave-sheet is introduced and laid against the edge of the first one, nailing each stave-sheet through the hoops and along the edges as it passes behind the press-roll.

This process is continued until the inner sheet is entirely covered by the outer thickness of the stave-sheet, when the ends of the hoops are overlapped and nailed through and through. The equalizing-saws are then brought into requisition to trim off the projecting ends of the body, which is rotated with the drum during the process. The end of the inner sheet is then unclamped and the press-roll frame retracted, as shown in dotted outline in Fig. 1. The eccentric-shaft is then rotated so as to partially collapse the drum, as shown in dotted outline in Fig. 6, when the body of the barrel may be withdrawn from the drum.

In order to secure the ends of the hoops and the edge of the first stave-sheet in position until the barrel is completed, a clamp-bar, J, Fig. 2, is dropped over them and hooked under the ends of the drum, where it is left until the free ends of the hoops are ready to be lapped and fastened.

With one man and two boys a barrel-body can be completed in every six minutes.

It is not essential to have the press-roll frame made to swing as described, as it is evident that said press-roll can be placed in a fixed support above the drum, and be pressed down by a superposed spring.

What I claim as my invention is—

1. A collapsible drum, substantially as described, in a barrel-machine, in combination with the rigidly-yielding grooved press-roll F, cord *c*, lever *b*, ratchet *b'*, and spring-lever A', for the purpose set forth.

2. In a barrel-forming machine, substantially as described, the combination of the press-roll and a series of hoop-guides with the collapsible rotary drum, substantially as set forth.

3. In a barrel-forming machine, substantially as described, the combination of the equalizing-saws and their swinging frame with the rotary collapsible drum, substantially as described.

4. In a barrel-machine, the clamp J, in combination with a collapsible forming-drum, substantially as described, for the purpose set forth.

JAMES TOMLINSON.

Witnesses:
ALIS FINKLE,
EDWD. A. RUEY.