No. 777,893. PATENTED DEC. 20, 1904.

G. FRASER.

MACHINE FOR MAKING BRAKE SHOE KEY BLANKS.

APPLICATION FILED MAR. 1, 1904.

NO MODEL. 3 SHEETS—SHEET 1.

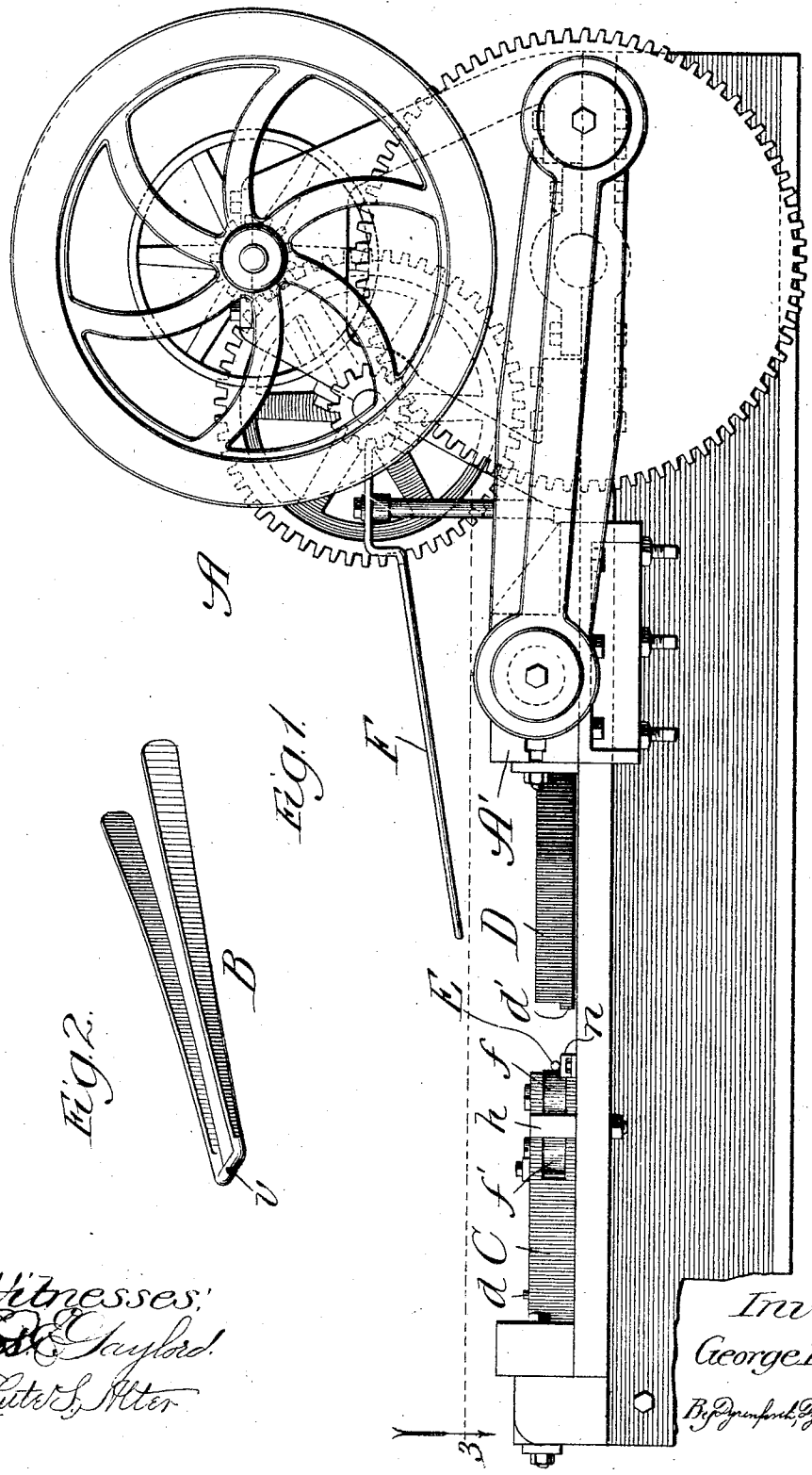


Fig. 1.

Fig. 2.

Witnesses:
Chas. E. Gaylord.
Lutie S. Slter

Inventor:
George Fraser,
By Dyrenforth, Dyrenforth & Lee,
Attys.

PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

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NO MODEL. 3 SHEETS—SHEET 2.

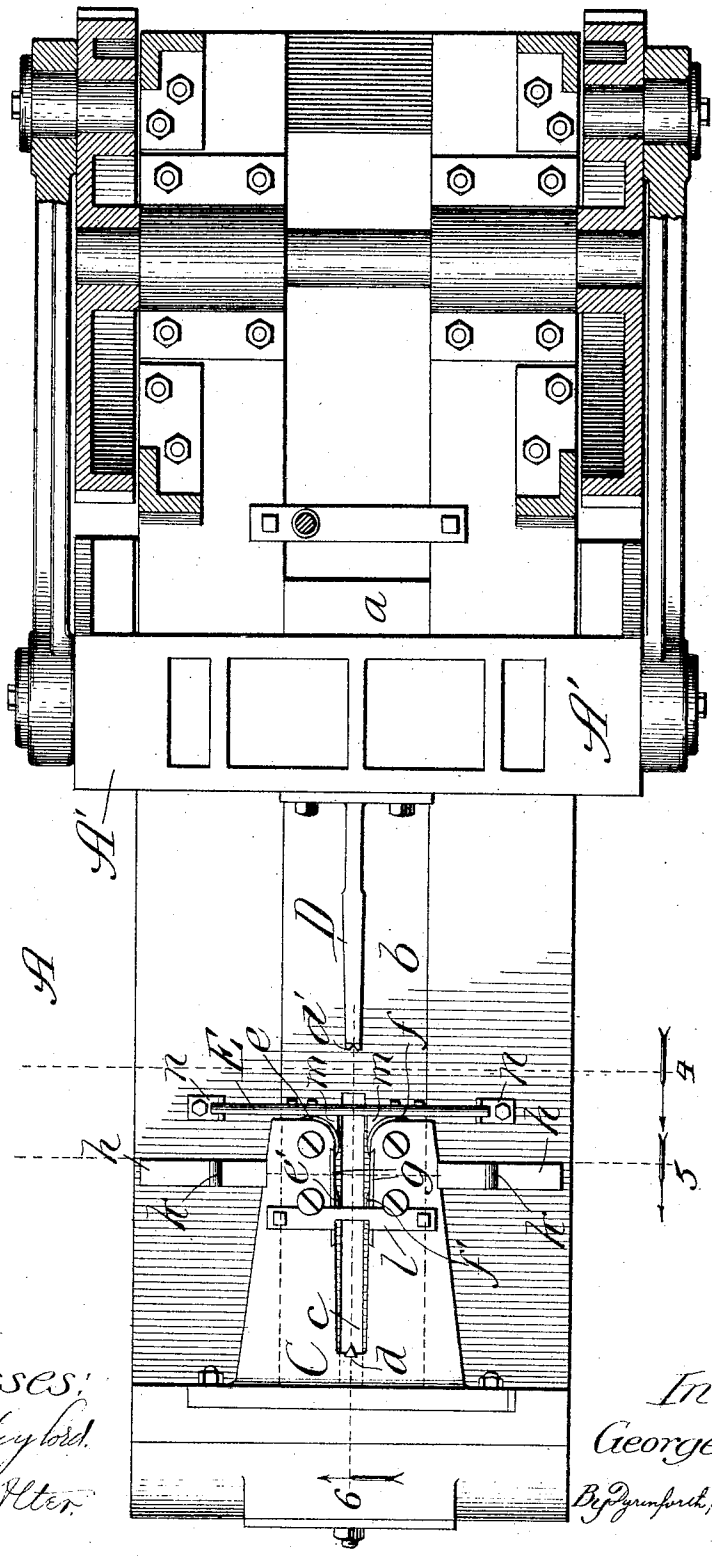


FIG. 3.

Witnesses:
Chas. E. Gaylord.
Luther S. Miller.

Inventor:
George Fraser,
By Pyne, Pyne & Co.,
Attys.

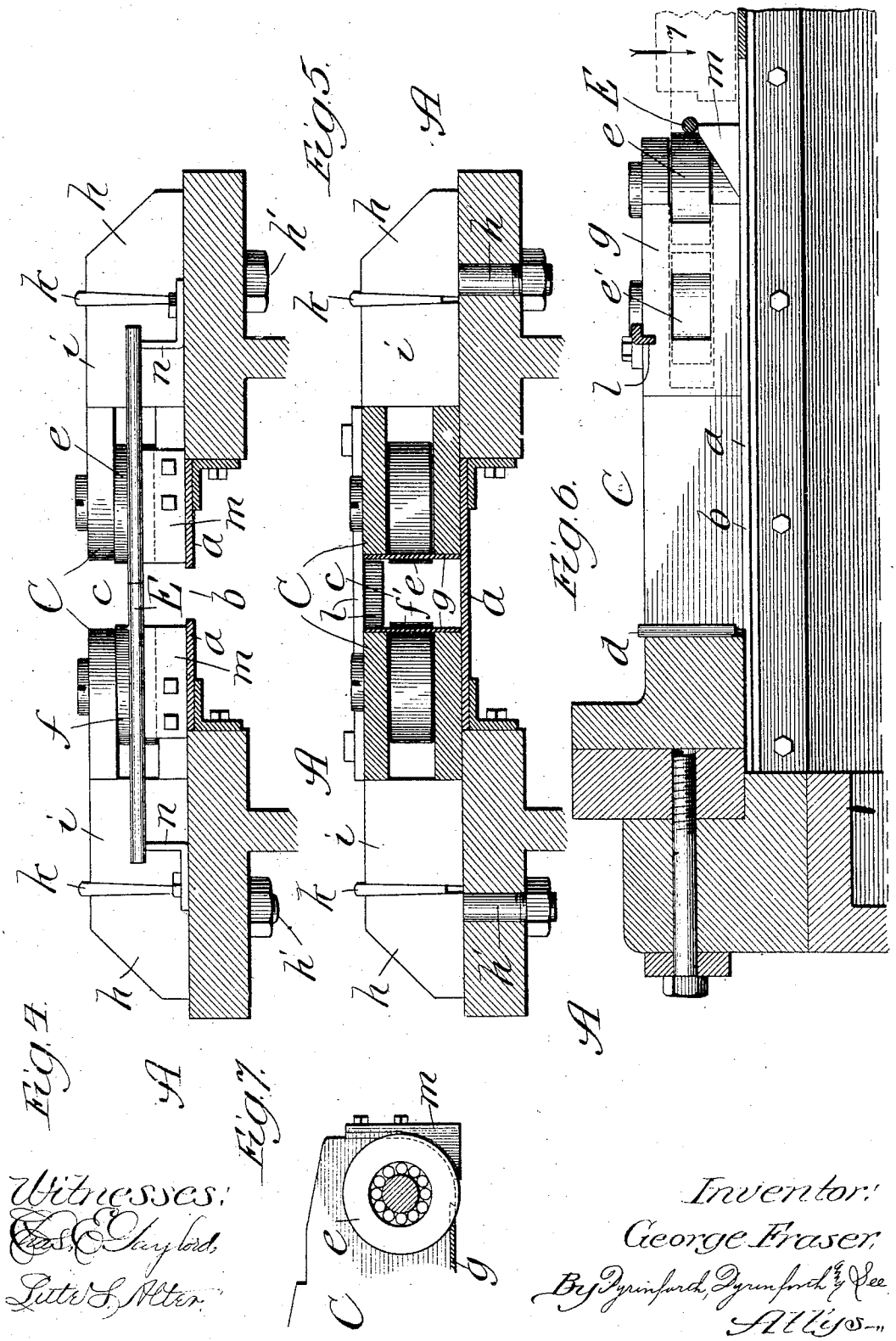
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NO MODEL. 3 SHEETS—SHEET 3.



Witnesses:
Chas. E. Gaylord,
Lutts S. Otter.

Inventor:
George Fraser,
By Pyrnfurth, Pyrnfurth & Lee
Attys.

PHOTO-LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 777,893. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

GEORGE FRASER, OF TOPEKA, KANSAS.

MACHINE FOR MAKING BRAKE-SHOE-KEY BLANKS.

SPECIFICATION forming part of Letters Patent No. 777,893, dated December 20, 1904.

Application filed March 1, 1904. Serial No. 196,017.

To all whom it may concern:

Be it known that I, GEORGE FRASER, a citizen of the United States, residing at Topeka, in the county of Shawnee and State of Kansas, have invented a new and useful Improvement in Machines for Making Brake-Shoe-Key Blanks, of which the following is a specification.

My invention relates to an improved construction of machine for producing expeditiously from metal rods, preferably scrap metal, the blanks for brake-shoe keys of the Master Car-Builders' standard ready to be finished by a subsequent simple operation in suitable punching or shearing dies.

The primary object of my invention is materially to simplify and reduce the cost of manufacture of the keys referred to over any procedure hitherto employed therein, and the present machine forms a means to that end which is the result of an improved method of the manufacture forming the subject of my application, Serial No. 196,016, filed concurrently herewith on the 1st day of March, 1904.

Referring to the accompanying drawings, Figure 1 is a view in side elevation, partly broken, of a "bulldozer" machine of ordinary general construction with my improvement applied thereon; Fig. 2, a perspective view of a double blank produced by a single operation of the machine ready to be severed into two blanks to prepare them for finishing in suitable dies; Fig. 3, a plan section taken at the line 3 on Fig. 1 and viewed in the direction of the arrow; Fig. 4, a section taken at the line 4 on Fig. 3 viewed in the direction of the arrow and enlarged; Fig. 5, a section taken at the line 5 on Fig. 3 viewed in the direction of the arrow and enlarged; Fig. 6, a section taken at the line 6 on Fig. 3 viewed in the direction of the arrow and enlarged, and Fig. 7 a section taken at the line 7 on Fig. 6 and viewed in the direction of the arrow.

A denotes a machine of the bulldozer type adapted for my purpose by providing a longitudinally-slotted plate *a* to cover the base of the central opening, which extends lengthwise of the machine-bed. The slot *b* in the plate *a* permits the escape from the bed of the machine of scale from the heated metal rods acted on in forming the blanks B, as hereinafter described. Otherwise the machine A, except for the blank-forming elements upon it constituting my improvement, may be of the ordinary or any suitable construction and need not, therefore, be herein described in detail. It should be stated, however, that my improvement is not limited to application upon that particular type of power-machine, so that I do not wish to be understood as intending so to limit it.

On the bed of the machine A, near one end thereof, on opposite sides of its longitudinal opening is stationarily and rigidly secured a head C, containing a central slot *c*, which coincides with the portion of the slot *b* below it and extends from the inner end of the head short of its outer end, at the center of which is provided the male member *d* of a cutter or knife, the coöperating member *d'* of which is on the end of the ram D, which extends centrally from the forward end of the reciprocating part A' of the machine A. At the inner end portion of the head C, on opposite sides of the slot *c* therein, are journaled rolls, of which it is preferred to provide at least two sets or pairs, the members *e* and *f* of the innermost pair being at opposite sides of the slot *c* and slightly farther apart than the members *e'* and *f'* of the outer pair. To prevent access to the rolls, which should be provided with roller-bearings about their journals, as indicated in Fig. 7, of refuse or scale from the work, a shield *g* is inserted vertically into each side of the slot *c* against the edges thereof to cover the spaces between and adjacent to the rolls *e e'* and *f f'*, respectively, the shields being provided with openings, as shown, through which to permit the rolls to protrude into the path through the slot *c*. The head C is reinforced against outward spreading toward its inner end by means of outer blocks *h h*, rigidly fastened to the machine-bed, as by bolts *h'*, adjustable inner blocks *i i*, confined between the sides of the head and the blocks *h*, and wedges *k k*, driven between the blocks *h* and *i* to tighten the latter against the head sides and cause them to resist tendency to spring under the strain to which the rolls are subjected. Back of the rolls a cross-piece

l is shown to be fastened on the head C to extend across the slot *c* for a purpose hereinafter explained, and in front of the rolls *e f* are provided on the machine-bed guides *m m*, behind and on a level with supports *n n*, for the ends of the bar E of metal to be acted on by the ram D, as hereinafter described. Where the guides *m* enter between the rolls *e* and *f* into the slot *c*, they are beveled in a downward direction to the surface of the plate *a*, as shown of the guide in Fig. 6, to avoid presentation of any obstruction to the finished blank in the partial withdrawal which it undergoes with the return stroke of the ram.

To apply the machine for producing a blank B, a rod E, of iron or steel, of suitable length, (say about twenty-three inches,) which may be scrap taken from a pile thereof containing disused switch-rods, bolts, and the like, is placed, preferably, in a red-hot condition on the supports *n*. The operating-lever F of the machine is then manipulated to cause the reciprocating part A′ to be advanced, all in the usual manner, whereby the ram D engages the rod at its transverse center, moving it off the supports upon the guides *m* and bending it along the ram into the slot *c* first between the rolls *e f* and thereafter also between the rolls *e′ f′*. At the end of the forward stroke of the ram the rod is reduced to the shape forming the blank B, with flattened sides flaring and attenuated toward their ends and the original thickness of the rod at the head, which is partially severed, as represented at *v*, by the action of the cutter *d d′*. By the use of the two sets of rolls shown and described, with the members of the inner set somewhat farther apart than those of the outer set, the strain upon the rolls is materially less than if only one pair thereof were employed with the members the requisite distance apart to conform to the width of the completed blank, since thereby the strain of reducing the rod is rendered more gradual. With the return stroke of the ram its frictional engagement with the blank tends to carry the latter with it, though the same engagement of the blank with the sides of the slot *c* causes some slipping of the ram between the legs of the blank, whereby sufficient space is opened between the blank-head and extremity of the ram to permit the application to the blank of a pair of tongs which in the riding of the blank and while in the grip of the operator are brought into abutting contact with the stop or cross-bar *l*, causing the further travel of the blank to be arrested until freed from the ram by the continuance of its back stroke, whereupon the operator manipulates the tongs to tilt the blank on end and withdraw it completed from the machine preparatory to adjusting in place another rod E to be similarly formed into a blank.

The severance at *v* of the double key-blank under the forming action thereof is so nearly complete that it may readily be broken apart by hand, leaving as the result of the forming operation two key-blanks, each with a head of the proper thickness and length for a brake-shoe key of Master Car-Builders' standard, to which each section of the double blank is then ready to be reduced by subjecting it to a single operation of a set of dies suitable for curving the key-blank to the proper radius and shearing it to produce the taper thereof toward its extremity required in the standard referred to.

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

1. In a machine for forming metal rods into brake-shoe-key blanks of the double character described, the combination with the reciprocating part, of a ram thereon, a stationary head relative to which said reciprocating part moves, containing a slot registering with said ram, a cutter member at the outer end of said slot, and rolls journaled on said head at opposite sides of the slot therein into which the metal rod for a blank is bent between the rolls upon the ram by its action.

2. In a machine for forming metal rods into brake-shoe-key blanks of the double character described, the combination with the reciprocating part, of a ram thereon having a cutter member on its end, a stationary head relative to which said reciprocating part moves, containing a slot registering with said ram, a cutter member at the outer end of said slot, and rolls journaled on said head at opposite sides of the slot therein into which the metal rod for a blank is bent between the rolls upon the ram by its action.

3. In a machine for forming metal rods into brake-shoe-key blanks of the double character described, the combination with the reciprocating part, of a ram thereon, a stationary head relative to which said reciprocating part moves, containing a slot registering with said ram, and two pairs of rolls having their members journaled on said head at opposite sides of the slot therein into which the metal rod for a blank is bent between the pairs of rolls upon the ram by its action, the members of the innermost pair of said rolls being farther apart than those of the outermost pair.

4. In a machine for forming metal rods into brake-shoe-key blanks of the double character described, the combination with the reciprocating part, of a ram thereon, a stationary head relative to which said reciprocating part moves, containing a slot registering with said ram, rolls journaled on said head at opposite sides of the slot therein into which the metal rod for a blank is bent between the rolls upon the ram by its action, blank-cutting means and reinforcing means for the head at each side thereof comprising a stationary block with an adjustable block confined between it and the adjacent side of the head and a wedge between said blocks.

5. In a machine for forming metal rods into

brake-shoe-key blanks of the double character described, the combination with the reciprocating part, of a ram thereon, a stationary head relative to which said reciprocating part moves, containing a slot registering with said ram, rolls journaled on said head at opposite sides of the slot therein into which the metal rod for a blank is bent between the rolls upon the ram by its action, and a stop-bar on the head extending across its slot behind the rolls.

6. In a machine for forming metal rods into brake-shoe-key blanks of the double character described, the combination with the reciprocating part, of a ram thereon, a stationary head relative to which said reciprocating part moves, containing a slot registering with said ram, rolls journaled on said head at opposite sides of the slot therein into which the metal rod for a blank is bent between the rolls upon the ram by its action, and guides for the rod adjacent to the rolls at the entrance end of said slot.

7. In a machine for forming metal rods into brake-shoe-key blanks of the double character described, the combination with the reciprocating part, of a ram thereon, a stationary head relative to which said reciprocating part moves, containing a slot registering with said ram, rolls journaled on said head at opposite sides of the slot therein into which the metal rod for a blank is bent between the rolls upon the ram by its action, supports for the rod ends adjacent to the entrance to said slot, and guides for the rod between said supports and the forward rolls.

GEORGE FRASER.

In presence of—
WALTER N. WINBERG,
HARRIET C. MILLER.