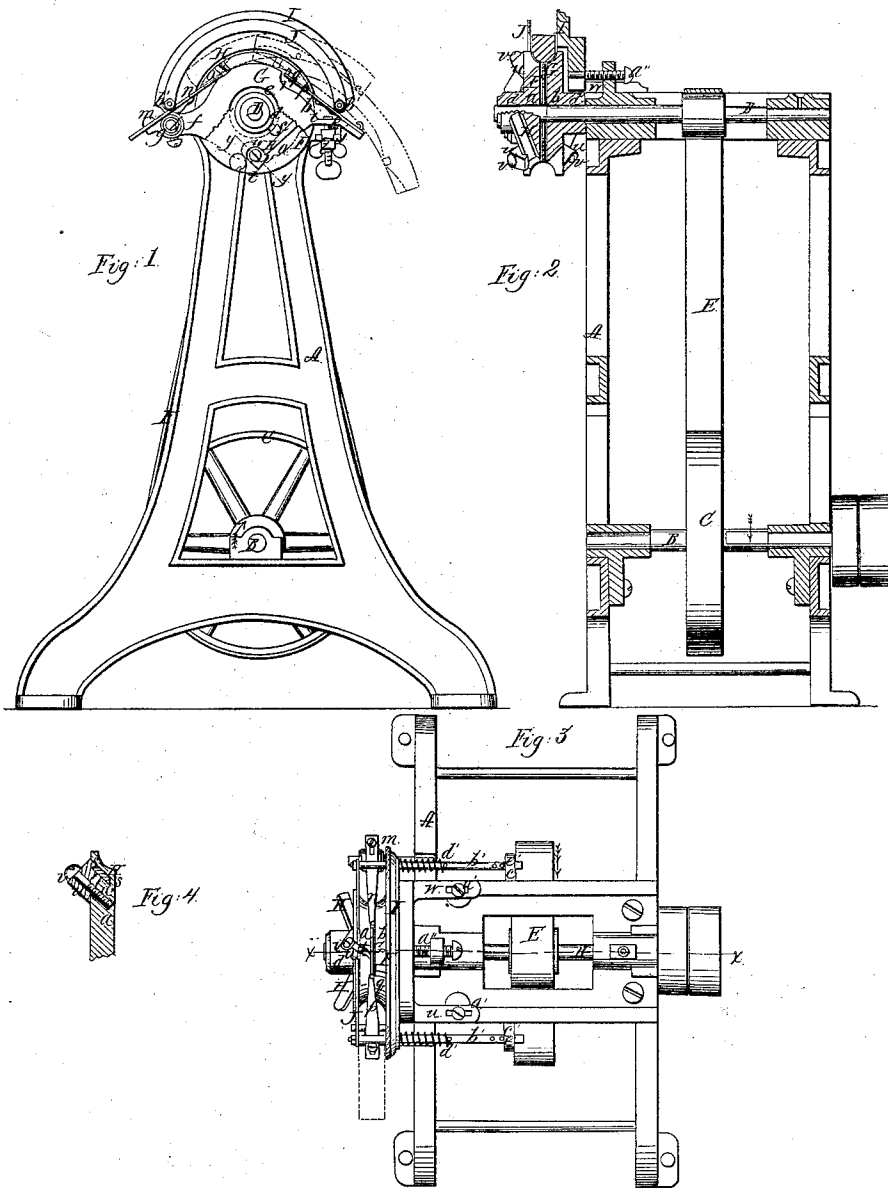


*C. H. Denison,
Making Fellies,*

N^o 31,443,

Patented Feb. 19, 1861.



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UNITED STATES PATENT OFFICE.

C. H. DENISON, OF BRATTLEBORO, VERMONT.

FELLY-MACHINE.

Specification of Letters Patent No. 31,443, dated February 19, 1861.

To all whom it may concern:

Be it known that I, C. H. DENISON, of Brattleboro, in the county of Windham and State of Vermont, have invented a new and Improved Machine for Rounding the Inner Surfaces of Fellies for Wheels; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side sectional view of my invention. Fig. 2, a vertical section of the same, taken in the line *x, x*, Fig. 3. Fig. 3, a plan or top view of the same. Fig. 4, a section of one portion of the cutter head taken in the line *y, y*, Fig. 1, and showing the manner of securing the cutters in the head.

Similar letters of reference indicate corresponding parts in the several figures.

The object of this invention is to obtain a machine by which the inner sides of fellies for wheels may be very expeditiously rounded and the work done in a proper manner, both the sawed and the steamed and bent fellies being operated upon with equal facility.

To enable those skilled in the art to fully understand and construct my invention, I will proceed to describe it.

A, represents a framing which may be constructed in any proper way to support the working parts of the machine, and B, is a horizontal shaft which is placed in the lower part of said framing, and has a pulley C, on it from which a mandrel D, on the upper part of the framing A, is rotated by a belt E.

On one end of the mandrel D, there is fitted a cutter head F, which is formed of two parts *a, b*, each of said parts being a circular disk with a concave periphery as shown in Figs. 2, and 3. The parts or disks *a, b*, are secured on the mandrel D, by set screws *c*, which pass through hubs *d*, of the disks and bear against the mandrel D. The disks *a, b*, are not secured on the mandrel D, in contact with each other. A space is allowed between them in which a circular plate G, is fitted, the diameter of said plate being about equal to that of the inner sides of the disks *a, b*. The plate G, has a central opening *e*, through which the mandrel D, passes, the opening being considerably larger

in diameter than the shaft, so as to admit of a certain degree of adjustment of the plate. At one side of the plate G, there is an arm *f*, which has a socket *g*, attached, and said socket is fitted on a horizontal rod *h*, attached to the framing. At the opposite side of the plate there is also an arm *i*, which rests on a horizontal bar *j*, attached to the framing, the bar *j*, being slotted longitudinally, and the arm *i*, secured thereto by a screw *k*, and jam nut *l*, the screw admitting of the elevating of the arm *i*, and the adjoining side or part of the plate G. This will be fully understood by referring to Fig. 1.

To the arm *f*, there is attached by a screw *m*, a bar *n*, having an upright pin *o*, at its inner end, which rests on the plate G. A similar bar *p*, is attached to the arm *i*, the inner end of the bar being also provided with a pin *q*, but not resting on the plate G, a recess *r*, being made in the plate to allow the bar *p*, to be depressed. The arrangement of the plate G, with its bars *n, p*, and pins *o, q*, is shown clearly in Fig. 1.

To each part or disk *a, b*, of the cutter head, cutters H, are attached. These cutters are made of flat plates of steel, having beveled edges *s, s*, and fitted in oblique slots *t*, in the disks *a, b*. The outer ends of the cutters are made concave to correspond with the peripheries of the disks, and the cutters have a position in the disks tangentially with their hubs, or with circles larger in diameter but concentric therewith. The cutters are secured in the disks *a, b*, by clamps *u*, which are simply small slides grooved at one edge to fit over the outer beveled edges of the cutters. A screw *v*, passes through each slide obliquely into its disk *a*, or *b*, and by being screwed inward causes the clamp to bind the cutter firmly in its slots *t*, and against its inner edge or surface *u'*, see Fig. 4, so that the latter will act like the "cap" of a joiner's plane iron and insure a smooth cutting action of the cutters. The clamp and its screw and the relation of the former with its cutter will be seen by referring to Fig. 4.

I, represents a semi-circular bed or bearing piece which has two horizontal bars *w, w*, at its ends, said bars being slotted longitudinally and having screws *w'*, pass through them into the framing A. This bed or bearing piece it will be seen by this arrangement

may be adjusted laterally on the framing A, a screw a'' , being employed for this purpose, as shown in Figs. 2, and 3.

J, represents a semi-circular bar, the ends of which are attached to rods b' , b' , which pass loosely through the ends of the bed or bearing piece I, and through guides c' , c' . On each rod b' , a spiral spring d , is placed, said springs having a tendency to keep the bar J, inward toward the bed or bearing piece I, pins e' , which pass through the rods b' , controlling the extent of said movement, see Fig. 3.

The operation of the machine is as follows: The shaft B, is rotated in the direction of arrow 1, and the felly to be rounded is fitted between the bed or bearing piece I, and the yielding segment bar J, and held in proper position over the cutter head thereby. The pin o , of the bar n , is fitted in a spoke hole in the felly and the latter bent down over the head so that the cutters H, of the two disks a , b , will round the inner surface of the felly, the latter resting on the plate G, which by being adjusted higher or lower by means of screw h , will cause the inner surface of the felly to be more or less rounded. The cutters round about half of the spaces between the spoke holes in the felly when the latter is retained in one position, and when all the spaces have been thus acted upon, the felly is reversed in position and the remaining parts of the spaces finished, the felly being shoved along after each cut so that the spoke holes in the felly will be fitted consecutively on the pin o . In rounding steamed fellies they are shoved along on the head, and the whole felly of course rounded at one operation, the felly merely requiring to be reversed when one half of the spaces are rounded. But in

rounding the inner surfaces of segment or sawed fellies the ends of the latter are rounded by fitting the spoke holes on pin q , of the bar p , so that the cutters H, will cut from instead of toward the end of the segment, and thereby avoid the splitting or shelling off of the end of the segment. The full space between the spoke holes of the segment felly is rounded in the same way as the sawed felly, to wit, the spoke holes being fitted on the pin o , as shown in red in Fig. 1. The blue felly shows the position of the felly on pin q , when its ends are rounded.

The bars n , p , may be adjusted as desired on their arms i , i , according to the length of the spaces between the holes and the bed, or bearing piece I, may be adjusted on the framing to suit the thickness of the fellies to be operated upon. The disks a , b , of the cutter head may also be adjusted nearer together or farther apart on the mandrel D, as may be desired.

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

1. The adjustable plates n , p , provided with the pins o , q , when used in connection with the plate G, and cutter head F, as and for the purpose set forth.

2. The combination of the adjustable semi-circular bed, or bearing piece I, and yielding bar J, with the cutter head F, plate G, and bars n , p , provided with the pins o , q , all being arranged for joint operation as and for the purpose herein set forth.

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