

No. 701,083.

Patented May 27, 1902.

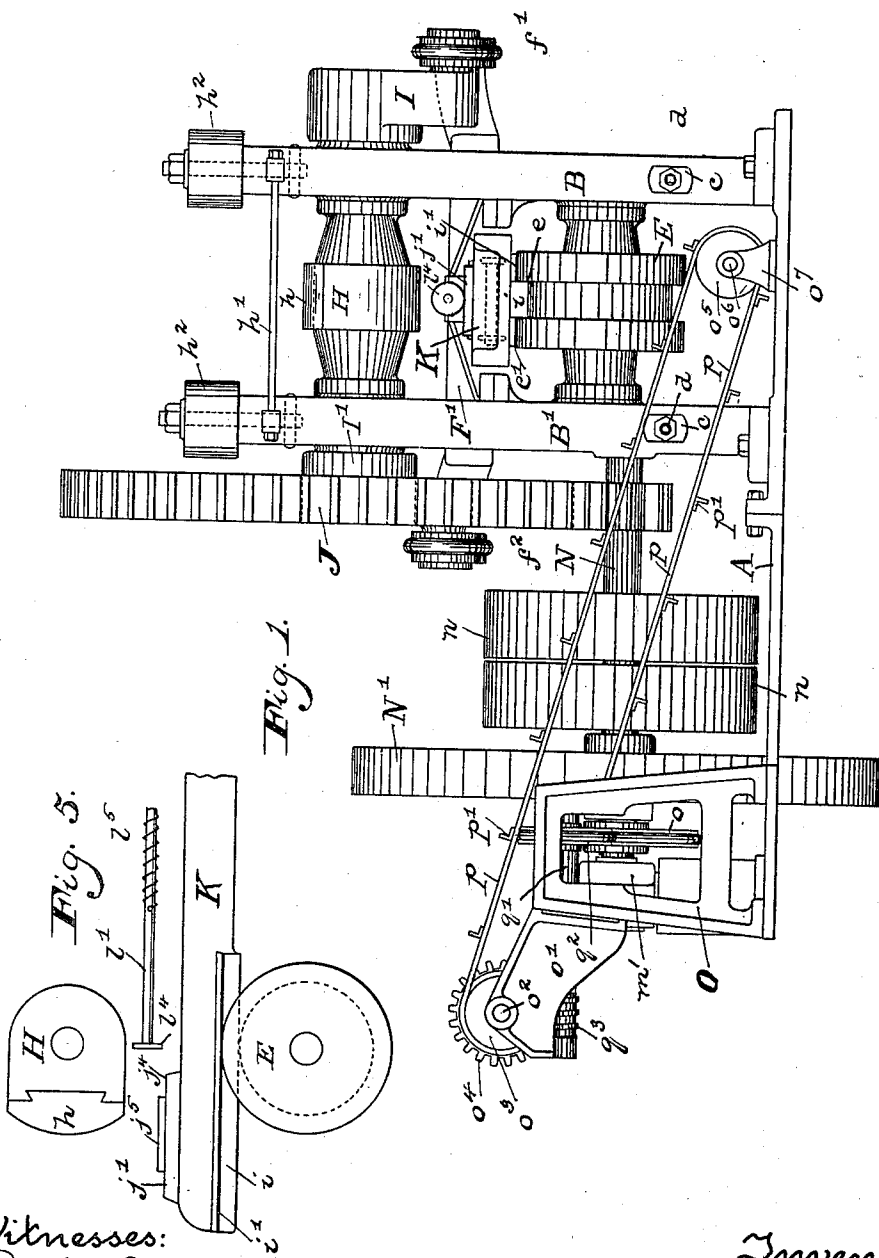
G. F. PILSON, Dec'd.  
C. PILSON & W. R. BREWER, Administrators.

**HORSESHOE MACHINE.**

(Application filed Apr. 29, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses:  
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3 Sheets—Sheet 2.

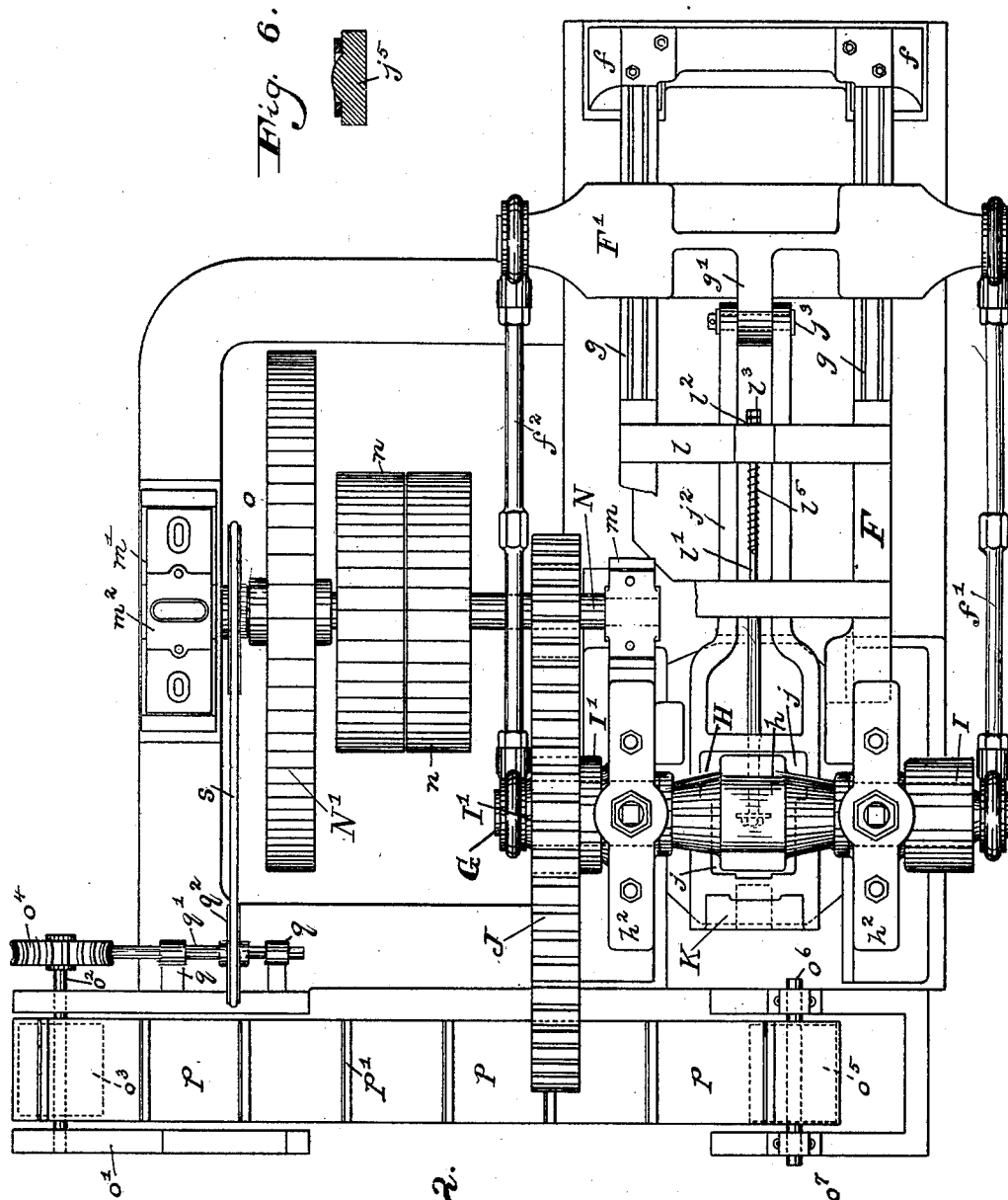


Fig. 6.

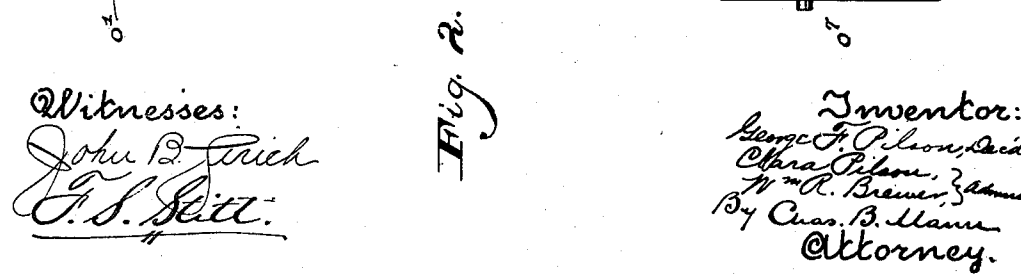


Fig. 2.

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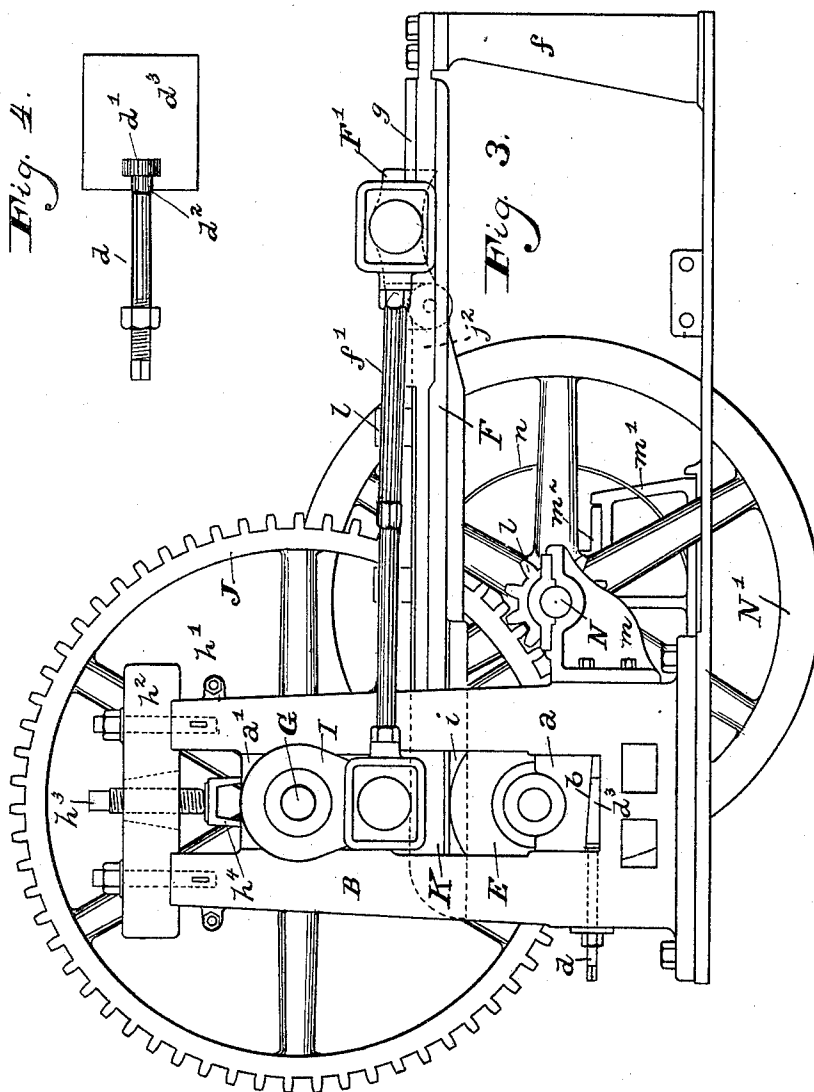
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(Application filed Apr. 29, 1901.)

(No Model.)

3 Sheets—Sheet 3.



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# UNITED STATES PATENT OFFICE.

CLARA PILSON, OF SYKESVILLE, AND WILLIAM R. BREWER, OF BALTIMORE,  
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## HORSESHOE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 701,083, dated May 27, 1902.

Application filed April 29, 1901. Serial No. 58,086. (No model.)

*To all whom it may concern:*

Be it known that GEORGE F. PILSON, late a citizen of the United States, and a resident of Baltimore, in the State of Maryland, did invent certain new and useful Improvements in Horseshoe-Machines, of which the following is a specification.

This invention relates to improvements in horseshoe-machines, and is particularly designed to receive the horseshoe-bar after the same has been previously bent from a straight bar into an approximately horseshoe shape and to then press and conform the previously-bent bar between suitable dies into a more accurate shape.

The invention consists of the novel construction and arrangement of the several parts, as will be hereinafter pointed out in the specification and claims.

The accompanying drawings illustrate the invention.

Figure 1 is a front elevation of the machine. Fig. 2 is a plan view of same. Fig. 3 is a side elevation of the press, the conveyer mechanism being removed. Fig. 4 is a plan view of the wedge and adjusting-bolt. Fig. 5 is a diagrammatic view of the two rolls and illustrates the die-carrier, block, and ejector-rod interposed between the rolls; and Fig. 6 is a cross-section of the die-block with the bent bar thereon.

In the drawings, A designates the base-plate, which may be of any suitable design or construction, and B B' are two vertical standards which together form a frame. Each standard is provided on one edge near the bottom with a hole, which extends entirely through the standard, and a plate c, having a central screw-threaded hole, is secured over the hole in each standard. A bolt d, having a squared outer end which is also threaded, and a rounded head d' on its inner end with a reduced neck d<sup>2</sup>, adjoining said head, is inserted head end first in said hole in the standard, and the head of the bolt is loosely secured in a wedge d<sup>3</sup>, which has a slot corresponding in shape to the head and neck which it receives, and said head and neck of the bolt are adapted to be turned in the slot in said wedge. The object of this construction is to provide a simple and delicate adjust-

ment whereby the wedge may be moved forward or backward. The object of this adjustment will be pointed out later.

Two journal-boxes a a' are carried in each standard, one above the other, and each of the lower boxes a is provided with an inclined bottom face b, which rests on the inclined face of the wedge d<sup>3</sup>. A roll E is journaled in the lower boxes a in the standards, and said roll is provided with a central circumferential channel e and two flat circumferential faces e'. The upper boxes a' in each of the two standards support a shaft G, which latter carries the roll H, and said roll revolves between the standards B B'. The upper roll carries a die h, which latter is centrally located on said roll and revolves therewith over the lower roll E. The two standards at their upper ends are provided at each side with tie-rods h', which connect the two standards and serve to stiffen them against lateral strain.

A horizontal cross-bar h<sup>2</sup> extends across the top of each of the standards and is secured to each of the standards by bolts, and a screw h<sup>3</sup> is passed through each of said cross-bars and projects down over the upper section of the box a', and said projecting end of the screw h<sup>3</sup> carries a chair h<sup>4</sup>, which rests on the upper section of the box a'. The purpose of the chair is to receive any undue upward strain on the upper section of the box a', and any damage resulting from said undue strain will be received by said chair, which latter may readily be replaced by a new chair. The ends of the shaft G project beyond the boxes a' at each of the outer sides of the standards, and each projecting end of said shaft carries a crank I I', both of which are set alike or in the same position on the shaft G and both of which have the same throw and move simultaneously in the same direction when the shaft is revolved. A gear-wheel J is fitted around the boss and web of the crank I' and when revolved serves to transmit rotary motion to the crank-shaft G and roll H.

A horizontal bed plate or frame F is supported at one end by the standards B B', and the outer end of said frame is supported above the base-plate by legs f, one at each corner of the frame, and the top surface of

the frame at opposite sides is provided with guides  $g$ , which extend in a parallel direction and in a horizontal plane. A cross-head  $F'$  has position crosswise of the frame  $F$  and  
 5 moves back and forth in a horizontal plane on said guides  $g$ , and this back-and-forth motion is imparted to the cross-head through two connecting-rods  $f'$  and  $f^2$ , one at each side, which connect the cross-head with the  
 10 cranks  $I I'$ . The cross-head is provided with a central tongue  $g'$ .

A reciprocating die-holder  $K$  has position between the rolls  $E$  and  $H$  and is provided on its bottom with a central longitudinal rib  $i$ ,  
 15 which takes in the groove or channel  $e$  of the roll  $E$ , and the bottom face  $i'$  of the die-holder rests on the two flat faces  $e'$  of said roll. It will thus be seen that the die-holder is entirely supported at one end by the roll  $E$ , and  
 20 the rib  $i$  and channel  $e$  serve to guide the die-holder in a direct line and prevent it from lateral displacement as it is reciprocated.

The die-holder is provided with a recess  $j$ , which receives the die-block  $j'$ , and said block  
 25 reciprocates with the holder  $K$ . The die-holder at the end opposite from that which is beneath the rolls is formed into a yoke  $j^2$ , which receives the tongue  $g'$  of the cross-head, and a bolt  $j^3$  connects the die-holder  
 30 and cross-head together. It will thus be seen that the die-holder and cross-head are reciprocated together. The die-block  $j'$  consists of a block  $j^4$  and on its top surface is provided with a horseshoe-die  $j^5$ .

A stationary bracket  $l$  is secured to the frame  $F$ , and an ejector-rod  $l'$ , having a threaded end  $l^2$  and a lock-nut  $l^3$ , is horizontally movable through said bracket, and the  
 35 other end of said ejector-rod is guided loosely through the die-holder and is provided with a disk  $l^4$ , which is horizontally slidable with the rod between the rolls  $E$  and  $H$ . A spring  
 40  $l^5$  serves to keep the rod  $l'$  pressed forward.

The shoe or bent bar to be pressed is placed  
 45 on the die-block when the latter is in front of the rolls, and the die holder and block move backward between the rolls, and the die  $h$  on the upper roll contacts with the shoe to press the latter into shape. The die  $h$  as it re-  
 50 volves backward over the die-block contacts with the spring-pressed disk  $l^4$  and carries the latter back with it, and thereby compresses the spring on the ejector-rod  $l'$ . As the die  $h$  on the upper roll revolves away  
 55 from or out of contact with the disk  $l^4$  the ejector-rod  $l'$  will be pressed forward by the spring  $l^5$ , and the disk  $l^4$  will push the shoe off the die-block in front of the rolls, where it entered onto the conveyer-belt  $p$ .

A journal-bracket  $m$  is bolted to the stand-  
 60 ard  $B'$ , and a second bracket or stand  $m'$  is secured to the base-plate  $A$ . This latter bracket or stand  $m'$  supports a pillow-block  $m^2$ , and a shaft  $N$  is supported at one end in the journal-bracket  $m$ , and at the other end  
 65 said shaft has bearing in the box of the pillow-block  $m^2$ . A fly-wheel  $N'$  is carried on

and revolves with the shaft  $N$ , and a pinion  $l$  is also carried on said shaft near the bracket  
 70  $m$  and meshes with the gear-wheel  $J$ . Fast and loose pulleys  $n$  are mounted on the shaft  $N$ , and motion is communicated to said shaft and the machine through said fast pulley. A grooved pulley  $o$  is secured on said shaft  
 75  $N$  between the fly-wheel  $N'$  and the pillow-block  $m^2$ .

Secured to the base-plate  $A$  in front of the fly-wheel is a standard  $O$ , which carries a bracket  $o'$ , and this bracket  $o'$  supports a  
 80 horizontal shaft  $o^2$ , on which is a pulley  $o^3$  and a worm-gear  $o^4$ . Another pulley  $o^5$  revolves on a shaft  $o^6$ , which is supported in brackets  $o^7$ , secured to the base in front of the standards  $B B'$ . An inclined endless-belt  
 85 conveyer  $p$  is passed around the pulleys  $o^3$  and  $o^5$  and is provided with angle-plates  $p'$ , and when in operation the conveyer moves over the pulley  $o^5$ , in front of the rolls  $E$  and  
 90  $H$ , thence up in an inclined direction and down over the pulley  $o^3$ .

The standard  $O$  is provided on one side with hangers or brackets  $q$ , which support a  
 95 counter-shaft  $q'$ , and said counter-shaft carries a grooved pulley  $q^2$ , and on its end is also provided with a worm  $q^3$ , which meshes with  
 100 a worm-gear  $o^4$  on the conveyer-shaft  $o^2$ . A belt  $s$ , passing around pulleys  $q^2$  and  $o$ , serves to communicate power from the main shaft  $N$  to the counter-shaft  $q'$  and thence to the  
 105 endless-belt conveyer  $p$  by means of the worm-gear  $o^4$ . It is to be understood that the counter-shaft  $q'$  revolves in a higher horizontal plane than the shaft  $N$ .

The operation of the machine is as follows: The previously-bent bar is placed on the die-  
 110 block  $j'$  while the latter is in front of the rolls  $E H$ , and the shaft  $G$  revolves, carrying the cranks  $I I'$ , and also causes the connecting-rods  $f'$  and  $f^2$  and likewise the cross-head  $F'$  to move backward or away from the rolls.  
 115 This rearward movement of the cross-head causes the die-holder  $K$  and die-block  $j'$ , which latter carries the bent bar, to move between the rolls, the central rib  $i$  on the bottom of the die-holder rolling in the central  
 120 groove or channel  $e$  of the roll  $E$  and guiding the die-block accurately between the rolls. The upper roll  $H$ , carrying the die  $h$ , also revolves and is timed in its revolution so that the die thereon will meet the die-  
 125 block  $j'$  and the bar thereon to be pressed as it enters between the rolls and presses the bar down and around the die-block, so that it conforms to the shape of the latter. As the die  $h$  is revolved the disk  $l^4$  contacts  
 130 therewith and is moved backward against the pushing action of the spring  $l^5$ , and as the die revolves away from or out of contact with the disk  $l^4$  the spring, which is then under compression, will suddenly expand and shoot  
 135 the rod  $l'$  and disk  $l^4$  forward, and the disk will strike against the heel or two ends of the bent and pressed bar and throw the latter forward and off the die-block  $j'$ , and the

shaped bar will fall on the belt conveyer, which will carry the shaped bar to any desired place of delivery.

Whenever the trunnions of the lower roll E, which rest in the lower journal-boxes *a*, become worn or whenever the periphery of the said lower roll and the contacting lower surface of the reciprocating die-holder K become worn any such wear may be taken up by screwing the bolts *d* into the standards, and thus forcing the wedges *d*<sup>3</sup> forward beneath the inclined lower faces of the lower boxes *a*. This operation will vertically adjust the lower roll E, as is evident, and the pivotal connection between the cross-head and the rear end of the die-holder readily permits said vertical adjustment without affecting the cross-head F'.

When the die holder and block are returned in front of the rolls, another bent bar is placed on the die-block and is treated as the previous one.

Having thus described this invention, what is claimed as new, and desired to be secured by Letters Patent, is—

1. In a press for the purpose described, the combination of two rolls mounted to revolve one above the other and the lower roll being vertically adjustable; a cross-head; means for reciprocating said cross-head; a die holder pivotally connected at one end to said cross-head, with its other end supported on said lower roll; and a die-block carried by said die-holder, as set forth.

2. In a press for the purpose described, the combination of the standards each provided with an upper and a lower journal-box, the lower boxes being provided with inclined bottom walls; a wedge beneath the inclined bottom wall of each lower box and said wedges provided with means whereby they may be moved to raise and lower the lower journal-boxes; two rolls mounted one above the other in said journal-boxes; a die secured to the

upper roll; a cross-head; a die-holder pivotally connected at one end to said cross-head, with its other end supported on said lower roll; and a die-block secured to the last-named end of said die-holder, as set forth.

3. The combination of the standards; an upper die-roll revoluble on a shaft between said standards; a driving-gear mounted on said shaft; a second roll beneath said die-roll; a main shaft extending crosswise of the machine and carrying a pinion which meshes with the gear on the upper die-roll shaft; a die-block adapted to be reciprocated between said rolls; an endless-belt conveyer traveling in front of said rolls and means coacting between the main shaft and conveyer for driving the latter.

4. The combination of the standards; an upper die-roll mounted on a shaft between said standards; a gear-wheel mounted on said shaft; a second roll mounted beneath said die-roll and between said standards; a die-block adapted to be reciprocated between said rolls; a main driving-shaft extending crosswise of the machine and carrying a pinion which meshes with the gear-wheel on the die-roll shaft; an endless conveyer arranged to travel in front of said rolls; a counter-shaft mounted on the machine and connected with said main shaft so as to turn with the latter, said counter-shaft being provided with a worm; and a worm-gear on one of the conveyer-shafts meshing with said worms, as set forth.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

CLARA PILSON,

WILLIAM R. BREWER,

*Coadministrators of the estate of George F. Pilson, deceased.*

Witnesses:

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