

No. 122,893.

Patented Jan. 23, 1872.

William R. Justus  
Assignor to  
Shoenberger & Co.  
Imp't in  
**HORSE SHOE MACHINES**

Fig. 1

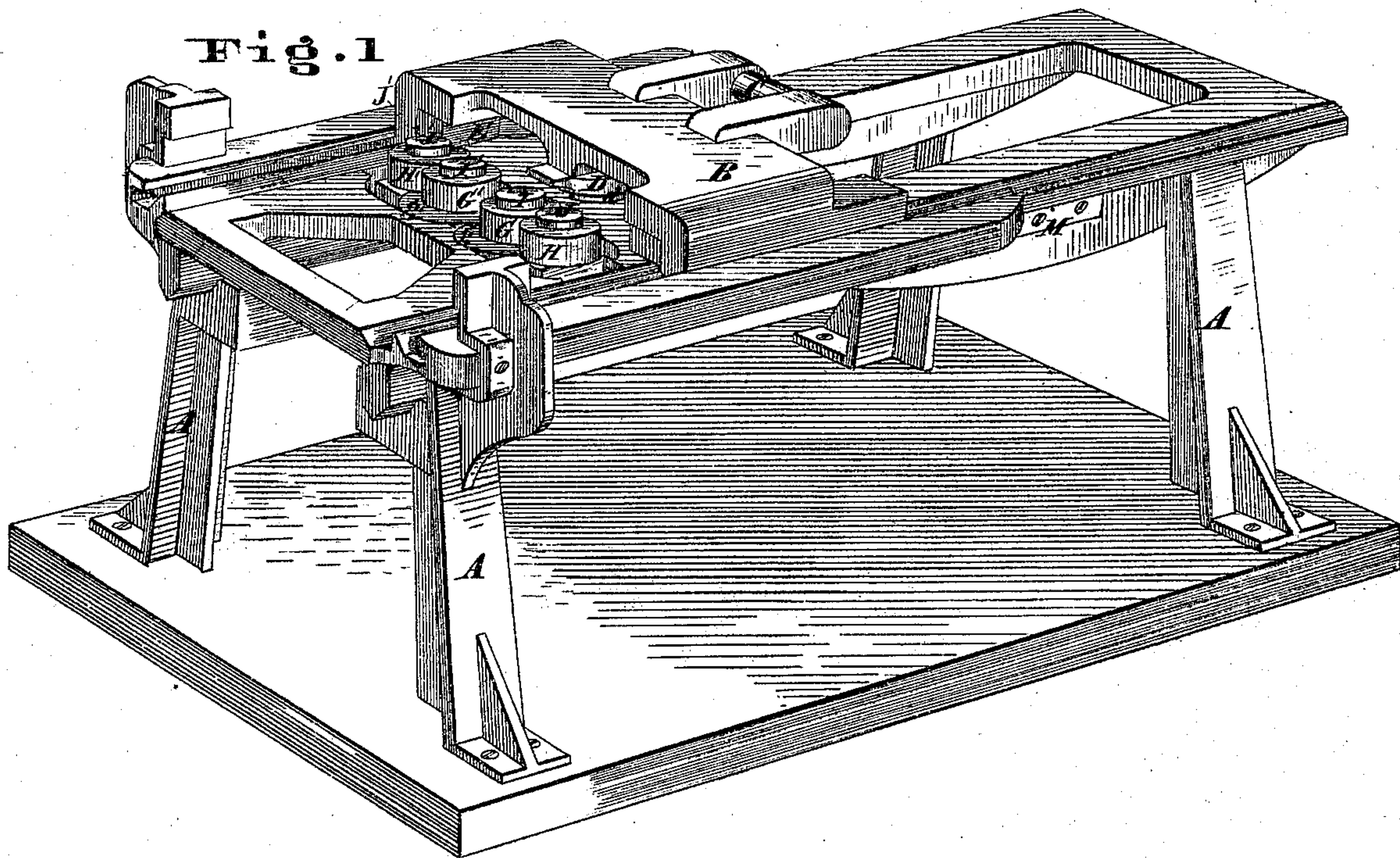


Fig. 2

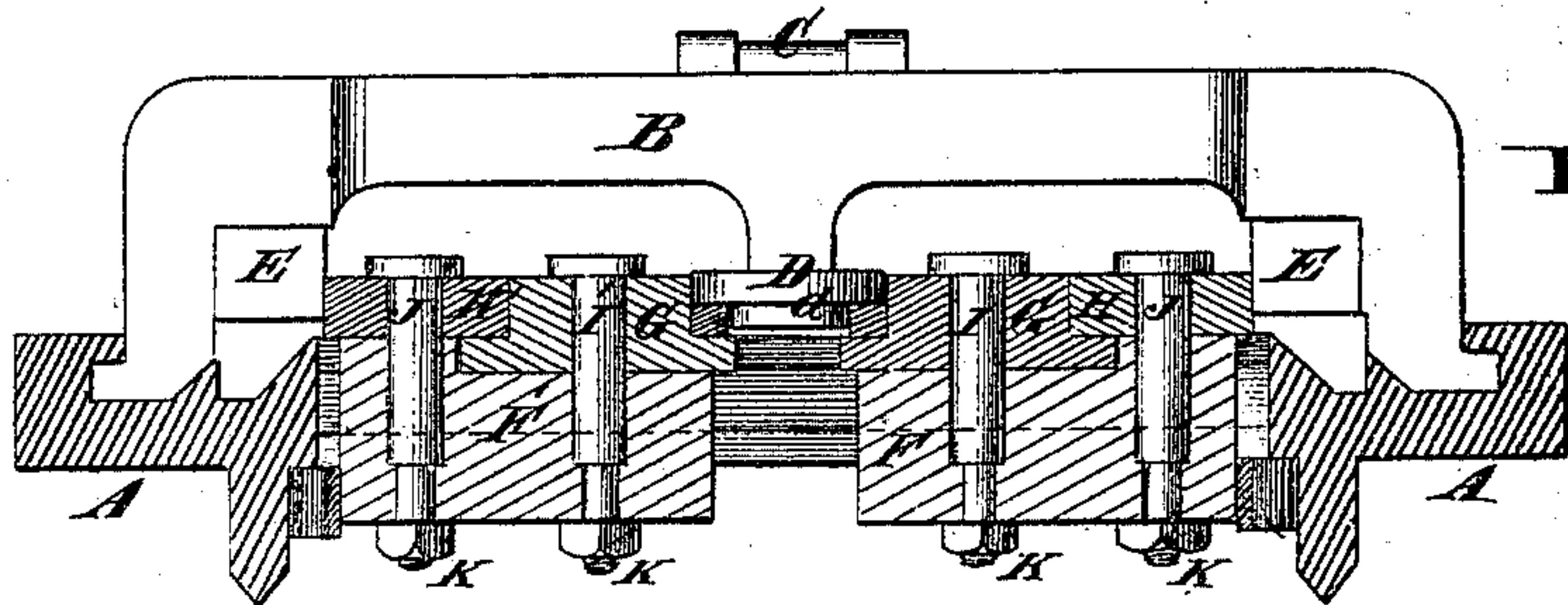
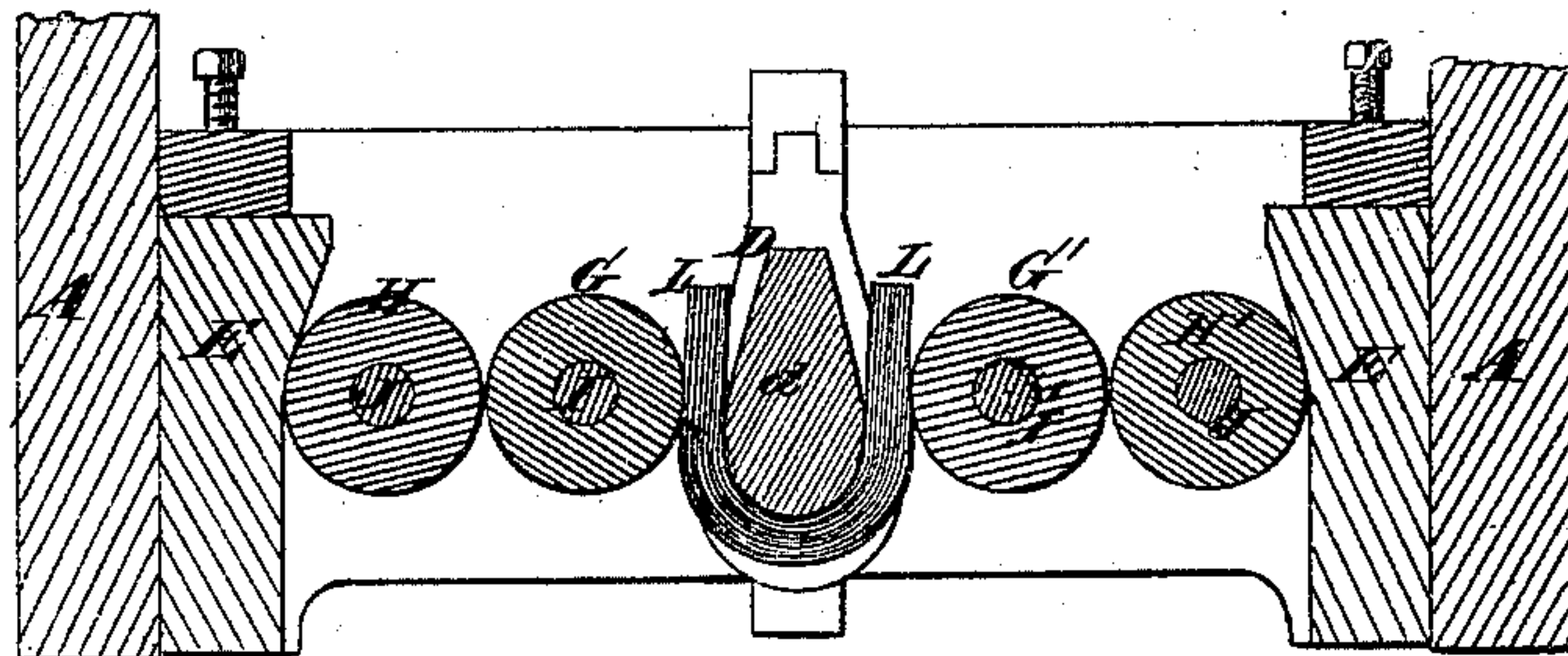


Fig. 3



Attest

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# UNITED STATES PATENT OFFICE.

WILLIAM R. JUSTUS, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO SHOENBERGER & CO., OF SAME PLACE.

## IMPROVEMENT IN MACHINES FOR MAKING HORSESHOES.

Specification forming part of Letters Patent No. 122,893, dated January 23, 1872.

I, WILLIAM R. JUSTUS, of Pittsburg, Allegheny county, State of Pennsylvania, have invented a certain new and useful Improvement in Horseshoe-Machines, of which the following is a specification:

### *Nature and Objects of Invention.*

My invention relates to the class of horse-shoe-benders which are constructed with a head fitted with the shoe-form and side guides, the head operating in connection with four forming-rollers, two of which act upon the shoe, the others traversing the guides to confine the shoe-formers to a prescribed path; and my invention consists in a certain arrangement of the "form," side guides, and swaging or forming rollers, by which all four of the rollers are placed in one line or row, the inner two of the row acting upon the "form" and the outside two against the side guides in such a manner that the peripheries of the outer and inner rollers are in contact. This arrangement, inasmuch as the strain upon the inner rollers is outward and the strain upon the outer ones is inward, and the direction of rotation of the rollers which touch is opposite, relieves the bearings and journals of the rollers from strain and consequent wear almost entirely.

### *Description of the Accompanying Drawing.*

Figure 1 is a perspective view of a horse-shoe-bending machine embodying my invention. Fig. 2 is a vertical cross-section through the rollers. Fig. 3 is a plan of the shoe-"form," forming-rollers, and side guides.

### *General Description.*

A is the frame of the machine, and B the traveling former-head. The latter is operated in the usual way in machines of this style, by crank-shaft and pitman connected with the wrist C, and it is fitted on the under side with the shoe-form D and the side guides E, the latter being detachable and adjustable in both directions. The part of the form D on which the shoe is bent (marked *d*) is on the same horizontal plane as the side guides E, so that pressure imparted to the rollers by the action of the guides is received by the shoe-form in a direct line. Slides are constructed across the frame of the machine to receive the sliding

boxes F F', which are adapted to move outward and inward in the operation of the swaging-rollers in following the shoe-form and side guides. To each of the sliding boxes F F' two rollers, G H and G' H', are journaled, the rollers G G' being adapted to traverse the shoe-form D *d*, and the rollers H H' to traverse the side guides. The rollers G G' are formed with flanges *g g'*, on which the horse-shoe-blank rests in the process of bending. The bolts I I' and J J' serve the double purpose of connecting the rollers to the sliding boxes and forming journals on which the rollers revolve. They are secured by nuts K. The boxes F F' are T-shaped in cross-section, in order that by fitting a corresponding shape in the frame they may be properly supported in place. The rollers G G' H H' are arranged, as shown, in one line or row, the tops being in the same horizontal plane. With this arrangement of the rollers in connection with the location of the form D and side guides E, the pressure of the side guides upon the rollers H H' in the operation of the machine is imparted to shoe-blank L through boxes F F' and rollers G G' in such a way that the boxes F F' cannot be canted in the operation. For the purpose of relieving the journals of the rollers from excessive strain in the operation of the machine I connect the rollers to the boxes in such a manner that the peripheries of the rollers G G' touch the peripheries of the rollers H H', as shown in all the figures of the drawing. By reason of the latter construction and arrangement each roller forms a rolling, almost frictionless, abutment for the other, with which it is in contact, and the journals upon which the rollers revolve are thereby relieved from the excessive strain incident to horseshoe-benders in which each roller is independent of the others. The side springs M return the rollers and boxes to the central position after the formation of a shoe, the shoe being bent in the same manner as in other machines for this class by placing the blank between the shoe-form and rollers and causing the form and blank to pass between the rollers G G' by the reciprocating motion of the traveling head B. I arrange the rollers so that G G' touch H H' for the purpose only of preventing severe strain upon the roller-journals; and this specific ar-

range-ment, therefore, may be dispensed with in cases where the effect is not desirable or important and the rollers made to act independently; but it is important in all cases, for the reasons already specified, that the rollers should be arranged all four in a single line or row.

I am aware that in horseshoe-machines the swaging-rollers, guides, and former have heretofore been so located as to operate in a single line or row—as, for instance, in the machine patented by V. P. Billings, November 12, 1861—and do not, therefore, claim this feature broadly.

*Claim.*

The arrangement of form D *d*, side guides E, sliding boxes F F', and swaging-rollers G G' H H', when the rollers are located and operate in a single line or row and the rollers G G' run in contact with rollers H H', as described, and for the purpose specified.

In testimony of which invention I hereunto set my hand.

WM. R. JUSTUS.

Witnesses:

THOS. SIMPSON,

J. WHITESELL.