R. FRENCH.

Machines for Making Ox-Shoes.

No. 145,561. Patented Dec. 16, 1873.

Fig. 1.

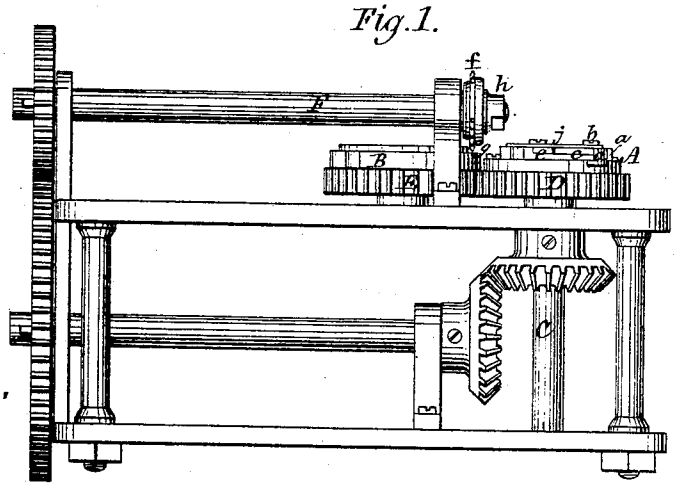

Fig. 2.

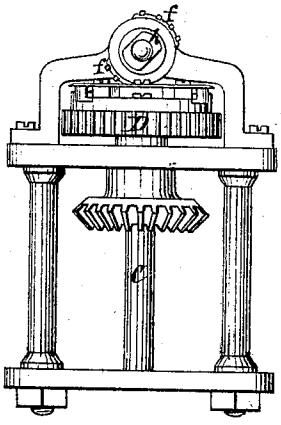

Fig. 3.

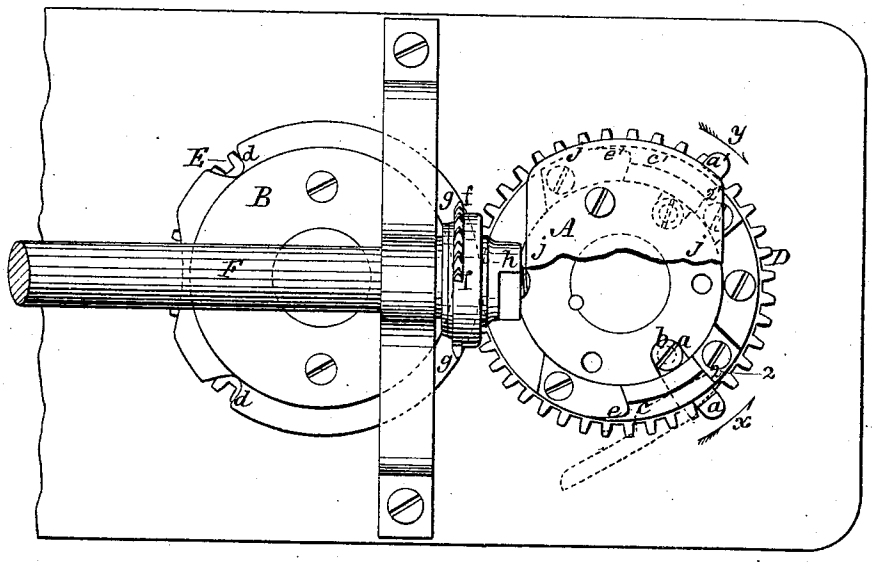

Fig. 6.

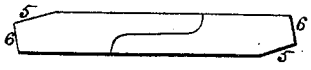

Fig. 4.

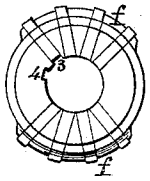

Fig. 5.

Witnesses.

D. P. Cowl

Edmund Masson

Inventor.

Raymond French.

By atty. A. B. Stoughton.

UNITED STATES PATENT OFFICE.

RAYMOND FRENCH, OF SEYMOUR, CONNECTICUT.

IMPROVEMENT IN MACHINES FOR MAKING OX-SHOES.

Specification forming part of Letters Patent No. **145,561**, dated December 16, 1873; application filed November 28, 1873.

To all whom it may concern:

Be it known that I, RAYMOND FRENCH, of Seymour, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Machines for Making Ox-Shoes; and that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 represents a side view of the machine. Fig. 2 represents a front-end view of the same. Fig. 3 represents a top plan of the forming dies or wheels, a portion of one of which is represented as broken away to show the construction underneath. Figs. 4, 5, and 6 represent details, which will be hereinafter more fully referred to and described.

Ox-shoes, as is well known, are made in two pieces or parts—one a "right" and the other a "left"—one being the reverse of the other, and consequently both parts cannot be made in one and the same die, and are commonly made in two separate machines, one making rights and the other lefts, as they are termed.

My invention relates to a machine in which by simply reversing the direction of motion of the die wheels or formers, rights or lefts may be made with equal facility. The only change made in the machine to adapt it to either kind of shoes, or parts of shoes, is to turn the creasing and punching die slightly upon its shaft, to properly set it for its work.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The frame and gearing of the machine, further than to say that the former needs to be firm and rigid to prevent any springing or yielding, and the latter to be accurately made so as to bring the operating parts into and out of action at the right time and place, need not be further described, as they are clearly shown in the drawings.

The shaping or forming dies, or die-wheels, are shown at A B. The die-wheel A is revolved by means of the shaft C, and the gears and shafting interposed between it and the driving-power. The die-wheel B is driven from its mate or fellow through the gears D E, and the perimeters of the two die-wheels run in contact with each other. In a seat formed in the bed or body of the die-wheel A there is arranged a dog, *a*, which is fastened in its seat by a screw, *b*, and behind this dog is a recess or die, *c*, into which the wider portion of the ox-shoe is bent by the turning of the die-wheels; and from this recess or die *c* extends further rearward, until it runs out into the perimeter of the wheel itself, another recess or shaping die, *e*, into which the narrow portion of the ox-shoe is forced, to give that part of it its proper shape. In front of the dog *a* there is a shoulder, 2, against which the end of the blank is placed, while the beveled portion of the blank (as will be hereafter explained) rests against a shoulder in or on the dog *a*, as shown in Fig. 3. The dog *a* projects beyond the outer perimeter of the die-wheel A, and as the perimeter of the wheel A runs in contact, or practically so, with the die or shaping wheel B, recesses *d* are formed in the rim of the wheel B to allow these dogs to pass while they so project. The dog *a*, as well as the plates or pieces in or on which the shoulder 2 and the recesses *c e* are made, are made separate from the die-wheel A, but firmly attachable thereto, so that they may be removed and replaced by others of slightly-varying forms, and thus make shoes of different sizes or shapes, which is imperative from the difference in size and shape of the feet of the animals on which they are to be used. Over the die-wheel B is arranged upon a revolving shaft, F, the creasing and punching die *f*, which, as the blank in the die-wheel A comes around, creases said partially-formed or forming shoe, and though not punching through, partially punches or marks for the nail-hoes in the shoe. The blank, held and carried around by the die-wheel A, projects far enough from the perimeter of said die-wheel to extend over upon the recess or table *g* of the wheel B, and while the creasing and punching die is operating upon the blank, the blank is supported upon the wheel B, though held and carried by the wheel A. When the die-wheel A is revolved in the direction of the arrow *x*, Fig. 3, the blank which has been previously punched out of a straight bar of iron is placed in and against the shoulder 2 and the dog *a*, as shown at said figure by dotted lines. When, by the rotation

of the two wheels A B in the direction shown by the arrow *x*, this blank is acted upon and bent into the dies or recesses *c e* and punched and creased, it is in the form substantially for making a right shoe or part of a shoe, the web portion being drawn out by separate dies afterward. Now to adapt the machine for making lefts, the nut *h* that holds the creaser and puncher *f* to the shaft F is loosened up, and said creaser and puncher is turned around on its shaft, so that the notch 3 in its hub or opening, Fig. 4, shall take over the stud *i*, on the shaft F, Fig. 5, the notch 4, having, when making rights, previously occupied that stud. The machine, if now run in the direction of the arrow *y*, Fig. 3, will form a left out of a similarly-shaped blank. In this case the blank is placed against the shoulder 2′ and against the dog *a*′, and it is bent into the recesses or dies *c*′ *e*′ behind the dog *a*′, as shown by dotted lines, diametrically opposite, or nearly so, the other dies for forming rights. The puncher and creaser *f*, in its slightly-turned position, will come in at the right time and punch and crease the partially-made shoe, in the same manner as above described in making a right. The blanks, to save metal and make as little waste as possible, are punched out of a straight bar or piece in rights and lefts, as shown in Fig. 6. The only waste is in the corners at 5. This corner must be cut off, or else drawn down in making an ox-shoe, otherwise there would be an excess of metal at that part. I cut off these corners and avail myself of this beveled edge 5 to hold the blank against the dog *a* or *a*′, while it is being bent and creased and punched in its passage between the die or forming wheels A B. The beveled edges 5 might be made by drawing down the metal in dies, and to get the proper obliquity of the ends 6; but, as above stated, I prefer to punch out the blanks and to waste the small portion cut off at 5. A cap-plate, *j*, covers the dies and formers on the wheel A, to prevent the blank or partially-formed shoe from leaving its position, which, however, is of rare occurrence. This cap-plate is represented in Fig. 3 as partially broken away, to show the dies or formers underneath it.

Having thus fully described my invention, what I claim is—

1. In combination with the wheels A B, the shoulder 2, projecting dog *a*, and dies *c e* on former, and the recesses *d* in the latter, for the purpose of holding and bending a blank into shape or form while in a projected position, and allowing the dog to pass, substantially as described.

2. In combination with the shoulder, dog, and dies, for holding the blank in a position projecting beyond the perimeter of the wheel A and with the creasing and punching dies, the table *g* on the wheel B, over and upon which the projecting portion of said blank rests when the creasing and punching die is in contact with it, as described.

3. In combination with the creasing and punching die *f* and its shaft F, the recesses 4 3 in the die, and the stud *i* in the shaft, so that said die may be slightly turned on its shaft and then be firmly held when the rotation of the die-wheels is changed to make rights or lefts, substantially as described.

RAYMOND FRENCH.

Witnesses:
A. B. STOUGHTON,
EDMUND MASSON.