

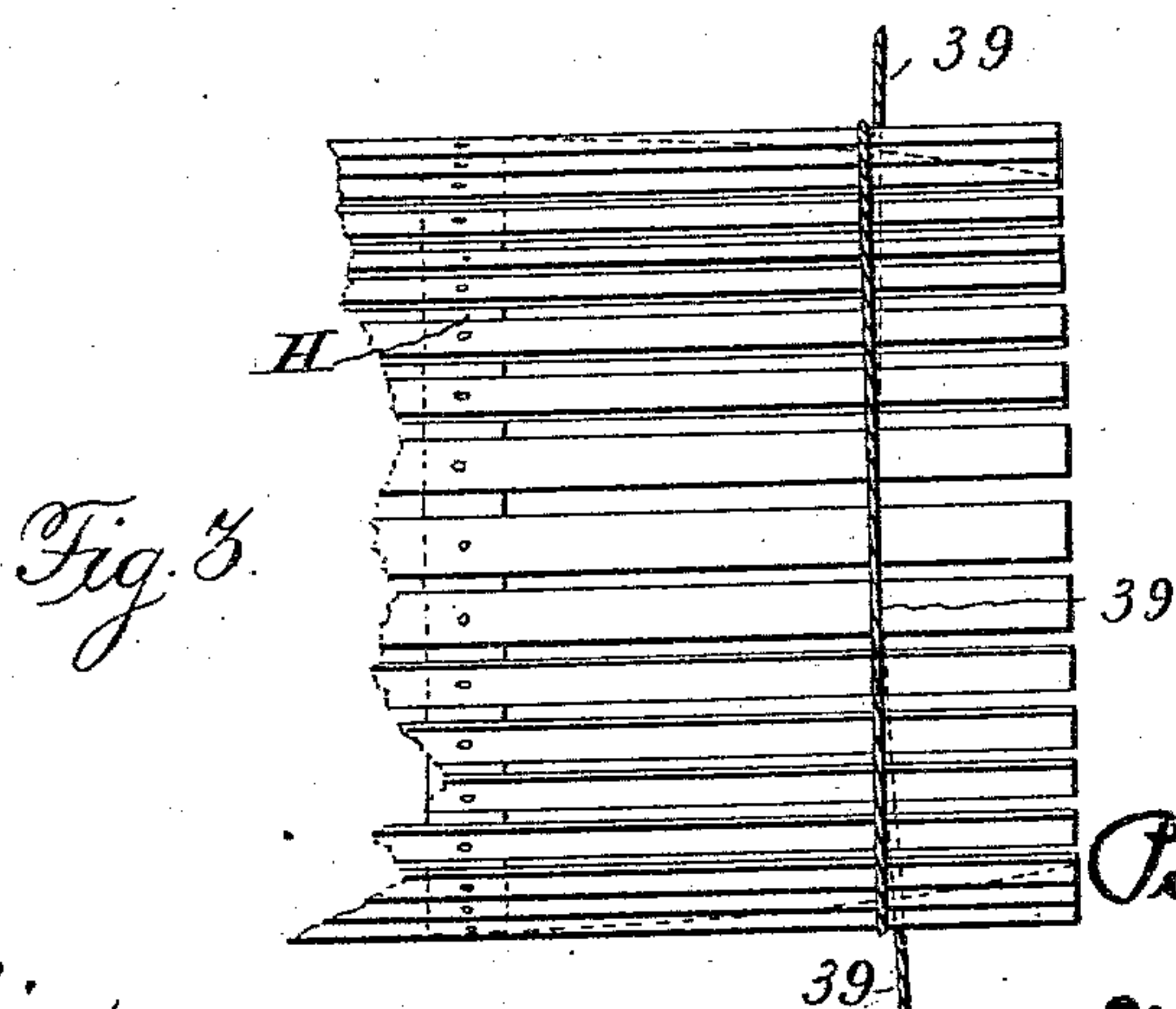
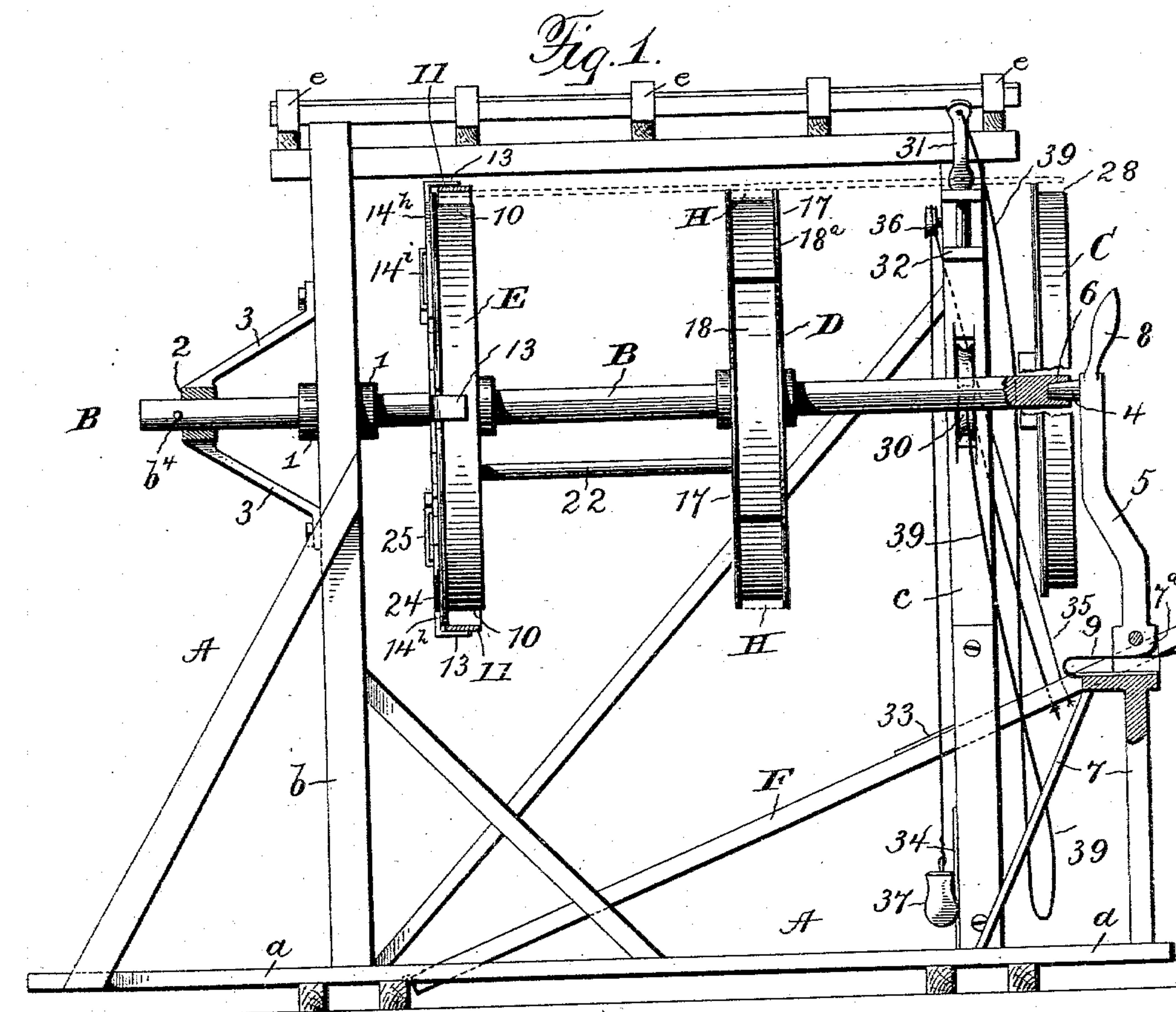
(No Model.)

3 Sheets—Sheet 1.

P. LITTLE.
BARREL MAKING MACHINE.

No. 559,859.

Patented May 12, 1896.



Witnesses

James Hutchinson.
G. F. Downing.

Inventor
Percy Little
By H. A. Seymour
Attorney

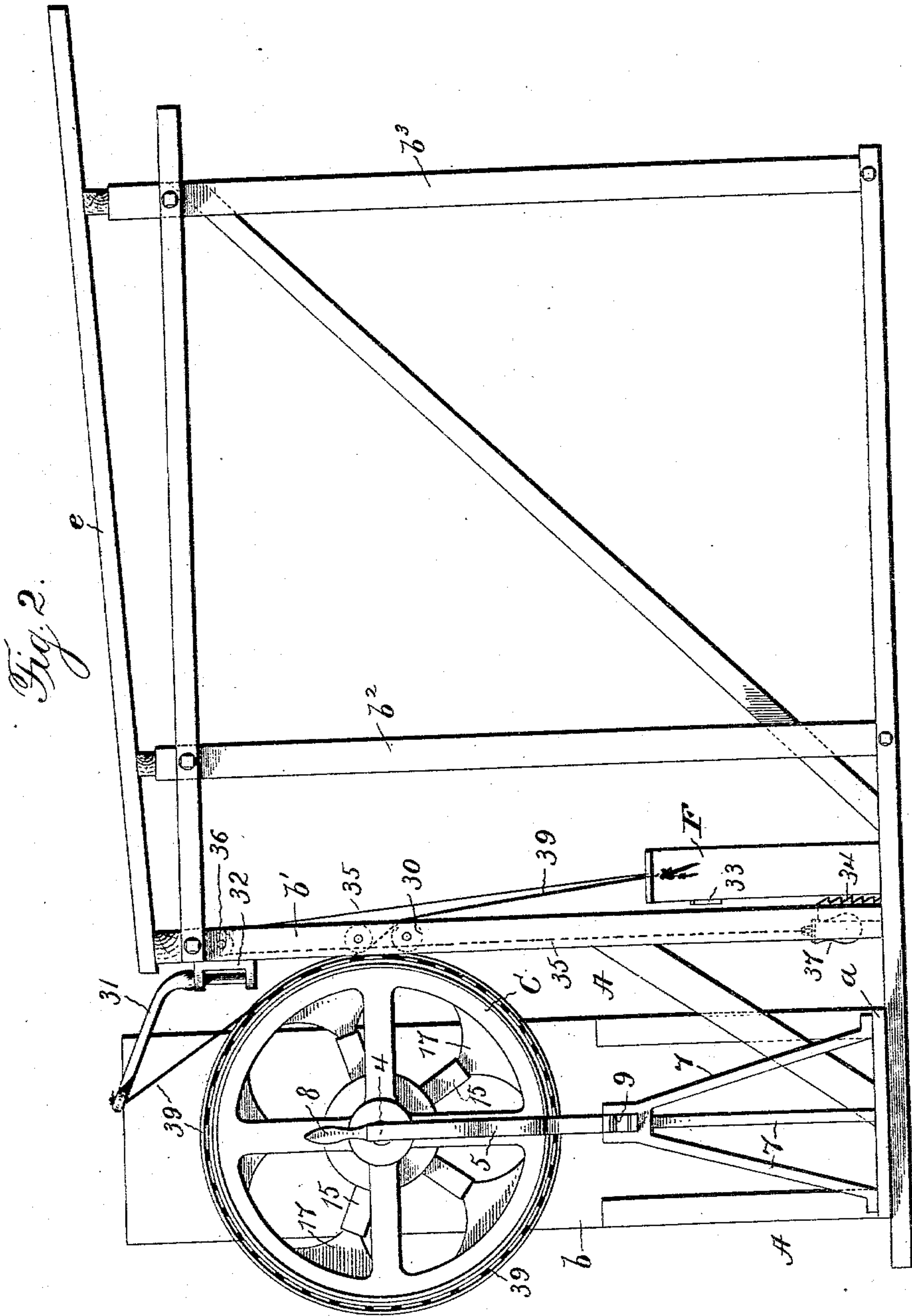
(No Model.)

3 Sheets—Sheet 2.

P. LITTLE.
BARREL MAKING MACHINE.

No. 559,859.

Patented May 12, 1896.



Witnesses
Jas. Hutchinson.
G. F. Downing.

Piercy Little
By H. A. Seymour
Inventor
Attorney

No. 559,859.

Patented May 12, 1896.



Witnesses
Jas E. Hutchinson.
G. F. Downing.

Inventor
Piercy Little
By H. A. Seymour
Attorney

UNITED STATES PATENT OFFICE.

PIERCY LITTLE, OF NORTHUMBERLAND, PENNSYLVANIA.

BARREL-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 559,859, dated May 12, 1896.

Application filed August 28, 1895. Serial No. 560,817. (No model.)

To all whom it may concern:

Be it known that I, PIERCY LITTLE, a resident of Northumberland, in the county of Northumberland and State of Pennsylvania, have invented certain new and useful Improvements in Barrel-Making 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.

My invention relates to an improvement in barrel-making machines, and more particularly to such as are adapted for use in the manufacture of ventilated barrels having a central inside hoop to maintain the bilge; and the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation, partly in section, of my improved machine. Fig. 2 is an end view. Figs. 3, 4, 5, 6, 7, and 8 are views illustrating details.

A represents a frame comprising a base *a*, uprights *b c*, secured to the base and suitably braced, and uprights *b' b² b³*, which constitute a support for a rack *e*, on which a supply of staves is placed.

To the upright *b* a journal box or bearing 1 is secured for the reception of a horizontally-disposed shaft B, which passes through said upright and projects some distance outwardly from the same, being mounted at a point in proximity to its free end in a journal box or bearing 2, located at the outer end of a bracket 3, secured to and projecting from the upright *b*. Longitudinal movement of the shaft B will be prevented by means of a pin *b⁴*, passed through it in close proximity to the journal-bearing 2. The shaft B and the devices (hereinafter described) carried by said shaft may thus be supported in a horizontal position temporarily, without a support at the other end of the shaft; but during the operation of securing the staves in position it is desirable that both ends of said shaft be supported and that the support at one end be removable. For this purpose I provide a conical stud or bearing 4, which projects from an arm 5 and enters a similarly-shaped socket 6 in the end of the shaft B. The arm 5 is piv-

otally connected to the upper end of a standard or tripod 7 and partly rounded at its lower end, as at 7^a, to permit it to be turned on its pivot whereby to allow the withdrawal of the stud or bearing 4 from the socket in the shaft B. To provide ready means whereby to manipulate the arm 5, it is provided with a handle 8, and said arm 5 is maintained normally in its vertical position during the operation of building a barrel by means of a spring 9, inserted between the lower end of said arm and the upper end of the standard 7.

On the shaft B two disks C E and an expandible and collapsible central segmental disk D are secured, said disks being normally of diameters increasing successively from wheel C to wheel E. The wheel C is secured at the inner end and the wheel E in proximity to the outer end of the shaft B. The wheel D is secured to the shaft centrally between the wheels C E, and is of a diameter, when expanded, about equal to the inside diameter of the barrel to be made, centrally between the ends thereof—viz., at the bilge.

The wheel E is provided near its periphery with an annular flange or shelf 10 for the reception of a set hoop 11, the function of which will be hereinafter explained. The periphery of the wheel E is notched, as at 12, for the accommodation of lugs or fingers 13, which project from arms 14, disposed parallel with the face of the wheel, and extend over the said set hoop 11.

Each arm 14 is made at its inner end with a hole for the reception of a pin 14^a, which projects from a mutilated gear or toothed plate 14^b, mounted on the shaft B in close proximity to the wheel or disk E. Four arms 14 are preferably provided, and they are all pivotally connected with the mutilated gear or toothed plate 14^b, in the manner above explained, at equidistant points. The arms 14 will be guided in their movements by pins 14^c, projecting from the wheel E through elongated slots 14^d in the arms, each pin 14^c preferably having a head 14^e to prevent lateral displacement of said arms. A toothed segment 14^f is mounted on a pin 14^g, projecting from the wheel E and meshes with the mutilated gear or toothed plate 14^b. The segment 14^f is provided with an operating-lever 14^h, which projects beyond the periphery of

the wheel E and between said wheel and a guide-plate 14ⁱ thereon, said guide-plate being made with teeth 14^j, to be engaged by a suitable dog 14^k, carried by said lever. From this construction and arrangement of parts it will be seen that the lever 14 is moved in one direction or the other to either grasp or release the set-hoop 11.

The disk or wheel D is provided with a series of socketed arms 15, (preferably five,) for the reception of the shanks 16 of a series of curved segments 17, which collectively form a circle, and each segment is made with a seat 18 (formed by flanges 18^a) for the reception of a central interior barrel-hoop, the depth of said seats being about equal to the thickness of the hoop. The segments 17 are expansible and will be moved inwardly and outwardly by means of devices which will now be described. A toothed plate or mutilated gear 19 is mounted on the shaft B coincident with the wheel or disk D and made with a series of five outwardly-curved slots 20. Into the slots 20 pins 21 on the shanks of the expansible segments of wheel D project, so that when said toothed plate or mutilated gear is turned the segments will be moved outwardly or inwardly. A shaft 22 is mounted at its respective ends in the wheels D E, and carries a toothed segment 23, adapted to mesh with and transmit motion to the toothed plate or mutilated gear 19. To the end of the shaft 22 nearest the wheel E an operating-lever 24 is secured and adapted to project beyond the periphery of said wheel D. The lever 24 passes between the wheel D and a guide-plate 25 thereon, and the guide-plate is provided with teeth 26, to be engaged by a dog 27 on the lever. It is apparent that when the lever 24 is moved the segments 15 of the wheel D will be caused to move outwardly or inwardly according to the direction of movement of the lever.

The wheel C is made near its periphery with a flange or seat 28 for the reception of a head-liner when it is desired to use the latter, and said wheel C is preferably about equal in diameter to the diameter of the head of the proposed barrel.

A treadle F is hinged to the framework, and to said treadle one end of a rope 39 is secured. From its connection with the treadle F the rope 39 passes upwardly over a pulley 30 in the front corner-post of the framework, then around the barrel near the head portion thereof, and then upwardly through an eye in the end of an arm 31, to which latter the rope is secured. The arm 31 is mounted to swing in a bracket 32, secured to the front corner-post of the framework, and when the rope is in use the free end of said arm terminates over the central portion of the barrel and about two inches therefrom. When in use, the ends of the rope extending from the barrel will be in line with each other, so as to prevent the barrel from twisting. When the rope is not in use, the arm 31 will be swung

around clear of the front end of the barrel out of the way when the slats or staves of the barrel are being fastened in place.

From this construction and arrangement of parts it will be seen that when the treadle is depressed the rope will be tightened on the barrel and made to compress the staves thereof, or, in other words, to collapse the end of the barrel without danger of twisting it. When the treadle shall have been depressed, it can be locked in such position by the engagement of a plate or projection 33 with a toothed rack 34, secured to the framework. To return the treadle to its normal position, so that the rope-compressor will be ready to be applied to a barrel when needed, a rope or cord 35 is secured at one end to said treadle, passed over a pulley 36, mounted on the front part of the framework, and provided at its lower extremity with a weight 37.

The operation of making a barrel on my improved machine is as follows: A set hoop 11, the inside diameter of which is as large as the greatest outside diameter of the barrel at the quarter-hoop place, is passed over the wheels C D and placed around the seat or shelf 10 of wheel E and the lever 14^h operated to cause the fingers on the arms 14 to engage said hoop 11. An inside central hoop II of a barrel is then placed on the expanding segment of wheel D and the lever 24 operated to cause the segment to move outwardly and engage the hoop between the flanges 18^a and hold the hoop in place. The slats G are then placed in position, one after another, with their inner ends inserted between the set hoop 11 and the seat or flange 10, said slats being so placed as to leave the desired ventilating-space between them. The slats are nailed to the inside central hoop II and the nails clenched by engagement with the seat 18 of the metal segment of disk D. The operator can stand in one place during the placing of the slats or staves in position, as the shaft and wheels thereon can be readily turned so as to bring all parts of the inside hoop before him. When all the staves shall have been secured in position, the operator will throw back the arm 5, thereby withdrawing the cone-shaped stud *d* from its recess in the end of the shaft B, when the outer end of the barrel will be unobstructed. The rope-compressor will now be applied to the barrel and the treadle depressed to compress or collapse the end of the barrel. At the same time the operator will hold the head of the barrel against the face of the wheel C by means of a suitable tool I, Fig. 8, and as the ends of the staves are drawn together by the operation of the windlass the periphery of the head will enter the croze in the staves or slats. The treadle F will now be locked in its depressed position in the manner above explained and a hoop or hoops placed on the end of the barrel, after which the treadle will be unlocked, the rope-compressor or windlass taken off, the lever 24 operated to withdraw the ex-

panding segments of the wheel D, and the lever 14^h operated to release the set hoop 11. The barrel will now be removed from the machine, bringing with it the set hoop 11, which
5 will now be driven down to the quarter-place and the end hoops put on, thus completing the barrel. If the staves are not crozed and a head-liner is used, the latter will be placed on the wheel C and the staves drawn down
10 to it by means of the compressor and nailed to said liner and the head dropped in from the other end after the barrel shall have been taken from the machine.

My improvements are very simple in construction, easy to manipulate, and effectual in all respects in the performance of their functions.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope, and hence I do not wish to limit myself to the precise details of construction herein set forth; but,

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a barrel-forming machine the combination with a shaft and a series of wheels thereon to receive and form the barrel, of a rope-compressor encircling one end of the unfinished barrel and consisting of a single rope adapted to be made to pass about the barrel and extend therefrom in opposite directions, a pulley on the framework over which said
30 rope passes, a treadle to which one end of the rope passes, and a swinging arm to which the other end of the rope is secured, said arm swinging in a plane at an angle to the plane occupied by the rope substantially as set forth.

2. In a barrel-forming machine, the combination with a standard, a shaft mounted therein, and forming wheels on said shaft, of a rope-compressor consisting of a single rope adapted to be passed, between its ends, about the unfinished barrel and extend therefrom in opposite directions, the portions of the rope extending from the barrel being in line with each other whereby to prevent the twisting of the barrel when the device is operated to compress the same, a pulley in corner-post of the framework, over which the rope passes, a swinging arm in proximity to and above the barrel to which one end of rope is secured, said arm swinging in a plane at an angle to the plane occupied by the rope and a treadle
55 to which one end of the rope is secured, substantially as set forth.

3. In a barrel-forming machine, the combination with a frame and a shaft mounted therein, of a series of wheels on said shaft, a series of expansible segments carried by the central wheel, a toothed plate mounted on the shaft coincident with said central wheel and having a series of curved slots, pins projecting from the shanks of the expansible segments and into said slots a shaft mounted in said central wheel and one of the end wheels, a toothed segment at one end of said shaft meshing with said toothed plate and an operating-lever secured to the other end of said
70 shaft, substantially as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

PIERCY LITTLE.

Witnesses:

J. H. ROCKEFELLER,
L. F. NEFF.