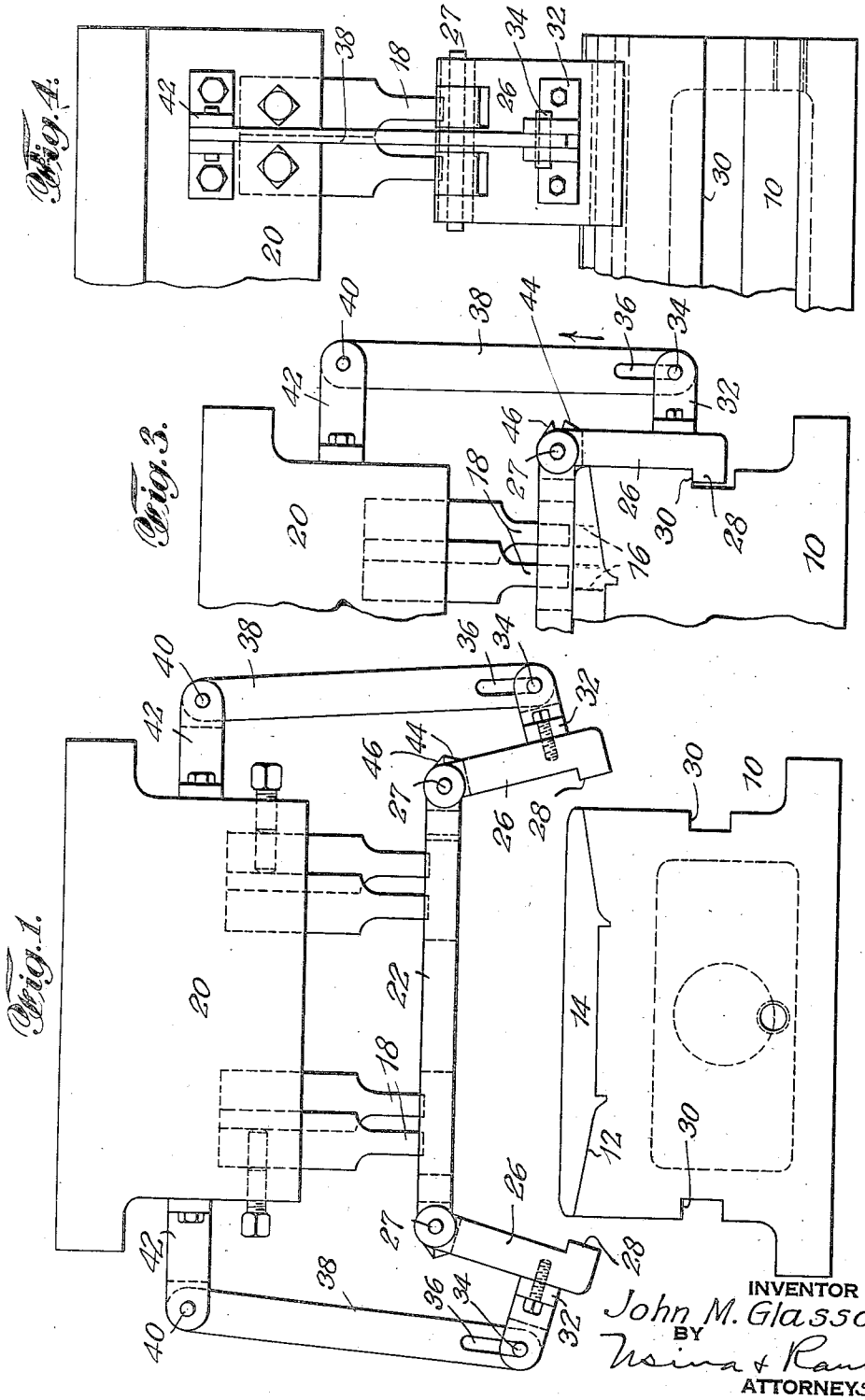
July 3, 1934. J. M. GLASSON 1,964,910

STRIPPING MECHANISM

Filed June 23, 1932 2 Sheets-Sheet 1



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Filed June 23, 1932 2 Sheets-Sheet 2

Fig. 5.

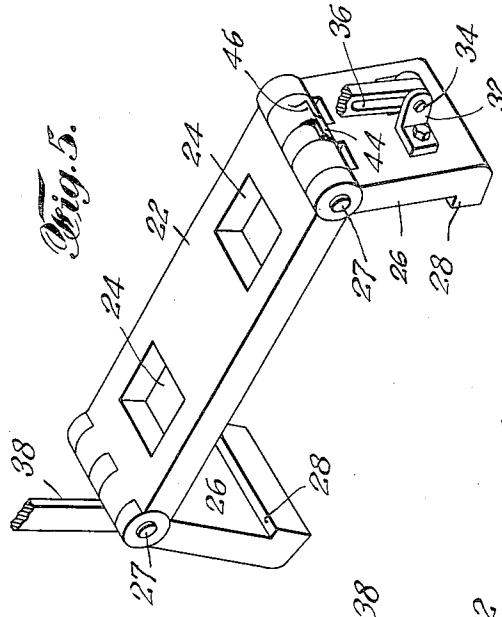


Fig. 6.

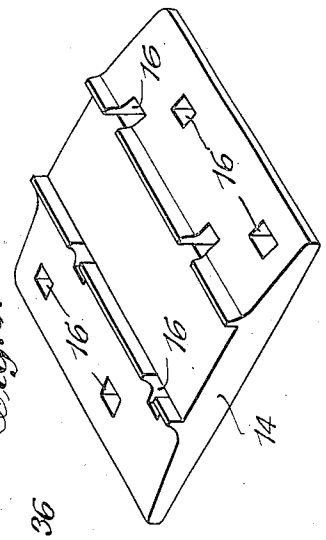
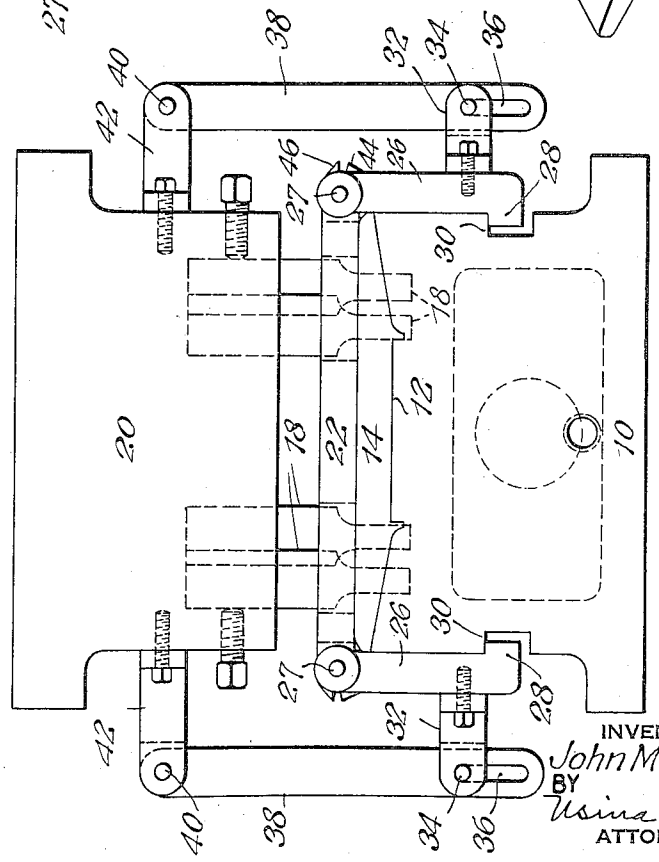


Fig. 2.



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STRIPPING MECHANISM

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Application June 23, 1932, Serial No. 618,901

4 Claims. (Cl. 164—110)

This invention relates to stripping mechanism for use in punch presses and aims to provide means for positively holding the work during the withdrawal of the punches and subsequently releasing the holding means.

The invention includes means for locking a stripper plate in engagement with the work, said stripper plate being suspended or otherwise supported from the movable punch carrier and so arranged that upon the withdrawal stroke of the punch carrier the stripper plate is unlocked and subsequently moved free of the work. The invention will be fully apparent from the following specification when read in connection with the accompanying drawings and will be defined with particularity in the appended claims.

In the drawings—

Fig. 1 is an end elevation of so much of a punch press as is necessary for an understanding of the invention, this view showing the punches in their fully withdrawn position so that the stripper plate is clear of the work;

Fig. 2 is a view similar to Fig. 1 illustrating the position assumed by the parts at the limit of the working stroke of the punches;

Fig. 3 is a fragmentary view illustrating an intermediate position of the parts during the retracting stroke of the punches and represents that part of the cycle of operation where the unlocking of the stripper plate is about to take place;

Fig. 4 is a fragmentary side elevation of Fig. 1;

Fig. 5 is a perspective view of the stripper and certain locking dogs associated therewith;

Fig. 6 is a perspective view illustrative of the type of work piece which can be handled by the machine embodying my invention.

Referring in detail to the drawings, 10 represents a fixed bed or base of a punch press, which may carry any suitable die members. In the machine illustrated, this base has its upper portion shaped to form a seat 12 for the work 14. The work in the case illustrated is a tie plate such as used for interposing between base flanges and the wooden ties of ordinary railroad tracks. Such tie plates are commonly formed with punched spike holes 16. The spike holes are adapted to be formed by means of punches 18 which are suitably secured to a reciprocating carrier 20. This carrier may be actuated by toggle, eccentric, hydraulic piston or other means commonly employed in the art. The particular design of the punch press to which the invention is applied forms no part of the present invention and hence is not further illustrated. My improvements may be incorporated in any type of punch press having a fixed base and a tool or punch carrier movable relatively thereto.

A particular feature of the invention resides in the improved form of stripper and in means for locking such stripper in engagement with the fixed base until after the punches have been retracted from the work.

In the embodiment of the invention illustrated, the stripper indicated as a whole at 22 is in the nature of a plate-like member having apertures 24 formed therein through which the punches 18 are adapted to freely pass.

Dogs 26—26 are pivotally secured by pins 27 to the outer ends of the stripper plate 22. Each dog 26 is provided at its lower end with a tooth 28, which is adapted to engage an abutment 30 formed by slotting out the base 10. Each dog 26 carries a bracket 32 for supporting a pin 34 which passes freely through a lost motion slot 36 formed in the lower extremity of a link 38, which is suspended from the punch carrier 20 by means of a pivot pin 40 secured in a bracket 42 carried by the punch carrier.

In the normal operation, when the punch press is at rest the carrier 20 and its punches will be in the elevated position of Fig. 1. This will permit of readily placing the work piece 14 on the lower die or base of the machine. In this position, the stripper 22 is suspended from the carrier by the links 38, the pins 34 secured to the locking dogs at this time engaging the lower end of the lost motion slots 36. The pivotal movement of the dogs 26 at this time is limited by means of inter-engaging projections 44 and 46 formed respectively on the dogs 26 and the stripper 22. As the carrier moves down, the stripper plate 22 together with the dogs 26 will move downwardly, the parts remaining in the position of Fig. 1 until the stripper plate contacts with the upper face of the work 14.

Continued downward movement of the carrier 20 at this time will permit the dogs 26 to swing inwardly until their respective teeth 28 move into engagement with the abutments 30 formed on the fixed base. At the completion of the downward movement of the carrier 20, the upper extremities of the slots 36 will engage the pins 34, thus positively insuring that the dogs properly engage the abutments 30. In this position of the parts, the punches will have already pierced the work.

In punching heavy work, such as tie plates and the like and especially where several punches are employed, it is important that when the punches

are retracted that the work shall not move outwardly with the punches. With the improved stripper mechanism herein shown, it will be noted that the work is positively locked to the fixed base 10 of the punch press. The work remains so locked until the punches on their upward stroke move clear of the upper face of the work or substantially to the position illustrated in Fig. 3. The parts are so designed and arranged that after the punches do their work the locking dogs will be automatically disengaged from the base.

In the embodiment of the invention illustrated, when the punches clear the work on the upward stroke of the carrier the lower extremity of the slot 36 comes into engagement with the pin 34 of the dog, as indicated in Fig. 3, whereupon a continued upward or retracting movement of the punch carrier will rock the dogs outwardly so as to disengage them from the abutments 30. Continued upward movement will bring the lugs 46 and 44 into engagement whereupon during the remainder of the upstroke the stripper will travel upwardly with the carrier, thus returning the parts to the starting position of Fig. 1, whereupon the work previously punched can be removed by hand or otherwise and a new piece inserted.

From the foregoing, it is clear that the invention provides an extremely simple yet effective stripper which can be manufactured at low cost and yet perform its function in a positive manner. The stripper parts are advantageously supported or suspended from the movable punch carrier, thus the stripper and its operating parts form a unit which moves the punch carrier. This leaves the bed of the machine entirely unobstructed, thereby facilitating the insertion and removal of the work pieces.

While I have described quite precisely the details of the embodiment of the invention illustrated it is to be understood that various modifications may be made by those skilled in the art without departure from the invention as defined in the appended claims.

What I claim is:—

1. In combination with the fixed base and the movable punch carrier and punch of a punch press, a stripper, locking dogs pivoted to said stripper, and supporting links for said stripper pivotally suspended from said carrier and having a pin and slot connection with brackets detachably secured to said dogs.

2. In combination with the fixed base and the movable punch carrier and punch of a punch press, a stripper, locking dogs pivoted to said stripper and adapted to engage said base, swingable links pivotally suspended from said carrier and having a pin and slot connection with brackets removably secured to said dogs.

3. In combination with the fixed base and the movable punch carrier and punch of a punch press, a stripper, locking dogs pivoted to said stripper and adapted to engage said base, swingable links pivotally suspended from said carrier and having elongated slots adjacent their swingable ends, said dogs carrying detachable brackets having pins secured thereto which pass through the slots in said links.

4. In combination with the fixed base and the movable punch carrier and punch of a punch press, a stripper, locking dogs pivoted to said stripper and adapted to engage said base, links having a pivotal mounting on said carrier, and brackets detachably secured to said dogs and having a pin and slot connection with said links.

JOHN M. GLASSON.