

Jan. 5, 1943.

M. H. LEE

2,307,594

PRESS

Filed June 28, 1941

5 Sheets-Sheet 1

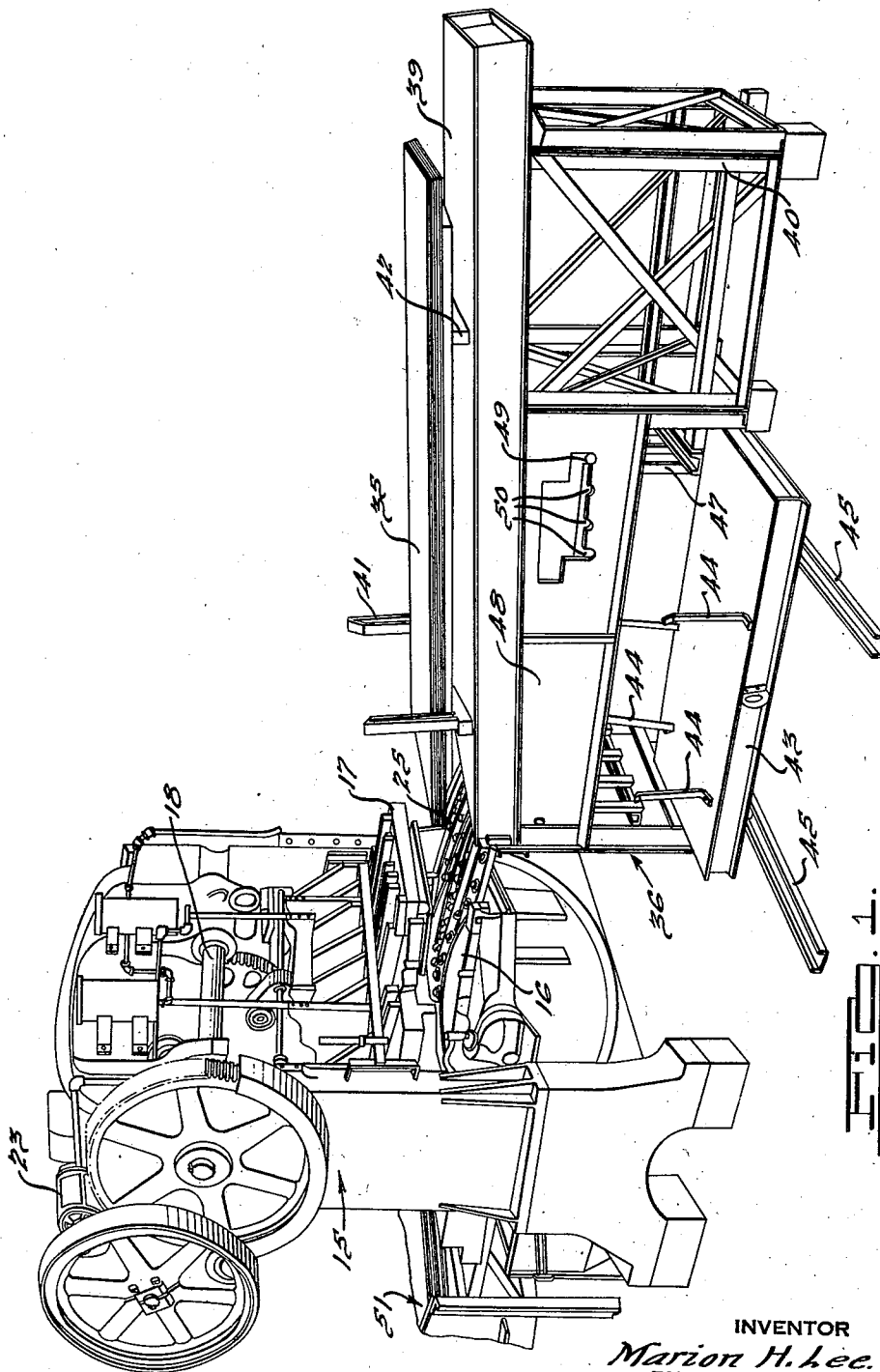


FIG. 1.

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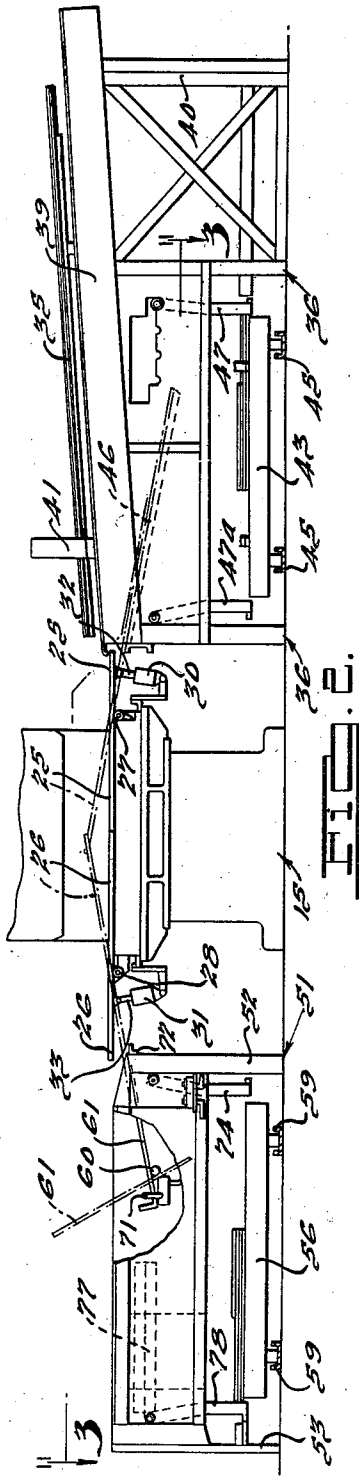
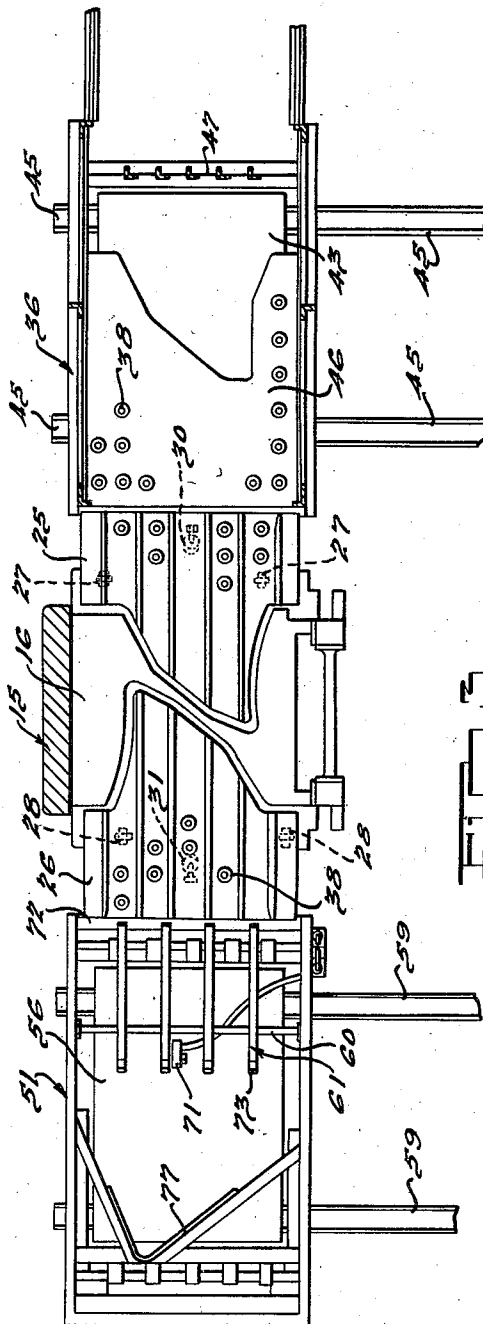
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5 Sheets-Sheet 2



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5 Sheets-Sheet 3

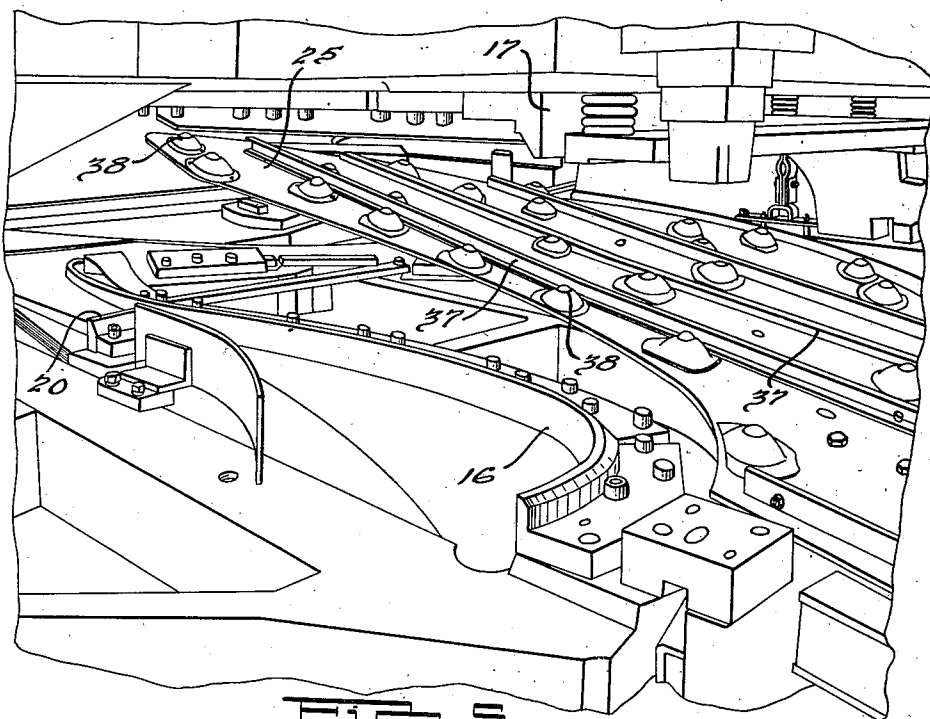


FIG. 5.

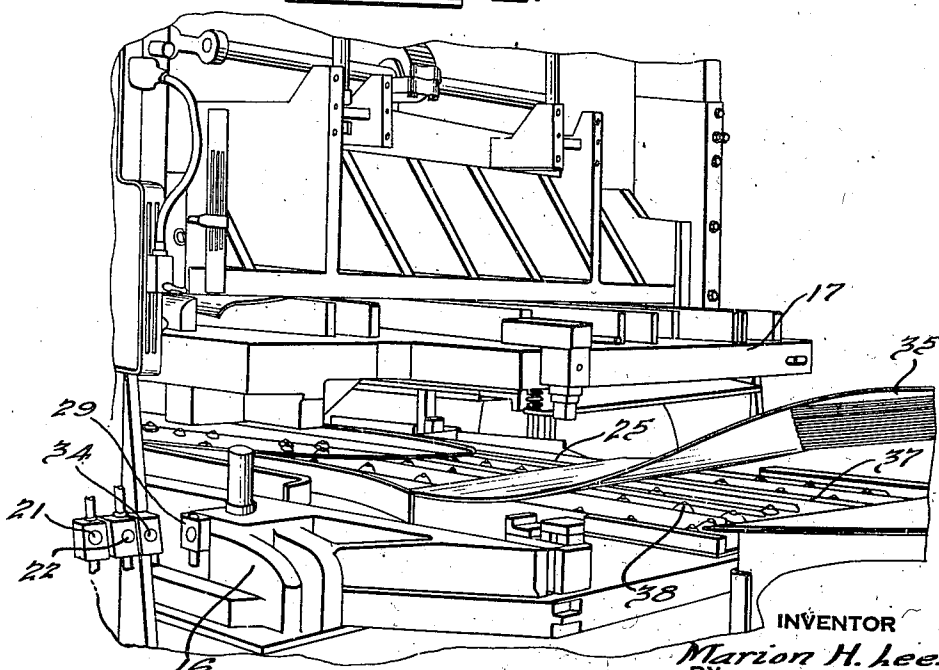


FIG. 4.

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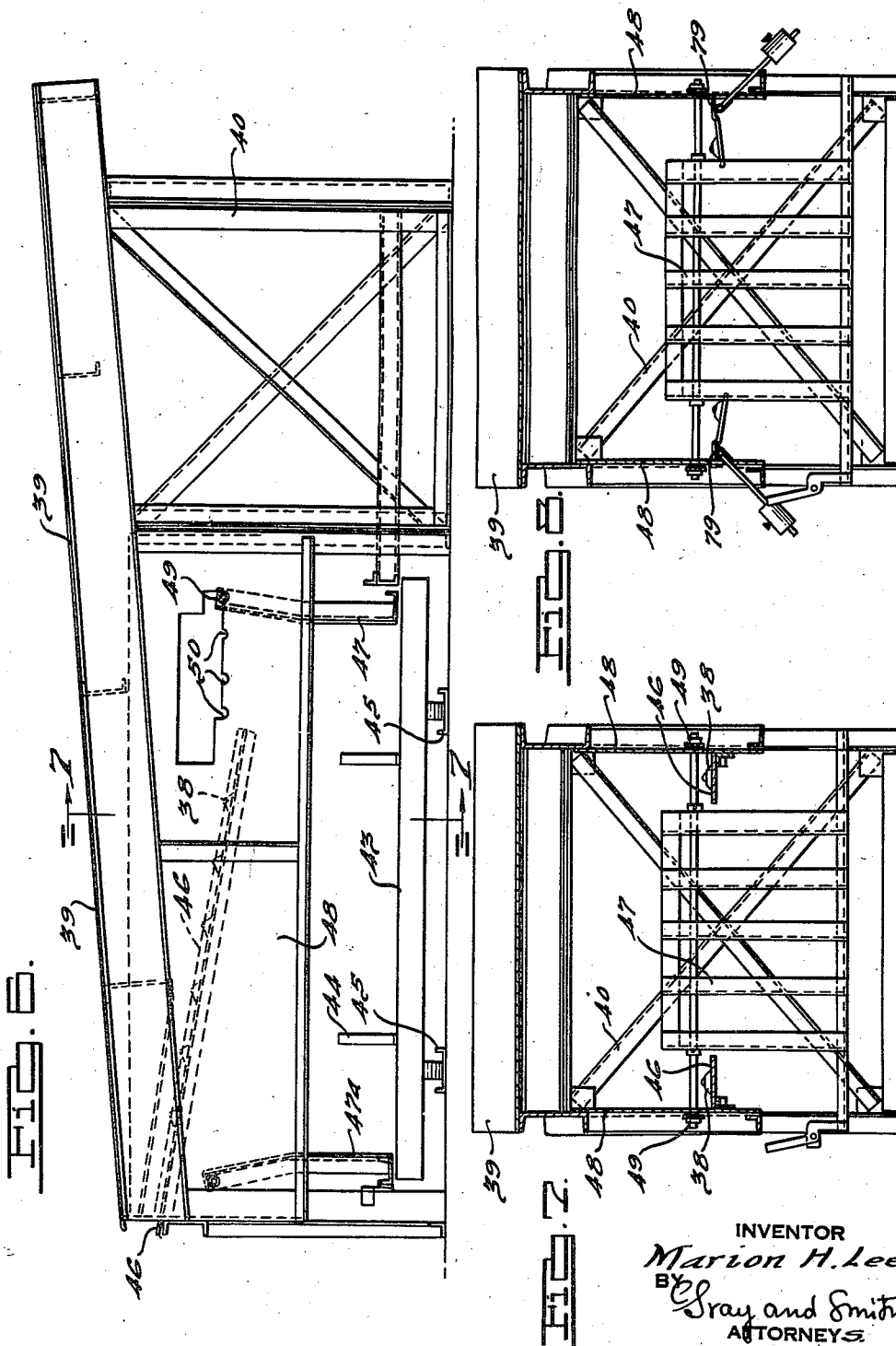
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2,307,594

PRESS

Filed June 28, 1941.

5 Sheets-Sheet 4



Jan. 5, 1943.

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2,307,594

PRESS

Filed June 28, 1941

5 Sheets-Sheet 5

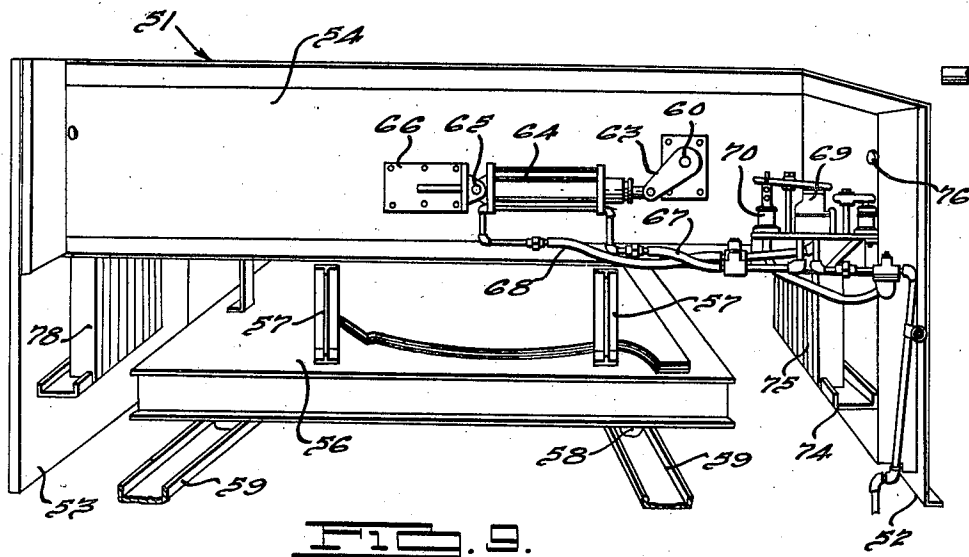


FIG. 9.

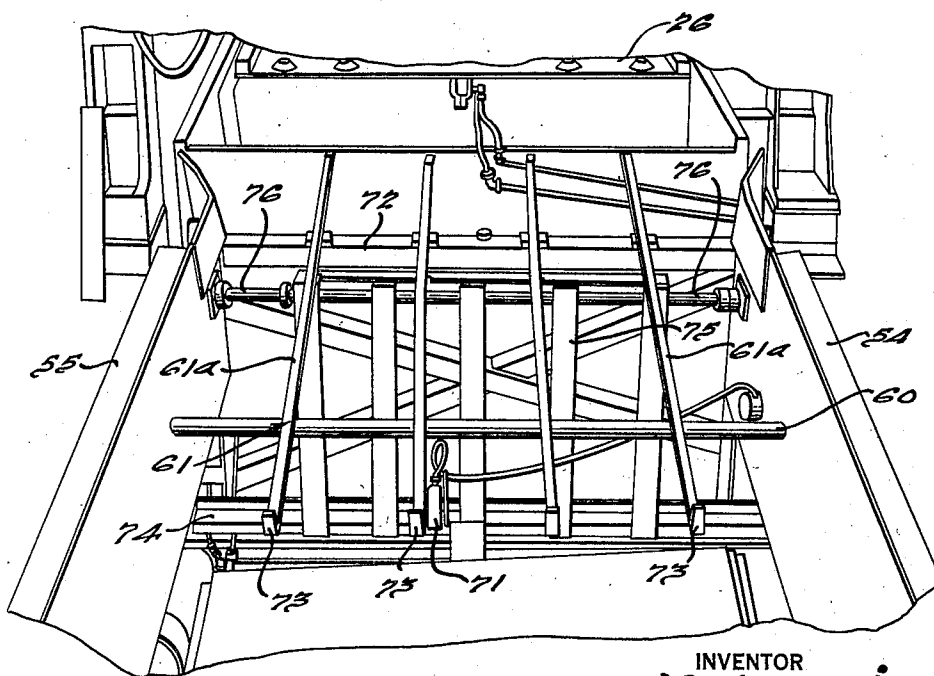


FIG. 10.

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UNITED STATES PATENT OFFICE

2,307,594

PRESS

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Application June 28, 1941, Serial No. 400,293

25 Claims. (Cl. 164—47)

This invention relates to presses and more particularly to a press, such as an improved stamping press, provided with improved material and blank handling means.

One of the objects of the present invention is to provide an improved press adapted to stamp or punch out from a sheet of material a blank or workpiece and to discharge said blank or workpiece automatically upon completion of the operation out of the press or from beneath the punch and toward a predetermined position.

Another object of the present invention is to provide an improved press adapted to stamp or punch out simultaneously from a single metal sheet a plurality of pieces or blanks and upon completion of the operation to discharge said pieces or blanks out of the die or from beneath the punch in different directions.

A further object of the invention is to provide an improved press of the character specified in the preceding paragraph, improved means being provided for convenient handling and loading metal sheets into the press as well as for receiving the blanks or workpieces as they are discharged from the press and loading or storing said blanks or workpieces on movable platforms.

A still further object of the invention is to provide an improved press and material and blank handling means therefor, which means so cooperate with the press as to form, in effect, a single system enabling safe and efficient operation of the press.

A still further object of the invention is to provide an improved press and material handling means therefor, said means being of such a character as to eliminate the necessity of manually handling large, heavy and easily bendable sheets and blanks on a greasy slippery floor and in dangerously close proximity to the moving parts of the press.

A still further object of the present invention is to provide an improved press and material and blank handling means therefor, which means occupy relatively small floor area and therefore effect considerable economy in plant layout.

A still further object of the present invention is to provide an improved press and blank handling means therefor, whereby the blanks are discharged from the press upon completion of the stamping operation, some blanks being turned over and accurately stacked up on a removable platform.

Another object of the invention is to provide a press in which a workpiece supporting member extends into the press beneath the punch and

is adapted to be tilted after separation of the punch and die to permit the workpiece to slide out from beneath the punch, thus enabling the workpiece to be readily discharged after each operation without requiring manual handling to perform this function.

It is an added object of the present invention to provide an improved structure of the foregoing character which is simple in construction, safe and dependable in operation, and is relatively inexpensive to build and to maintain in working order.

Other objects of this invention will appear in the following description and appended claims, reference being had to the accompanying drawings forming a part of this specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a perspective view showing my improved press with the blank handling means therefor, the left-hand portion of the structure being broken off in part due to the size of the sheet and the scale of the drawing.

Fig. 2 is a side view of the structure shown in Fig. 1, the upper portion of the press being broken off.

Fig. 3 is a top view of the structure shown in Fig. 2, said view being taken in the direction of the arrows on the broken section plane passing through the line 3—3 of Fig. 2.

Fig. 4 is a perspective view showing the punch and die of the press, the same being shown separated and the sheet of material being fed into the die.

Fig. 5 is a view similar in part to Fig. 4, the die and the punch being shown separated after the stamping or punching operation has been completed, the discharging platforms being in their inclined or discharging position.

Fig. 6 is a side view of the stand shown in perspective in Fig. 1 at the right-hand side of said figure.

Fig. 7 is a sectional view taken in the direction of the arrows on the vertical section plane passing through the line 7—7 of Fig. 6.

Fig. 8 is a view similar in part to Fig. 7 and illustrating a similar stand having blank guiding means of a modified character.

Fig. 9 is a perspective view taken on one side of the second blank handling stand shown in side view on the left-hand portion of Fig. 2.

Fig. 10 is a view illustrating in perspective a portion of the structure of Fig. 9, the observer being presumed to look from the top thereof toward the stamping press.

Before explaining in detail the present invention it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practiced or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention claimed herein beyond the requirements of the prior art.

In the drawings there is shown by way of example an improved press provided with blank handling means as well as sheet supporting means cooperating with the dies or the die and punch of the press in such a manner as to handle the blanks conveniently and efficiently, and stack them in a neat and accurate pile after the stamping or punching operation is completed. The present invention is herein illustrated and described as applied to a press performing blank piercing operations, which is to say, cutting out a number of flat blanks from a relatively large sheet of material. In the present instance two blanks are simultaneously stamped or punched out from a sheet of rolled steel, said blanks being discharged flat. It will be understood that the invention is not limited to a stamping operation or to the stamping out of two similar blanks simultaneously but may be successfully used for producing one or any practical plurality of blanks or workpieces. Sheet materials other than steel and such for instance as fiber, cardboard and the like, may also be used. The blanks may be either pierced out only or also formed or preformed. Thus, it will be understood that the press of the present invention is not limited to the particular operation performed, as it may be used for piercing, cutting, flanging, forming, etc. operations or any combination thereof and the term "stamping" or "stamped" or the like is intended to be construed as comprehending any of these operations.

Referring to Fig. 1, the stamping press 15 illustrated therein comprises a frame having a suitable foundation on which there is accurately mounted a piercing die 16 adapted to cooperate with a punch 17 operatively arranged in a manner well known in the art on a ram movable in the upper portion of the frame and actuated from a shaft 18 whereby said punch 17 is adapted to move relative to said die 16. When the punch 17 comes in contact with the die 16, a sheet of material being interposed between them, said punch and die cooperate to stamp out simultaneously a plurality of blanks or workpieces. In the present embodiment of the invention two substantially similar rear quarter panels used in automobile bodies are stamped out from a sheet of steel manually fed into the die. The blanks are of such a size that they occupy, excluding the trim, practically the entire area of the sheet, and therefore the entire sheet is pressed or operated upon in a single stroke of the punch.

On the punch 17 and die 16 there are provided cooperating knives 20 which are adapted to cut the trim into a plurality of pieces which are pushed down by the punch through suitable apertures in the die and fall through the die and a suitable opening in the floor (not shown) on a moving conveyor for continuous removal. The press is started by operating a starting button or knob 21 provided on the side of the press (see

Fig. 4) within convenient reach of the operator. The emergency stop knob 22 is provided adjacent said starting knob 21. The driving motor 23 (Fig. 1) and its electric interconnection with the knobs 21 and 22 may be of any suitable character known in the art.

In accordance with the invention means are provided to discharge each of the two blanks stamped out during the downward stroke of the punch toward different predetermined positions on opposite sides of the press. In the present embodiment of the invention the discharging means are exemplified by two tiltable platforms 25 and 26 hinged on the die structure as indicated at 27 and 28 respectively (Fig. 2). These platforms are permanently mounted within the die structure. Hence, in their horizontal positions the hinged platforms 25 and 26 lie below the cutting elements of the die and inwardly thereof so as not to interfere with the normal operation of the press. Therefore, as the blanks are stamped out, they are received by said platforms 25 and 26 and are supported thereby, while the trim is being cut into several pieces and is pushed through the die onto the removal conveyor as mentioned.

Means are provided also for tilting the platforms 25 and 26 when the punch and the die separate, to bring said platforms into inclined positions, as shown in dotted lines in Fig. 2 and in full lines in Fig. 5, thereby causing the stamped out blank to slide off from said platforms downwardly and outwardly of the press. In the present embodiment of the invention said platform moving means are of the fluid actuated character and may preferably be either of hydraulic or pneumatic type, pneumatic means being employed in the present instance. Said means include actuating oscillating cylinders 30 and 31 mounted on the die structure as shown in Fig. 2 and having pistons with piston rods 32 and 33, respectively, slidably fitted therein, said rods being hingedly connected to the platforms. Air under pressure is delivered to said actuating cylinders through suitable hose connections (not shown) in a manner well known in the art. Said hose connections are controlled by means of valves actuated by solenoids which in turn are controlled by a manually operated switch 34 located within convenient reach of the press operator (see Fig. 4). Any type of switches or solenoids and valves may be used, and since such means are well known in the art in a great number of types, no detailed description thereof is given herein due to the complicated nature of electric circuits involved which would greatly obscure the present invention if detailed description thereof were herein attempted.

In operation as the blank is stamped out and the trim is pushed through the die downwardly, the punch rises into its uppermost position. Thereupon the operator pushes the switch or knob 34, thereby energizing the solenoid which moves a corresponding valve in the pneumatic connection, in consequence whereof the platforms are moved into an inclined position causing the stamped blanks to slide off the platforms in opposite directions on both sides of the press. Thereupon the actuating cylinders are operated to bring the platforms 25 and 26 into their horizontal positions with the punch being still in its uppermost position, whereupon the die is ready to receive the next sheet. In order to prevent operation of the platforms 25 and 26 when the punch 17 is in its down position, a breaker switch

29 is provided (see Fig. 4) which is actuated by said punch in the down position thereof to break the current and prevent operation of the platform controlling solenoids.

The sheets are fed into the die manually from the pile 35 supported on the top of the stand 36. When relatively large sheets are used it is preferred to have two loading operators standing on suitable stools or supports arranged on both sides of the stand 36. The platforms 25 and 26 are provided with reinforcing rails 37 and anti-friction devices 38, each of said devices comprising a rotatable ball mounted in a socket secured to the platform.

The stand 36 is intended to support the pile of sheets 35, as mentioned, for feeding them into the die and also to cooperate with the discharging platform 25 in such a manner as to receive the blanks discharged by said platform and to stack said blanks up in an orderly pile or stack for easy removal and storing. Said stand 36 is of substantially two-story construction. The upper story thereof comprises an inclined platform 39 supported on a framework generally indicated by the numeral 40. On said upper platform 39 there are provided sheet supporting and locating brackets 41 and 42. The lower story of the stand comprises a removable platform 43 provided with guide brackets or posts 44 adapted to direct the falling blank into its proper position on the platform. The platform 43 is supported by the channels 45 at a distance from the floor in order to permit driving a lift truck platform right under the platform 43 between the rails 45 and raising it from the floor for removal. The stacks of stamped blanks may be stored on platforms, a necessary number of spare platforms 43 being provided for placing an empty platform under the stand 36 after a loaded platform is removed.

Intermediate the platforms 39 and 43 there is provided an inclined guiding platform 46 which is arranged to be aligned with the hinged platform 25 in the inclined or discharging position thereof. Thus when said platform 25 is moved into its inclined position, the guiding platform 46 forms in effect a continuation of said platform 25 arranged at the same angle therewith. Said guiding platform 46 is provided with anti-friction devices identical with devices 33 of the platform 25. The platform 46 is recessed as is best shown in Figs. 3 and 7 in order to cause the blank to fall through onto the platform 43 upon reaching a predetermined position over said platform. In order to reduce or absorb the impact of the sliding blank, means are provided adapted to receive said impact. In the present embodiment of the invention said means comprise an oscillating shield 47 of considerable weight, said shield being hinged in the side plates 48 of the stand as shown at 49. In order to accommodate blanks of various sizes and to effect other desirable adjustments there is provided a plurality of notches 50 into which the hinge 49 of the shield 47 may be moved, thereby changing the position of the shield. When a sliding blank strikes the oscillating shield 47 the same swings back for a distance, such swinging being opposed by the inertia of the shield. Thus, yielding means receiving the shock of the sliding blank are provided. For protecting the wall of the stand immediately adjacent the press, a similar shield, such as shield 47a may also be provided.

The blanks discharged from the left-hand platform 26 are received by the left-hand stand generally indicated by the numeral 51. In some in-

stances said stand 51 may be substantially similar to the stand 36 but without the upper story, since the sheets are fed from one side of the press only. In the present embodiment of the invention the stand 51 includes an additional feature of improvement, namely a blank overturning device which is adapted to receive the blank as it issues or is discharged from the platform 26 and to turn it over before placing it on the removable platform. Overturning of the blanks is desirable in many instances in order that a blank may be fed into the dies for succeeding stamping operations with the burr thereof arranged in a particular way depending upon the character of the dies. In stamped constructions it is preferable to have the sharp burr, which is formed in stamping on one side of the blank, arranged inwardly of the article. In the present instance the succeeding operations on the blanks stamped out in the press herein described are such that an overturning of the blanks is desired.

Referring to the drawings and more particularly to Figs. 2, 3, 9 and 10 thereof, the stand 51 comprises two supporting end wall structures 52 and 53 connected by side walls 54 and 55. Said connecting walls 54 and 55 extend upwardly to the height of the end walls 52 and 53 but do not reach all the way down to the lower edges of the walls 52 and 53, leaving a space for moving transversely of the stand 51 a removable platform 56 having blank guiding posts 57 and legs 58 supported by floor channels 59. Several removable platforms 56 should be on hand in order to replace a loaded platform after the same is removed from under the stand.

Blank overturning means provided in said stand 51 comprise a rack shaft 60 to which there is secured a rack generally indicated by the numeral 61 and formed by a plurality of longitudinal members 61a. The shaft 60 is journaled in the walls 55 and 54 for rotation therein. To one end of the rack shaft 60 there is secured a crank 62 (see Fig. 9) connected to the piston rod of a piston slidably fitted in the rack actuating cylinder 64 which is hingedly connected as indicated at 65 to a bracket 66 secured to the wall 54 of the stand. Pneumatic hose connections 67 and 68 are adapted to transmit air under pressure to opposite sides of the piston slidably fitted in the cylinder 64. A valve device 69 is provided, said valve being adapted to connect alternatively one side of the cylinder with the source of pneumatic pressure and the other side of said cylinder with an exhaust port. Thus by proper manipulation of the valve 69 the piston of the cylinder 64 may be moved in said cylinder in opposite directions, thereby operating the crank 62, the shaft 60, and the rack 61 carried thereby. The valve 69 is actuated with the aid of a solenoid 70. Said solenoid is in turn controlled by any suitable switch means, such for instance as a spring controlled switch 71 carried by the rack 61 and actuated by the blank when the same reaches a predetermined position on the rack.

The cylinder 64 and the rack 61 are so arranged that when the platform 26 is in its inclined, discharging position, the rack 61 is positioned in the same plane with said platform 26 forming in effect a continuation thereof and being supported in such a position by the transverse member 72. Thus, the stamped out blank slides from the platform 26 onto the rack 61 but is stopped from sliding off from said rack by the hooks or abutments 73 provided on the terminal

ends of longitudinal members 61a of the rack. In this position the blank actuates the switch 71, whereupon the solenoid 70 is caused to operate the valve device 69 and to admit air under pressure into the cylinder 64 through the hose connection 68, while connecting the opposite side of said cylinder through the hose connection 67 with an exhaust port. In consequence thereof the crank 63 (see Fig. 9) is moved in a counter-clockwise direction, rotating the rack shaft 60 and the rack 61. After the rack passes its vertical position and continues its movement therefrom, the blank is turned over and falls down on the platform 56 between the guiding posts 57. Thereupon the switch 71 automatically returns to its original condition and the valve device 69 is operated to reverse the pressure in the cylinder 64 and to bring the rack 61 into its original position preparing said rack for receiving the next blank and for passing through the same cycle of operations.

A wall protecting oscillating shield 74 including preferably a number of suitably supported wooden buffer members 75 are provided on the end wall 52 of the stand and secured to a shaft 76 journaled in the side walls of the stand adjacent the wall 52 thereof. A guiding bracket 77, may also be provided as shown in Fig. 3. A second wall protecting shield 78 may also be provided on the wall 53, as shown.

Fig. 8 illustrates a stand similar to the stand 36 but having guiding means different in construction than the guiding platform 46 of said stand 36. In the structure of Fig. 8 the guiding means are in the form of counterbalanced hingedly connected brackets 79 arranged on the side walls of the stand and adapted to receive and to support the blank for the first portion of its travel, but to yield to the weight of the blank as it proceeds toward the end of its travel in the stand, and to permit its falling through onto the removal platform 43.

There is thus provided an improved stamping press and blank handling means therefor with the aid of which relatively large steel sheets may be easily and safely fed into the die and operated thereon for stamping out a plurality of blanks, which blanks are discharged toward receiving stands and are stacked thereon on removable platforms, some blanks being overturned in the process of stacking, if desired. By virtue of the above described construction the objects of the invention listed above are attained, providing a greatly improved construction.

I claim:

1. In a stamping press having a die and a punch movable relative thereto, said die being adapted to receive a sheet of material and to cooperate with said punch to stamp out of said sheet a plurality of blanks, means adapted to discharge the trim from said sheet under the die for subsequent removal, a corresponding plurality of hingedly mounted platforms, each of said platforms adapted to receive one of the stamped blanks, and means adapted to move said platforms, as the punch and die separate, into positions to discharge said blanks into different predetermined positions.

2. In a stamping press having a die and a punch movable relative to said die, said die being adapted to receive a sheet of material and to cooperate with said punch to stamp out of said sheet two blanks, means adapted to cut and to pass through said die the trim for subsequent removal thereof from under said die, two hingedly mounted plat-

forms arranged in said die and adapted to receive said blanks, respectively, as the same are stamped out, and fluid actuated means adapted to rotate said platforms into inclined positions, after the punch and die separate, in order to cause said blanks to slide off from said platforms toward two predetermined positions at different sides of said press.

3. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having one story adapted to support a stack of sheets to be fed one after another from the top of said stack onto the die and another story adapted to receive the stamped blanks, a movable member associated with said die and adapted to receive the stamped blank, and means for moving said member, when the punch and die separate, to discharge said blank onto said blank receiving story.

4. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having one story adapted to support a stack of sheets to be fed one after another from the top of said stack onto the die and another story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means for moving said platform into an inclined position, when the punch and the die separate, in order to discharge the blank onto said blank receiving story.

5. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die and a lower story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means controlled by said punch and adapted to move said platform into a position when the punch and die separate, to cause said blank to slide off from said platform and onto said lower story.

6. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die and a lower story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means controlled by said punch and adapted to move said platform into a position, when the punch and die separate, to cause said blank to be discharged from said platform onto said lower story, said lower story including a blank receiving movable platform, and fixed guide means substantially alining with said hinged platform when the same is in its discharging position.

7. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die and a lower story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means controlled

by said punch and adapted to move said platform into a position when the punch and die separate, to cause said blank to be discharged from said platform onto said lower story, said lower story including a removable blank receiving platform, guiding means adapted to be substantially aligned with said hinged platform when the same is in its discharging position, and impact absorbing means cooperating with said guiding means to receive the impact of the blank discharged from said guiding means.

8. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die and a lower story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means controlled by said punch and adapted to move said platform into a position when the punch and die separate, to cause said blank to be discharged from said platform onto said lower story, said lower story including a removable platform, a guiding platform substantially aligning with said hinged platform when the same is in its discharging position, said guiding platform being recessed to permit the blank to fall through onto said removable platform, and a blank arresting means adapted to stop the sliding blank when the same reaches a predetermined position on said guiding platform over said recess.

9. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die and a lower story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means controlled by said punch and adapted to move said platform into a position when the punch and die separate, to cause said blank to slide off from said platform and onto said lower story, said lower story including a removable platform, two connected guiding brackets arranged on the sides of said stand above said removable platform and forming in effect a guiding platform having a central recess to permit the blank to fall therethrough, and a shield arranged adjacent said guiding platform and adapted to receive the impact of the sliding blank.

10. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die and a lower story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means controlled by said punch and adapted to move said platform into a position, when the punch and die separate, to cause said blank to slide off from said platform and onto said lower story, said lower story including a removable platform, a guiding platform arranged in said stand and having a central recess to permit the blank to fall through onto said removable platform, and an oscillating shield arranged adjacent said guiding platform and

adapted to receive the impact of the sliding blank, and means for varying the position of said oscillating shield.

11. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a stand arranged adjacent said press and having a removable platform adapted to receive stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means adapted to move said hinged platform into an inclined position when said punch and die separate, causing said blank to be discharged from said platform onto said stand to be received by the removable platform thereof.

12. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp blanks of sheet material, a stand arranged adjacent said press and having a removable platform adapted to receive stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blanks, means for moving said hinged platform into an inclined position, when said punch and die separate, thereby causing said blank to be discharged from said platform, a rack mounted on said stand above said removable platform and adapted to be substantially aligned with the hinged platform of said press, when said last platform is in its discharging position, stop means on said rack for arresting said blank on said rack, and means for rotating said rack after the blank is arrested thereon for discharging said blank onto said platform and simultaneously turning it over.

13. In a stamping press having a die and a punch movable relative to said die, said punch and die adapted to operate simultaneously upon two blanks, two hinged platforms on said die and adapted to receive said blanks, means to rotate said platforms on their hinges in opposite directions into inclined positions, when the punch and die separate, for discharging said blanks in two opposite directions, two stands arranged at opposite sides of said press and adapted to receive said blanks as they are discharged, and means on one of said stands for supporting a stack of sheets to be fed one after another onto said die.

14. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp two blanks simultaneously, two hinged platforms on said die and adapted to receive the stamped blanks, means to rotate said platforms on their hinges in opposite directions into inclined positions, when the punch and die separate, for discharging said blanks in two opposite directions, a two story stand arranged adjacent said die and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said pile onto said die and a lower story adapted to align with one of said hinged platforms in the inclined position thereof to receive the stamped blanks as they slide off from said hinged platform, and a second stand adapted to receive blanks from the second hinged platform.

15. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp two blanks simultaneously, two hinged platforms on said die and adapted to receive said blanks as they are stamped out, means to rotate said platforms on their hinges in opposite directions into inclined positions, when the punch and die separate, for discharging said blanks in two opposite direc-

tions, a two story stand arranged adjacent said die and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die, and a lower story adapted to aline with one of said hinged platforms in the inclined position thereof to receive the stamped blanks as they slide off from said hinged platform, and a second stand adapted to receive blanks from the second hinged platform, said second stand including a blank receiving removable platform and blank overturning means arranged above said removable platform and adapted to overturn the blanks, as they are discharged from said hinged platform, and to place them in a stack on said removable platform.

16. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp two blanks simultaneously, two hinged platforms mounted in said die and adapted to receive the stamped blanks, means to rotate said platforms on their hinges in opposite directions into inclined positions, when the punch and die separate, for discharging said blanks in two opposite directions, a two story stand arranged adjacent said die and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said pile onto said die and a lower story adapted to aline with one of said hinged platforms in the inclined position thereof to receive the stamped blanks as they are discharged from said hinged platform, and a second stand adapted to receive blanks from the second hinged platform, said second stand including a blank receiving removable platform, a rack adapted to receive the blanks as they are discharged from said hinged platform, and fluid actuated means for turning said rack to overturn the blanks.

17. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp two blanks simultaneously, two fluid actuated hinged platforms mounted in said die and adapted to receive the stamped blanks, means to rotate said platforms on their hinges in opposite directions into inclined positions, when the punch and die separate, for discharging said blanks in opposite directions, a two story stand arranged adjacent said die and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said pile onto said die and a lower story adapted to aline with one of said hinged platforms in the inclined position thereof to receive the stamped blanks as they are discharged from said hinged platform, and a second stand adapted to receive blanks from the second hinged platform.

18. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp a blank, a two story stand arranged adjacent said press and having an upper story adapted to support a stack of sheets to be fed one after another from the top of said stack onto said die and a lower story adapted to receive the stamped blanks, a hinged platform arranged in said die and adapted to receive the stamped blank, and means adapted when the punch and die separate to move said platform into a position to cause said blank to be discharged from said platform and onto said lower story, said lower story including a removable platform, two hinged guiding brackets arranged on the sides of said stand above said

removable platform, counterbalancing means, for said brackets adapted to maintain said brackets in respective positions to support the blank as it slides from said hinged platform of the die, said counterbalancing means adapted to yield to the weight of the blank as the same reaches a predetermined position above said removable platform and to move for causing said blank to fall onto said removable platform.

19. In a press, a die, a punch movable relatively thereto for operating upon a blank, a workpiece supporting member permanently mounted to extend into position between said punch and die, and means for tilting said member to elevate a portion thereof lying between the punch and die into workpiece discharging position after separation of the punch and die thereby to cause the workpiece to slide from said member by gravity out from beneath said punch.

20. In a press, a die, a punch movable relatively thereto for operating upon a blank, a workpiece supporting member permanently mounted to extend into position between said punch and die, means for tilting said member to elevate a portion thereof lying between the punch and die into workpiece discharging position after separation of the punch and die thereby to cause the workpiece to slide from said member by gravity out from beneath said punch, and means for receiving the blank from said member and movable to overturn the blank.

21. In a press, a die, a punch movable relatively thereto for operating upon a blank, a pair of workpiece supporting members mounted to extend into positions between said punch and die, and means for tilting said members in opposite directions to elevate portions of said members lying between the punch and die into workpiece discharging positions after separation of the punch and die thereby to cause the workpieces to slide from said members by gravity out from beneath said punch at opposite sides of the press.

22. In a press, a die, a punch movable relatively thereto for operating upon a blank supported in said press, said die and punch having cooperating blank engaging means, a workpiece supporting member mounted to have a portion thereof extend into said press adjacent said means and beneath the punch, and means for tilting said member to elevate said portion of the member after separation of the punch and die to permit the workpiece to slide from said member by gravity out from beneath said punch.

23. In a press, a die, a punch movable vertically relative thereto for operating upon a blank supported in said press, said die and punch having cooperating blank engaging means, a pair of workpiece supporting members permanently mounted to have portions thereof extend into said press adjacent said means and beneath the punch, and means for tilting said members in opposite directions to elevate said portions of the members after separation of the punch and die to permit the workpieces to slide from said members by gravity out from beneath said punch at opposite sides of the press.

24. In a press, a die, a punch movable vertically relative thereto for operating upon a blank, a workpiece supporting member mounted to extend into position between said punch and die, means for tilting said member to elevate a portion thereof lying between the punch and die into workpiece discharging position after sep-

aration of the punch and die thereby to cause the workpiece to slide from said member by gravity out from beneath said punch, and means for rendering said tilting means inoperative during operation prior to separation of the punch and die. 5

25. In a stamping press having a die and a punch movable relative to said die, said punch and die cooperating to stamp simultaneously two

blanks, two hingedly mounted platforms arranged to have portions thereof extending permanently between the punch and die and adapted to receive the stamped blanks, and means adapted to swing said platforms to elevate said portions above the die as the punch and die separate to cause said blanks to be discharged from said platforms by gravity.

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