

(No Model.)

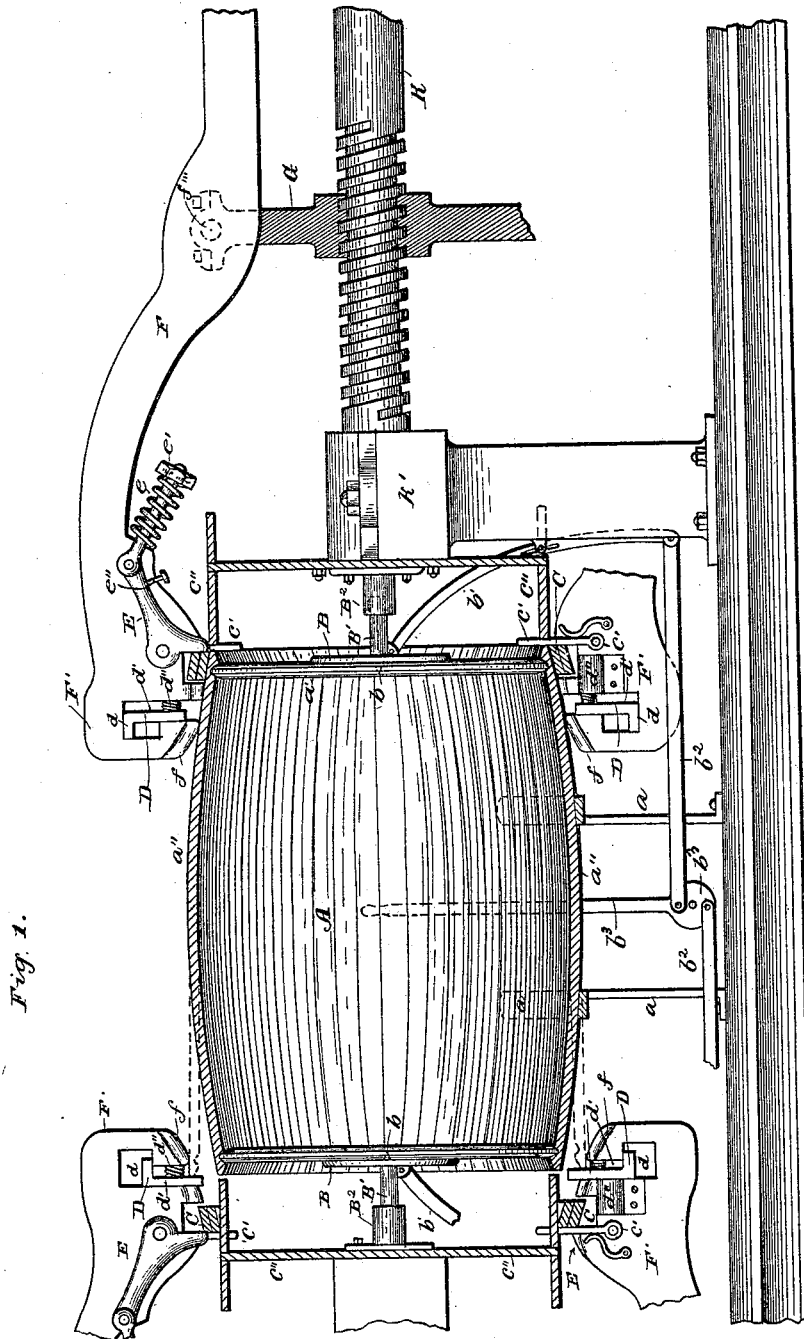
4 Sheets—Sheet 1.

J. PLEUKHARP.

MACHINE FOR FORMING AND HOOPING BARRELS.

No. 454,764.

Patented June 23, 1891.



ATTEST.
Victor J. Evans.
Van Buren Hillyard.

INVENTOR.
James Pleukharp..
By *R. V. A. Gaen*
his Attys.

(No Model.)

4 Sheets—Sheet 2.

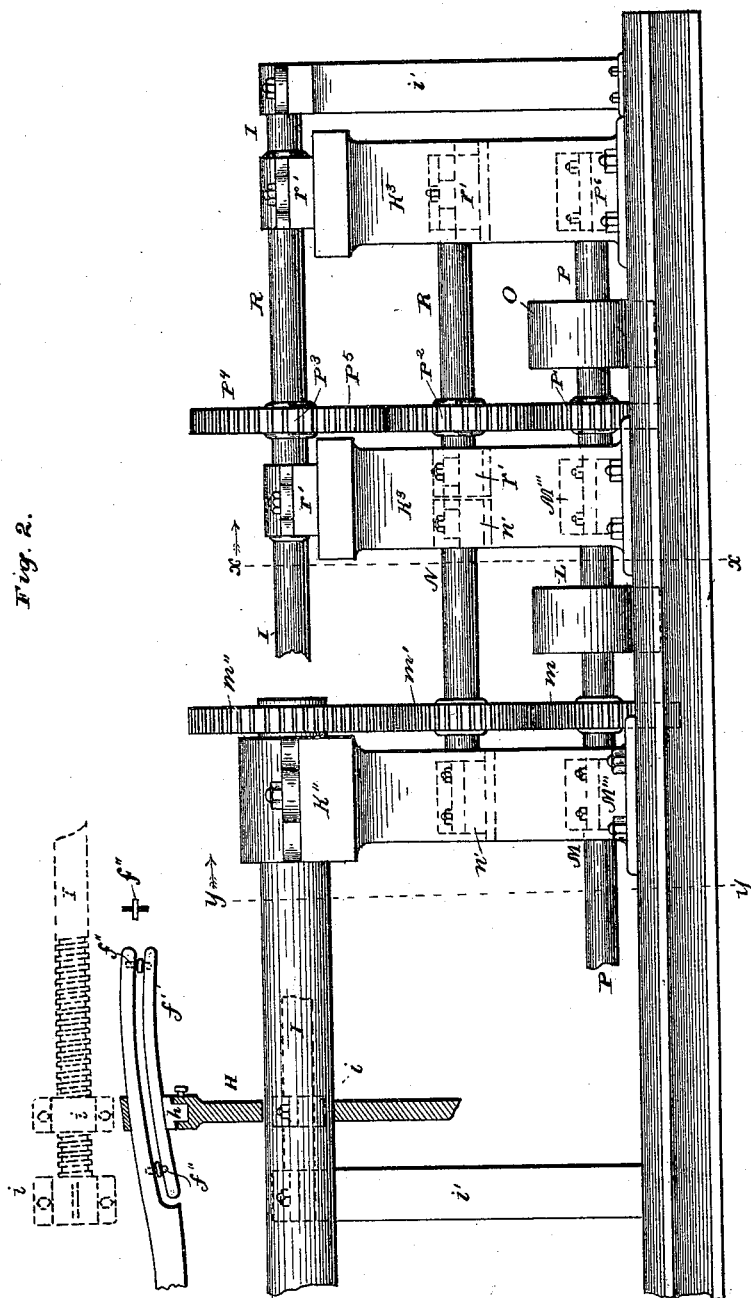
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Fig. 2.



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Fig. 3.

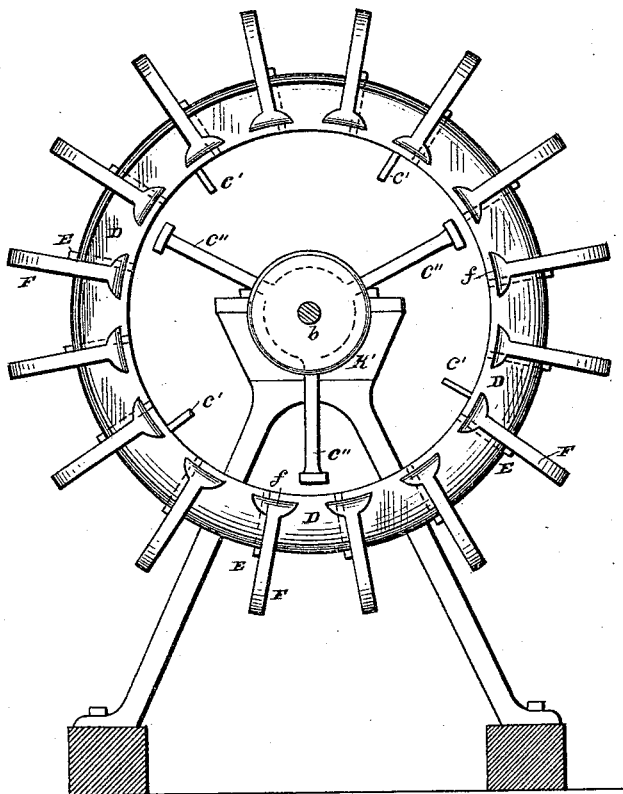


Fig. 4.

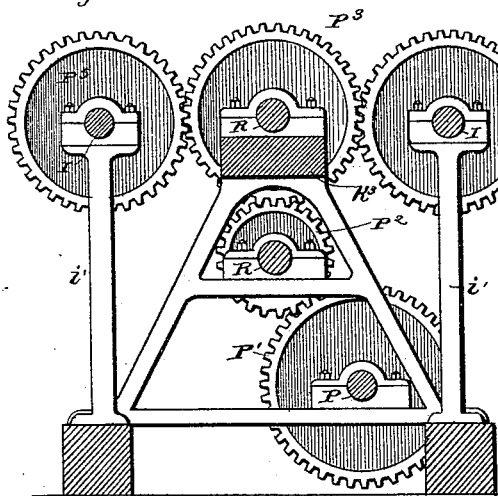
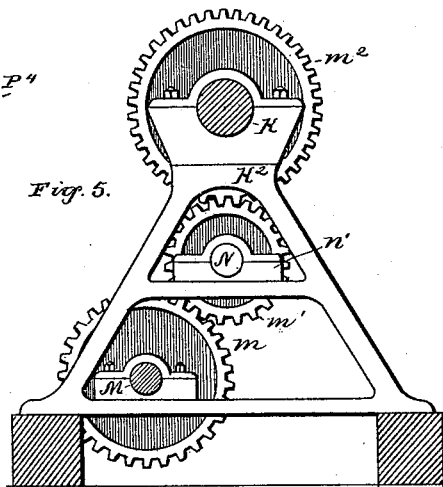


Fig. 5.



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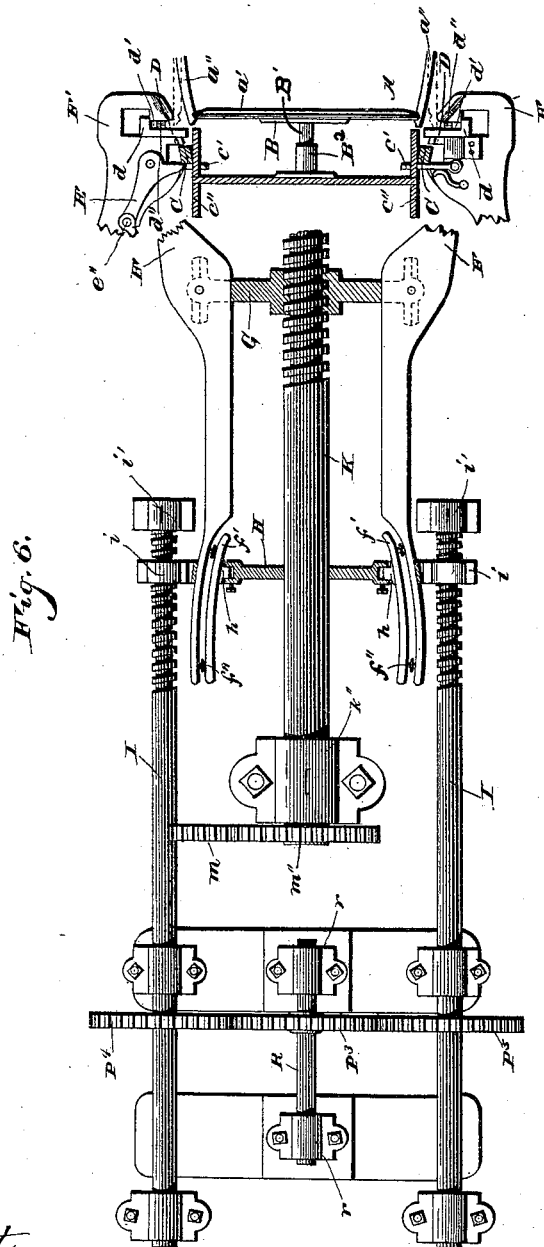
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UNITED STATES PATENT OFFICE.

JAMES PLEUKHARP, OF COLUMBUS, OHIO.

MACHINE FOR FORMING AND HOOPING BARRELS.

SPECIFICATION forming part of Letters Patent No. 454,764, dated June 23, 1891.

Application filed February 10, 1890. Serial No. 339,869. (No model.)

To all whom it may concern:

Be it known that I, JAMES PLEUKHARP, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Machines for Forming and Hooping Barrels; 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.

This invention relates to a machine for hooping and forming barrels, and has for its object the provision of a machine that will head, form, and hoop barrels in a simple, efficient, and convenient manner.

A further object of the invention is to provide a machine for making barrels of the following description: Staves of sawed lumber, a definite number to each barrel, says sixteen; staves planed straight on inside and crozed and chamfered; staves turned shape of barrel on outside by my machine (see Patent No. 415,558); staves all of equal length, width, and thickness, heads also of equal size. Thus the barrels will be all of a definite size and will hold equal measurement.

The machine consists, essentially, in a series of concentric jaws, and these jaws are provided with hoop carriers and drivers. There is a set of these jaws for each end of the barrel, one for each end of each stave. These jaws are furnished with long lever-arms that are pivoted on movable disks which are operated by a screw-shaft. These lever-jaws are made to swing on their pivots by means of a sliding disk (also operated by screw-shafts) in connection with the outer ends of the lever-arms.

The improvement further consists of the novel features which will be hereinafter more fully described and claimed, and which are shown in the annexed drawings, in which—

Figure 1 is a side view, partly in section and parts being broken away, of one end of a machine embodying my invention. Fig. 2 is a view similar to Fig. 1 of the other end of the machine, showing by dotted lines the relative arrangement of the side shafts for moving the plate which operates the outer ends of the lever-arms of the jaws. Fig. 3 is an end view of the jaws, showing the relative arrangement of the ring for springing

the ends of the barrel and the hoop-support. Fig. 4 is a section on the line X X of Fig. 2, looking to the left. Fig. 5 is a section on the line Y Y of Fig. 2, looking to the right. Fig. 6 is a plan view, partly in section and parts broken away, of one end of the machine, showing the relative arrangement of the parts and the instrumentalities for operating the disk and plate which control the movements of the lever-arms.

A is the barrel in cross-section. *a* is a temporary rest for barrel.

a'' is a single stave. Staves are formed into a cylinder and secured temporarily previous to operations of this machine.

a' is a barrel-head.

B is a sliding head-plate, having shank *B'* which works in the socket *B²*, secured to the frame of the machine.

b is a screw at center of plate B for holding head *a'* thereto.

b' *b²* *b³* are levers and eccentric for throwing head-plate out of way when barrel is finished.

C represents hoops.

c' represents fingers for drawing hoops off the carrier-arms.

c'' are carrier-arms rigidly secured to machine-frame.

D is a flanged ring, and *d* a flange thereon. This ring serves to square the barrel. (See left-hand side of Fig. 1.) Its relation to jaws is controlled by flange *d*.

d' is a slot in jaws *F'* in which ring works.

d'' is a spring to relieve the machine of any sudden jar in the squaring up of the barrel.

E is a self-adjusting hoop-driver.

e is a tension-spring for controlling same hoop-driver.

e' is a nut for fixing number of pounds tension or pressure to be applied on spring for driving hoop.

e'' is a regulating-screw for limiting the inward movement of the outer end of the hoop-driver.

F are the lever-arms of the jaw.

f is a shoe on the end of each jaw *F'* to force down the stave upon head *a'*.

f' is an adjustable slide at the rear end of the lever-arm.

f'' is a double-threaded screw for controlling adjustable slide *f'*.

f''' is a pivot of arm F.

h is a rubber cushion or packing to take shock in stopping and remove any strain on the levers *F* which might be caused by over-pressure. If in forming the barrel the operator should allow the disk *H* to run too far, a strain would be caused upon the levers which is obviated by the yielding nature of the packing *h*.

G is a movable disk carrying the lever-jaws threaded for screw-shaft.

H are sliding plate-rests and slides on central screw-shaft *K*.

I are side screw-shafts horizontal and parallel with central screw-shaft and on same plane with it.

i is a box-nut working on shaft *I* and connected rigidly with the sliding plate *H*.

i' are standards supporting shaft *I*. There are two of these side shafts *I*, one on each side of the machine, as shown in Fig. 6.

K is a central screw-shaft carrying the movable disk *G*, lever-jaws *F*, &c.

k' *k''* are standards supporting the central screw-shaft *K*.

L is a drive-pulley receiving its motion from any suitable source of power.

M is a shaft carrying drive-pulley *L*, runs the entire length of the machine, and is provided at each end (only one end being shown) with a gear-wheel *m*, which meshes with idler *m'*, which meshes with gear-wheel *m''* on the screw-shafts *K*.

N is a small or rather short shaft carrying idler *m'*.

n' are boxes for idler-shaft *N*.

M''' are boxes carrying the long shaft *M*.

O is a drive-pulley operated by any motive-power similarly to drive-pulley *L*.

P is a shaft, running the entire length of the machine, carrying the drive-pulley *O*, and provided at each end of the machine with the gear-wheels *P'*, which mesh with idlers *P''*, and these with other idlers *P'''*, and these with gear-wheels *P''''* upon the side screw-shafts *I*.

P'' are boxes carrying the long shaft *P*.

R are idler-shafts, with their boxes *r'*. The left hand of Fig. 1 shows full view of inner end of one arm, with cross-sections of disks, &c. The jaw is here closed and one hoop just on barrel.

Fig. 2 shows rear end of one arm and cross-section of operating-plate, and the relative arrangement of the side screw-shaft by dotted lines. The main screw-shaft, &c., are also shown running back, all as a side view, to the gearing mechanism running the screw-shafts.

Operation of machine: Jaws open and back to farthest extremity. (See left-hand side of Fig. 1.) Hoops, three or more, are placed on the carrier-arms *c''* at each end. Heads are fixed upon the head-plates *B* by means of the small screws *b*, (each end of the machine.) The staves which have already been set up into a cylindrical form on another machine are now placed upon the temporary rest *aa*. By means of the mechanism described the center shafts

(at each end of machine) are revolved, carrying the disks *G* forward, and with them the lever-jaws, until the rings *D* are brought into contact with the ends of the staves, squaring the barrel, as shown in Fig. 1, on the left-hand side. This movement is then stopped and the surplus of power is taken up by the springs *d''*. During this movement the fingers *c'* keep the hoops in their proper relation to the jaws and hoop-drivers. By means of the mechanism described the shafts *I* are revolved, (at each end of the machine,) carrying the sliding-plates *H* forward, thus causing the lever-jaws to turn upon their pivots and forcing the jaws inward, and thus pressing the staves down upon the heads and barrel shape. This movement is now stopped and the forward movement of the disk *G*, with its arms, is resumed. The nose or shoe *f* slides up the face of the stave and the hoops are carried to and dropped their proper places by the hoop-driver *E*. This movement of the shoe *f* up the incline or bilge of the barrel is provided for by means of the adjustable slide *f'* (which has the reverse of the form outside of the stave) sliding over the now stationary head. The hoop-drivers are provided with the tension-springs *e*, (which are regulated by the nuts *e'*), by which a given number of pounds pressure may be used in the forcing of each hoop. When a pressure equal to the amount fixed is reached, the hoop-drivers turn upon their pivots and the hoop is dropped. The driver passes or drags over it, carrying the next one to its place, &c. The barrel is now complete and is taken out, leaving the machine ready for the next. The mechanism operating the side screw-shafts is first reversed, carrying the disk *H* backward and opening the jaws. Then the mechanism operating the central screw-shaft is next reversed, carrying the disk *G* and the jaws with it backward until the jaws have entirely cleared the barrel. By means of the eccentric and lever mechanism described the head-plates *B* are thrown back out of the way. The barrel may now be removed, finished complete, the head-plates thrown forward again, and all is ready for another barrel.

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

1. In a barrel-making machine, the combination, with the threaded shaft *K*, the disk *G*, mounted on the shaft *K*, means for rotating the shaft *K* to move the disk *G* thereon, the plate *H*, and the feed-screws *I* for moving the plate *H* to and from the disk *G*, of the levers *F* for compressing the staves and driving the hoops mounted on and covered by the disk *G* and having engagement at their outer ends with the plate *H* to be positively moved to and from the said shaft *K*, substantially as described, for the purpose specified.

2. The hereinbefore-specified barrel forming and hooping machine, comprising sliding disks at each end thereof, a series of jaw-le-

vers, one for each stave, carried by said disks, sliding plates for controlling the outer ends of the levers, sliding head-plates for carrying the barrel-heads, supports for the hoops, hoop-drivers carried by the said levers, a ring supported by the ends of the said levers and adapted to square the ends of the barrel, and mechanism for operating the several parts, substantially as described.

10 3. In a barrel-making machine, the combination, with the support G and the levers F, mounted on the said support G and adapted to tilt thereon, of the sliding plate H, having engagement with the levers F, and the slides
15 f' , adjustably connected with the levers F to control the movement of the levers on their pivot, substantially as described, for the purpose specified.

20 4. In a barrel-making machine, the combination, with the disk G and the levers E, mounted thereon, of the plate H, adapted to engage with the ends of the levers F, and the packing h , substantially as and for the purpose set forth.

25 5. In a barrel-making machine, the combination of the levers F, arranged in a circle

and having their heads recessed, provisions for moving the levers F longitudinally and about their pivotal support, the ring D, inserted in the recesses in the heads of the said levers F and having the lateral flange d , which extends into an enlarged portion of the said recess, the springs d^2 between a side of the recess in the heads and the ring D, the hoop-support c'' , the fingers c' for drawing the hoops from the support c'' , and the self-adjusting hoop-drivers E, pivotally connected with the said levers F, substantially as set forth.

6. In a barrel-machine, the combination, with sliding disk G, levers F, carried thereby, and the plate H, of the side screws I, passing through box-nuts provided on plate H and having gear-wheels $D^4 D^5$, and gearing for operating said screw I from a counter-shaft, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES PLEUKHARP.

Witnesses:

BARTON GRIFFITH,
FRANK GANNING.