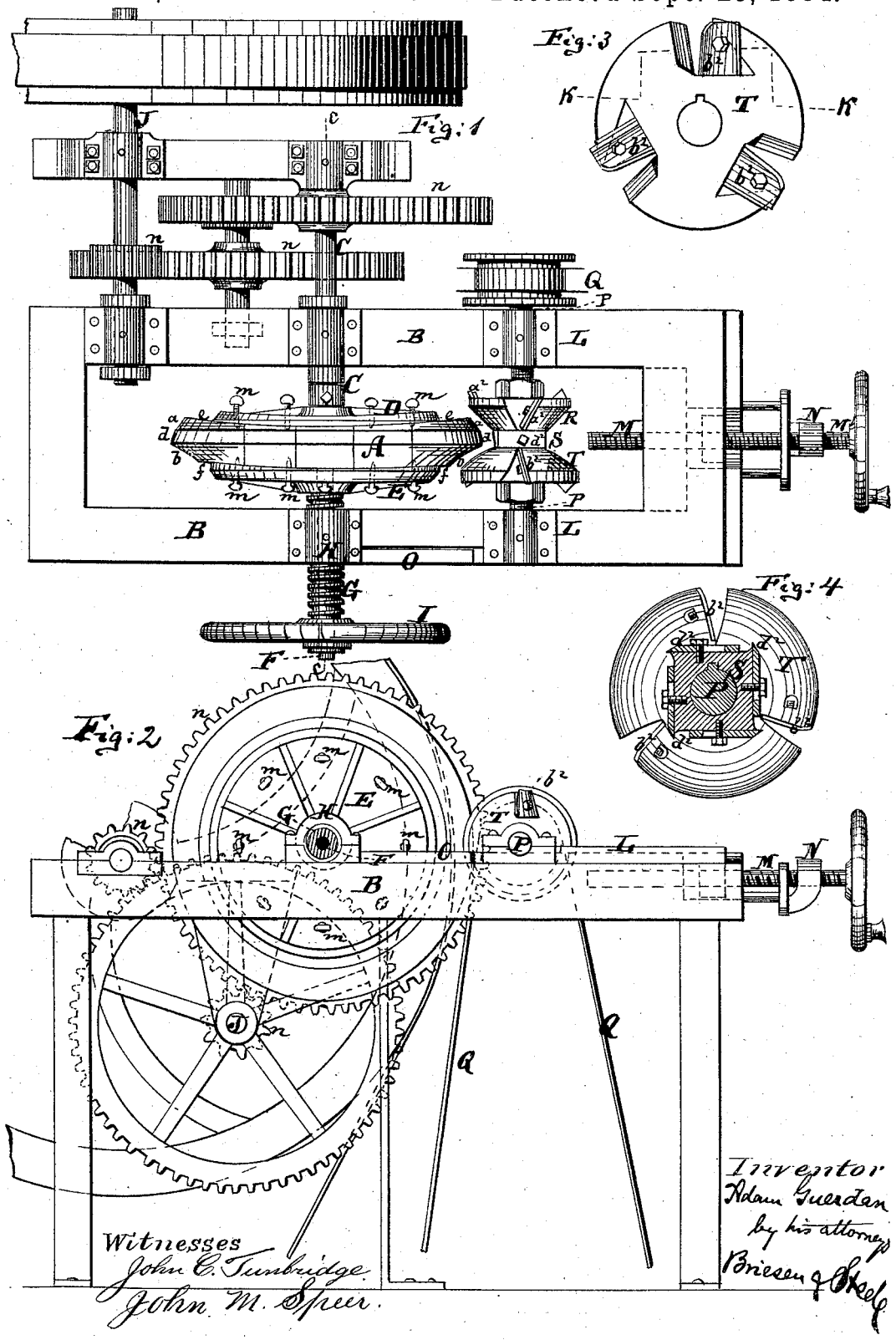
(No Model.) 2 Sheets—Sheet 1.

A. GUERDAN.

MACHINE FOR TRIMMING BARREL HEADS.

No. 305,447. Patented Sept. 23, 1884.



(No Model.) 2 Sheets—Sheet 2.

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Fig: 6

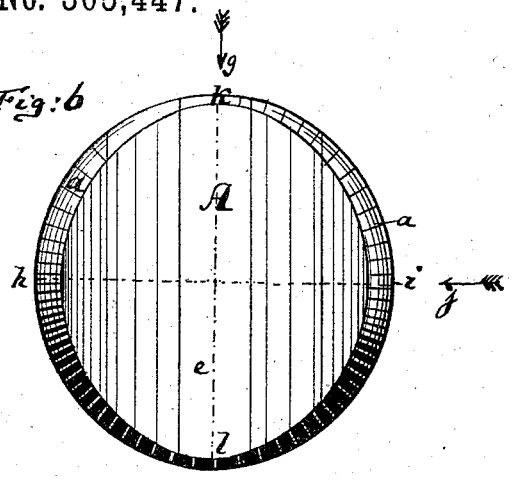


Fig: 7

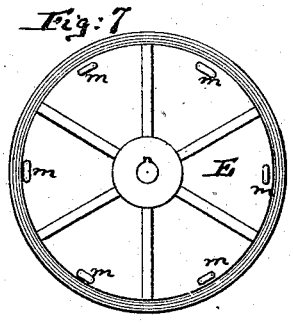


Fig: 5

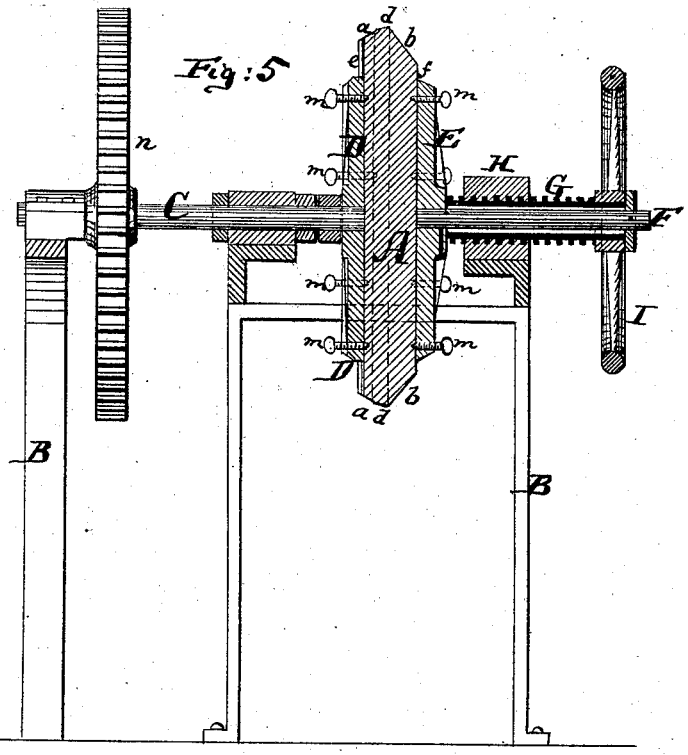
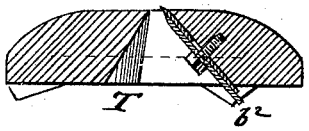


Fig: 8



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UNITED STATES PATENT OFFICE.

ADAM GUERDAN, OF NEW YORK, N. Y., ASSIGNOR TO J. SCHWARZWALDER & SONS, OF SAME PLACE.

MACHINE FOR TRIMMING BARREL-HEADS.

SPECIFICATION forming part of Letters Patent No. 305,447, dated September 23, 1884.

Application filed May 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, ADAM GUERDAN, a resident of New York city, in the county and State of New York, have invented an Improved Machine for Trimming the Edges of Heads of Casks, of which the following is a full, clear, and exact description, reference being made to the accompanying drawings, in which—

Figure 1 is a plan or top view of my improved machine for trimming the edges of the heads of casks. Fig. 2 is a side elevation of the same. Fig. 3 is an outer face view of the bevel-planer which is used on the machine. Fig. 4 is a vertical transverse section of the central planer which is used on the machine. Fig. 5 is a vertical transverse section of the machine on the line *c c*, Fig. 1. Fig. 6 is an inner face view of the finished head. Fig. 7 is an outer face view of one of the plates between which the head is clamped. Fig. 8 is a detail horizontal section of the bevel-planer, the line *k k*, Fig. 3, indicating the plane of section.

The object of this invention is to produce a machine for trimming the edges of the heads of casks. The heads of casks to which I refer are of heavy wood and bulging in form—that is to say, concave on one side and convex on the other—and the periphery of such a head should be trimmed so as to form bevel-edges along the concave and convex faces of the head and an intermediate straighter edge. In many instances these heads are, moreover, slightly oval, instead of circular, and my machine is to produce the desired peripheral form of the head, when the same is of either circular or oval shape.

The invention consists, principally, in combining with a movable carriage a set of planers for producing the two bevels and intermediate straighter portion on the edge of the head, and also a set of clamps for holding the head in place, and means for rotating said head and also said planers, all as hereinafter more fully described.

The invention also consists in certain details of improvement, that are hereinafter more fully pointed out.

In the accompanying drawings, the head A in its completed form is shown in Figs. 1, 5, and 6. Fig. 1 shows its edge to have the bevels *a* and *b* and the intermediate straighter portion, *d*. Fig. 1 also shows that that face *e* of the head A which is in immediate contact with the bevel *a* is concave, while the other face, *f*, is slightly convex. This concavity and convexity of the head is observable only when the head A is inspected in the direction of the arrow *g*, that is shown in Fig. 6, for on the line *h i*, that is shown in Fig. 6, the head is concave on the face *e* and convex on the opposite face, *f*. If, however, the head is inspected in the direction of the arrow *j*, Fig. 6, this concavity and convexity of faces no longer appear. This is made clear by the section of the head which is represented in Fig. 5, and which shows that on the line *k l*, Fig. 6, the face of the head on each side is perfectly straight. The face view, Fig. 6, also shows that the head A on the line *h i* is narrower than on the line *k l*—in other words, that its periphery is slightly oval, with the longest diameter on the line *k l*. It is this kind of head, bulging and slightly oval, which it is intended to trim in my machine so as to produce thereon the edges *a b d*.

I will now proceed with the description of my machine.

B is the frame of the machine. In this frame is hung a shaft, C, carrying at its inner end a disk, D. Another similar disk, E, faces the disk D, and is carried by a shaft, F, which has its bearings in a hollow screw, G, (see Fig. 5,) which screw turns in a nut, H, that is fixed upon the frame B. The said screw G has a suitable hand-wheel, I, or analogous means for turning it by hand. The face of the disk D is of a convex form, which will enable it to fit the concave face *e* of the head A. The face of the disk E is of a concave form, which will enable it to fit the convex face *f* of the head A. This is clearly represented in Figs. 1 and 5. Small screws *m* are held in the disks D and E, as shown. The shaft C connects, by a train of gear-wheels, *n*, or equivalent mechanism, with a driving-shaft, J, that has its bearings in the frame B, and to which rotary motion is imparted by suitable mechanism, so that the shaft C will be turned quite slowly when the machine is in operation.

L is a carriage supported on the frame B, and adjustable toward or away from the shafts C and F by means of a screw, M, which is hung in brackets N, that are fastened to the frame B.

O is a movable or adjustable stop, limiting the extent of movement of the carriage L toward the shafts C and F. In the carriage L are the bearings of a shaft, P, which is parallel with the shafts C F, and nearly on the same plane therewith, as indicated in Fig. 2. The shaft P connects, by a belt, Q, or otherwise, with suitable mechanism, by which very rapid rotary motion can be imparted to it. The shaft P carries the cutter-heads for three sets of planers—that is to say, a truncated conical cutter-head, R, which carries the planing-knives a^2 in oblique position. Contiguous to the smaller end of this cutter-head R is the cutter-head S, (see Fig. 4,) of prismatic form, carrying the straight knives d^2. Contiguous to this, again, is the smaller end of a truncated conical or slightly-spherical cutter-head, T, into which are set the oblique cutters b^2. (See Figs. 3 and 8.)

The operation of this machine is as follows: The head A to be trimmed is placed between the disks D and E, so as to fit the same in the proper manner, which is indicated in Figs. 1 and 5. The screw G is then turned to crowd the disk E against the head A, and thus clamp the head firmly between the disks D and E. The screws *m* are then turned to bite the head A and insure its due retention between said disks. But I desire it to be understood that the screws *m* can be dispensed with, or equivalent prongs or ribs formed on the inner faces of the disks. It will be seen that when the disk is thus held in position it is aligned with the cutters that are carried by the shaft P, in such manner that when said cutters are brought against the edge of the head, by moving the carriage L, and the shafts C, F, and P revolve, the cutters a^2 will produce the bevel-edge *a*, the cutters d^2 the straighter edge *d*, and the cutters b^2 the bevel-edge *b*, which latter edge may be slightly concave, as shown. Inasmuch as the head A will be revolved very slowly, while the shaft P will be revolved with great rapidity, the attendant will have it under his control to produce the oval outline of the head A by moving the carriage L at the proper time farther toward and then farther away from the shafts C and F. The relative speed which I find to be desirable in such a machine is about one revolution of the shafts C F to twelve hundred of the shaft P. The gage O will prevent the carriage L being slid nearer to the shafts C F than is necessary for the smallest portion of the diameter of the head A to be shaped.

To my knowledge, heads of the kind described could heretofore only be trimmed by hand, because of the great irregularity resulting from the concavo-convex shape of the head, and from its oval circumference. These peculiarities of shape, it will be seen, cause the bevel-edges *a* and *b* to vary in width in different portions of the head, as is shown in Figs. 1 and 6. The face of the disk D, it will be seen, is practically cylindrico-convex, and that of the disk E cylindrico-concave, in order to cause these disks to match the concavo-convex head A.

I claim—

1. The combination of the shaft C, carrying the convex disk D, with the shaft F, carrying the concave disk E, hollow screw G, surrounding the shaft F, movable carriage L, cutter-heads R S T, cutter-shaft P, and means, substantially as described, for revolving the shafts C and P, all arranged for trimming the edges of an irregularly-shaped head, A, for a cask, substantially as described.

2. The shaft C, carrying the convex disk D, combined with mechanism, as described, for revolving it, and with the concave disk E, held on the shaft F, which is surrounded by the hollow screw G, all arranged for clamping a head, A, between said disks D E, and with the cutter R S T, as specified.

ADAM GUERDAN.

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