

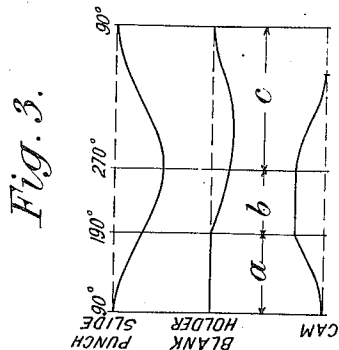
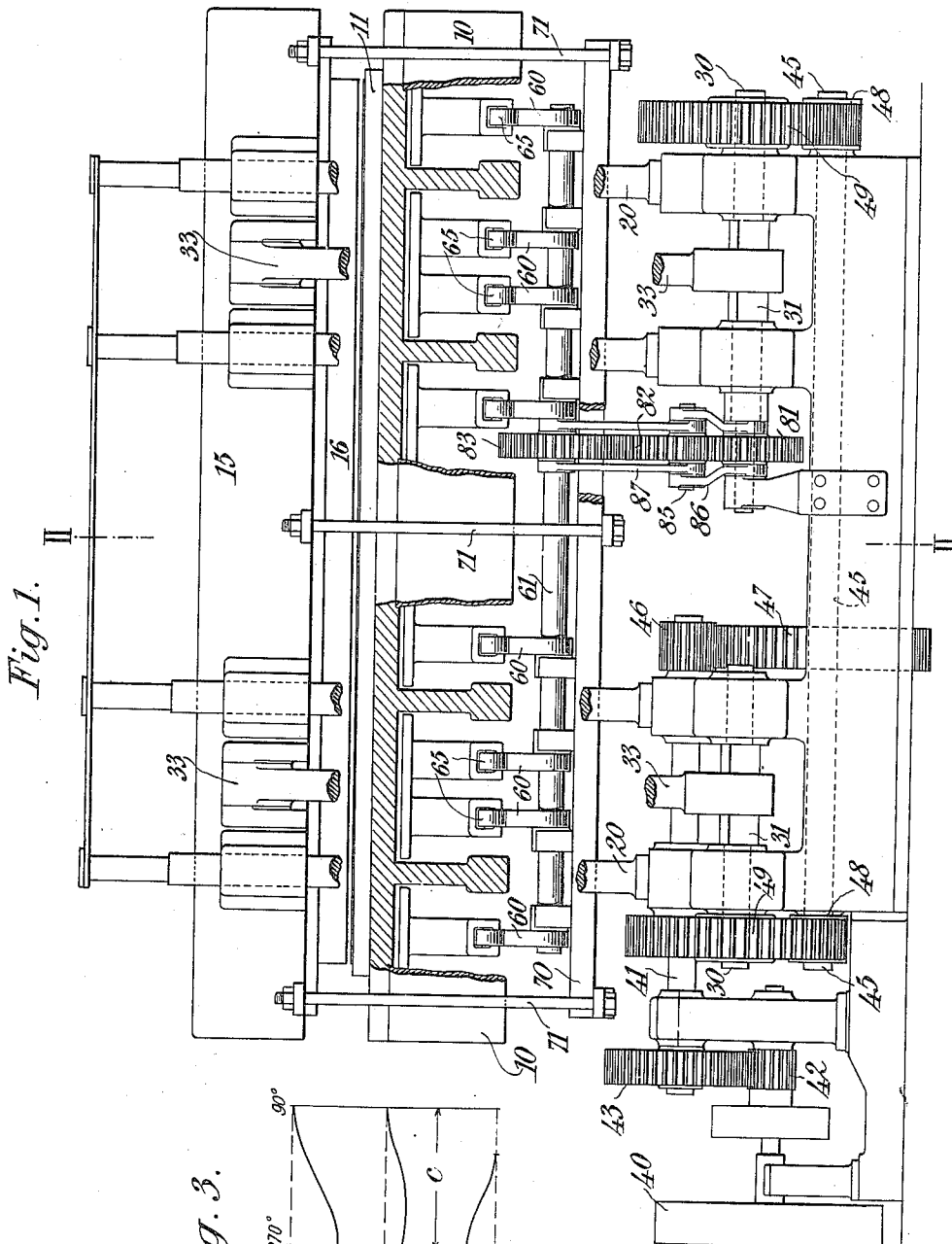
W. KLOCKE.
PRESS.

APPLICATION FILED MAY 25, 1920.

1,423,769.

Patented July 25, 1922.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.

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Fig. 2.

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UNITED STATES PATENT OFFICE.

WILLIAM KLOCKE, OF NEW YORK, N. Y., ASSIGNOR TO E. W. BLISS COMPANY, OF
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PRESS.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM KLOCKE, a citizen of the United States of America, residing in Woodhaven, in the borough and county of Queens, city and State of New York, have invented certain new and useful Improvements in Presses, of which the following is a specification.

This invention relates to presses and aims to provide improvements therein.

The invention provides a press capable of heavy duty, more especially capable of forming rails such as are used in the frames of automobiles, and further provides such a press comprising a slide for a blank holder or the like, which slide is actuated by a mechanism which is capable of being well timed in its relations to a coacting punch, and which mechanism works in an easy manner, without having objectionable strains produced therein.

The invention further provides a novel combination and sub-combinations for carrying out in an improved manner the usual operations of a press, especially a rail press.

An embodiment of the invention is illustrated in the accompanying drawings; wherein—

Fig. 1 is a longitudinal view, partially in section, and partially in elevation of said embodiment.

Fig. 2 is a transverse sectional view of the construction shown in Fig. 1, the section being on the line 2—2 Fig. 1.

Fig. 3 is a diagram, illustrating by curves the movements and form of several of the press parts.

Referring to said drawings, numeral 10 designates the bed of the press, adapted to carry one or more rail forming dies 11, or the like. 15 designates a reciprocatory punch slide, adapted to carry one or more punches 16 adapted to coact with the die or dies 11. The bed is preferably mounted upon up-rights 20, forming part of the frame of the press, and the punch slide 15 preferably slides on the upper extensions of these up-rights 20, as indicated at 22, the construction in this respect being conveniently similar to that set forth in the patent of Klocke and Dobson, No. 1,199,906, granted October 3, 1916.

The punch slide 15 is reciprocated by any

suitable means, preferably from one or more crank shafts 30 having a crank or cranks 31 thereon, the slide 15 being conveniently connected to said cranks by means of a link or links 33.

The crank shafts may be driven in a suitable manner, the means here shown comprising a driving pulley 40 driving a shaft 41 through gears 42, 43, which shaft 41 in turn drives a shaft 45 through gears 46, 47. The several crank shafts 30 are conveniently driven from the shaft 45 through gears 48, 49.

50 designates one or more blank holders adapted to support the blank or work under the punch, in such manner as to prevent the work springing under the punch, the coaction of the punch, blank holder and die of the present invention being to provide a well shaped rail. The blank holder or holders 50 are conveniently carried by a slide 52, conveniently sliding within the bed on slide-ways or gibs 54, the blank holder being conveniently connected to the slide through the intermediary of rods 56.

Suitable means are provided for reciprocating the blank holder slide 52. These means preferably comprise a cam 60, and a reciprocatory part 70 upon which said cam is mounted. The reciprocatory part 70 is conveniently a frame which is attached to the reciprocatory punch slide by means of tie rods 71, or the like, so that the said frame 70 receives its reciprocatory motion from the slide 15 carrying the punch.

The cam 60 is conveniently a rotary cam mounted upon a shaft 61 journaled in pillow blocks 62 resting upon the said frame 70. There are preferably a number of cams 60 in a rail press, as these presses are usually of considerable length, and the several cams 60 are preferably mounted together upon the shaft 61. The cam or cams 60 conveniently act upon the blank holder slide 52 through the intermediary of an antifriction roll or rolls 65.

Suitable means are provided for actuating the cam or cams 60. These means preferably comprise a train of gears 81, 82, 83, one of which, 82, is a floating gear, the shaft or trunnion 85 of which is conveniently carried by links 86, 87, pivotally connected. The gear 81 is preferably attached to one of

the crank shafts 30 which actuate the punch slide 15, and the gear 83 is connected to the shaft 61, carrying the cams 60. The ends of the links 86, 87 are attached respectively to the said shafts 30 and 61.

Referring to the diagram shown in Fig. 3 the parts are so designed that the punch acts or draws upon the blank for about 80° of its movement. The relation of the face of the cam to its base or base line is shown in the bottom curve. This cam has a rise *a* which lifts the blank holder against the downward movement of the cam support (viz: the frame 70) so that the net movement of the blank holder is nil up to the time that the punch (or its downward stroke) strikes the blank. At the point where the punch strikes the blank the cam is provided with a portion which is at a uniform distance from its base, viz: concentric with the center of the rotary cam, as indicated at *b*, and the blank holder and punch hence move in unison with the blank held between the punch the blank holder, during the remainder of the working stroke of the punch. The cam thereafter has a fall as indicated at *c*, which delays the upward movement of the blank holder somewhat behind the upward movement of the punch, the movement of the cam support 70 however, (by reason of its attachment to the punch slide 15) moving the blank holder 50 upward at the end part of its upward reciprocation, whereby the blank holder may act to eject the drawn rail while the punch is raised, the drawn rail being removed from the press, and a succeeding blank inserted during the initial part of the downward movement or working stroke of the punch.

The inventive ideas herein set forth may receive other embodiments than that herein specifically illustrated and described.

What is claimed is:—

1. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, and means for actuating said slide, said means comprising a cam and a reciprocatory support for said cam, means for actuating said reciprocatory support, and means for rotating said cam during the reciprocatory movement of said support.

2. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, and means for actuating said slide, said means comprising a cam and a reciprocatory support for said cam, means for actuating said reciprocatory support, and means for rotating said cam during the reciprocatory movement of said support, said means for actuating said reciprocatory support comprising a rotary part having an eccentric part adapted to convert the rotary movement of said part to reciprocatory movement of said support.

3. A press comprising a reciprocatory

slide adapted to carry a blank holder or the like, and means for actuating said slide, said means comprising a cam and a reciprocatory support for said cam, means for actuating said reciprocatory support, and means for rotating said cam during the reciprocatory movement of said support, said means for actuating said cam comprising a train of gears having an intermediate floating gear.

4. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, and means for actuating said slide, said means comprising a cam and a reciprocatory support for said cam, means for actuating said reciprocatory support and means for rotating said cam during the reciprocatory movement of said support, said means for actuating said reciprocatory support comprising a crank reciprocated part on which said cam is mounted.

5. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, a reciprocatory punch slide, and a cam adapted to actuate said blank holder slide, said cam being mounted to move with said punch slide, and means for rotating said cam during the movement of said punch slide.

6. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, a reciprocatory punch slide, and a cam adapted to actuate said blank holder slide, said cam being mounted to move with said punch slide, and means for rotating said cam during the movement of said punch slide, said means comprising a train of gears having an intermediate floating gear.

7. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, a reciprocatory punch slide, and a cam adapted to actuate said blank holder slide, said cam being mounted to move with said punch slide, and means for rotating said cam during the reciprocatory movement of said punch slide, said cam having a portion at a uniform distance from its base, whereby said blank holder slide and said punch slide move in unison under the action of the same driving force.

8. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, a reciprocatory punch slide, a crankshaft for driving said punch slide, and a cam adapted to actuate said blank holder slide, said cam being mounted to move with said punch slide, and means for rotating said cam during the reciprocatory movement of said punch slide.

9. A press comprising a reciprocatory slide adapted to carry a blank holder or the like, a reciprocatory punch slide, a crankshaft for driving said punch slide, and a cam adapted to actuate said blank holder slide, said cam being mounted to move with

said punch slide, and a connection between said crank-shaft and said cam for rotating the latter.

10. A press comprising a reciprocatory
5 slide adapted to carry a blank holder or the like, a reciprocatory punch slide, a crank-shaft for driving said punch slide, and a cam adapted to actuate said blank holder slide, said cam being mounted to move with
10 said punch slide, and a train of gears for rotating said cam, having an intermediate floating gear, between said cam and said crank-shaft.

11. A press comprising a reciprocatory
15 slide adapted to carry a blank holder or the

like, a reciprocatory punch slide, a crank-shaft for driving said punch slide, and a cam adapted to actuate said blank holder slide, said cam being mounted to move with said punch slide, and a connection between said crank-shaft and said cam for rotating
20 the latter, said cam having a portion at a uniform distance from its base, whereby said blank-holder slide and said punch slide move in unison under the action of the same
25 driving force.

In witness whereof, I have hereunto signed
my name.

WILLIAM KLOCKE.