(No Model.) 5 Sheets—Sheet 1.

C. & W. W. HEWITT.

MACHINE FOR MAKING CASKS.

No. 377,304. Patented Jan. 31, 1888.

Fig. 1.

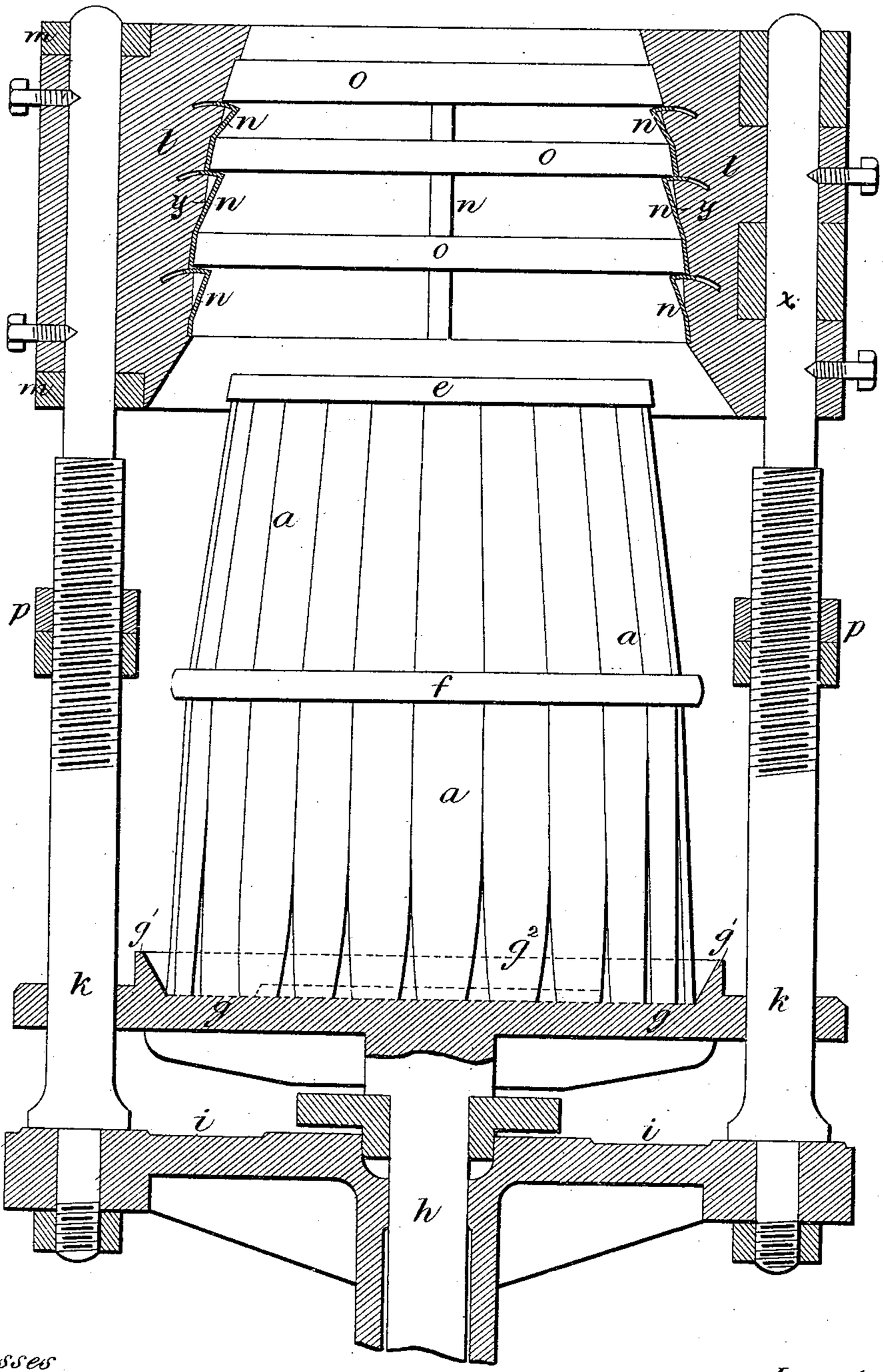

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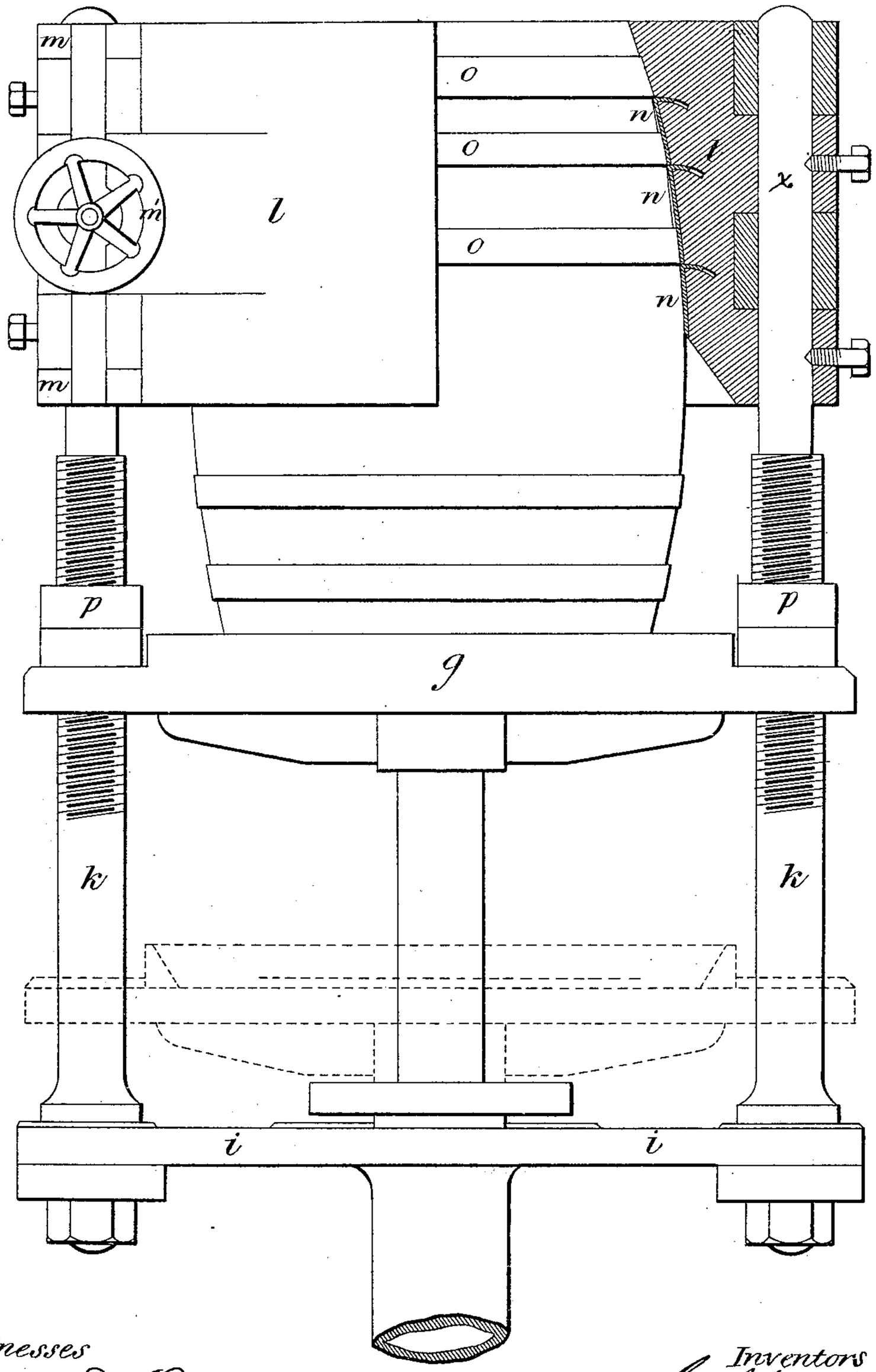
Fig. 2.



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C. & W. W. HEWITT.

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Fig. 3.

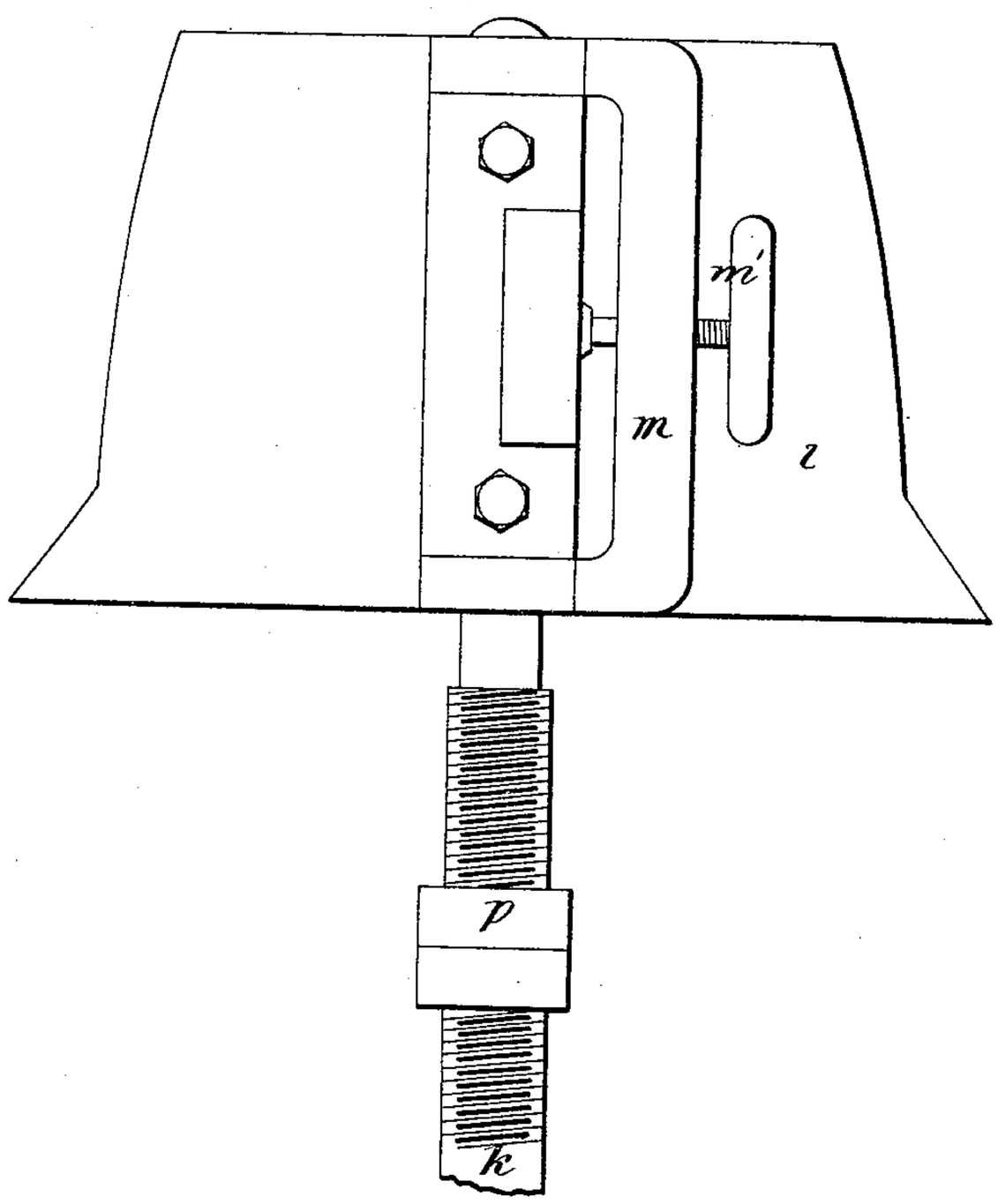
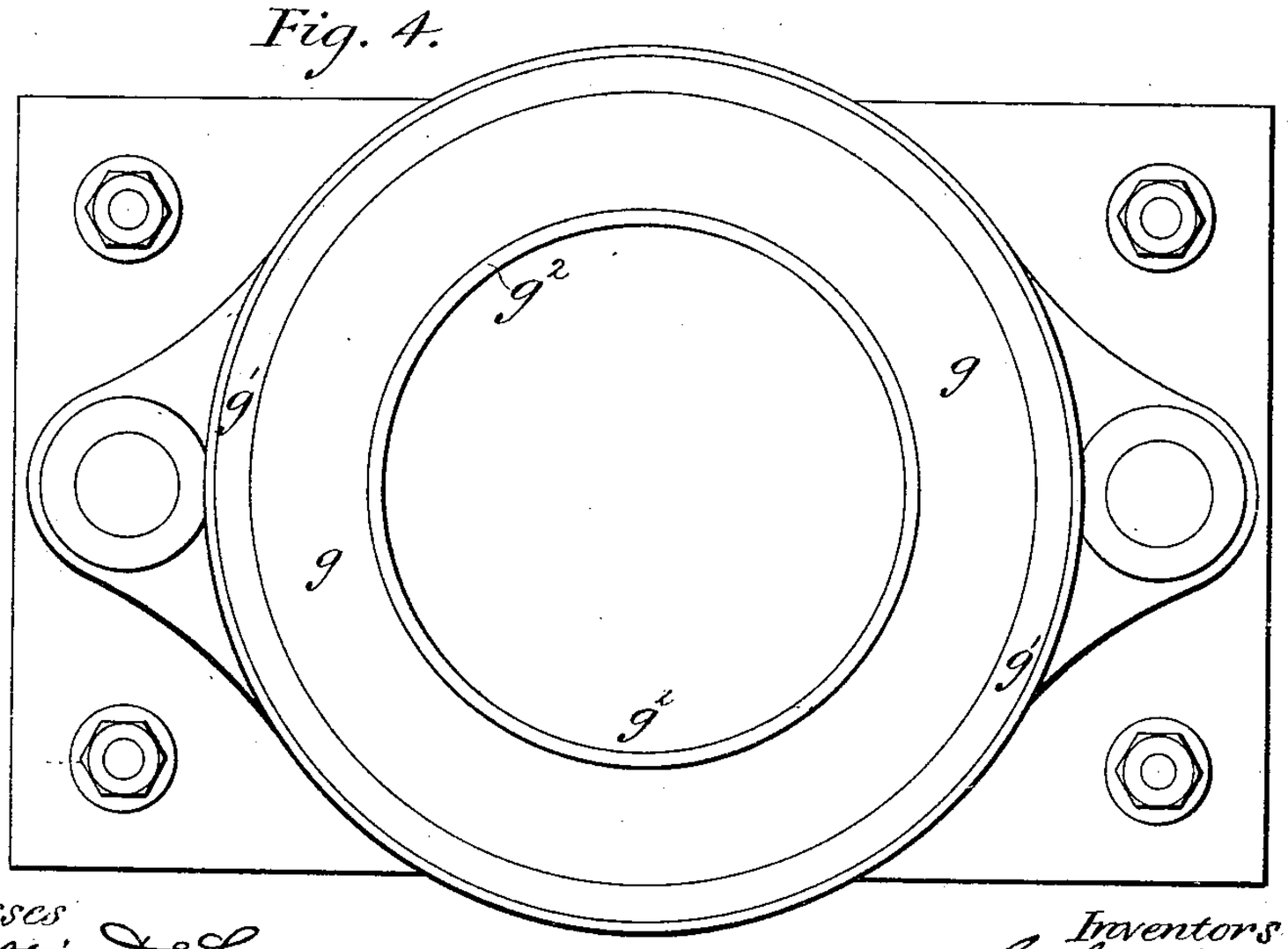


Fig. 4.



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MACHINE FOR MAKING CASKS.

No. 377,304. Patented Jan. 31, 1888.

Fig. 5.

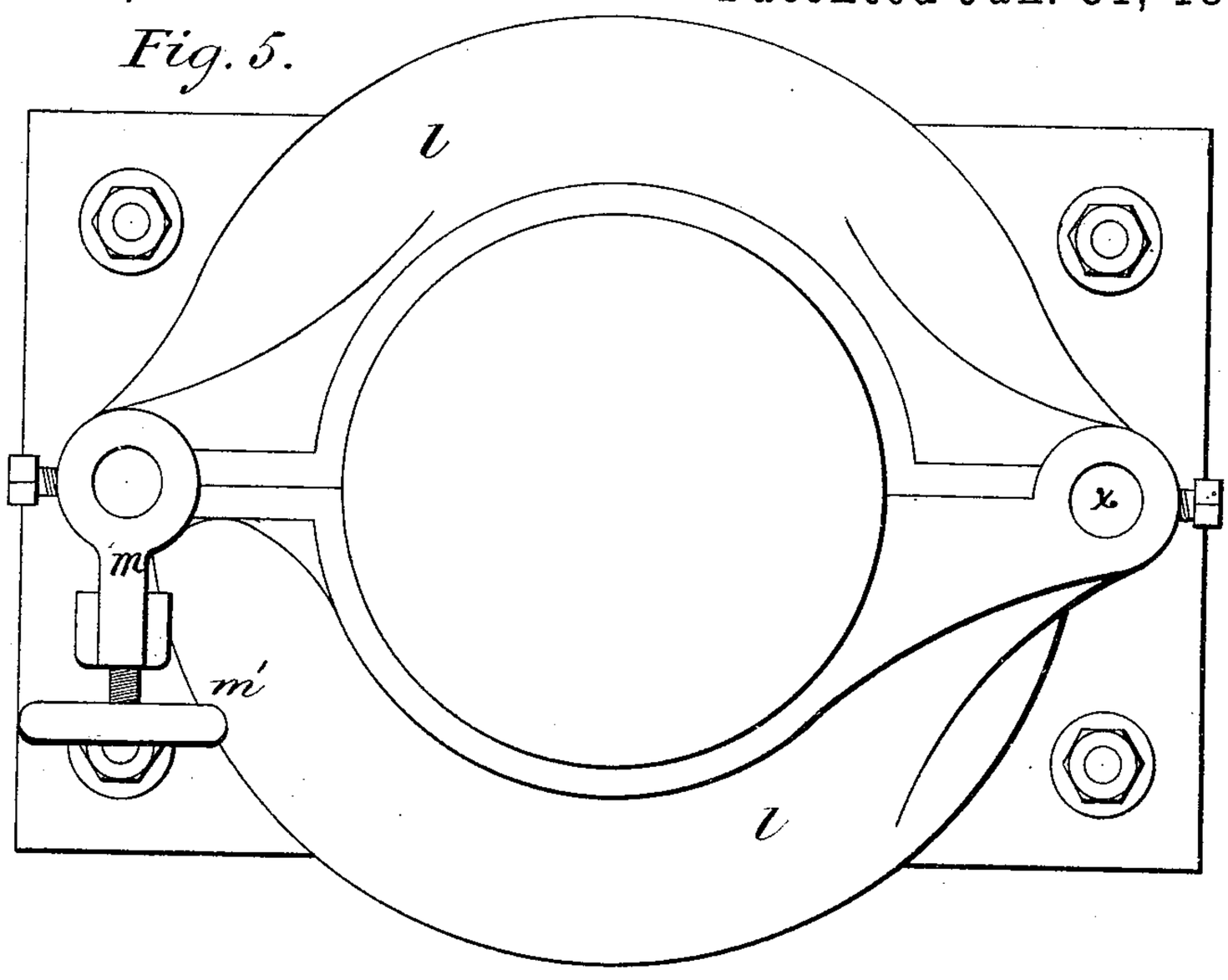
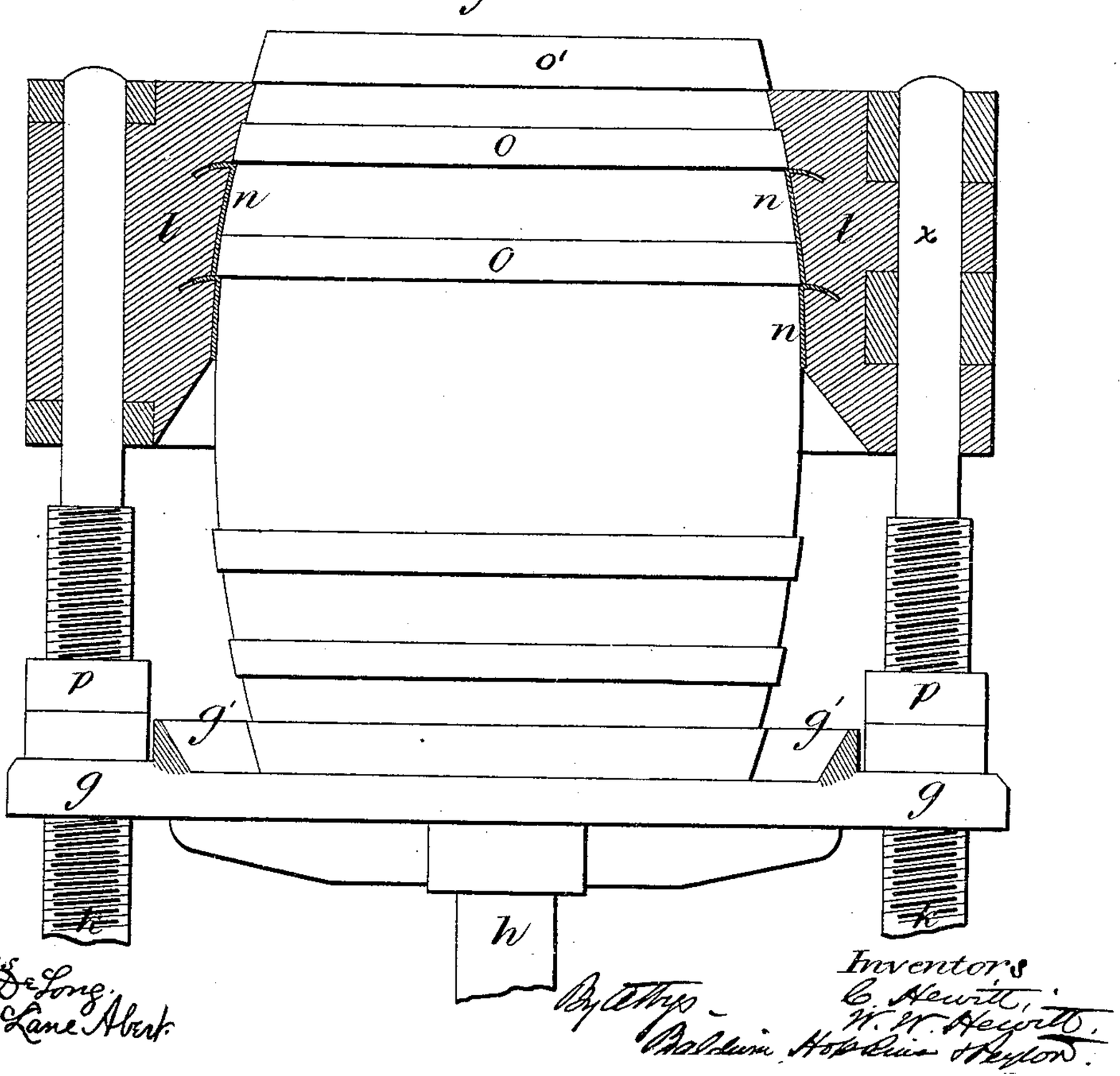


Fig. 6.



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MACHINE FOR MAKING CASKS.

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Fig. 7.

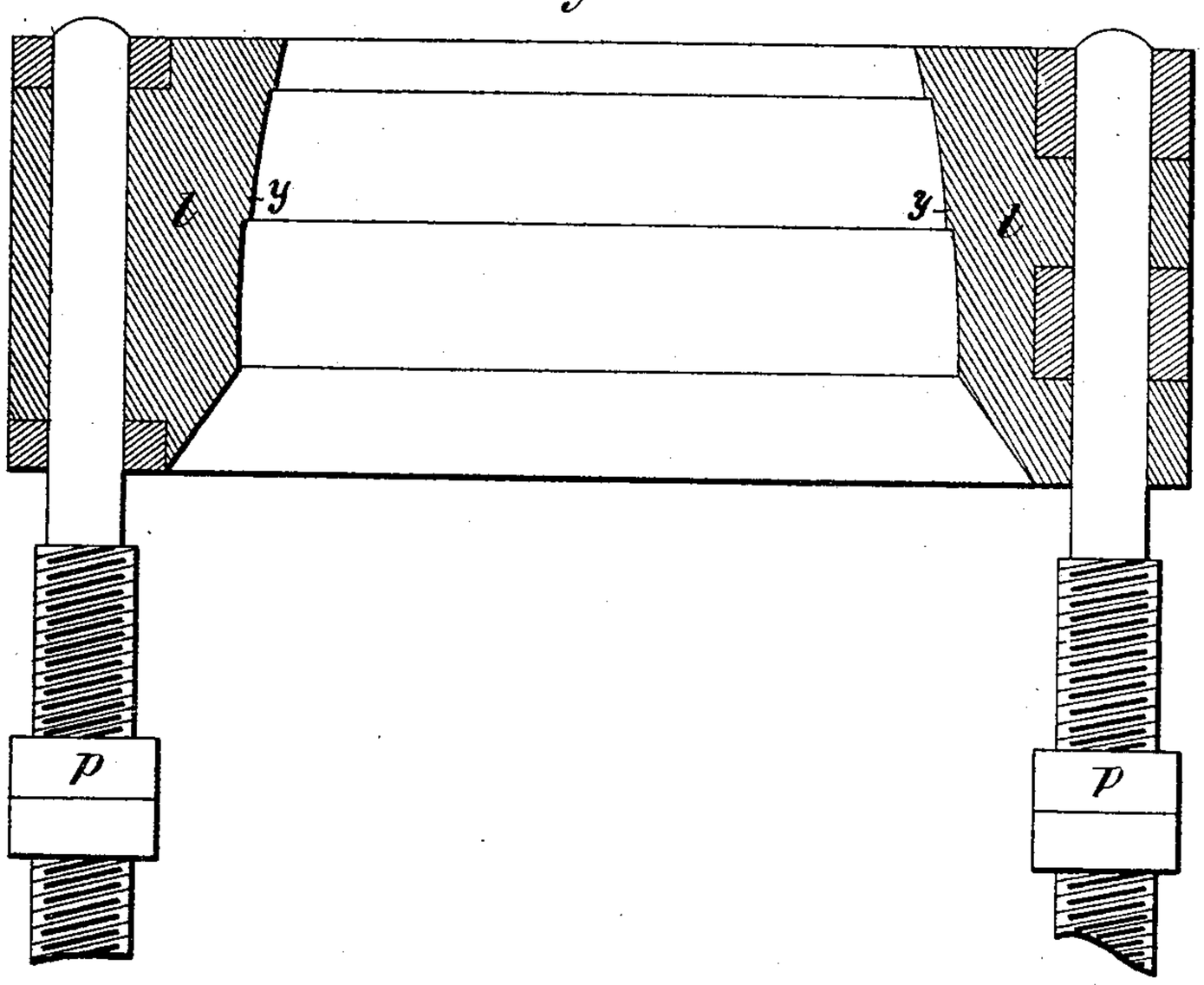
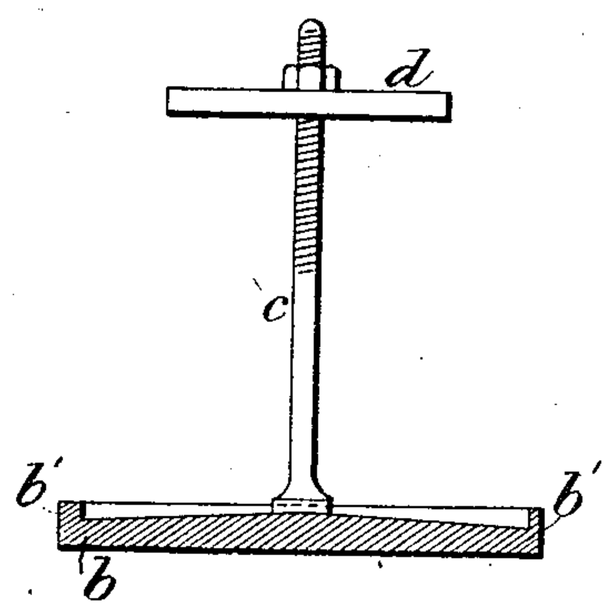


Fig. 8.



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UNITED STATES PATENT OFFICE.

CHARLES HEWITT AND WILLIAM WALTER HEWITT, OF SWANSCOMBE, COUNTY OF KENT, ENGLAND.

MACHINE FOR MAKING CASKS.

SPECIFICATION forming part of Letters Patent No. 377,304, dated January 31, 1888.

Application filed June 23, 1886. Serial No. 205,960. (No model.) Patented in England January 11, 1886, No. 446; in France June 8, 1886, No. 176,630; in Belgium June 9, 1886, No. 73,418; in Germany June 16, 1886, No. 39,240; in Portugal July 9, 1886, No. 1,063, and in Spain August 27, 1886, No. 9,247.

To all whom it may concern:

Be it known that we, CHARLES HEWITT and WILLIAM WALTER HEWITT, subjects of the Queen of Great Britain, and residents of Swanscombe, in the county of Kent, England, engineers, have invented certain new and useful Improvements in Machines for Making Casks, (for which we have secured Letters Patent in Great Britain, No. 446, dated January 11, 1886; in France, No. 176,630, dated June 8, 1886; in Belgium, No. 73,418, dated June 9, 1886; in Germany, No. 39,240, dated June 16, 1886; in Spain, No. 9,247, dated August 27, 1886, and in Portugal, No. 1,063, dated July 9, 1886,) of which the following is a specification.

In accordance with the method heretofore most usually practiced in making casks, after the staves have been set up temporary hoops, known as "truss-hoops," are forced around them to truss or give the final form to the cask. Afterward the truss-hoops are removed and the permanent iron hoops put in place.

Now, our invention relates to improvements in accordance with which the use of truss-hoops is abolished, and the cask is trussed and at the same time inclosed in the permanent hoops, thus saving much labor, while producing a perfect cask. The ends of the staves to receive the edges of the head are grooved before the staves are brought together. The head is also inserted before the completion of the trussing or gathering in of the staves.

In trussing the cask and putting on the hoops we employ a cone or bell somewhat similar to that hitherto employed in applying the truss-hoops. It is made in parts jointed together. The permanent iron hoops are inserted into shallow grooves in the cone or bell, where they rest upon yielding supports, spring-stops being provided to support them. The cask is placed on the rising table of the trussing-machine, which forces it up into the cone and into the hoops which the cone contains as when trussing-hoops are used, as heretofore. Or, in place of putting the hoops into grooves in the cone or bell, they may be placed loosely on the cask. Then, as the cask rises within the cone or bell, the hoops are caught by the grooves and brought to their places on the cask. The head of the cask, according to our method, is put in during the trussing operation as the staves come together.

Casks for containing solids may have the heads put in after the hooping is complete, as hereinafter explained.

In order that our said invention may be fully understood and readily carried into effect, we will proceed to describe the drawings hereunto annexed.

In the drawings, Figure 1 is a vertical section of the trussing-machine which we employ in trussing or collecting the staves at once into the permanent hoops. Fig. 2 is a front elevation, partly in section, of the same machine. In this figure the cask is represented as it appears at the end of the hooping operation. Fig. 3 is a side elevation of the upper part of the machine. Fig. 4 is a plan of the rising table. Fig. 5 is a plan of the cone or bell. Fig. 6 is a sectional elevation showing a modification in which the cask when complete projects above the top of the cone or bell. Fig. 7 is a sectional elevation of a cone or bell, such as we use when the hoops are placed loosely on the cask and not in grooves in the bell or cone. Fig. 8 is an elevation of an apparatus we employ in arranging the staves ready for the machine.

In Fig. 1 *a a* are the staves. Preferably they are already of the finished form at the ends as well as elsewhere, and if for a cask to contain liquid already grooved to receive the head. In arranging or setting up these staves the apparatus shown by Fig. 8 has been used. It consists of a cast-iron disk or foot, *b*, having a raised flange, *b'*, around it and a standard, *c*, springing from the center of the foot and carrying a disk, *d*. The disk *d* screws upon the standard *c*, and when set to the desired position it is locked fast by means of a locking-nut. The position of the disk *d* is adjusted according to the size of the cask to be made, and so that the staves, when leaning around the disk, shall at their upper ends touch each other all around. In setting up a cask preparatory to trussing, the staves are fitted until they meet together properly at the top, and three hoops are put upon them—a small iron

raising-hoop (seen at *e* in Fig. 1) at the top, a large hoop near the lower end of the cone, and a pitch-hoop (seen at *f* in Fig. 1) at the center. The next operation is the firing of the cask, during which the lower hoop is worked down and the pitch-hoop is brought to its place, care being taken all the while that a fair face is kept in the neighborhood of the pitch-hoop. The cask is then ready to be taken to the machine shown in Figs. 1, 2, 3, 4, and 5, in which the cask is trussed or the staves (previously only loosely held together) gathered in, and in which the permanent hoops are put on.

The cask is placed, as represented in Fig. 1, on the table *g*, which, as in other trussing-machines, can be forced upward by a hydraulic ram or otherwise.

h represents the ram and *i* a stationary foundation-plate, to which the pillars *k k* are secured. The pillars *k* carry the cone or bell *l*, which is in two parts. The parts are connected by a hinge-joint, *x*, and one of the pillars forms the joint-pin, as the drawings show. The other pillar passes through one of the parts only, but it also carries a latch, *m*, provided with a set-screw, *m'*, and by this latch the parts are locked when they are closed together.

n n are spring projections or yielding supports within the cone or bell. The permanent hoops *o o* of hoop-iron are laid upon them. These hoops are accurately made of a size suitable to the cask. The hoops lie beneath shoulders *y* in the cone, so that they cannot rise when the cask is forced upward through them. The machine being thus prepared, the hoops in their places, and the cone closed, the hoop *e* is knocked off and the table *g* is set in motion. The table carries the cask, which is supple, with the firing upward through the hoops. As the cask rises, the spring projections *n n* yield back and pass out of the way. When the staves are partially gathered in, the finished head, previously doweled together, is presented at its place by the operator, and as the gathering in of the staves progresses the edges of the head become held by the grooves. The movement of the table continues until it is stopped by the nuts *p p*, which have previously been set on the columns to a suitable position. The cone is then opened and the cask is released. The cask is now turned over, and by a repetition of the operation the other hoops are put on and the other head secured.

The table *g*, as will be seen, has two projecting ridges upon it. The outer one, *g'*, keeps the lower ends of the staves in place when they are first placed upon the table, and the inner ridge, g^2, retains the cask centrally on the table while the second end is being hooped.

Sometimes we so make the cone that at the end of the operation the end of the cask protrudes through it, as represented in Fig. 6, and then we put on the end hoop, *o'*, by hand while the cask is so held.

Another modification in the process consists in placing the permanent hoops on the cask, in place of in the grooves of the bell or cone. In this case a permanent hoop takes the place of the raising hoop *e*, and another larger permanent hoop is dropped loosely onto the cask before it is forced into the cone or bell. The cone or bell shown by Fig. 7 is employed. The grooves in it are so formed as to engage with the upper edges of the hoops and to retain them while the ends of the staves pass the grooves without much resistance. The end of the cask is allowed to project through the bell or cone, as in Fig. 6.

In place of bringing the staves to the machine complete in form and already grooved to receive the head we sometimes bring the staves to the machine without the grooves, and when the table *g* has risen a certain distance we stop it and proceed to produce the grooving or crozing either by hand or by a rotating tool, which is then lowered from overhead into the cask. The head is then inserted, as already described. The table is again set in motion, and it rises until stopped by the nuts *p p*.

When the casks are intended to contain dry materials, we sometimes complete the hooping of the cask without inserting the heads, and then afterward we fix the heads in a well-known way by nailing a hoop or ring of wood within the mouth of the cask to form a shelf. On this shelf the head is placed, and it is secured by nailing to the staves a similar hoop or ring outside the head.

We claim—

1. The method hereinbefore described of trussing and applying permanent hoops to a cask, consisting in forcing the staves when suitably arranged and already grooved to receive the head, but not bent to final form into a bell or cone, with the hoops supported as described, and, as the staves are drawn together again by the bell or cone, inserting the head into its place, thereby simultaneously trussing and hooping, substantially as set forth.

2. The trussing cone or bell having grooves to receive the permanent hoops of the cask, and shoulders in the grooves which support the hoops on the upper side, and yielding supports beneath the grooves which sustain the hoops on the under side, substantially as described.

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