

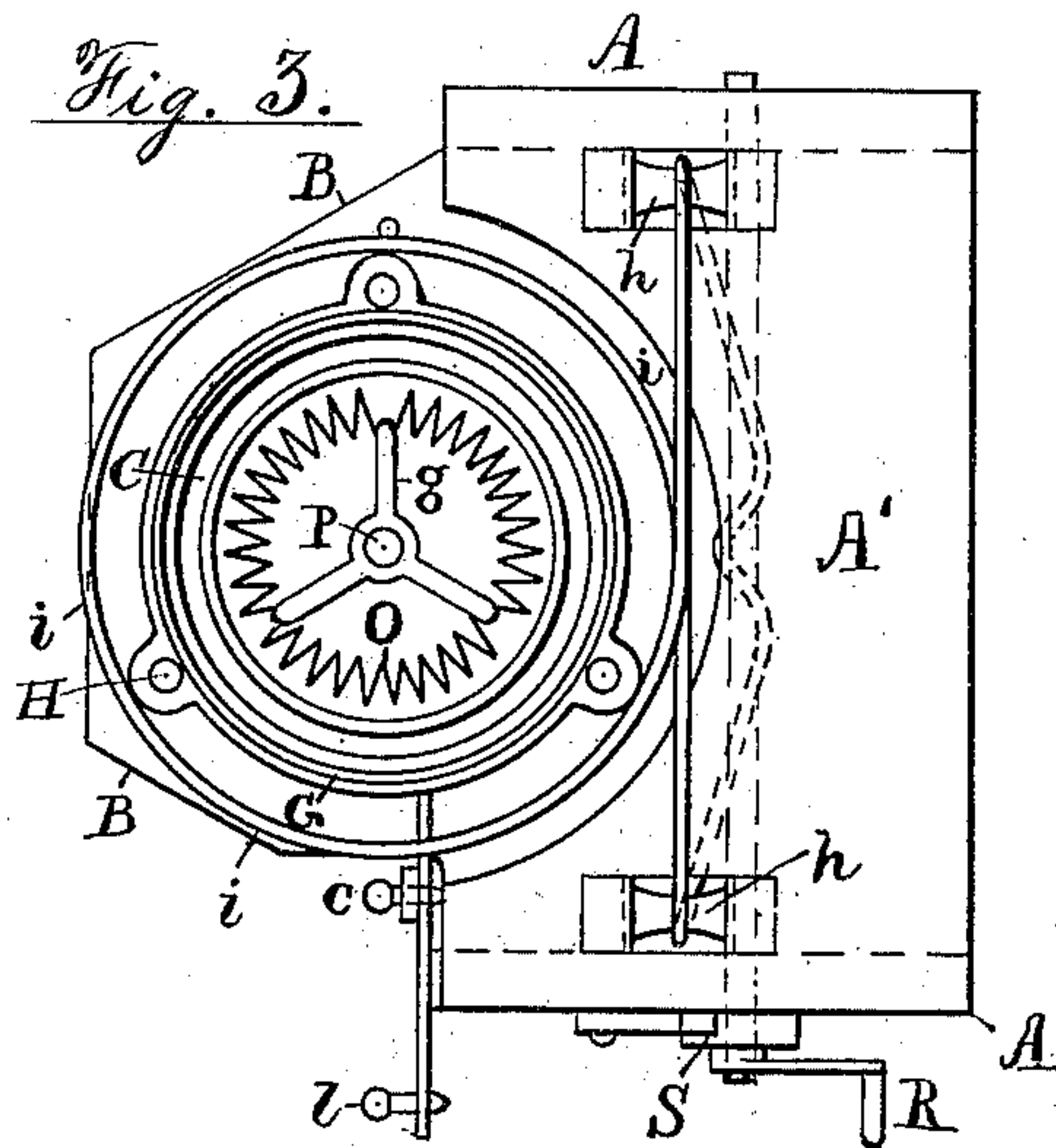
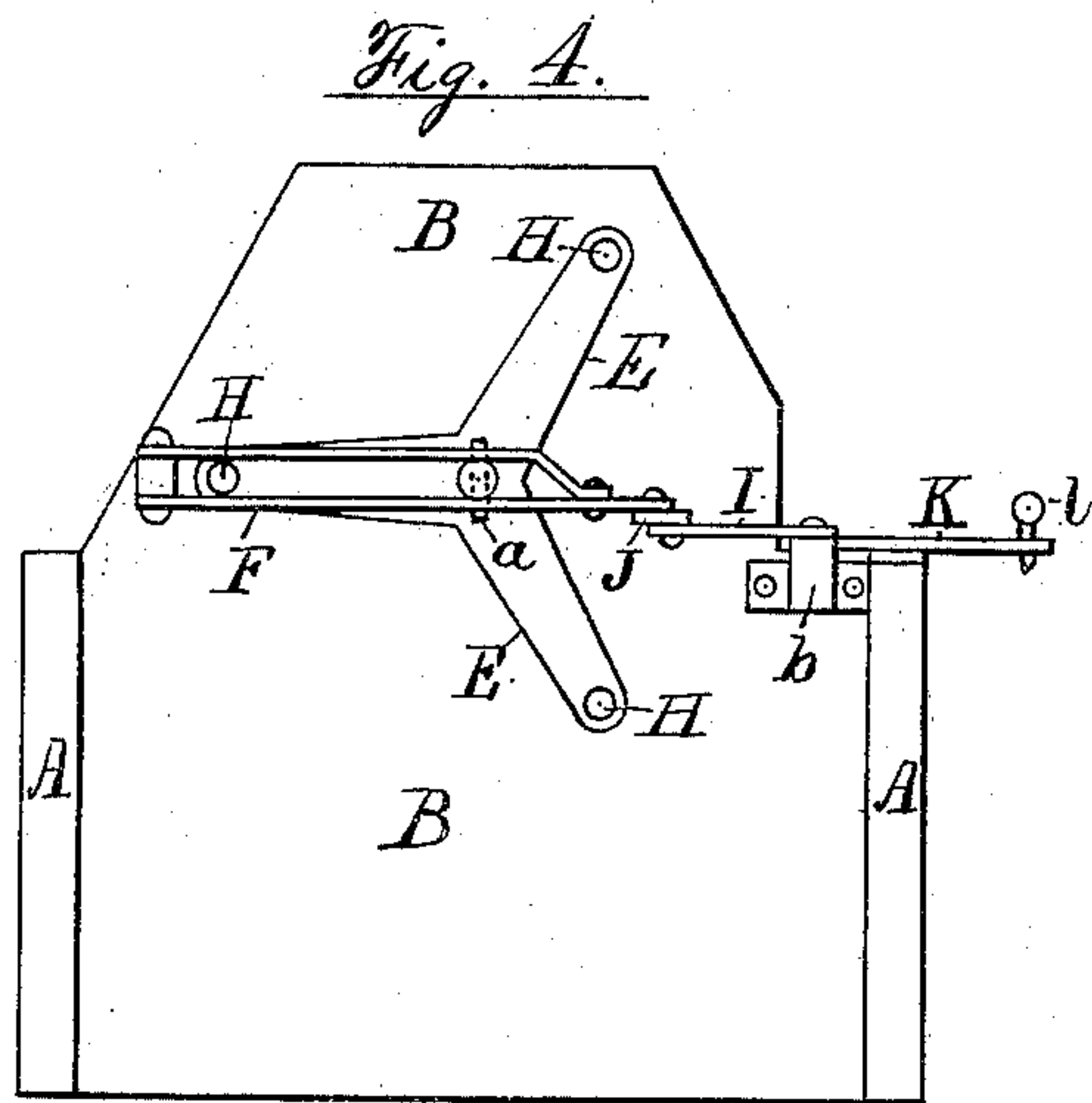
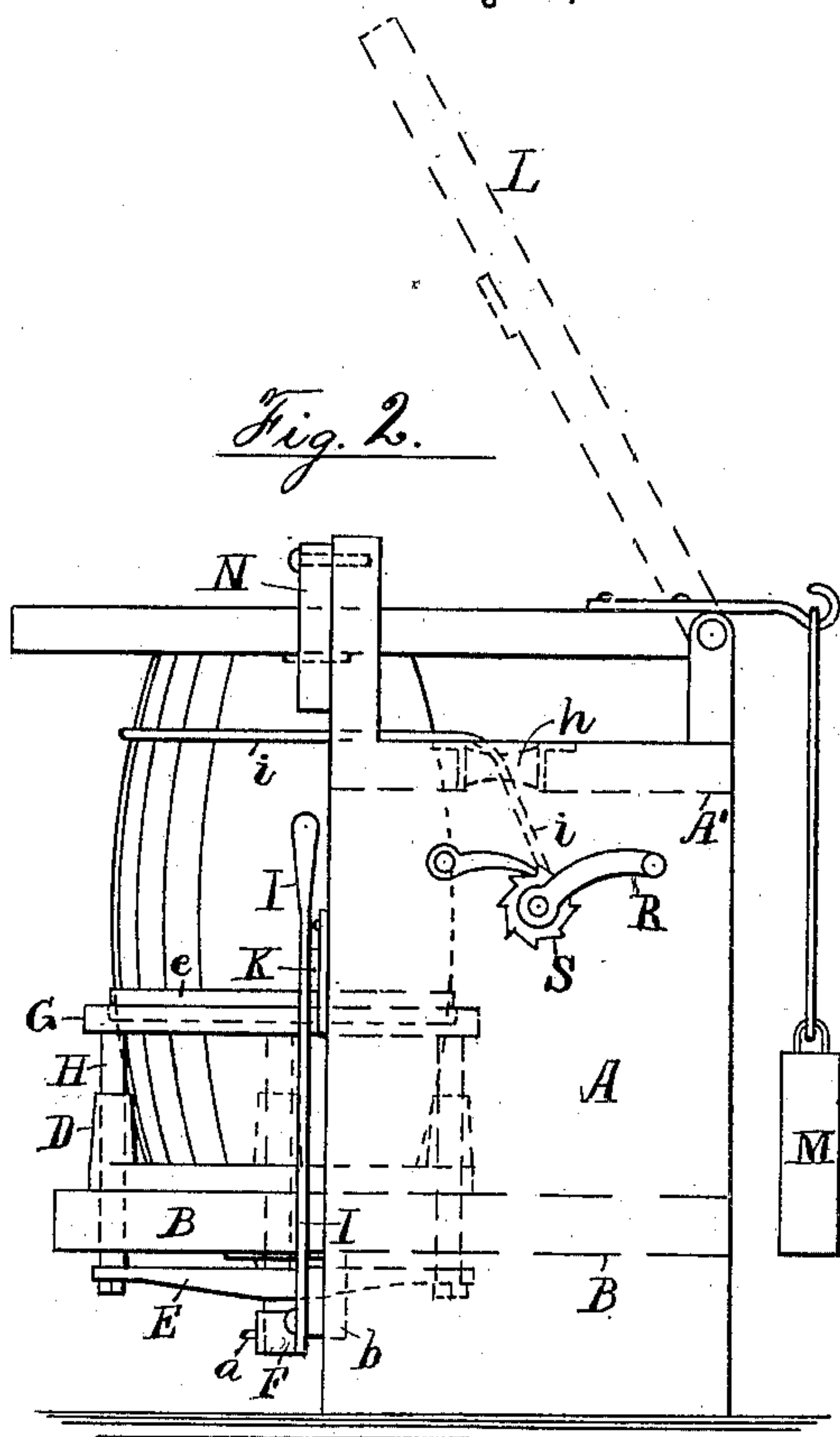
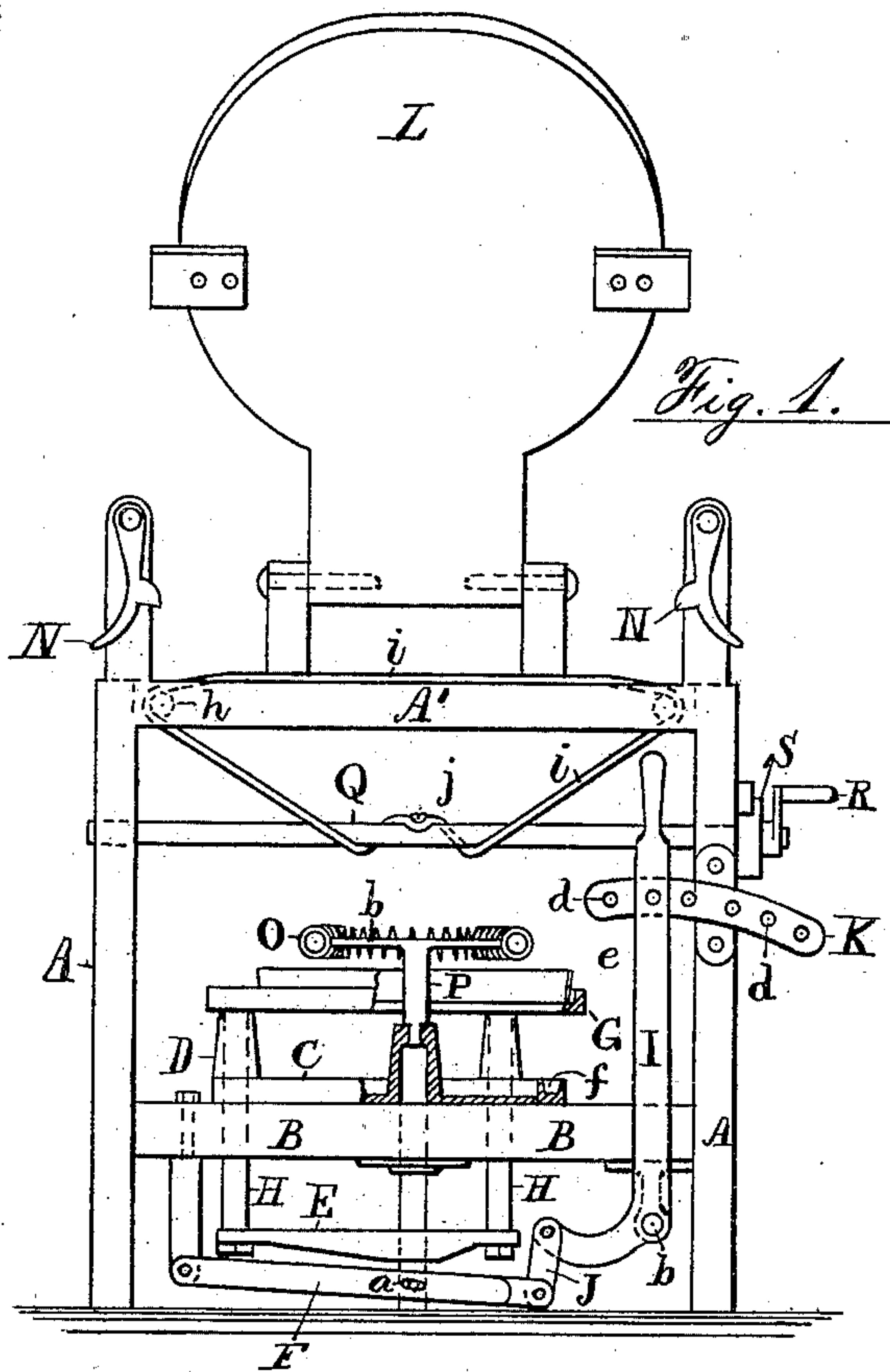
(No Model.)

H. WILDE.

MACHINE FOR SETTING UP BARRELS.

No. 257,259.

Patented May 2, 1882.



Attest:

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UNITED STATES PATENT OFFICE.

HENRY WILDE, OF NEWARK, NEW JERSEY.

MACHINE FOR SETTING UP BARRELS.

SPECIFICATION forming part of Letters Patent No. 257,259, dated May 2, 1882.

Application filed December 22, 1881. (No model.)

To all whom it may concern:

Be it known that I, HENRY WILDE, residing in the city of Newark, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Barrel-Raising Machinery, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

My invention relates to an improved machine for raising barrels or setting up the cylinder of staves in a hoop, and is designed to co-operate with other machines invented by me for producing perfectly-uniform barrels.

It is well known that a process for manufacturing duplicate articles reduces the cost very greatly when performed by automatic tools, or such as are adapted to produce uniformity in the product by the construction of the machine itself.

The invention herein described is the first to be employed in a series of machines for operating on staves that have been suitably jointed to produce uniform barrels, and is more especially adapted to the use of staves that have been shaped by passing through rollers after being heated and rejointed.

My raising-machine is provided with a trussing-ring, which serves as a gage for determining the diameter of the finished barrel, and secures such uniformity therein that when the barrels are placed in the crozing-machine they will enter the guide-rings just the proper amount and be crozed at the right point. The machine also applies a permanent bilge-hoop to the barrel and squares the ends, thus fitting it immediately for "firing" and "trussing" and saving the hand-labor formerly required when the barrel was set up in a temporary hoop and a bilge-hoop worked to its place by raising the whole barrel and striking it several times against the floor.

The construction of the machine will be understood by reference to the annexed drawings, in which—

Figure 1 is a front elevation of the machine; Fig. 2, a side elevation with a barrel in place; Fig. 3, a plan of the same; and Fig. 4, a view of the under side of the bed-plate, exhibiting the pressure-levers and tripod.

The mechanism shown is intended to exhibit the operation of the gage-ring; but many equivalent devices could be employed to operate it and hold the barrel equally well.

A is the frame of the machine; B, a bed 55 having a setting-up ring, C, and guides D, arranged upon its upper side, and a tripod, E, and pressure-lever F, arranged beneath it for moving the truss-ring G, as required. The latter is sustained above the ring C by rods H, 60 fitted through vertical holes in the guides D, and connected rigidly with the arms of the tripod. The ring G is thus moved when the tripod is actuated by the lever F, the latter being connected with the tripod by a central connection at *a*. 65

A hand-lever, I, is pivoted to the bed at *b*, and is connected to the pressure-lever by a link, J, the upper end of the lever I being fitted to a segment, K, upon the frame, and 70 locked thereto in any desired position by inserting a pin in a hole in the lever and in one of a row of holes, *d*, in the segment.

The truss-ring is shown in Fig. 1 as lowered, and is exhibited in section to show a rabbet 75 formed in its inner upper corner to receive a permanent bilge-hoop, *e*. When elevated the truss-ring is intended to force the hoop to its proper position upon the barrel at the same time that the truss-ring itself operates to compress the staves to a suitable shape and uniform size, as shown in Fig. 2. 80

The operation of the workman consists in selecting suitable staves to set up in the trussing-ring, with their lower ends resting in the 85 ring C, which is grooved, as indicated in the section at *f* in Fig. 1, to receive them. The movement of the trussing-ring is only such as will compress the staves into close contact, and the operator therefore packs the staves 90 into the truss-ring until it is full, when in its lower position. The hoop, being already in place upon the ring G, may be forced into position by moving the lever I and raising the ring, as described. To sustain the upward thrust 95 then brought against the barrel, I provide a face-plate, L, hinged to the frame A at the rear of the machine, and adapted to press upon the top of the staves when in place. It is therefore hinged at a level with the barrel's top, and 100 is preferably counterbalanced, as by a weight, M, so as to remain elevated, and automatic catches N are shown provided upon the frame upon each side of the machine to engage the 105 edges of the plate when lowered, and hold it level upon the top of the staves. When thus locked, as shown in Fig. 2, it prevents any derangement of the barrel, and is raised by the

counterbalance to a position shown in dotted lines in the same figure when the catches are disengaged by the operator.

To prevent the staves from tipping inward while setting up, I provide an annular spring, O, inside the truss-ring, supporting it upon a post, P, in the center of the ring C. The spring is shown as formed of an endless coil or spiral spring bent into a circular form with its ends joined together, and attached to the post by three arms, *g*. Space is left between the spring and ring G for the insertion of the separate staves, which are thus held upright, and the spring itself yields when the barrel is drawn out of the ring after setting the hoop, so as to let the small end of the barrel pass over its outside.

The purpose of the series of machines alluded to herein is to make barrels of uniform size, and thus to secure the application of machinery to the manufacturing processes more perfectly.

Unless the staves are of perfectly equal width at both ends it is of course impossible to make a barrel of equal diameter at both ends, and the operations of the subsequent machines which take the barrel for trussing and crozing must be imperfectly performed in consequence. I therefore use staves properly jointed and shaped before raising the barrel, and find no further mechanism needed for raising the barrel than that already described if such staves are employed. I have shown, however, the ordinary windlass, at Q, extended across the frame beneath the plate L, a crank, R, and ratchet S being provided at one end to hold and trim it when required.

Pulleys *h* are inserted in a cross-beam, A', above the windlass-roller Q, and the rope *i*, secured to the roller at *j*, may be carried over the pulleys and placed around the top of the staves, if needed, for placing the upper hoop upon them before removal from the ring G. Such upper hoop would be a temporary one, adapted to fit the staves before compression; but by its application the upper permanent bilge-hoop can be put on the barrel and forced tightly down, when the barrel would be ready for firing, after which it would be trussed and crozed.

As the supporting-rings in the crozing-machine are liable to wear, it is desirable that the raising-machine should have some means of adjustment whereby the ends of all the barrels may be made a little larger or smaller, if desired. Such a means is afforded in the movable character of the gage-ring G, in which the staves are set up, and by which they are compressed and the hoop forced to a given point.

The holes *d* afford a means of stopping the lever I after a fixed movement by inserting a stop-pin, *l*, as shown in Fig. 3; and as the movement of the lever determines the elevation of the truss-ring above the base C, so the compression of the barrel can be increased when desired by affording the lever I a further movement, and the ends of the barrel made

smaller when desired. The opposite effect can be produced by reducing the movement of the lever, and the initial size of the cylinder of staves increased, if desired, before compression in the hoop, by lowering the ring G farther, and thus enlarging the diameter of the barrel nearer its lower end.

From the above description it will be seen that my invention consists primarily in "setting up" the staves in a gage-ring, and secondarily in setting the permanent bilge-hoops at a uniform distance from the ends of the barrels, so that uniformity in the barrels before compression is secured and the hand-labor employed in replacing a temporary hoop by the permanent bilge-hoop is saved, while the said hoops are set more perfectly and uniformly than heretofore. I do not therefore limit myself to the precise mechanism described above for effecting these operations, as other means may be devised for raising and lowering the gage or truss ring G and for holding the staves down while the hoop is pushed up. Thus the ring might be moved by one or several screws, instead of levers, and the plate L might be arranged to slide horizontally to and from the top of the barrel, if preferred. The catches for the face-plate L might also be secured to the plate and engage stationary projections upon the frame; and the annular spring O might be made of india-rubber hose or other material, and supported by other means than the post P, or inserted by hand without the use of any support. The mechanism described may also be used independently of my exact process by employing no stop upon the segment K and forcing the hoops to any desired point upon the barrel.

I therefore claim the method of raising barrels as set forth above, as well as the means required to perform the process, as follows:

1. In a barrel-raising machine provided with a gage-ring arranged to move vertically, as described, the combination, with the ring and its guiding-rods D, of means, as tripod E, levers F and I, and segment K, provided with holes *d* and suitable stop-pin, all for regulating the movement of the gage-ring, substantially as and for the purpose set forth.

2. In combination with a ring for setting-up staves, an internal annular spring arranged and operating substantially as described.

3. In combination with a bed-plate and gage-ring, operating substantially as described, the hinged face-plate L and automatic catches arranged and operating to lock the plate upon the top of the staves, substantially as and for the purpose set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

HENRY WILDE.

Witnesses:

WILLIAM F. D. CRANE,
WALTER M. CONGER, Jr.