W. GIBSON.

HORSESHOE MACHINE.

No. 3,392. Patented Dec. 27, 1843.

Fig. 4.

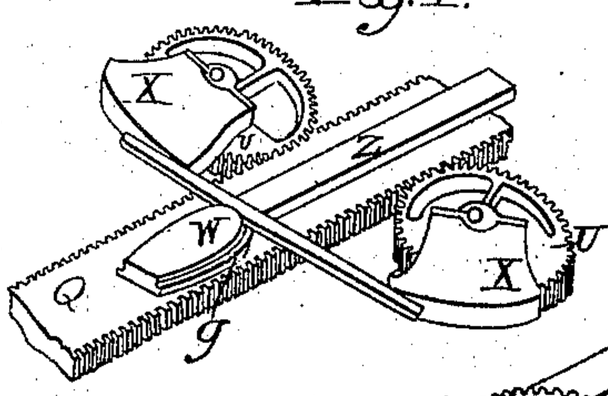

Fig. 2.

Fig. 3.

Fig. 5.

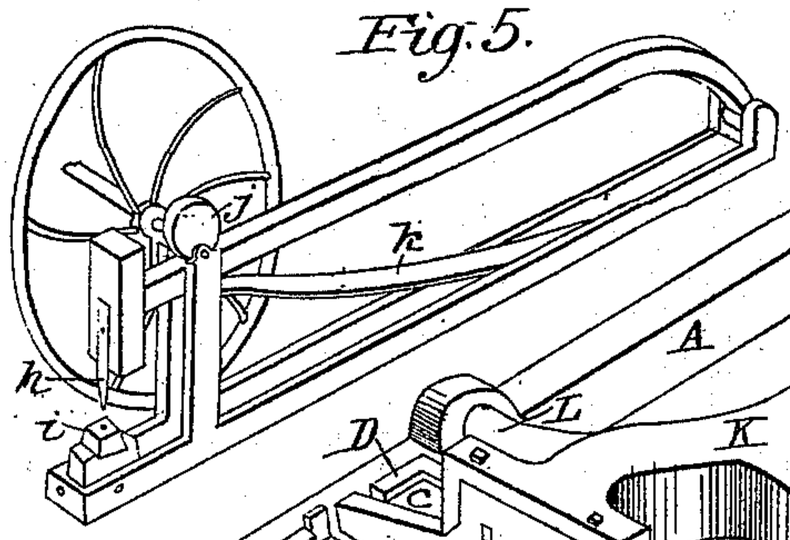

Fig. 1.

UNITED STATES PATENT OFFICE.

WM. GIBSON, OF TROY, NEW YORK.

MACHINE FOR THE MANUFACTURE OF HORSESHOES.

Specification of Letters Patent No. 3,392, dated December 27, 1843.

To all whom it may concern:

Be it known that I, WILLIAM GIBSON, of the city of Troy, in the county of Rensselaer and State of New York, have invented a new and useful Manner of Constructing Machinery for the Manufacturing of Horseshoes; and I do hereby declare that the following is a full and exact description thereof.

In the accompanying drawing Figure 1, is a representation in perspective of the machine by which the bar or iron from which the shoe is to be made is to be cut off, upset edgewise, creased, and in part punched for the nail holes. A, A, is the main frame, or bed, of the machine which I make of cast iron, and which may be about three feet long and two feet wide, more or less.

B, B, is a stationary die fixed firmly upon the front of the machine, and between the inner end of which, and a movable die, the iron bar is to be pressed and upset edgewise. C, C is the movable die which is held in the die box D, D, and is made to vibrate back and forth by the action of a cam on the main driving shaft. The die C, C, may be made to slide back and forth in grooves in the sides of the bed piece A, A; but I prefer to allow it to work on centers, for which purpose I extend hangers or arms, down from the under side of the die box D, D, at each end; one of these arms is shown at E, with its center, or joint pin, at *a*. The die C, C, I make concave on its front edge, so as to upset the ends of the iron which is gripped between it and the die B, B, and to give to it the proper form widthwise. The concavity of the die C. C. and the amount of the consequent upsetting of the iron may be regulated at pleasure.

F, F, is a bar which is jointed to the die box D, at F′, and at its opposite end it bears against a vibrating arm G, working in a joint pin at its lower end. The arm G, is acted upon by a cam H, on the main shaft I, I, of the machine. The cam H, is circular at the part marked H, H, so as to hold the die C, C, stationary, while the iron is being creased and punched; but at the part H′, it is so formed as to allow the die to retreat when the creasing is completed, which it does by the action of a spring.

J, J, is the creasing and punching head which has on it two creasers and punchers *b*, *b*, that are brought down upon the iron while it is gripped between the dies B and C. The head J, is attached to a lever K, K, that is hung on centers at L, L, and it is raised and lowered at the proper time by the cam M, on the main driving shaft. N, is a pushing rod or clearer, for removing the iron after it has been creased and punched; this may be operated by a crank *c*, on the end of the shaft I, as shown in the drawing. In using this machine the iron is fed in at O, in front of the stationary die B, B, and rests on the bed of said die; as the die C, C, approaches it, the bar is cut off by the steel cutters *d*, and *e;* the dies B, and C, then grip and upset it, after which the creasing and punching head is brought down, and on the raising of this the iron is pushed off by the rod N, and is ready to be acted on by the bending machine, to be now described. Fig. 2, is a perspective view of the bending machine, and Figs. 3 and 4, are parts of the under side thereof.

The main frame, or bed P, P, of this machine may be like that marked A, A, Fig. 1. Q, Q, is a double rack made fast to the bed P, P, and R, R, is a sliding table which by means of a pitman S, and a crank T, on the driving shaft T′, T′, is made to traverse back and forth on ledges or grooves formed in the frame, or bed P, P. The table R, carries two wheels U, U, which gear into the double rack Q. The gudgeons of these wheels enter the table R, and are connected at top by the bridle V.

On the under side of the double rack is the former, W, Figs. 3, and 4, which is made fast to it and determines the form of the inside of the shoe; and on the under sides of the wheels U, are the benders X, X, which are so shaped as to be adapted to the former W. The piece of iron which has passed through the machine, Fig. 1, is to be laid on the table R, by the aid of the adjustable gage pieces *f*, *f*, at the time when said table is nearest to the driving shaft, T′; the former being so situated on the under side of the rack Q, as that the piece of iron to be bent will be then just in front of it. As the driving shaft revolves, a cam Y, fixed upon it, will force forward a sliding bar Z, which will press the piece of iron to be bent against the former W, and as the table R, recedes from the driving shaft the benders X, X, will, by the revolution of the wheels U, U, be brought into action and complete the bending; during

this operation the iron is confined between the table and the recess *g*, *g*, on the former, and will be thus made to assume the required shape. When removed from the table the punching of the nail holes through the shoe may be completed by means of the apparatus shown at Fig. 5, where *h*, is a punch, and *i*, a bed, or die, on which the shoe may be held by hand; the punch being forced down by a cam *j*, on a revolving shaft, and raised by a spring *k*, in a manner which does not require further description.

Having thus fully described the nature and operation of my machinery for manufacturing horseshoes, what I claim therein as new, and desire to secure by Letters Patent, is—

1. The combination and arrangement of the parts concerned in the cutting off, the gripping, and the creasing and punching, so that these operations shall be performed by the cutters *d*, *e*, the dies C, B, and the creasers and punchers *b*, *b*, all operating as herein set forth.

2. I claim the manner of combining and arranging the respective parts of the apparatus for bending the shoe, as above described, said apparatus consisting of the stationary double rack, with the former on its under side, the sliding table, the two cog-wheels with their benders, and the sliding bar by which the piece is held against the former, the whole apparatus being constructed and operating substantially as herein set forth; not intending, however, to limit myself by this claim to the exact form of the respective parts as herein made known and represented, but to vary these as I may deem expedient, while I attain the same end by equivalent means.

WILLIAM GIBSON.

Witnesses:
J. L. LANE,
JOHN T. LAMPORT.