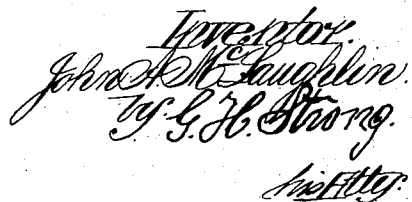


3 SHEETS—SHEET 1.



J. A. McLAUGHLIN.
HORSESHOE MAKING MACHINE.
APPLICATION FILED AUG. 10, 1910.

1,010,934.

Patented Dec. 5, 1911.

3 SHEETS-SHEET 2.

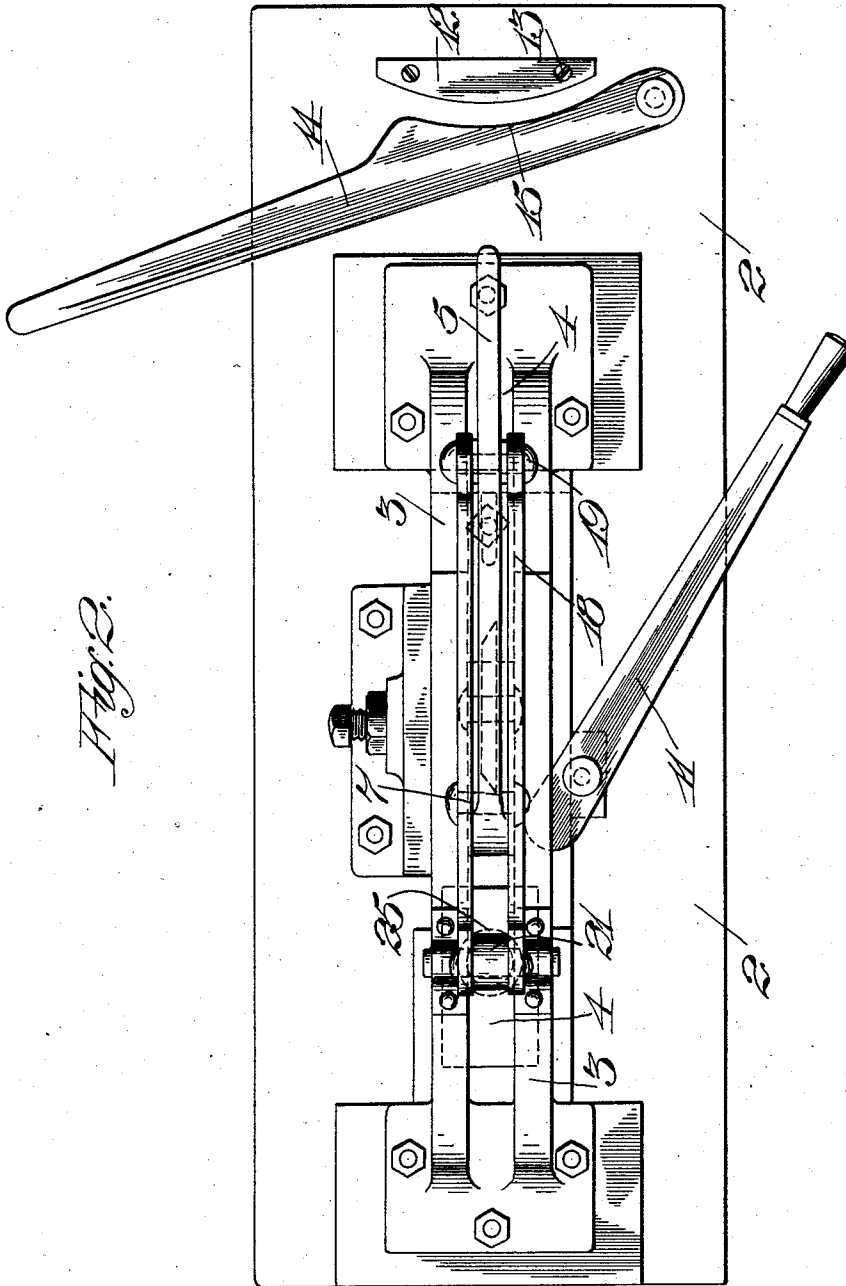


Fig. 2.

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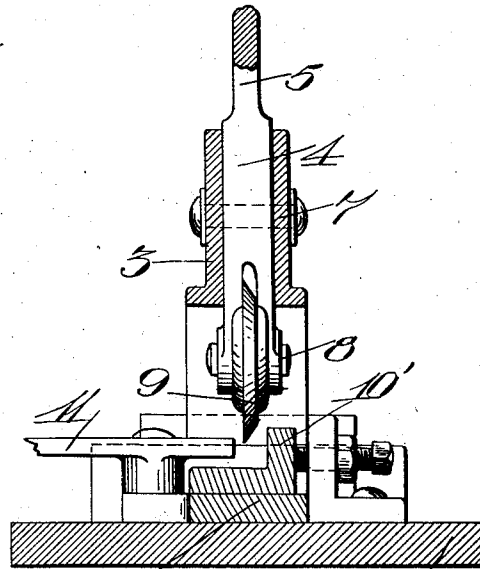


Fig. 5.

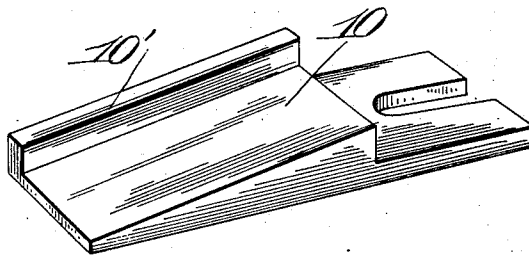


Fig. 4.

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UNITED STATES PATENT OFFICE.

JOHN A. McLAUGHLIN, OF SAN RAFAEL, CALIFORNIA, ASSIGNOR OF ONE-HALF TO
WILLIAM L. DEYSHER, OF SAN ANSELMO, CALIFORNIA.

HORSESHOE-MAKING MACHINE.

1,010,934.

Specification of Letters Patent.

Patented Dec. 5, 1911.

Application filed August 10, 1910. Serial No. 576,473.

To all whom it may concern:

Be it known that I, JOHN A. McLAUGHLIN, citizen of the United States, residing at San Rafael, in the county of Marin and State of California, have invented new and useful Improvements in Horseshoe-Making Machines, of which the following is a specification.

This invention relates to forming machines and particularly pertains to a machine used for the manufacture of horseshoes from blank stock.

The object of this invention is to provide a powerful, simple and manually operable machine for the manufacture of horseshoes; to provide a machine to be used, and adjusted, to facilitate the manufacture of horseshoes of different sizes; to provide means in combination whereby a piece of blank stock may be suitably bent to form the blank shoe, means whereby the holes for the reception of the nails may be punched.

This invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed having reference to the accompanying drawings, in which—

Figure 1 is a side elevation of the machine. Fig. 2 is a plan view of the same. Fig. 3 is a transverse vertical section. Fig. 4 is a perspective view of the inclined flanged anvil. Fig. 5 is a transverse vertical section showing the inclined position of the punch. The present embodiment of my invention comprises a table or base plate 2, upon which may be removably secured or integrally formed therewith arched bearing plates 3, between which is a space 4 of suitable width for the reception and guidance of a bell crank lever 5, pivoted at 6 upon a removable bolt or pivot 7.

Upon the short angular extension or arm of the lever 5 is pivoted, at 8, a suitable fullering wheel 9, and adjustably fastened by means of screws, bolts or other devices, upon the table 2 and below the wheel 9, is an inclined flanged anvil 10, between which anvil and the roller the shoe is clamped, during the fullering operation, by means of a vise lever 11.

Preferably before the shoe is placed upon the anvil 10, it is first bent, to form the quarter of the shoe, about a fixed die plate 12, removably attached by bolts or screws as

at 13, to some convenient portion of the bed-plate or table 2 of the machine. One of the edges of this die plate is in the form of a convex curve and which, in cooperation with a swinging lever arm 14 having a concaved complementary face 15, will give to the blank the desired curvature when the blank, which has been previously heated to the desired temperature and is sufficiently flexible, is clamped by the arm 14 and when this is firmly and powerfully swung upon the blank to press it against the fixed die plate 12. After one side of the shoe has been given a reasonable amount of curvature, the blank is turned end for end and the other side of the shoe formed.

While the partly formed shoe is still in the heated condition it is then transferred by the operator to the anvil 10 and this is adjusted so as to allow the proper thickness between its inclined face and the movable fullering wheel 9. When the proper adjustment of the anvil has once been obtained it needs no further change until it is desired to form shoes of a different size. The shoe, having been adjusted upon the anvil 10, is firmly clamped thereon by the jaw of the vise lever 11. The operator still holding the shoe firmly in place by means of the handle of the lever 11 at the same time grasps the upper, handled, long arm of the lever 5 and gradually swings it downwardly until the fullering wheel 9 engages the face of the inclined shoe and the wheel sweeps firmly and gradually along the upper exposed face of the shoe.

The transverse shape of the fullering wheel 9 is preferably flat on one side and is beveled on the opposite side, so that its edge will form a groove, triangular in cross section, on the face of the shoe, the vertical edge of the groove being practically parallel with the vertical adjacent edge of the shoe, and the inclined face of the groove slanting upwardly and outwardly toward the outer edge of the bar of the shoe. This groove is generally known in the art as the "fullering" in which the nail holes are punched.

After the two fullering creases have been made in the heated shoe in successive operations, the operator then raises the operating lever 5, lifts the shoe from the anvil 10 and places it upon a perforated die 16 adjustably mounted, below the arched bearing 3, upon

the bed or table 2 of the machine. Vertically movable above this die and guided in suitable bearings in the plates 2 is a punch 17 adapted to be pressed, obliquely downwardly by means of a toggle and lever connection with the operating lever 5. This toggle and lever connection comprises links 18 pivoted at 19 on the lever 5, and at 20 in the upper end of a cam bar 21 having formed on its lower end and turnable about the bolt 22 a cam 23 bearing upon the T-plate 24 at the upper end of the punch 17. Interposed between this T-plate and the bars of the punch is a suitable spring 25 whereby the punch is normally elevated and the T-plate is kept in contact with the cam 23.

The perforated die is preferably formed with a flange 26, the function of which is to engage one edge of the shoe as it is placed on the face of the die and over the perforation, so that the operator may act with rapidity in moving the shoe about the face of the die without fear of its slipping from side to side and thus causing the nail holes to be improperly located.

When a shoe has been placed on the die the lever 5 is then grasped and pulled downward. This will result in the depression of the punch 17 by the cam 23 and the shoe will be perforated.

It is common in the manufacture of horse-shoes to punch the holes for the nails at a slight angle and for that reason I prefer to mount the detachable and interchangeable punch point 27 at a slight angle which will automatically and positively punch the holes at the desired angle without any effort on the part of the operator to position the shoe at any peculiar or particular relation on the die.

In order to prolong the wearing quality of the fullering wheel and of the punch, I have provided suitable nozzles 28 adjacent and connected to each, and to these nozzles a supply of cooling fluid, such as water, which may be delivered from any suitable source of supply, valves 29 being provided to control the volume of water delivered to the nozzles, the purpose of the nozzles being to keep the operating fullering wheel and punch from becoming overheated and thus softening and becoming ineffective. The manifest advantage in cooling these tools is that it will be unnecessary to renew or re-sharpen them as frequently as they would have to be if they were not kept cool during the operation.

A particular feature of the invention is

the adjustability and renewability of the anvil and of providing it with a vertical flange 10' for the guidance and support of the shoe. This flange not only serves to form a stop against which the shoe abuts when the operator places it on the anvil, but it also assists the clamping of the shoe by means of the vise lever and supports the exterior edge of the quarter of the shoe while the fullering operation is being performed.

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

1. In a horse-shoe making machine, a fullering mechanism comprising an inclined flanged anvil, a lever pivoted between its ends to form a long and short arm thereon, and a fullering wheel mounted in the short arm of said lever, and operable over said anvil.

2. In a horse-shoe making machine, a fullering mechanism comprising an inclined flanged anvil, a lever pivoted between its ends to form a long and short arm thereon, and a fullering wheel mounted in the short arm of said lever and operable over said anvil, said fullering wheel being substantially flat on one side and beveled on the opposite side to form a groove substantially triangular in cross section.

3. In a horse-shoe making machine, a fullering mechanism comprising an anvil, a lever pivoted between its ends to form a long and short arm thereon, and a fullering wheel mounted in the short arm of said lever and operable over said anvil, said anvil being adjustable and provided with a vertical flange for the guidance and support of the shoe.

4. In a horse-shoe making machine, a fullering mechanism comprising an anvil, a lever pivoted between its ends to form a long and short arm thereon, and a fullering wheel mounted in the short arm of said lever and operable over said anvil, said anvil being adjustable and provided with a vertical flange for the guidance and support of the shoe, and a vise lever for clamping the shoe on the anvil, said flange adapted to support the exterior edge of the quarter of the shoe during the fullering operation.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN A. McLAUGHLIN.

Witnesses:

J. FOUNESBECK,

ARTHUR W. STUDLEY.