T. Cox,

Bending Wood.

No. 11,209. Patented July 4, 1854.

Fig. 3.

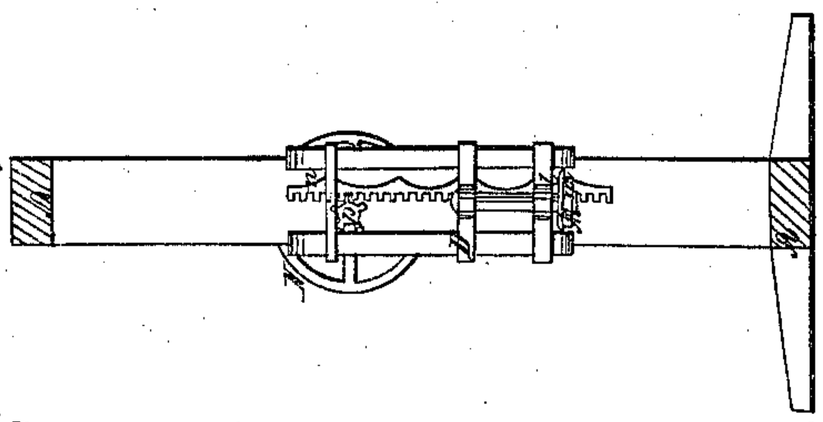


Fig. 7.

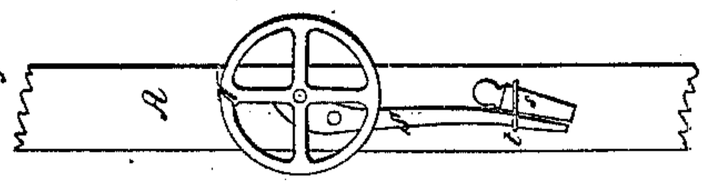


Fig. 2.

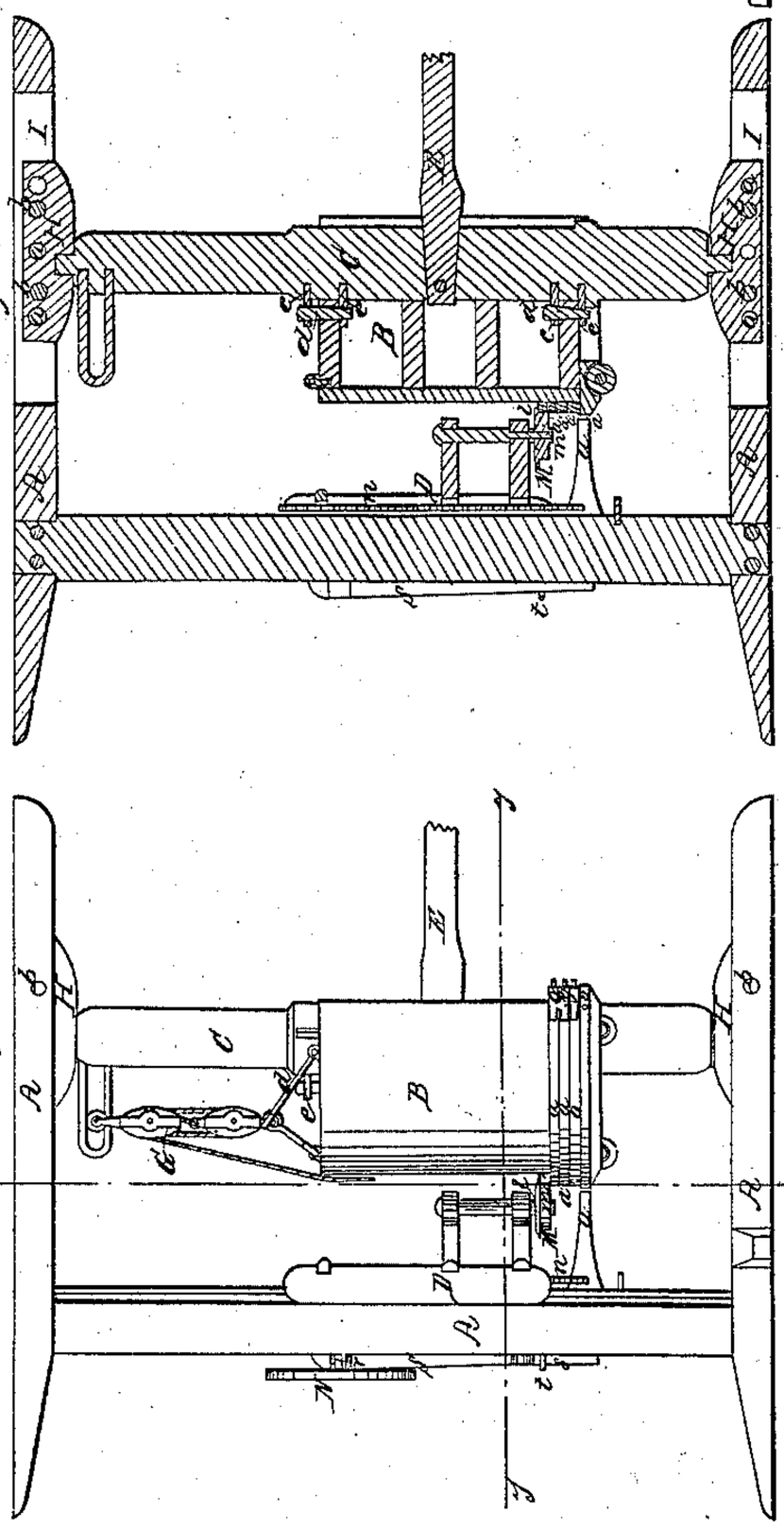


Fig. 4.

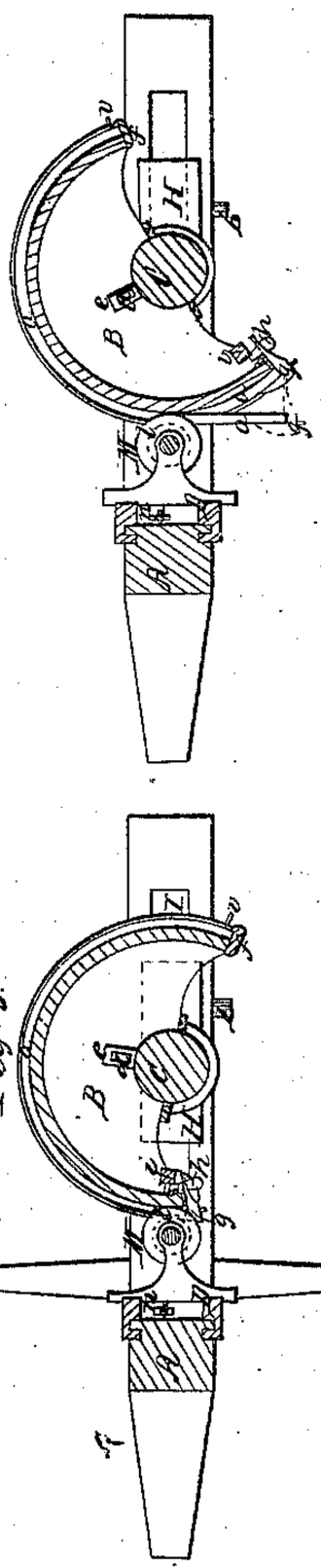
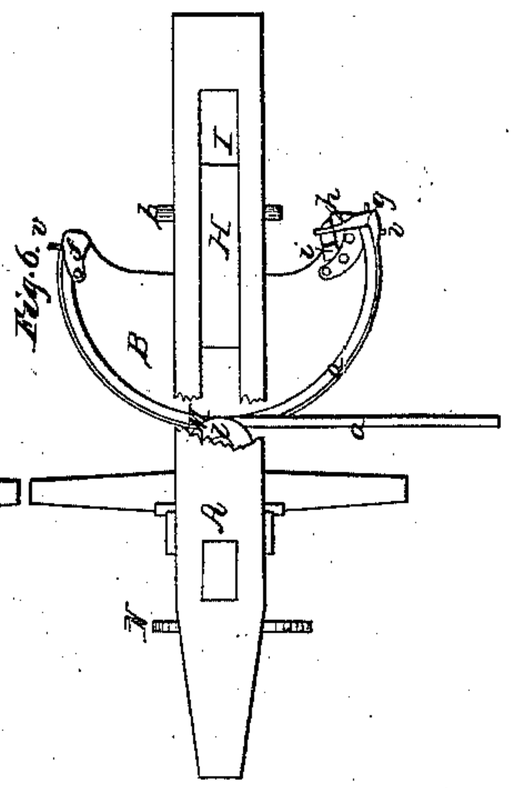


Fig. 1.

Fig. 5.

Fig. 6.



UNITED STATES PATENT OFFICE.

THOMAS COX, OF LANCASTER, PENNSYLVANIA.

MACHINE FOR BENDING FELLIES.

Specification of Letters Patent No. 11,209, dated July 4, 1854.

To all whom it may concern:

Be it known that I, THOMAS COX, of Lancaster, in the county of Lancaster and State of Pennsylvania, have invented a new and Improved Machine for Bending Fellies; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification, Figure 1 being a side elevation of the machine, in the position which it assumes when a felly is about half bent; Fig. 2, a longitudinal vertical section thereof through the center; Fig. 3, a transverse vertical section of the same in the line *x x* of Fig. 1; Fig. 4, a horizontal section of the machine, in the line *y y* of Fig. 1, but in a position when the bending is nearly completed; Fig. 5, a horizontal section thereof in the line *y y*, of Fig. 1 in the position which it assumes just at the moment of completing the bending of a felly; Fig. 6, a plan of the machine, a portion of the frame being broken away, to show certain parts beneath, and Fig. 7 a rear view of the upright portion of the frame and parts attached thereto.

Like letters designate corresponding parts in all the figures.

The nature of my invention consists, first, in the combination of the vibrating felly mold B, with the flanged bending wheel M, arranged and operating substantially as hereinafter specified; secondly, in the manner of perfectly bending the last end of each felly and securing it when completely bent, upon the mold, viz., by the combined action of the bending wheel M, and of the wedge clamp *g*, constructed and operating substantially as hereinafter set forth.

The parts of the machine are mounted in a frame A, consisting essentially of bottom and top horizontal beams connected by a vertical post, in the manner represented. In the two horizontal beams are slots I, I, for the reception of sliding plumber blocks H, H, which bear the shaft C, of the felly mold B. The plumber blocks are respectively provided with corresponding series of holes *a*, *a*, &c., through which pins *b*, *b*, pass and also through holes in the frame, whereby the position of the shaft may be changed so as to bring different sizes of molds always at the proper distance from the bending wheel M.

The felly mold B, is composed of a cylindrical case, built upon suitable frame-work, and extending in circumference, as far as necessary to bend any portion of the whole felly desired. Its diameter depends upon the size of wheel to be made, and its length on the thickness and number of fellies to be bent at one time. It is arranged so as to be readily attached to, and removed from the shaft C, by any convenient means, such as the keys *d*, *d*, passing through slots in the mold-frame and through ears *e*, *e*, which project from said shaft, as represented in the drawings.

A tackle G, may be employed for raising and lowering the felly mold to and from its place on the shaft, as shown in Fig. 1. It is operated by means of a lever E, inserted in the shaft C, and its movements, in both directions, are limited by projections *v*, *v*, upon it, striking a stop *u*, on the frame A.

The bending wheel M, consists of a cylindrical portion *m*, of suitable thickness and diameter, and of a flange *l*, projecting from the upper edge of the cylindrical portion. This bending wheel is mounted, on a vertical shaft, in a strong carriage D, which slides in ways vertically upon the upright post of the frame A, substantially as shown in the drawings. Said carriage is provided with a vertical rack *n*, which plays into a pinion *p*, (Fig. 3,) on whose shaft *r*, is secured a crank, or hand-wheel, N, for the purpose of raising or lowering the bending wheel when and where desired. In order to retain said binding wheel in any position, a vibratory tightening lever S, is arranged upon the back of the frame post, so that its upper end may be caused to bear against and bind the shaft *r*, by pressing against its lower end; which can conveniently be done by means of a loop *t*, and key *s*, arranged as distinctly shown in Fig. 7.

To bend a felly, the mold B, is brought round so that its starting edge may be opposite the bending wheel M; and one end of the prepared material is inserted and held in a groove *f*, on that edge of the mold. The binding wheel is then lowered until its cylindrical portion *m*, bears against the side, and its flange *l*, rests upon the top of the piece; and the carriage D, is confined in that position, by tightening the lever S, if its own weight is not sufficient for the purpose. The mold is then turned so as to bring every part of its periphery successively opposite to the binding wheel, which consequently bends the felly piece closely upon said mold,

in the manner indicated in Fig. 6, where about one half of a felly piece is represented as already bent; and at the same time the flange *l*, holds the felly down in its proper place. Then, just before the binding wheel reaches the last end of the felly, a clamp *g*, which consists essentially of a shank with a slot in it, near one end, for the insertion of a key *h*, and a wedge-shaped prong projecting at right angles from the other end thereof, (as shown in Figs. 4, 5, and 6,) is held by the hand against the unbent end of the felly in the position shown in Fig. 4. While thus situated, its prong is pinched between the bending wheel M, and the felly, and thus powerfully wedges the end of the felly against the mold and bends it perfectly thereon quite to the end, as shown in Fig. 5. Finally, a key *h*, is driven through the clamp between the case of the mold and a vertical bar *i*, situated a little distance therefrom inside, and thereby secures the felly permanently upon the mold; which is then brought back to the first position, and another felly bent upon it in the same manner as before, and this operation is repeated till the mold is filled with bent fellies *a*, *a*, &c. It is then removed from the machine and laid inside until the fellies become perfectly set; in the meantime, other molds being substituted and filled in the same way.

Having thus fully described my improved machine for bending fellies, what I claim therein as new and desire to secure by Letters Patent, is—

1. The combination of the vibrating felly mold B, with the flanged bending wheel M, arranged and operating substantially as herein described.

2. I also claim the manner of perfectly bending the last end of each felly and securing it when completely bent, upon the mold, viz, by the combined action of the bending wheel M, and of the wedge-clamp *g*, constructed and operating substantially as herein set forth.

The above specification of my improved machine for bending the fellies of wheels signed and witnessed this 3rd day of May, 1854.

THOS. COX.

Witnesses:
Z. C. ROBBINS,
E. B. BURR.