

No. 777,947.

PATENTED DEC. 20, 1904.

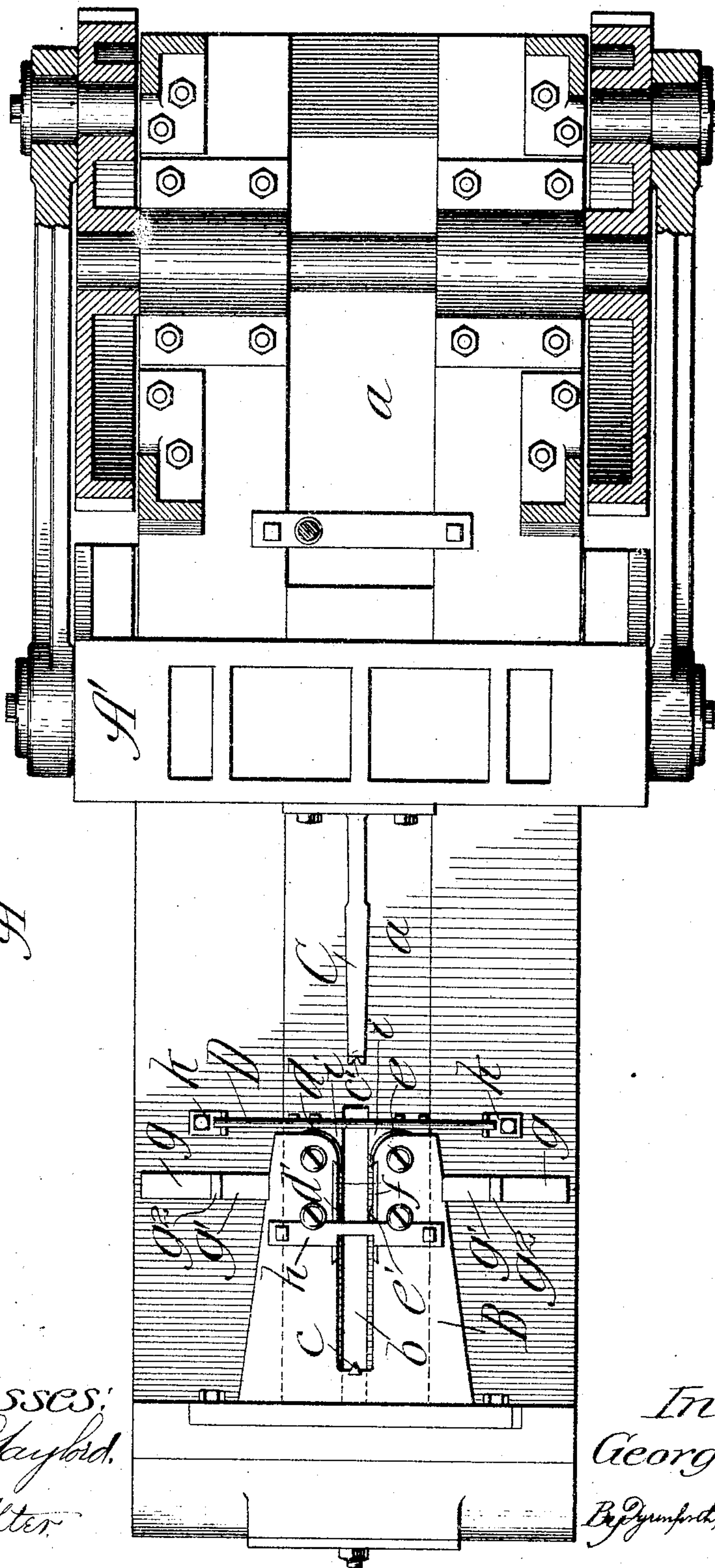
G. FRASER.

METHOD OF MANUFACTURING BRAKE SHOE KEYS.

APPLICATION FILED MAR. 1, 1904.

NO MODEL.

3 SHEETS—SHEET 1.



104

S

Witnesses:
 Chas. Gaylord.
 Lute L. Miter.

Inventor:
George Fraser,
Burgumforth, Burgumforth & Co.,
Aberdeen.

No. 777,947.

PATENTED DEC. 20, 1904.

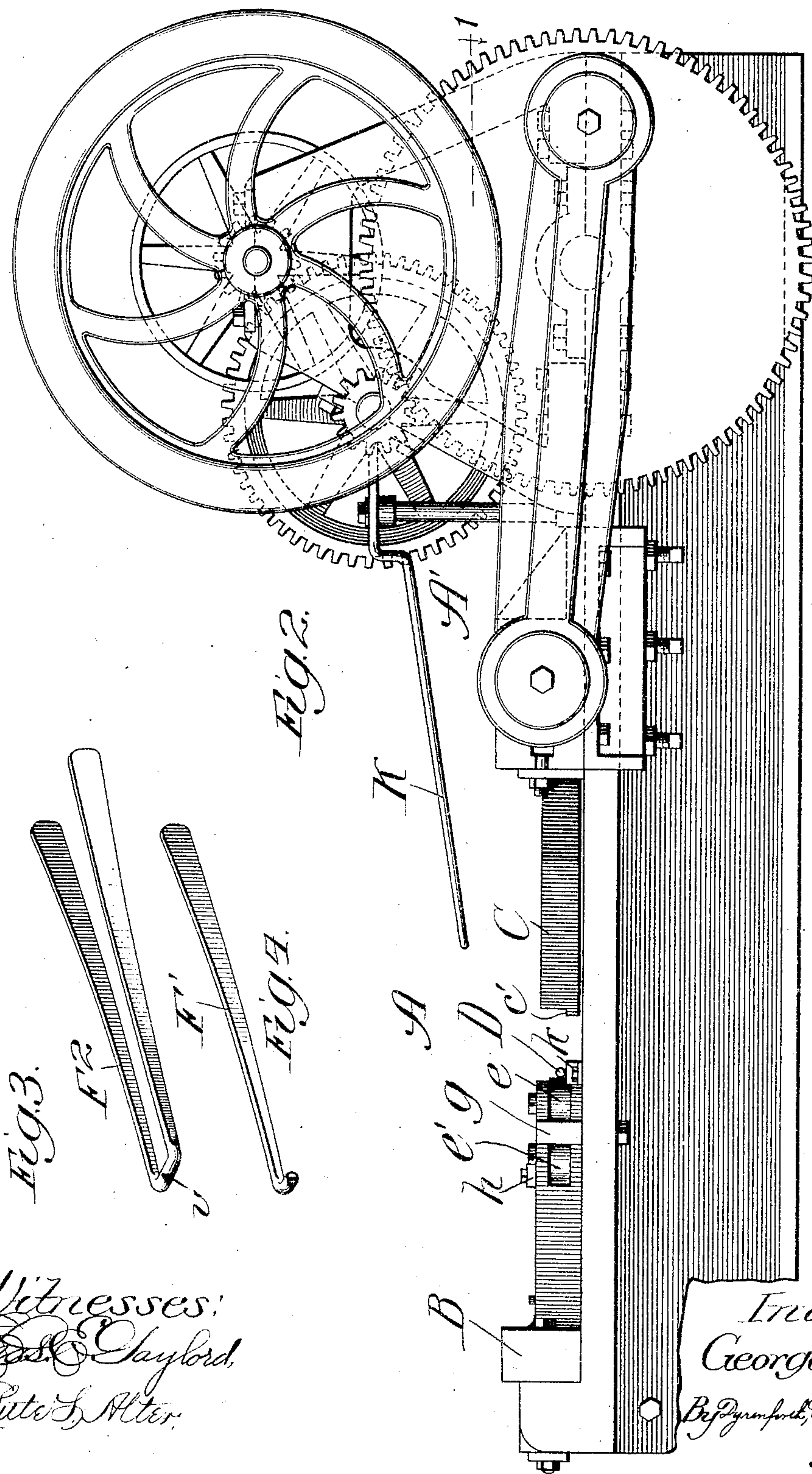
G. FRASER.

METHOD OF MANUFACTURING BRAKE SHOE KEYS.

APPLICATION FILED MAR. 1, 1904.

NO MODEL.

3 SHEETS—SHEET 2.



Witnesses:
Edw. Gaylord,
Jude L. Alter.

Inventor,
George Fraser,
By Durnforth, Durnforth & See,
Attys.

No. 777,947.

PATENTED DEC. 20, 1904.

G. FRASER.

METHOD OF MANUFACTURING BRAKE SHOE KEYS.

APPLICATION FILED MAR. 1, 1904.

NO MODEL.

3 SHEETS--SHEET 3.

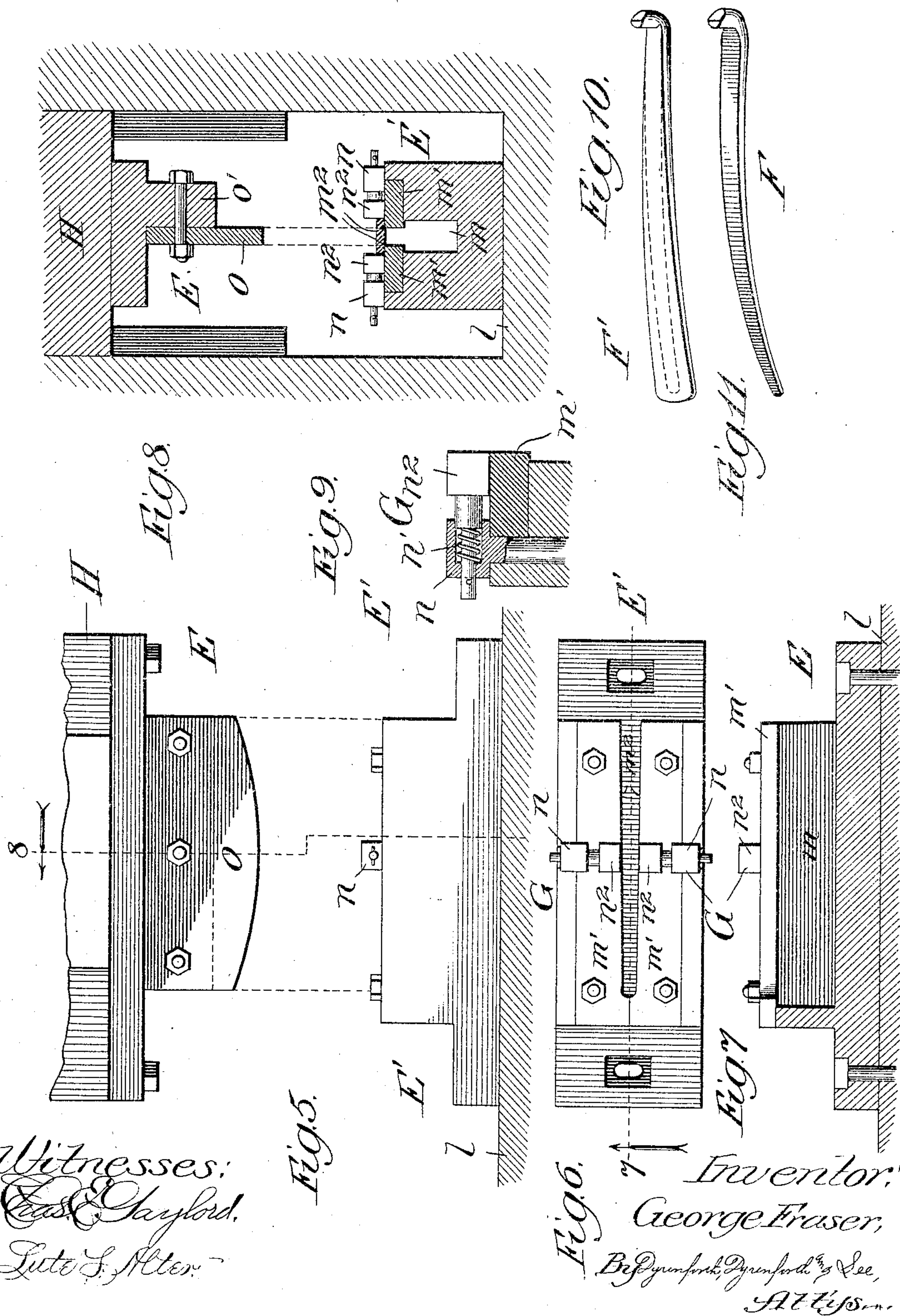


PHOTO LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & Ptg. CO. NEW YORK

UNITED STATES PATENT OFFICE.

GEORGE FRASER, OF TOPEKA, KANSAS.

METHOD OF MANUFACTURING BRAKE-SHOE KEYS.

SPECIFICATION forming part of Letters Patent No. 777,947, dated December 20, 1904.

Application filed March 1, 1904. Serial No. 196,016.

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 Methods of Manufacturing Brake-Shoe Keys, of which the following is a specification.

The object of my invention is to provide a new method of manufacturing brake-shoe keys whereby they may be produced economically from scrap metal and expeditiously by a simple procedure involving the fewest number of operations. To this end I first form a double blank by simultaneously bending and rolling a metal rod of suitable length substantially into the shape of an elongated U, preferably, also, in the same operation partially severing the blank at its head to adapt the sections there to be readily separated into two-headed key-blanks attenuated and widened toward their insertion ends, and I then taper each section toward its attenuated end and reduce it to the required curved shape of a brake-shoe key, preferably that known as the "Master Car-Builders' standard."

Suitable mechanism which I have devised for the practice of my improved method is illustrated in the accompanying drawings, in which—

Figure 1 is a sectional plan view of the machine I employ for forming the double blank, the section being taken at the line 1 on Fig. 2 and viewed in the direction of the arrow; Fig. 2, a view of the machine in side elevation; Fig. 3, a perspective view of the double blank formed by the machine; Fig. 4, a similar view of one section severed from the double blank preparatory to finishing it in a suitable die into a brake-shoe key; Fig. 5, a broken view in elevation, showing the male and female members of the finishing-die in their relative cooperating positions; Fig. 6, a plan view of the female die; Fig. 7, a section taken at the line 7 on Fig. 6 and viewed in the direction of the arrow; Fig. 8, a section taken at the line 8 on Fig. 5 and viewed in the direction of the arrow; Fig. 9, an enlarged sectional view of a spring-clamp detail; Fig. 10, a per-

spective view of a blank-section enlarged over the scale of its representation in Fig. 4 and showing by dotted lines the shape into which it is cut by the operation of the die, and Fig. 11 a perspective view of the finished key.

The mechanism represented in Figs. 1 and 2 of the drawings serves for the practice of the first step of my improved method—namely, that of producing the double blank—and it forms the subject of my application for Letters Patent, Serial No. 196,017, filed on the 1st day of March, 1904.

A denotes a machine of the "bulldozer" type. Except for the blank-forming elements upon it, hereinafter described, it may involve, generally speaking, the ordinary or any suitable construction of the type of machine referred to and need not, therefore, be herein described in detail.

On the bed of the machine A, near one end thereof, on opposite sides of its longitudinal opening *a*, is stationarily and rigidly secured a head B, containing a slot *b*, which coincides with the portion of the opening below it in the machine-bed and extends from the inner end of the head short of its outer end, at the center of which is provided the male member *c* of a cutter or knife, the cooperating member *c'* of which is on the end of a ram C, extending centrally from the forward end of the reciprocating part A' of the machine. At the inner end portion of the head B are journaled two sets or pairs of rolls *d e* and *d' e'*, one pair in advance of the other, with the members of each on opposite sides of the slot *b* and those of the innermost pair somewhat farther apart than those of the pair *d' e'*. The rolls are shown to be protected against the access to them of refuse or scale from the work by shields *f*, inserted vertically into each side of the slot *b* to cover the spaces between and adjacent to the rolls, the shields being provided with openings through which to permit the rolls to protrude into the path through the slot. The head B is shown to be reinforced against lateral spreading under the strain upon the rolls by means of outer rigidly-fastened blocks *g g*, adjustable inner blocks *g' g'*, confined between the sides of the head and the

outer blocks, and wedges $g^2 g^2$ driven between the blocks g and g' to tighten the latter against the sides of the head. Back of the rolls a cross-piece h is provided on the head B to extend across the slot b and afford an abutment for a purpose hereinafter explained, and in front of the rolls $d e$ are provided guides $i i$ behind and on a level with supports $k k$ for the ends of a bar or rod D, of metal, to be acted on by the ram C, as hereinafter described.

At E and E' are represented, respectively, the male and female members of the die employed for the final operation in producing the brake-shoe key. The member E' is fastened upon a bed l' and comprises a rectangular block containing centrally a longitudinal recess m , narrowed toward its upper end by plates $m' m'$, let into the top of the block and fastened in place to form the cutting edges $m^2 m^2$ of the female die member, tapering toward one end and conforming to the shape desired for the stem or shank of the finished blank F, Fig. 11, reduced by the action of the die members upon a blank-section F' along the dotted line on the latter. (Shown in Fig. 2.) Spring-clamps G G are provided for centralizing the blank-section on the die member E, each clamp comprising a cap-screw n , inserted into the top of the block of the die member E' and having confined in its hollow head a spiral spring n about the reciprocating stem of a head n^2 , extending transversely of the recess m toward the latter.

The male die member E is supported on a reciprocating head H above the member E' and comprises a punch o , fastened to a bearing o' , depending from the head H and having a longitudinally arc-shaped lower edge curved to the proper radius for a key and of the tapered shape and dimensions of the slot between the cutting edges m^2 of the female die member to cooperate with the latter, as hereinafter described.

With the mechanism shown and described the method of manufacturing the brake-shoe keys is practiced as follows: A rod D, 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 k . The operating-lever K of the bulldozer is then manipulated to cause the reciprocating part A' to be advanced, all in a usual manner, whereby the ram C engages the rod at its transverse center, moving it off the supports upon the guides i and bending it along the ram into the slot b first between the rolls $d e$ and thereafter between the rolls $d' e'$. At the end of the forward stroke of the ram the rod is reduced to the substantial U shape,

forming the double blank F², Fig. 3, with flattened sides widened and attenuated toward their ends and of the original thickness of the rod at the head, which is partially severed, as represented at v , by the action of the cutter $c c'$. With the return stroke of the ram its frictional engagement with the double blank tends to carry the latter with it, though the same engagement of the blank with the sides of the slot b 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 application to the blank of a pair of tongs, which in the riding of the blank and while it is in the grip of the operator are brought into abutting contact with the cross-piece h , 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 F² on end and withdraw it from the machine preparatory to adjusting in place another rod D to be similarly formed into a double blank. The partial severance at v of the double blank adapts it to be readily broken by hand to separate it into two single key-blanks, each like that represented in Figs. 4 and 10, with a head of the proper thickness and length for a brake-shoe key of Master Car-Builders' standard, but with the stem portion requiring to be tapered and also curved to the proper radius. For so tapering and curving the blanks F' they are introduced one at a time between the centering spring-clamps G on the die member E', with the stem portion covering the reduced opening to the slot m , when the downstroke of the die member E brings the punch o against the blank, with the effect of shearing it in conformity to the dotted line in Fig. 10, thus tapering it and at the same time bending it from its transverse center toward its extremities into a curve of the radius of the punch, which forces the finished blank down into the recess m , whence it is removed as a completed brake-shoe key F of Master Car-Builders' standard from one end to make room for the same operation on another blank-section F'.

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

The method of manufacturing a brake-shoe key, which consists in forcing a strip into a wedge-shaped opening and against a cutter by means of a tapered punch, thereby bending the strip, changing its cross-section and dividing it, substantially as set forth.

GEORGE FRASER.

In presence of—

JAMES MULLIN,

DAVID T. RICHARDS.