

(No Model.)

B. A. J. BLOCK.

WOOD HORSE COLLAR AND PROCESS OF MANUFACTURE.

No. 511,193.

Patented Dec. 19, 1893.

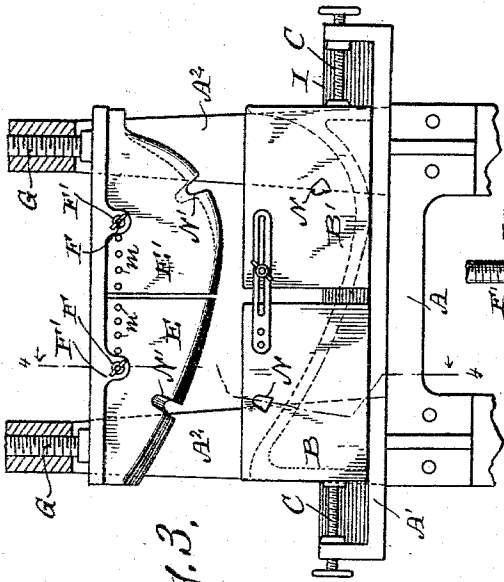


Fig. 3.

Fig. 4.

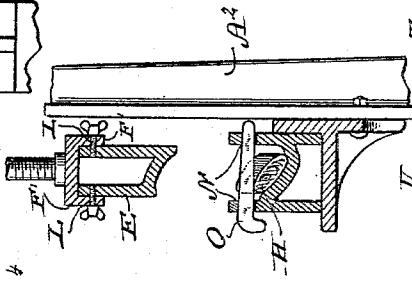


Fig. 5.

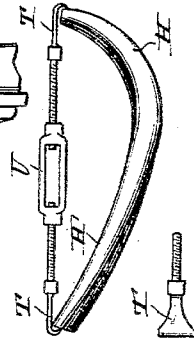


Fig. 6.

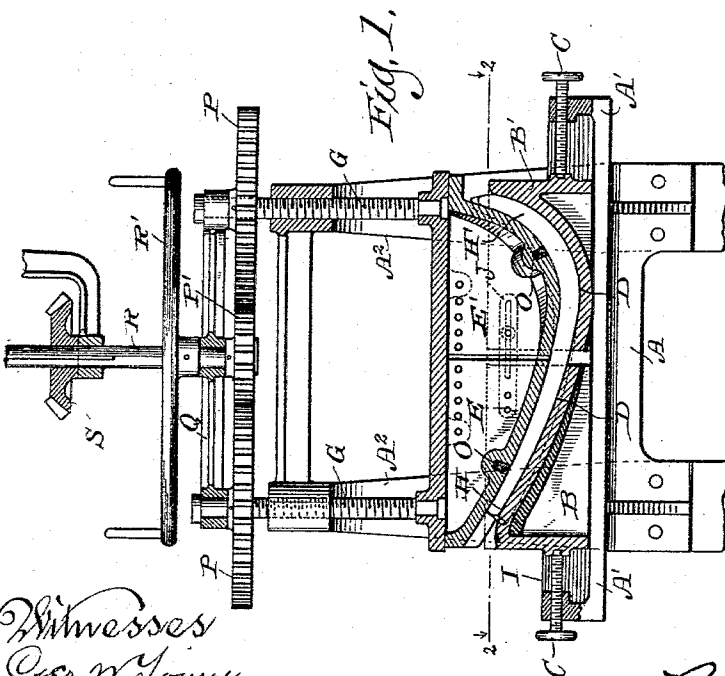
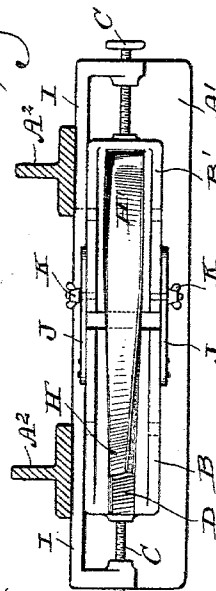


Fig. 1.

Fig. 2.



Witnesses
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WOOD HORSE-COLLAR AND PROCESS OF MANUFACTURE.

SPECIFICATION forming part of Letters Patent No. 511,193, dated December 19, 1893.

Application filed February 16, 1893. Serial No. 462,618. (No model.)

To all whom it may concern:

Be it known that I, BERTHA A. J. BLOCK, of Racine, in the county of Racine and State of Wisconsin, have invented a new and useful Improvement in Wood Horse-Collars and Means for and Processes of Manufacturing, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The object of my invention is to provide means for shaping a horse collar, or collar and hame combined, from a strip of wood of suitable size without cutting away any of its parts, by bending and twisting the wood thereby obviating waste of material and securing the maximum of strength in the collar by reason of utilizing the straight fibers or grain of the wood.

With this object in view my invention consists of the mechanism for forming the collar hereinafter described and claimed.

In the drawings, Figure 1, is a view mostly in longitudinal vertical section, of the principal mechanism, by which the collar is formed, involved in my invention. Fig. 2, is a plan view looking downwardly, on line 2—2 of Fig. 1. Fig. 3, is a side elevation, of a portion of the mechanism shown in Fig. 1. Fig. 4, is a section of the mechanism shown in Fig. 3 on line 4—4 thereof, looking toward the left. Fig. 5, is a view of an additional device, used with the partially completed half-collar, to hold it in position during the period of its setting, or hardening in position, the figure also showing a half of the complete collar, exhibiting the improved features of the collar. Fig. 6, is a detail in plan of a part of the mechanical device shown in Fig. 5.

In the drawings, A, is a frame of suitable form and construction to support the operative mechanism, only fragments of the legs or posts of which frame are shown, the remainder being omitted for convenience of illustration. A bed piece A', is supported rigidly on the legs of the frame, and, with the upwardly extending arms A², is a part of the permanent frame. A reverse die formed in two parts B and B', rests movably on the bed piece A'. The reverse die is divided centrally vertically and its two parts B and B' are adjusted to position toward or against

each other by the set screws C, C, turning through flanges on the bed piece A', against the ends of the parts B and B', respectively. The reverse form of the die D, is constructed in the upper side of the parts B and B' and curves downwardly medially. An obverse die formed in two parts E, E', is removably attached to the under surface of the movable plate F, mounted on the lower extremities of the screws G, G, turning reversely in the upper overhanging extremities of the arms A²A².

The lower or reverse die is formed to receive and shape the outer surface of the collar, and the upper or obverse die is formed to bear against and shape the inner surface of the collar, the two dies being in form substantially counterparts of each other. That portion of the die formed by the parts B and E is constructed to slightly curve or bend longitudinally the interposed piece of wood placed between them to form that part of the collar, and that part of the die formed by the parts B' and E' is adapted to bend or curve the lower part H (Fig. 5) of the collar more abruptly longitudinally, and also to twist it laterally relative to the lateral plane of the upper part (H') of the collar. A flange I along one edge of the bed piece A' forms a guide and bearing for the parts B and B'. These parts are connected together adjustably by the straps J, J, attached at one end to one part of the die and secured to the other part by screw threaded pins K, K, fixed in the other parts of the die and projecting through longitudinal slots therefor in the straps, the pins being provided with winged nuts turning thereon against the straps to lock them temporarily in place. As the reverse die is formed in two parts B and B', these parts may be adjusted so as to abut each other, or may be removed a little distance from each other, to adapt them to receive and form a shorter or longer collar, the dies being held up to position with reference to each other by the set screws C, C, and being locked in place relative to each other by the straps I.

Parts E and E' are attached removably and adjustably to the plate F by means of clamping screws L, L, extending through lugs F', on plate F, into apertures M, M, arranged for the purpose of adjustment horizontally,

in a series in the upper edge of the parts E E'. By this means the parts E E' may be adjusted to abut against each other or may be removed from each other laterally, to correspond with and complement the adjustment and form of the lower die. Transverse apertures N, N, are provided in the parts B, B', for inserting holding pins O, O, and registering recesses N' N', are formed in the edge of the upper die.

The screws G, G, are swiveled in the plate F, and are adapted to be concurrently rotated by means of the toothed wheels P, P, rigid thereon, which wheels mesh with the interposed pinion P' P', fixed on the shaft R, provided with the rigid hand wheel R'. The shaft R is journaled in the cross head Q mounted on the screws G, G. The shaft R, may also be rotated from a power supply by means of the pinion S, splined thereon.

In the process of manufacturing the collar, the clamp shown in Fig. 5, is used, which consists of the two claws T, T, having reversely screw-threaded tangs on which the double tightening nut V turns, uniting the claws mechanically, and forming the adjustable clamp.

The improved collar is manufactured in two parts, one of which parts is shown in the process of being constructed, in Fig. 5, and is sufficient to illustrate the complete collar, as the other part is a reverse counterpart of the one shown.

In manufacturing these collars a piece of wood of suitable quality reduced to proper size and straight with the grain, is saturated with moisture either by soaking it in water or steaming it in the manner common for preparing wood for bending it. The piece is then placed between the obverse and reverse dies of my machine shown in Fig. 1, the dies at the time being separated from each other far enough to permit the piece of wood to be readily placed between them, and the obverse die is then pushed down on the piece of wood, forcing it against the reverse die, bending it longitudinally and twisting it laterally, into the form of the space between the dies. The wood is allowed to remain in this form and position in the machine for a brief time until the fibers of the wood shall have adapted themselves to and fully taken the form required, and thereupon the holding pins O, O, are inserted through the parts B B', directly above and bearing against the now formed collar. The upper or obverse die is then raised and the clamp (shown in Fig. 5) is put on. Thereafter the pins O, O, are withdrawn and the collar still held by the clamp is removed from the reverse die and is allowed to harden and thoroughly set, being held against resuming a straighter or initial form by the clamp. By a similar process the complementary, or other half of the collar is formed.

Having thus described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. The combination, substantially as described, of an obverse and a reverse die, said dies being divided transversely medially into two parts one of which parts (obverse and reverse) is formed to curve and the other part to curve and twist an interposed piece of wood to suitably form a section of a horse collar, and means supporting the dies for bringing them toward each other concurrently against the piece of wood forcibly so as to compel conformation thereto.

2. A horse collar former, consisting of an obverse and a reverse die, mounted in a frame in which the obverse die is movable toward and from the reverse die, the dies being formed at one place to curve and at another place to curve and twist an interposed piece of material to suitably form a section of a horse collar, and being divided transversely into two parts, (each having the obverse and reverse of the die) at a point adjacent to but not across that part of the die adapted to twist the interposed material, the parts being adjustable toward and from each other, substantially as described.

3. The combination, of a supporting bed piece having a flange extending upwardly therefrom longitudinally thereof, a reverse die divided medially transversely into two parts resting on the bed piece and bearing against and guided by the flange, and set screws turning in the bed piece against the ends of the parts of the die respectively whereby the parts of the die are adjusted toward and from each other, substantially as described.

4. In a collar former, the combination of a reverse die divided transversely medially into two parts B and B' having transverse apertures N, holding-pins O O and the tying straps J J secured adjustably to the parts B B', substantially as described.

5. The combination of a suitable bed piece, a reverse die divided transversely medially into two parts B and B', set screws C turning in the bed piece against the ends of the parts B and B', and adjusting and holding straps J secured to the parts B and B', substantially as described.

6. In a horse collar former, the combination of a supporting frame, a plate F suspended movably in the frame, an obverse die in two parts E and E' provided with a series of apertures m, and clamping screws L turning severally into the parts E E' through lugs on the plate F, whereby the parts of the die are supported adjustably on the plate, substantially as described.

7. In a horse collar former, the combination with a supporting frame, of a reverse die divided transversely medially into two parts resting movably on the frame, set screws turning in the frame against the ends of the parts of the reverse die, an obverse die also

divided transversely medially into two parts,
a plate mounted in the frame adjustable in
a right line toward and from the reverse die,
on which plate the two parts of the obverse
5 die are suspended adjustably opposite to and
so as to register with and complement the re-
verse die, substantially as described.

In testimony whereof I affix my signature in
presence of two witnesses.

BERTHA A. J. BLOCK.

Witnesses:

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