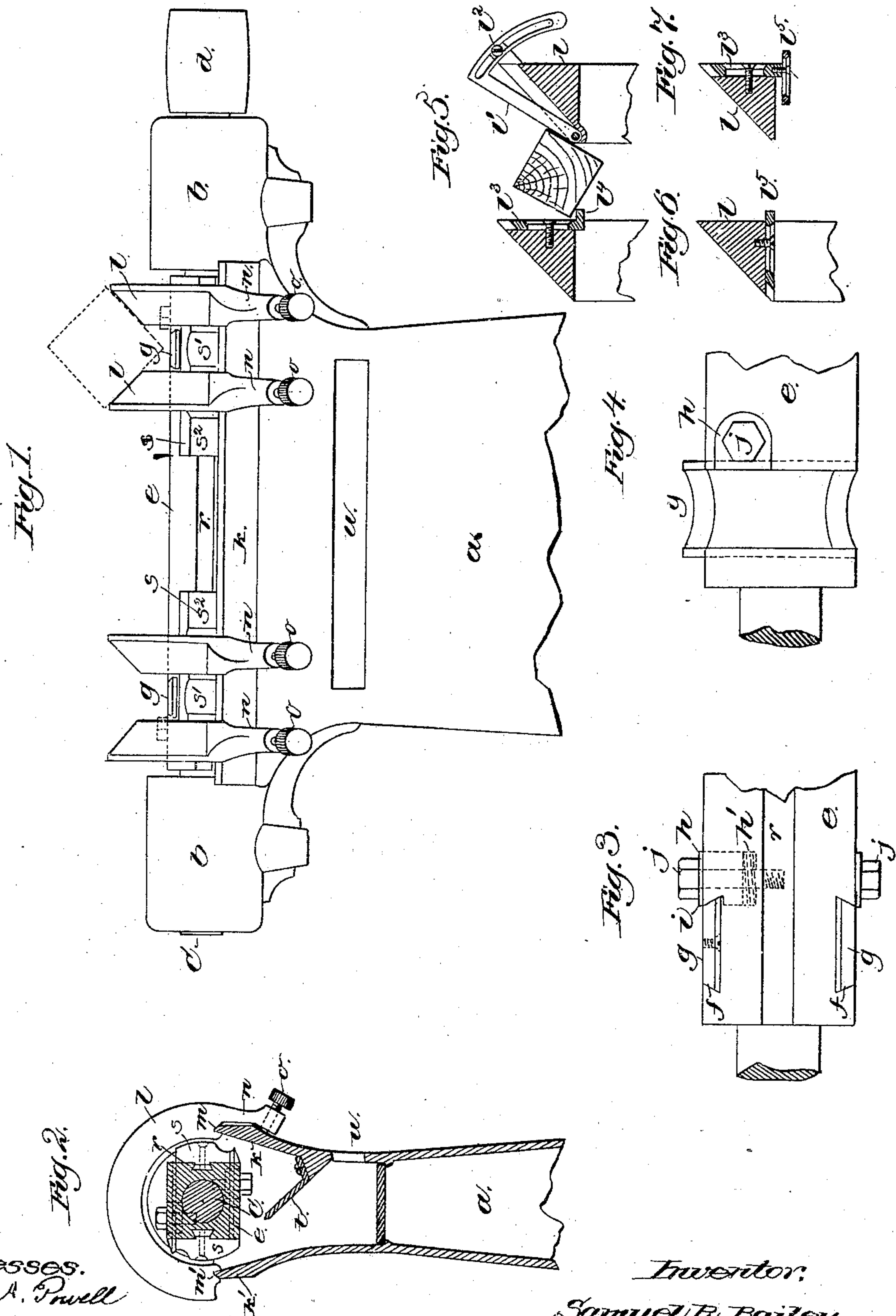


(No Model.)

S. R. BAILEY.
WOOD DRESSING MACHINE.

No. 277,827.

Patented May 15, 1883.



Witnesses.
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UNITED STATES PATENT OFFICE.

SAMUEL R. BAILEY, OF BOSTON, MASSACHUSETTS.

WOOD-DRESSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 277,827, dated May 15, 1883.

Application filed August 11, 1882. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL R. BAILEY, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Wood-Dressing Machines, of which the following description, in connection with the accompanying drawings, is a specification.

My invention, relating to a wood-dressing machine, such as is employed for chamfering the angles of rectangular bars of wood, or rounding and shaping bars—as, for example, in making the shafts for carriages—is embodied in a machine of that class in which the wood is presented by the workman to a rotating cutter of proper form to give it the desired configuration, the bar of wood being supported near where acted on by the cutter by supporting-gages, which also regulate the depth to which the cutters remove the wood. These gages have heretofore, in some instances, consisted of collars encircling the rotating cutters, and having their supporting-faces inclined at an angle of forty-five degrees to the axis of the cutter-shaft, so as to present the corner of a rectangular bar to the cutter, the sides of the bar being supported on two of the said collars having opposite inclination to the axis of the cutter-shaft. These collars have heretofore usually been supported on a bed below the cutter-shaft and cutters, they being movable in a direction parallel with the axis of the cutter-shaft, and fixed by a suitable clamp in any desired position on the said bed. The part of the collar which stands above the cutters acts upon the wood, and when the said collars are clamped and fixed to the framework at a point below the cutters it is difficult to retain the upper or wood-supporting portion sufficiently rigid, owing to its distance from the point of fastening.

The present invention consists partly in the combination, with the rotating cutter-shaft and cutters, of a bed embracing the lower portion of the said cutter-shaft and cutters, and supporting-gages, movable on the said bed, embracing the upper portion of the said cutter-shaft and cutters, and means, as hereinafter described, to clamp them in adjusted position on the said bed. The said bed consists of two ways parallel with the cutter-shaft, one at either side thereof, and the wood-supporting

gages are of nearly semicircular or arch shape, and have their ends fitted to slide upon the said ways, one of the said ends being provided with a clamping-arm and device arranged, as hereinafter more fully described, to draw both ends of the gage down tightly upon the corresponding ways of the bed to clamp it firmly. When the clamp is released the gage may be tilted on one of the ways as a fulcrum to lift its other end free from the other way, so that it may be slid on the one way to adjust its position along the cutter-shaft.

The invention also consists in details of construction, hereinafter specified, whereby greater variety of work can be done than by apparatus of this class heretofore in use.

Figure 1 is a front elevation of a wood-shaping machine embodying this invention; Fig. 2, a transverse vertical section thereof; Figs. 3 and 4, details illustrating the cutter-head, and clamp by which the cutter is fastened thereto; Fig. 5, a transverse section of two of the wood-supporting gages, arranged to support the bar of wood at a different angle relative to the cutters; and Figs. 6 and 7, sectional details of the wood-supporting gages.

The supporting post or frame-work *a*, of any suitable or usual construction, is provided at its ends with bearing-boxes *b* for the cutter-shaft *c*, actuated by the pulley *d*, and provided with a cutter-head, *e*, shown as a square block having transverse dovetailed grooves or sockets *f*, (see Fig. 3,) to receive the cutters *g*, the edges of which are sharpened to any desired shape, according to the configuration it is desired to give to the wood being cut. The said cutters *g* are fastened in adjusted position in the grooves *f* by the clamps *h*, fitted to have a free longitudinal movement in sockets in the head *e*, and having a notch, *i*, inclined to correspond with the side of the cutter, so that when the clamp *h* is forced into its socket, as by the bolt *j*, the inclined face of the said notch *i* acts as a wedge upon the cutter *g*, pressing it against the opposite side of the groove *f*, and fastening it rigidly in the said groove. The said clamp *h* is inclined, and has a wedge-like action only where it engages the cutter, its other portion being parallel with the walls of its socket in the head *e*. The said clamp and its socket extend below the cutter-socket, thus affording a

firm bearing on all sides of the said clamp, and preventing its tipping as it is forced against the cutter. The clamp *h* is preferably provided with a spring, *h'*, by which it is raised to release the cutter when the bolt *j* is unscrewed. The upper end of the frame-work is provided with a bed consisting of two guideways, *k k'*, at either side of the cutter-shaft *c*, and embracing or inclosing the lower portion thereof, together with the cutter-head and cutters carried thereby. The wood being acted upon by the cutters *g*, as shown in dotted lines, Fig. 1, is supported on the gages *l*, which also serve to gage or limit the action of the cutters. The said supporting-gages are semicircular or arch-shaped, as best shown in Fig. 2, having bearings *m m'* at their ends to engage the guideways *k k'* of the machine-bed. The said gages *l* are provided at one end with clamping-arms *n*, extending below their seat, at *m*, upon the frame-work, and provided with clamping devices (shown as screws) *o*, bearing obliquely against the under side of the guideway *k*, as shown in Fig. 2. Owing to the inclination at which the clamping device *o* acts, it tends to draw the adjacent end *m* of the gage *l* firmly upon the adjacent guideway *k*, and owing to the fact that the said screw acts at a distance from the bearing *m* of the said gage, it has a leverage on the said point *m*, as a fulcrum, tending to draw the other end, *m'*, of the gage *l* firmly upon the other guideway, *k'*, thus securely clamping the said gage *l* at both ends.

By making the gage *l* semicircular, arch-shaped, or open-ended it may be wholly removed from the bed *k k'* at any time without removing the shaft *c* from its bearings—a thing which cannot be accomplished by gages which wholly encircle the said shaft—and by clamping or fastening them upon the rigid frame work near the point of support for the wood they are much more rigid than when fastened below the shaft and cutter-head, as heretofore practiced. When desired to slide the gages *l* along the bed to adjust their position relative to the wood and cutters, the clamping device *o* is loosened and the arm *n* pressed slightly toward the guideway *k*, thus raising the opposite end, *m'*, of the gage *l* from the corresponding guideway, *k'*, so that it may be slid on one guideway, *k*, alone without danger of binding.

It is obvious that the machine may have any desired number of cutters consistent with the length of the cutter-shaft *c*, each having its corresponding supporting-gages, *l*, properly adjusted with relation thereto.

By the herein-described clamping arrangement the gages can be loosened, slid to the exact position desired, and fastened again in a moment by one hand of the operator, and will be held very firmly and at a right angle to the bed and cutter-shaft, the essential feature of the clamping device being that it presses one end of the gage directly upon the corresponding portion of the bed, and acts with a leverage upon the said end, as a fulcrum, to press

the other end upon its corresponding portion of the bed.

It is obvious that both ends may be provided with clamping devices, both of which may be fastened for greater security when a large amount of work is to be done with a single adjustment; but when frequent adjustments are to be made one of the said devices would be kept loosened and the gage clamped by the other alone.

While the supporting-gages *l* are especially intended for presenting the corner of a rectangular bar directly to the cutters, so as to chamfer or bevel at an angle of forty-five degrees, it is sometimes desirable to bevel or cut at other angles without having recourse to another machine. To enable this to be done the inclined face of the gage *l* is provided with a pivoted plate, *l'*, which may be adjusted to the desired angle and fastened, as by the set-screw *l''*. The plate *l'* will enable the corner of the wood to be presented at the desired angle, and in order to further support the wood and regulate the depth to which the cutters may act, the vertical rear face of the co-operating gage *l* is provided with an adjustable plate, *l''*, having a shoulder, *l'''*, (shown in Fig. 5,) as a part of the said plate *l''*, which is adjustable radially toward and from the cutter-shaft.

In Fig. 6 the shoulder or projection *l'''* is shown as adjustable parallel with the cutter-shaft, and in Fig. 7 the plate *l''* is adjustable radially on the gage *l*, and the shoulder-piece *l'''* is adjustable on the said plate *l''* in a direction parallel with the cutter-shaft on the plate *l''*.

The cutter-head *e*, made square, as shown in Fig. 2, and provided with cutters *g* on two opposite faces, has its intermediate faces each provided with a longitudinal undercut or dovetail-shaped groove, *r*, to receive a nut, by which cutter-gages *s* may be fixed in any desired position along the said cutter-head *e*. The said cutter-gages are shown as having different portions of different shape, corresponding to the shape of the cutting-edge of the different cutters, they being shown in Fig. 1 as set with a concaved portion, *s'*, in line with the cutter *g*, the edge of which is concave, as shown in Fig. 4, so that they give a rounding or corner shape to the bar of wood being cut. The function of the said cutter-gage is to partly support the wood near where it is being acted upon by the cutter at each rotation, and to thus prevent the cutter from being drawn too deeply into the wood, as by imperfections in its grain, the said gage thus limiting the action of the cutter in removing each chip, while the supporting-gages *l l* limit the total action of the said cutter, and thus govern the ultimate shape of the bar of wood. The said cutter-gages have portions shaped to co-operate with the different cutters *g*, the portion at *s''*, for example, being cylindrical to co-operate with a straight-edged cutter—such as employed for rabbeting or chamfering—and the said gage

s is made longitudinally adjustable in the cutter-head, so as to enable its different portions to be brought exactly to the proper position relative to the different cutters employed.

5 In order to prevent the chips from disturbing the operation, the head or frame-work *a* of the machine is provided with a blade or wing, *t*, (see Fig. 2,) approaching closely the revolving cutters and diverting the current of air
10 caused by the rotation of the said cutters, and thus causing the chips carried by the said air-current to pass below the said wing and be discharged through an aperture, *u*, at the front of the machine, or to pass down through the
15 hollow frame-work or supporting-post and be discharged at the bottom.

I have herein shown and described a construction of cutter-head and cutter-clamp, but do not herein claim them, as they will form
20 the subject of another application for Letters Patent.

I claim—

1. In a wood-shaping machine, the combination of the cutter-shaft and its supporting
25 frame-work, provided with a bed consisting of guideways embracing a portion of the said shaft, with the open-ended arch-shaped wood-supporting gages, each provided at one end with a clamping-arm and clamping device, by
30 means of which both ends of the said gages are fastened upon the bed, substantially as described.

2. The wood-supporting gage, having a sup-

porting-face inclined to the cutter-shaft and an opposite face at right angles to the cutter-shaft, combined with an adjustable supporting-shoulder having a supporting-face parallel with the cutter-shaft, substantially as and for the purpose described. 35

3. In a wood-dressing machine, the cutter-shaft, cutters, and wood-supporting gage, having a face inclined at substantially forty-five degrees to the cutter-shaft, combined with an adjustable plate mounted in the face of the said gage, whereby the wood may be supported
45 and presented at other angles to the cutters, substantially as described.

4. In a wood-dressing machine, the wood-supporting gage, having a face inclined substantially at an angle of forty-five degrees, and another face substantially at right angles to
50 the cutter-shaft, combined with an adjustable supporting-plate mounted in the said face of the gage which stands at right angles to the cutter-shaft, and adjustable supporting-shoulder mounted on the said plate, substantially
55 parallel with the cutter-shaft, as and for the purpose set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses. 60

SAMUEL R. BAILEY.

Witnesses:

JOS. P. LIVERMORE,
B. J. NOYES.