J. H. GIESKE.

SUPERPRESS NUMBERING MACHINE.

APPLICATION FILED OCT. 4, 1918.

1,324,248.

Patented Dec. 9, 1919.

3 SHEETS—SHEET 1.

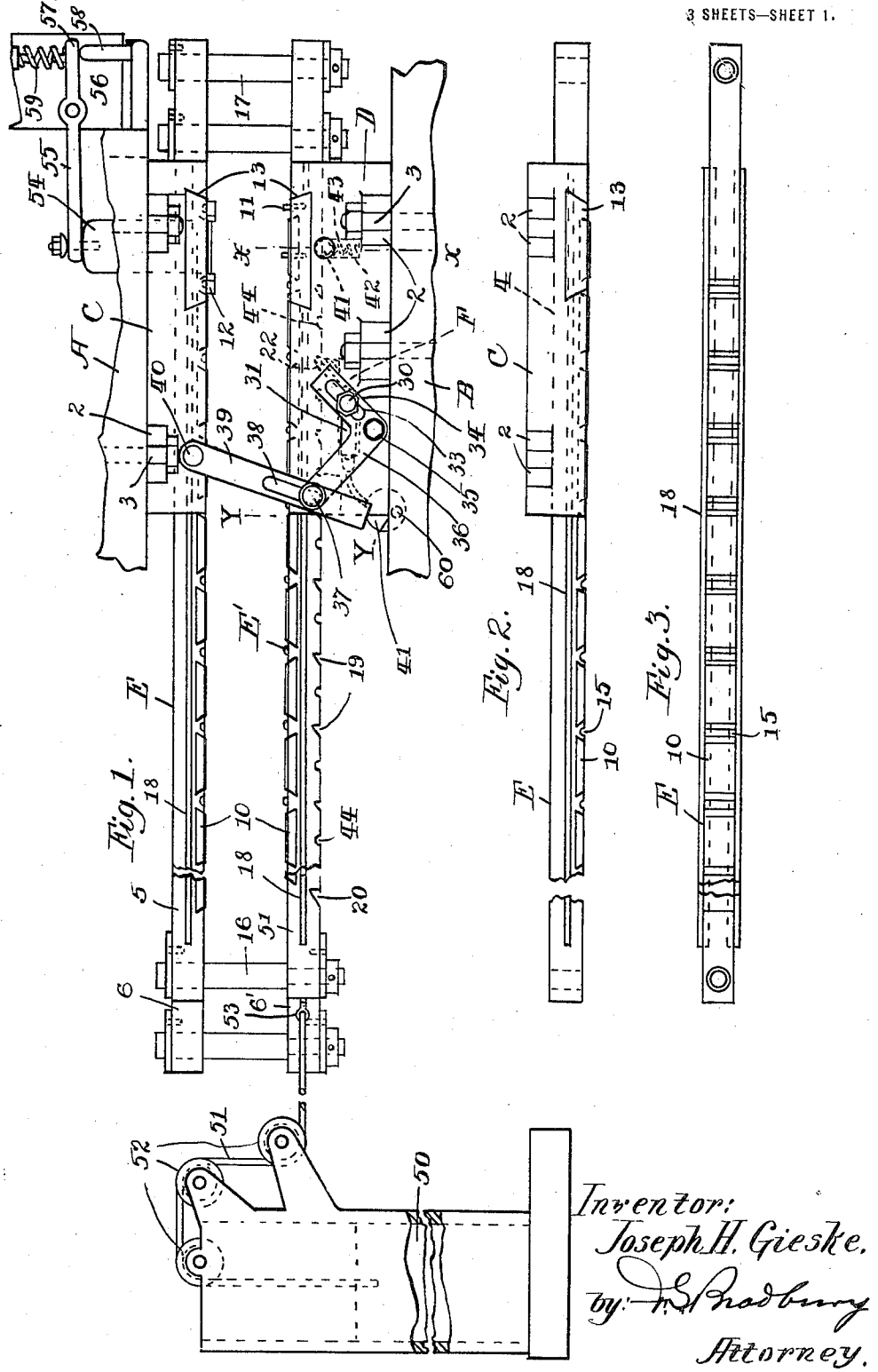


Fig. 1.

Fig. 2.

Fig. 3.

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3 SHEETS—SHEET 2.

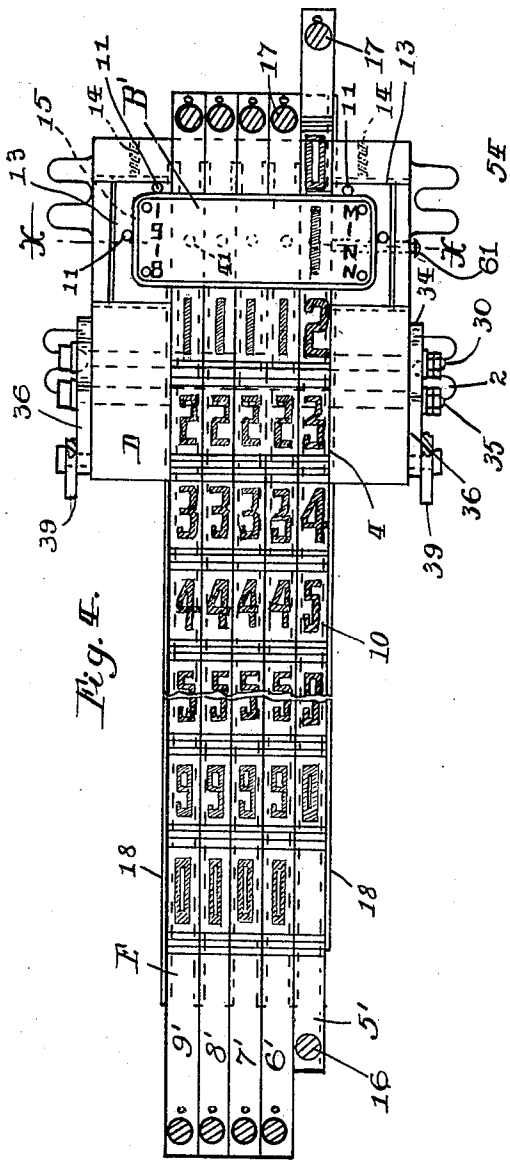


Fig. 4.

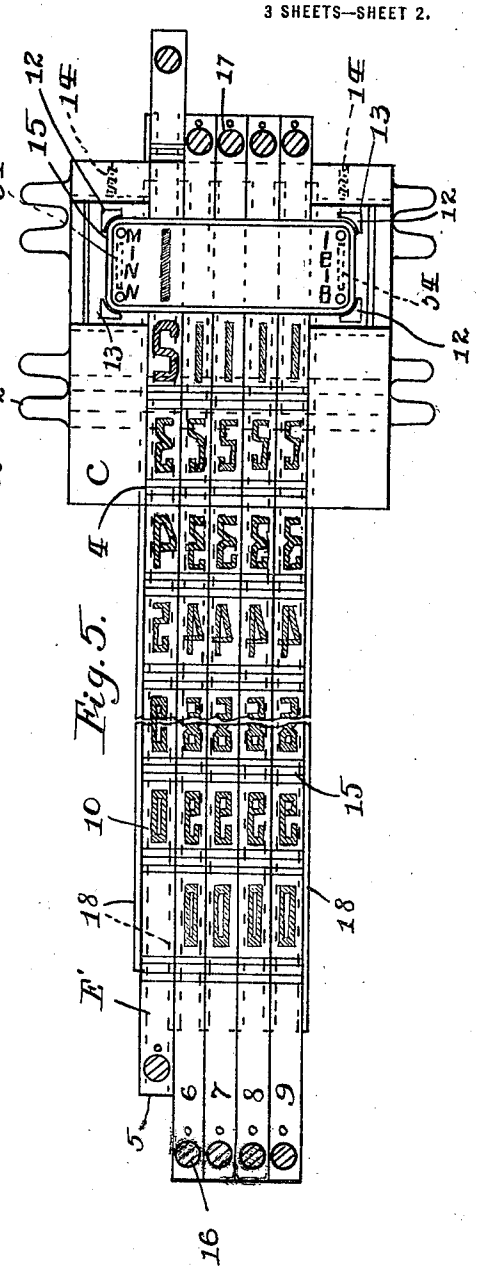


Fig. 5.

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3 SHEETS—SHEET 3.

Fig. 6.

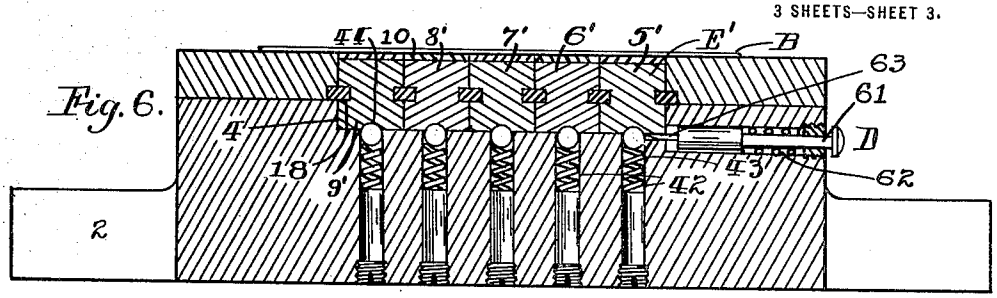


Fig. 7.

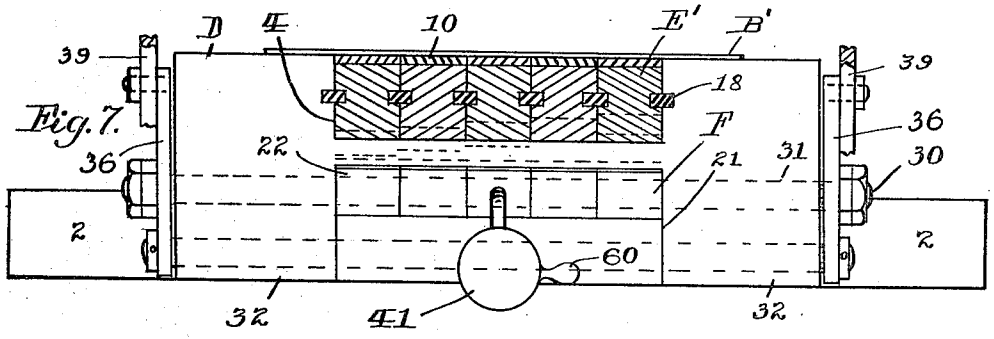


Fig. 10.

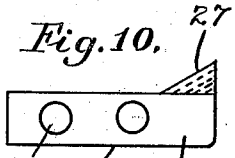


Fig. 11.

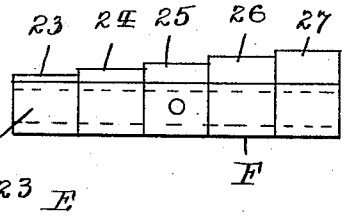


Fig. 9.

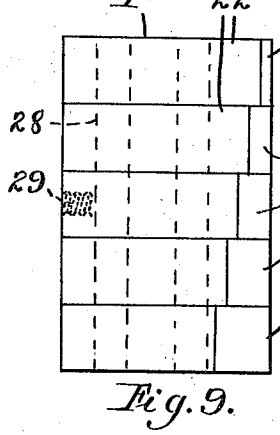
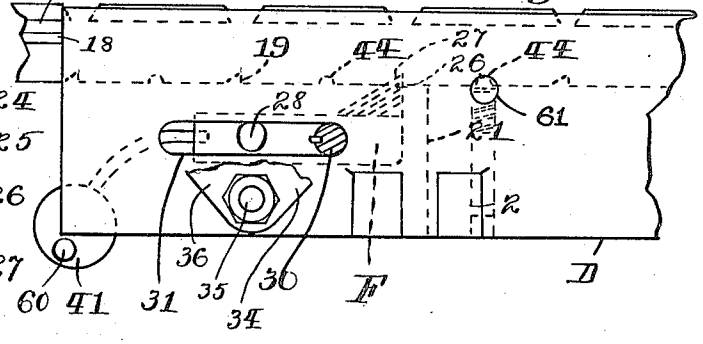


Fig. 8.



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UNITED STATES PATENT OFFICE.

JOSEPH H. GIESKE, OF ST. PAUL, MINNESOTA, ASSIGNOR OF ONE-HALF TO PHILLIP A. F. SMITH, OF ST. PAUL, MINNESOTA.

SUPERPRESS NUMBERING-MACHINE.

1,324,248. Specification of Letters Patent. **Patented Dec. 9, 1919.**

Application filed October 4, 1918. Serial No. 256,921.

To all whom it may concern:

Be it known that I, JOSEPH H. GIESKE, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Superpress Numbering-Machines, of which the following is a specification.

The primary object of this invention is the production of an automatic numbering subpress, which is particularly adapted for the manufacture of numbered tags such as are commonly employed as license tags on vehicles and for other purposes.

More particularly the invention reduces any chance of mistakes and accidents occurring in the manufacture of numbered tags and relieves the operator of responsibility of changing number dies by hand. The invention also facilitates the efficient production of numbered tags at less expense than heretofore and reduces the danger to a minimum of any harm occurring to operators in the manufacture of tags. The invention is equally applicable for use in manufacturing tags or plates having either raised or embossed surfaces or sunken impressions and when made out of any suitable material such as brass, aluminum, fiber, steel, iron, etc. The invention is particularly although not necessarily adapted for use in a press of ordinary construction having a reciprocable movement or stroke of a ram, which for convenience I have termed a super-press or power press. For further convenience I have termed my invention a sub-press for use in conjunction with said super-press. The sub-press is adapted to receive its movement and compressing power from the super-press on which it is bolted or otherwise secured between compressing members and is adapted to complete substantially five operations in one, namely, numbering, embossing, shearing, punching and stripping.

Among further objects are simplicity of construction and greater effectiveness in use than heretofore.

To these ends my invention comprises the features of construction and combination of parts hereinafter more particularly described and claimed.

In the accompanying drawings forming part of this specification, Figure 1 is a side elevation of my invention, detail portions of the compressing members of a super-press being illustrated between which my invention is positioned and shown attached for use; Fig. 2 is a side elevation of one of the numbering slide dies arranged in one of the bolsters; Fig. 3 is a plan of the slide die illustrated in Fig. 2; Fig. 4 is a top plan of the lower bolster and its connected set of numbering slide dies showing the pilot pins in sections and a vehicle tag in position thereon after it has been completed; Fig. 5 is a bottom plan of the upper bolster and its connected set of numbering slide dies showing the pilot pins in section and a vehicle tag in position after it has been completed; Fig. 6 is a cross section taken substantially on the line X—X of Fig. 4, and a corresponding line X—X in Fig. 1; Fig. 7 is a section taken substantially on the line Y—Y of Fig. 1 looking at the forward end of the bottom bolster; Fig. 8 is a side elevation of a detail of the bottom bolster and a portion of the lower set of numbering slide dies, a portion only of the bell crank operating lever being illustrated; Fig. 9 is a top plan view of the feed dog by which the numbering slide dies are stepped forwardly in the bolsters; Fig. 10 is a side elevation of the feed dog, and Fig. 11 is a front end view of the feed dog.

For convenience in illustrating and describing my invention, I have shown detail portions of two reciprocable compressing members A and B of a super-press which may be of any usual construction, the members illustrated being adapted for reciprocable movement either one or both being movable toward or away from each other, the compressing action imparted thereby being adapted to operate my improved tag numbering die for cutting and forming tags B′ out of sheet metal or other suitable material with raised or depressed numbers, figures or designs as desired.

My invention includes in its mechanism a pair of upper and lower bolsters C and D, which are in the form of plates made of metal or out of any suitable material, which for convenience are provided with pairs of lugs 2 on their sides through which bolts such as 3 are fastened to secure the bolsters in proper position upon the compressing elements A and B. These bolsters are positioned one directly above the other with an intervening space in which the tag blanks from which the tags such as B′ may

be placed in position to properly register with the dies. The lower and upper faces respectively of the upper and lower bolsters are formed with longitudinal passage ways or grooves 4 in which sets or clusters of numbering die slides E and E′ are assembled, the upper group E as illustrated being five in number, arranged side by side to slide in the corresponding passage 4 and the lower set E′ being of corresponding number and arrangement, there being a unit's slide 5, a ten's slide 6, a hundred's slide 7, a thousand's slide 8 and a ten thousand's slide 9 in the upper group and a corresponding unit's slide 5′, ten's slide 6′, hundred's slide 7′, thousand's slide 8′ and ten thousand's slide 9′ in the lower group. The lower and upper faces respectively of the upper and lower unit's slides are arranged vertically one above the other, and this same arrangement follows, in connection with the pair of ten's, hundred's, thousand's and ten thousand's slides. All of these die members are of substantially the same length. The lower faces of the upper group of slides and the upper faces of the lower group of slides are provided with numbering die plates of hard material running consecutively as follows: 1, 2, 3, 4, 5, 6, 7, 8, 9, 0, from one end of the slide to the other, said die plates 10 being secured by dove tailing the die plate tightly into and across the face of the slide as illustrated. Each group of corresponding numeral die plates is arranged with its members situated side by side in alinement when the slides are normal, that is, all of the numerals 1 will be arranged in alinement transversely and all of the numerals 2 in the same manner, etc., there being a blank space left at the forward ends of the slides before the slides start on their operating career through the machine. The die plates referred to in each pair of corresponding upper and lower slides are of male and female formation, so that in the compressing operation of the compressors A and B, the metal of each tag is either embossed or formed with depressed characters or designs. At the position in which the tag plates B′ are embossed and cut in the machine suitable guide pins 11 are arranged, by which the tag blank may be properly positioned to be formed and cut. The bolster elements are also provided with cutting elements 12, which together with pins 11 are carried by die plates 13 which are dove-tailed and secured into the bolster elements and fastened by set screws 14. Suitable rim forming die elements 15 are also provided for forming the rim portion of the tag. These cutting and die elements are of usual character and merely coöperate in the cutting and stamping of the tag with my improved features of construction.

Each pair of upper and lower numbering slide die members is provided with a pair of pilot pins 16 and 17 disposed at the opposite ends of each pair, said pins being permanently secured to the lowermost slide, such as 5′ and slidably secured to the corresponding upper slide, so that the pair of slides may close and are accurately guided together during the compression stroke of the compressing member A of the superpress. These pilot pins cause each pair of numbering slide dies to move together longitudinally in the passage 4 of each bolster, so that when the slide dies close together their die plate members 10 will register accurately. The numbering slide die members of the lower group are feathered together and in the corresponding bolster member by the feather or key elements 18, this method of slidably securing the numbering slide dies being employed in connection with both the lower and upper bolsters.

Each of the lower numbering slide die members is provided with a series of notches 19 across its lower surface, there being one ratchet tooth notch for each ordinal of the die members 10 in the surface of the slide. These notches correspond in all of the lower slides, that is the notches for all of the same ordinals are in alinement across the lower surfaces of the lower slides when all of the slides are in starting position. All of these ratchet notches are of equal depth, excepting the last ratchet notch 20 in each slide corresponding with the ten or naught ordinal. This notch is of greater depth for purposes to be hereinafter described. The lower portion of the lower bolster is formed with a longitudinal opening 21, (see Fig. 7) in which is placed a ratchet feed dog F which is in the form of five block members 22 of substantially similar shape, excepting that their forward ends when the block members are arranged side by side in corresponding position have ratchet teeth 23, 24, 25, 26, and 27 which increase in height successively. The block members 22 are mounted on a supporting bar 28, the middle block member being secured thereto by the set screw 29. The block members are also secured to a shaft 30, which is journaled and slidably supported in slot 31 extending longitudinally through the side portions 32 of the lower bolster. One end of the shaft 30 extends through a guide slot 33 (see Fig. 1) in the arm 34 of a bell crank, the angle portion of which is pinioned by the pin 35 on one side of the lower bolster. The power arm 36 of the bell crank is secured by the pin and slot connection 37 and 38 to an operating arm 39, which is pivotally secured by the pin 40 to the upper bolster member C. This bell crank and operating arm with connections are duplicated on both sides 2 of the bolsters. This mechanism is so arranged that each time the compression members A

and B approach one another during a compression movement of the press, the ratchet dog is reciprocated backwardly in the lower bolster, one of its teeth moving from engaging position with one notch reëngaging a slide in a succeeding notch. The outer end of the ratchet dog is urged down by a weight 41, which causes this reëngagement to transpire and permits the dog to tilt from engaging position into reëngaging position. After reëngaging the slide and during the raising or opening movement of the compressing elements of the super-press, the bell crank and operating arms 39 cause the ratchet dog to push the reëngaged slide forwardly a step until a next succeeding die plate is moved into registering position to emboss a tag plate, which is next placed in position in the die with a succeeding number. As each numbering slide plate reaches embossing position with the number plates registering to emboss a tag plate, a depressible spring holder automatically engages the slide plate, which has been moved, and tends to hold it in registering position. Said holder comprises a ball 41 and a compression spring 42 both seated in a well or cavity 43 in the lower bolster there being one of the holders described placed below each slide. The depressible ball 41 is forced downwardly out of engagement with a slide during the thrust movement of each slide, but automatically reëngages the slide in a cup or notch 44 in the lower surface of the slide below each number die. When the last die plate, namely the ten's die, is about to be moved into operating position in the lower bolster, that is the position in which a pair of corresponding die members will form and cut a tag B′ in the machine, the highest shoulder member 27 on the ratchet dog will enter the deep change number notch 20 in the slide, which has been previously moved and the next lower shoulder 26 on the ratchet dog will then engage the notches 19 and act upon the ten's number slide die element and step it forwardly a notch. Likewise the shoulder member 26 on the ratchet dog will enter a deep seated notch 20 in the ten's slide at the end of its series of number dies and below the zero die. This same operation is repeated by the ratchet dog on all of the number die slides until the ten thousand's slide has been operated. It will be noted that the depth of the notch 20 in all of the slides is equal or greater than the height of the highest shoulder 27 on the ratchet dog. The pair of unit number die slides is moved forward against tension to more positively cause the ratchet dog to reengage the slide in stepping it forward, said tension being produced by a weight 50 connected by a cable 51 traveling over sheaves 52 and secured to the lower slide by the eye bolt 53, and not sufficient to move the slide from being held by the bolster 41 automatically. It is not necessary to employ the tension mentioned to successfully operate my invention and the same can be dispensed with if desired and the slide returned by hand. A plunger pin 61 depressible under tension of spring 62 seated in the side of the bolster B has a blade 63 which when the pin is depressed moves the bolster 41 out of engagement with the slide 5′ thus relieving the slide and allowing it to be returned by the weight 50 into starting position and until the head of its pilot pin 17, strikes the end of the bolster D. The outer end of pin 61 projects from the side of bolster D convenient so that the operator can depress same by hand. The invention can also be provided when desired with an ejector 54 in the form of a plunger reciprocably disposed through the upper bolster C and the die plates 13, in position over the tag plate to free the tag plate from the upper die member after each embossing and cutting operation. This ejector 54 is urged downwardly a short distance below the face of the upper die member by a rocker arm 55 pivotally supported between its ends upon a stationary support 56 and situated with an operating arm 57 over a movable stop 58 carried by the compressing member A. A compression spring 59 serves to raise the ejector 54 with its lower surface above or even with the surface of the upper die member when the compression member A descends. It is obvious that any number of numbering die slides may be used according to the number of tags to be made. For instance if 10,000 tags are to be made the subpress constituting my improved change number die mechanism would have five double slides connected together by their pilot pins, or if 100,000 tags are to be made six double slides will be employed. The numerals on the die slides are so positioned that the consecutive number to be embossed on the tag plate is in the center of the die proper, and the bolster for embossing the edges of the tag will be centralized around the figures or numerals. In this position as before stated, the depressible holding balls 41 engage and tend to hold the slides in proper registering position and from further unintentional movement. If a tag of five numerals is to be made, the length and width of the tag is determined allowing for drawing and shrinkage. The blank is then cut on the square shears to size and placed within the group of guide pins 11 of the bottom die member. The operator then steps on the usual pedal of the super-press, which has a drop in its shaft equal to the distance from one numeral to the other of the pairs of corresponding die members. As the ram or upper compressing element A moves down, the operating members 39 and 36

which are connected to the top and bottom bolsters of the sub-press slides the ratchet dog member F back until one of its shoulders engages in the next succeeding notch 19 whereupon the slides so engaged during the succeeding upward stroke of the compression member A is stepped forward and moves the succeeding pair of numeral dies to registering position for operating upon the tag blank which is placed thereon in registering position with the pins 11. The plate which has been embossed by the compression movement of the die members is knocked off of the upper die member by the ejector 54 when the ram or upper compression member reaches the upper end of its stroke. If the slide which has been stepped forwardly in the manner stated reaches a position with its ninth die couple in registering position for operation, the dog will then engage by its proper shoulder the next succeeding companion die slide due to the deep change number slot 20 being entered by the shoulder of the dog which has previously stepped a die slide ahead. The plunger 61 is then depressed by hand to release the unit's slide back into starting position. This operation then repeats until another ninth movement is reached whereupon another change transpires. In this manner the engagement of the dog moves from one slide to another every ten, hundred, thousand and ten thousand change of the dog and compression members. If it is desired to repeat any number at any time, that is emboss a plurality of tag plates with the same number, the ratchet dog can be held from reëngaging the slide which has previously been engaged by lifting the weight 41 by the handle member 60.

In accordance with the patent statutes, I have described the principles of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the construction shown is only illustrative, and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:

1. In combination with a super press having a pair of compressible elements, a subpress comprising a pair of bolsters mounted upon said compressible elements, a plurality of pairs of slidable dies, each pair being coupled together, said dies being mounted in said bolsters for transverse movement simultaneously in the same direction between said compressible members and movable to reciprocate with said compressible members, and ratchet mechanism adapted to successively step said dies by the reciprocation of and across said compressible elements to place a succession of die surfaces in die forming position.

2. In combination with a super-press having a pair of compressible elements, a subpress positioned between said compressible elements having a series of changeable die elements, and means for stepping said die elements by the reciprocation of said compressible elements to successively arrange different parts of said series in changeable die forming position between said compressible elements.

3. In combination with a super-press having a pair of compressible elements, a subpress comprising a plurality of pairs of slidable dies, each pair being coupled together, said slidable dies being slidably mounted for transverse movement simultaneously in the same direction between said compressible members and movable to reciprocate with said compressible members and means movably coupled to said compressible elements for stepping said dies to successively change the forming position of their surfaces between said compressing elements.

4. In combination with a super-press having a pair of compressible elements, a subpress comprising a pair of bolsters mounted upon said compressible elements, a plurality of pairs of dies, the dies of each pair being coupled together, said dies being slidably mounted in said bolsters for transverse movement simultaneously in the same direction between said compressible members and movable to reciprocate with said compressible members, and ratchet mechanism adapted to successively step by a sliding movement the die elements and by the reciprocation of and across said compressible elements to place the die surfaces successively in die forming position.

5. In combination with a super-press having a pair of compressible elements, a subpress comprising a pair of bolsters mounted upon said compressible elements, a plurality of pairs of dies, the dies of each pair being coupled together, said dies being slidably mounted in said bolsters for transverse movement simultaneously in the same direction between said compressible members and movable to reciprocate with said compressible members, and ratchet mechanism adapted to successively step by a sliding movement the die elements and by the reciprocation of and across said compressible elements to place the die surfaces successively in die forming position, and means for releasably holding the die elements at the end of each step when a die surface is in die forming position.

6. In combination with a super-press having a pair of compressible elements, a subpress comprising a bolster secured to one of said compressible elements, a series of unit's,

ten's, hundred's, etc., number slides movably mounted in said bolster to slide longitudinally side by side, each of said slides having a plurality of die forming number elements moving in consecutive order from one to ten, and a series of ratchet teeth, a ratchet dog reciprocably disposed in said bolster and movably connected to one of said compressible elements to be reciprocated thereby, said dog having a series of teeth varying successively in height, there being one tooth of a predetermined height adapted for engagement with a corresponding slide of the group, and means actuated by said compressible elements for reciprocating said dog to step said slides across said bolster, said slides having a change number opening at the end of its series of ratchet teeth corresponding with the ten's number die element thereof adapted to admit the corresponding dog tooth and permit the succeeding dog tooth to engage the rack teeth of and step the adjacent slide in a direction across said bolster.

7. In combination with a super-press having a pair of compressing elements, a sub-press comprising a pair of dies coupled together and slidably mounted for transverse movement simultaneously in the same direction between and movable to reciprocate with said compressing elements and means for automatically stepping said dies in a direction across said compressing elements to periodically change the character forming position of their surfaces.

8. In combination with a super-press having a pair of reciprocable compressing elements, a sub-press comprising a plurality of pairs of dies the members of each coupled together and slidably mounted for transverse movement simultaneously in the same direction between said compressing elements, and means for automatically stepping said dies across said compressing elements to successively change the character forming position of their surfaces in synchronism with the movement of said compressing elements.

9. In combination with a super-press having a pair of reciprocable compressing elements, a sub-press comprising a plurality of pairs of die couples slidably mounted for transverse movement simultaneously across said compressing elements, adapted for reciprocating with the said compressing elements and means for automatically changing the character forming position of said die couples in synchronism with the operation of said compressing elements.

In testimony whereof, I have signed my name to this specification.

JOSEPH H. GIESKE.